February 2006

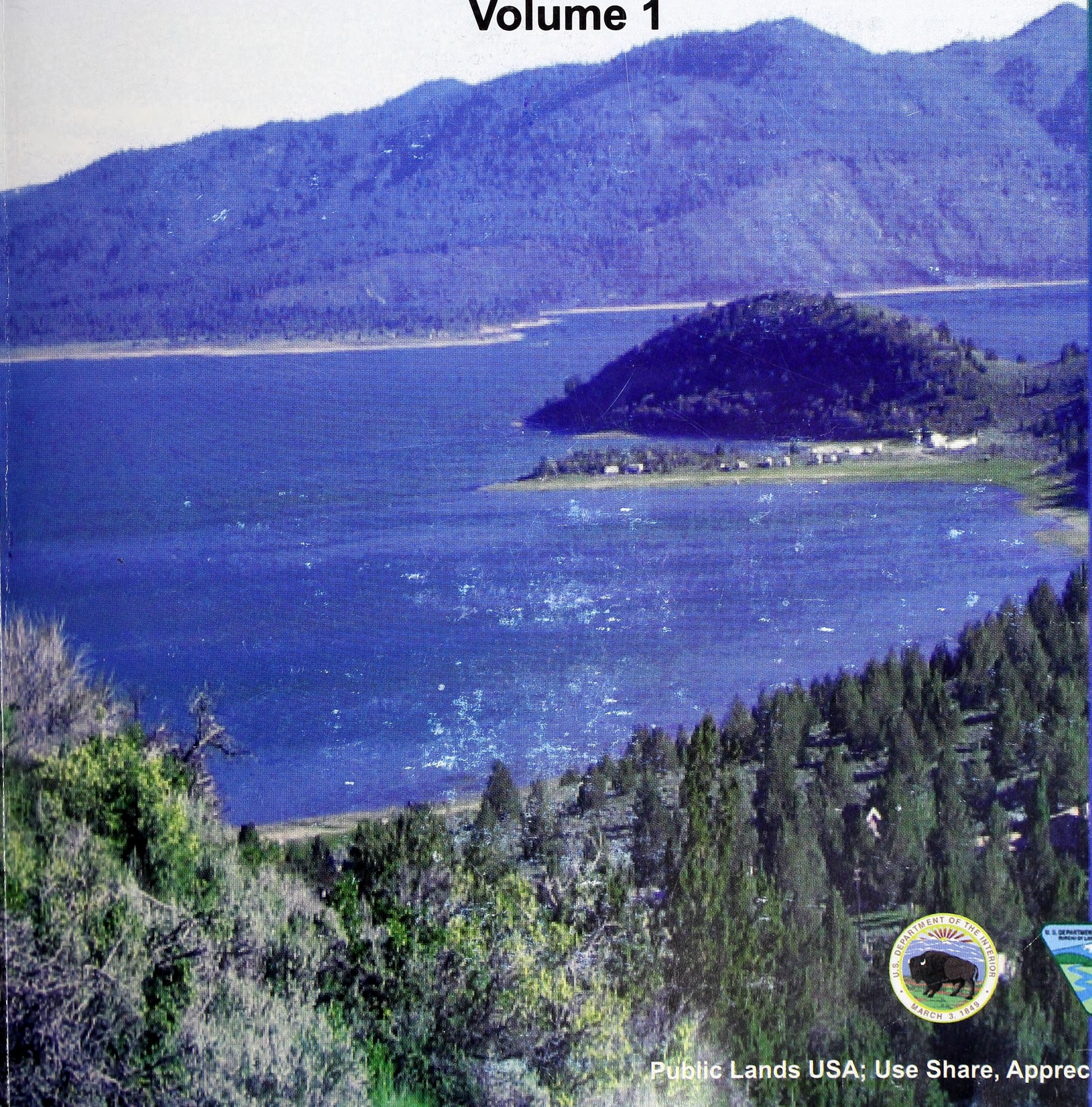
BLM

Bureau of Land Management

Eagle Lake Field Office

Draft
Resource Management Plan and Environmental Impact Statement

Volume 1



Public Lands USA; Use Share, Appreciate

The Bureau of Land Management Today

Our Vision To enhance the quality of life for all citizens through the balanced stewardship of America's public lands and resources.

Our Mission To sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

Our Values To serve with honesty, integrity, accountability, respect, courage, and commitment to make a difference.

Our Priorities To improve the health and productivity of the land to support the BLM multiple-use mission.

To cultivate community-based conservation, citizen-centered stewardship, and partnership through consultation, cooperation, and communication.

To respect, value, and support our employees, giving them resources and opportunities to succeed.

To pursue excellence in business practices, improve accountability to our stakeholders, and deliver better service to our customers.

BLM/CA/ES-2006-005+ 1790-1600

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Eagle Lake Field Office
2950 Riverside Drive
Susanville, CA 96130
(530) 257-0456
FAX: (530) 257-4831
www.ca.blm.gov/eaglelake

Dear Reader:

Enclosed for your review and comment is the Draft Resource Management Plan (DRMP) and Draft Environmental Impact Statement (DEIS) for the Bureau of Land Management's (BLM) Eagle Lake Field Office. This document was prepared by the BLM in concert with eight cooperating agencies, as well as from public comments received during the scoping phase of this planning effort.

The geographic planning area includes BLM managed public lands within the counties of Lassen, Plumas and Sierra, California, and Washoe, Nevada. The overall intent of this RMP is to develop a comprehensive management strategy that will guide the management of public lands administered by the Eagle Lake Field Office into the future. This RMP replaces ten former land use plans into a single, unified Eagle Lake Field Office RMP.

A Reader's Guide is included to help you navigate through the chapters of this document, and is located directly after the Abstract. BLM is interested in seeking your comments on the adequacy and accuracy of all five proposed alternatives and the analysis of their respective management decisions. The Proposed RMP/Final EIS, which is the next phase of the planning process, could select various aspects of each of the alternatives as the management strategy that best meets the needs of the many resources and values being planned for in this area.

The announcement in the Federal Register that the Eagle Lake Draft Resource Management Plan and EIS is available will start a 90-day public comment period during which members of the public are encouraged to review the document and provide comments. During this period, comments may be submitted using several methods:

Written comments should be sent to:

Eagle Lake RMP Comments
Attention: Planning Coordinator
Bureau of Land Management
Eagle Lake Field Office
2950 Riverside Drive
Susanville, California 96130

E-mail comments to:

necarmp@ca.blm.gov

Comments may also be made electronically at: www.ca.blm.gov/eaglelake

Comments, including names and addresses of respondents, will be available for public review at the BLM Eagle Lake Field Office, 2950 Riverside Drive, Susanville, California 96130, during normal business hours (8:00 a.m. to 4:30 p.m., except weekends and holidays). All submissions from organizations or businesses will be made available for public inspection in their entirety. Individuals may request confidentiality with respect to their name, address, and phone number.

If you wish to have your name or street address withheld from public review, or from disclosure under the Freedom of Information Act, the first line of the comment should start with the words "CONFIDENTIALITY REQUESTED" in uppercase letters in order for BLM to comply with your request. Such requests will be honored to the extent allowed by law. Comment contents will not be kept confidential.

BLM would like to thank our cooperating agency partners that have worked so hard to help us complete this document. They have provided support and expertise to facilitate focusing the issues and developing alternatives to help resolve the many compelling resource concerns that face the Eagle Lake Field Office. We would like to particularly recognize Lassen and Washoe Counties, the U.S. Fish and Wildlife Service, California Department of Fish and Game, Nevada Department of Wildlife, Nevada and California State Historic Preservation Offices, and Susanville Indian Rancheria as cooperating agencies on this document. Their experience and dedication has made this a better process and BLM looks forward to continuing to work with them to complete this planning effort. We also extend thanks to those individuals and organizations that have provided extensive information and many excellent ideas that have been considered during this process.

Sincerely,

Dayne Barron
Field Manager
Eagle Lake Field Office

EAGLE LAKE FIELD OFFICE

DRAFT RESOURCE MANAGEMENT PLAN
AND
ENVIRONMENTAL IMPACT STATEMENT

EAGLE LAKE FIELD OFFICE
SUSANVILLE, CALIFORNIA

United States Department of the Interior
Bureau of Land Management
California State Office

Approved:

Mike Pool
State Director

February 2006

EAGLE LAKE FIELD OFFICE
DRAFT RESOURCE MANAGEMENT PLAN/ ENVIRONMENTAL IMPACT STATEMENT

[X] Draft Environmental Impact Statement [ ] Final Environmental Impact Statement

Department of Interior, Bureau of Land Management

Type of Action: [X] Administrative [ ] Legislative

Abstract:

This Draft Resource Management Plan/Draft Environmental Impact Statement describes and analyzes the impacts of five alternatives for managing the public lands administered by the Eagle Lake Field Office in northeast California and northwest Nevada. The alternatives provide management recommendations to guide the multiple use management of all resources. Proposed areas of critical environmental concern, suitable wild and scenic river segments, and cultural resource management areas are also recommended.

Comments:

Comments on this document are requested from all interested and/or affected agencies, organizations, and individuals. Comments must be received within 90 days of the Federal Register notice of availability. Comments being mailed must be post-marked by close of business on the 90th day.

For further information contact:

Planning Coordinator
Bureau of Land Management
Eagle Lake Field Office
2950 Riverside Drive
Susanville, California 96130
(530) 257-0456
FAX (530) 257-4831

Readers' Guide

Introduction

The Eagle Lake Draft Resource Management Plan (RMP)/Environmental Impact Statement (EIS) is divided into 5 chapters, and includes maps (of the planning area and the different management approaches considered), an executive summary, appendices, a glossary and acronyms list, and a bibliography.

Executive Summary

The Executive Summary addresses the entire document and highlights the key issues brought forth in the planning process.

Chapter 1

Chapter 1 identifies the purpose and need for the plan, defines the planning area, and explains public participation in the planning process. This chapter identifies the planning criteria used as guidelines influencing all aspects of the process. These guidelines are based on law, regulation, and policy. Also included in this chapter is a description of the involvement of state, local, federal governments and tribal agencies. The issues developed through public participation and the planning processes are described herein.

Chapter 2

Chapter 2 (Description of the Alternatives) presents the various management strategies for achieving the desired range of conditions. There is also an overview of the alternatives and a description of the theme of each alternative. Five alternatives are identified with different intensities of resource uses and management directions to resolve identified conflicts and achieve the desired range of conditions. The alternatives in this Draft RMP/EIS are designed to provide general management guidance in most cases. Specific projects for a given area or resource will be detailed in future activity plans or site-specific proposals developed as part of interdisciplinary project planning or other means. These plans and processes address more precisely how a particular area or resource is to be managed and additional National Environmental Policy Act (NEPA) analysis and documentation would be conducted as needed.

An *Alternatives Summary Table* is included in this chapter. This table provides the reader a general summary of the key management actions within the alternatives. For a complete description of each alternative, the reader must refer to the text of Chapter 2 under each resource subject.

An *Impacts Summary Table* is also included at the end of Chapter 2. This table provides the reader a comparison summary of the main adverse and beneficial impacts that would result from implementing the various alternatives.

Chapter 3

Chapter 3 (Affected Environment) provides an overview of the planning area and describes the existing situation for each of the resource programs. It describes both the biological and physical components that may be affected by the alternatives. Other components of the environment that will not be affected by the proposed actions such as climate are also described. Current management direction is briefly summarized for each program.

Chapter 4

Chapter 4 (Environmental Consequences) analyzes the beneficial and adverse effects of the alternatives. There are assumptions at the beginning of each specific resource programs to help guide the reader through the thought process. At the end of the analysis of each resource subject a summary of the effects is provided, along with a discussion of the cumulative effects.

Chapter 5

Chapter 5 summarizes key events in the consultation and coordination process prior to and during preparation of the Draft RMP/EIS. It also lists those agencies, organizations, and individuals who were contacted or provided input into the planning process. Also listed are the technical specialists and editors who prepared this plan.

EXECUTIVE SUMMARY

Introduction

The Bureau of Land Management (BLM) has prepared this Draft Resource Management Plan (RMP) and Environmental Impact Statement (EIS) to provide direction for managing public lands within the Eagle Lake Field Office planning area and to analyze the environmental effects resulting from implementing the alternatives addressed in this Draft RMP.

The Eagle Lake Field Office includes approximately 1,022,767 acres of BLM-managed surface acres in northeastern California and northwest Nevada. The geographic area includes all BLM managed public lands within the counties of Lassen, Plumas, Sierra, California, and Washoe, Nevada. BLM's mission is to sustain the health, diversity, and productivity of the public lands it manages for the use and enjoyment of present and future generations. The Eagle Lake Draft RMP was developed in coordination with the Alturas and Surprise Field Office RMPs to provide a consistent framework for managing public lands and resource uses in northeast California and northwest Nevada.

The RMP is being prepared using BLM's planning regulations and guidance issued under the authority of the Federal Land Policy and Management Act (FLPMA) of 1976. An EIS is also included in this document to meet the requirements of the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality regulations for implanting NEPA (40 Code of Federal Regulations 1500-1508), and requirements of BLM's NEPA Handbook, H-1790-1.

Purpose and Need

The purpose of the Eagle Lake Resource Management Plan (RMP) is to provide guidance in the management of the lands and resources administered by the Eagle Lake Field Office of the BLM that will address major resource issues identified during scoping, and through internal and cooperating agency meetings. The Eagle Lake RMP is meant to be comprehensive in nature, providing guidance for management of all uses and resources administered by BLM in the planning area.

Current management direction for the Eagle Lake Field Office is contained in ten land use plans or amendments that were developed from 1973-2002. New information, changed circumstances and resource conditions since these plans were prepared require the revision of these existing plans into a single updated RMP.

Population growth from the metropolitan areas of Reno, Nevada, and Redding, California, has increased the demand for use of public lands to support community needs and to provide recreation for a variety of uses. In addition to traditional consumptive uses, public interest has expanded in uses that emphasize aesthetic values such as open space and low-impact recreational opportunities. Changes in the type of recreation uses and the demand for diversified recreational opportunities can result in conflicts between uses and resource concerns that the old land use plans were not designed to address. Concerns include how these uses affect ecosystem health; local communities; and state, regional, and tribal interests.

Vegetation communities continue to be threatened by both the encroachment of western juniper into sagebrush-grasslands and from the invasion of annual exotic grasses and noxious weeds. The number of plant and animal species recognized by California and Nevada as special-status species has increased. In addition, the decline of sage-grouse populations in the western United States has triggered BLM national, state, and local strategies with new guidance to address habitat requirements of the species.

New protocol agreements between BLM and State Historic Preservation Offices guide the protection, inventory, and conservation of cultural resources as they relate to other resources and land uses. Emphasis is being placed on finding and managing traditional cultural properties in accord with local tribes.

Planning and Scoping Process

BLM officially initiated the planning process for the Eagle Lake Resource Management Plan (RMP) with publication of a Notice of Intent in the *Federal Register* on July 22, 2003 (Volume 68, Number 140). Issues related to resource management in the Eagle Lake planning area were assembled during the scoping process consisting of public scoping meetings, field tours, socioeconomic workshops, and interactions with federal, state, tribal, and county collaborators.

BLM hosted six public scoping meetings in August and September 2003. A total of 205 people attended these meetings. Four meetings were held within the planning area. Other meetings were held in Redding, California, and Reno, Nevada, to ensure that BLM heard the concerns of user groups residing outside the planning area. BLM also conducted a scoping meeting in the field in August 2003. A community workshop was conducted to discuss economics and social values in December 2003.

The scoping process generated 15 key issues to be addressed in the RMP. These issues, listed below, and summarized in Chapter 1, were used to develop alternatives and are addressed in other sections of the resource management plan (e.g. effects on local economies).

1. **How should upland ecosystems be managed?**
2. **How will forestry issues be managed, and how will forest resources be utilized?**
3. **How will water resources be managed and utilized?**
4. **How will visual resources be managed and preserved?**
5. **How should riparian areas and wetlands be managed?**
6. **How will wildland fire and prescribed fire be managed and utilized?**
7. **How should vehicular access and travel be managed on public lands?**
8. **How should the public lands be managed to sustain the traditional practices and traditional cultural properties of Native American cultures?**
9. **How should the public lands be managed to meet the needs of local communities?**
10. **How will grazing and rangelands be managed?**
11. **What lands are available for energy and mineral development?**
12. **What lands will be identified for retention, exchange, disposal and acquisition?**
13. **How will recreation opportunities be managed?**
14. **How will fish, wildlife, and special status species be managed?**
15. **How should special resource values and special management areas be designated and managed?**

Collaboration

BLM approaches planning with community-based collaboration, in which interested groups and people–often with varied or opposing interests–work together to devise solutions with broad public support for managing BLM-administered lands. Cooperating local, state, tribal, and federal agencies have been part of the planning team for the RMPs to the fullest extent possible. During plan implementation BLM will continue partnerships with these public and local, state, and tribal governments and agencies to select high priority projects and to resolve emerging issues.

The Council of Environmental Quality defines a cooperating agency as any agency that has jurisdiction by law or special expertise for proposals covered by National Environmental Policy Act (NEPA) (40 CFR 1501.6). Any federal, state, or local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency. The following are formal cooperating agencies for this RMP:

- Lassen County, California;
- Washoe County, Nevada;
- U.S. Fish and Wildlife Service;
- California Department of Fish and Game;
- Nevada Department of Wildlife;
- Nevada and California State Historic Preservation Offices; and
- Susanville Indian Rancheria.

The Northeast California Resource Advisory Council (RAC) contributed issues and reviewed goals, objectives, and management alternatives. Other groups that participated in the planning process include California Department of Forestry and Lassen National Forest.

Management Alternatives

The Bureau of Land Management (BLM) developed management alternatives for the Eagle Lake Field Office Draft Resource Management Plan using input and comments from public scoping meetings, written comments, as well as from staffs of BLM and other cooperating agency partners. National Environmental Policy Act (NEPA) regulations and BLM resource management planning regulations require the formulation of a reasonable range of alternatives that seek to address identified planning issues and management concerns. Each alternative must be evaluated to ensure that it would be consistent with resource goals and objectives, and current laws, regulations, and policy.

Alternatives are developed to establish a framework to evaluate the potential impacts on the planning area that might occur as a result of implemented management decisions. The five management alternatives developed for the Eagle Lake RMP are detailed in this section, including:

No Action Alternative (required by NEPA): Retains current management through guidance and direction from current policies, and existing management plans.

Alternative 1. Resource / Economic Development: Emphasizes commodity production from BLM resources in accordance with local economies and land use plans from local communities and counties.

Alternative 2. Ecosystem Restoration or Protection: Maximizes efforts to maintain, restore, or improve components of the ecosystem using natural ecosystem processes.

Alternative 3. Traditional or Historical Uses: Emphasizes traditional community uses of resources and/or emphasizes historical uses and values.

Preferred Alternative: The Preferred Alternative was "crafted" from all of the other alternatives and combines management actions from all four of the above listed alternatives. This alternative has been designed and selected to best meet the purpose and need of the plan as described in Chapter 1; and to meet desired future conditions, goals, and objectives of individual and combined resources and resource uses.

Each alternative listed above has a somewhat different concept and emphasis on how natural resources and resource uses would be managed. The Eagle Lake Draft RMP provides a detailed description of alternative management actions for 22 resource subjects. The desired future condition, goals, objectives, and management actions for each major resource area are discussed in detail in Chapter 2. The highlights of management actions under the Preferred Alternative for each resource subject are listed below.

Preferred Alternative Management Actions

Air Quality

- **Manage prescribed fires and wildland fire use (0–14,839 acres per year) to reduce impacts to air quality.**

Cultural and Paleontological Resources

- **Designate and manage 19 important cultural sites as Cultural Resource Management Areas.**
- **Designate two archeological areas of critical environmental concern.**
- **Implement management plan for one National Historic Trail.**

Energy & Minerals

- **Manage 388,594 acres as 'Open' to mineral leasing under standard terms and conditions.**
- **Manage 1,014,361 acres as 'Open' to locatable minerals.**
- **Manage 634,002 acres as 'Open' to saleable minerals.**

Fire Management

- **The NorCal Fire Management Plan identifies aggressive, full suppression as the appropriate management response (AMR) under conditions of severe fire intensity, especially in the wildland urban interface. However, exceptions may be made where resource objectives could safely be achieved.**
- **Under conditions of low fire intensity, a less aggressive AMR, such as containment/confinement, would be implemented in previously identified areas likely to benefit from wildland fire use.**
- **Manage wildland fires using the Appropriate Management Response (AMR):**
    - **Full suppression AMR - 282,304 acres**
    - **Full range of AMR suppression options - 730,124 acres**
    - **Wildland Fire Use - 10,339 acres**

Forestry Resources

- **Manage 11,020 acres as commercial forest using a mix of silvicultural methods.**
- **Rehabilitate 773 forested acres burned in the Willow and Devil fires.**
- **Manage 1,332 acres along the Biz Johnson Trail for wildfire defense by employing commercial and pre-commercial thinning.**
- **Harvest trees and biomass from 1,100 forested acres per year.**
- **Implement fuels reduction in the Tunnison Wilderness Study Area (1,734 acres).**
- **Manage commercial forests in Upper Murrer Meadows for preservation of wildlife habitat and late seral stages in addition to commercial harvest.**

Fuels Management

- **Implement fuels treatments through prescribed fire and mechanical, chemical and biological methods to reduce build-up of hazardous fuels, provide fuel breaks, and create defensible space in communities at risk.**
  - **Prescribed fire – 0 - 4,500 acres per year**
  - **Mechanical treatment – 500 - 3,500 acres per year**
  - **Biological treatment – 50 - 1,500 acres per year**
  - **Chemical treatment – 50 - 500 acres per year**

Lands and Realty

- **Prioritize acquisition of lands with important resource values and to improve public access.**
- **Prioritize disposal of lands with no significant resource values that are difficult to manage.**

Rights of Way

- **Consider new major communications sites and wind energy authorizations on a case-by-case basis.**
- **Designate and prioritize the Alturas Transmission Line Route (Western Regional Corridor Study) as a right of way corridor.**
- **Avoid or exclude authorization of rights-of-way in all special designation areas.**

Livestock Grazing

- **Maintain livestock grazing within 54 allotments, resting 60%-80% of total allotments annually.**
- **Authorize 52,250 Animal Unit Months annually.**
- **Maintain 987,779 acres open to livestock grazing, resting 80%-90% of total grazing lands annually.**
- **Maintain and construct 2,000- 2,500 acres of exclosures to protect sensitive resources.**
- **Manage and rehabilitate existing seedings for livestock forage on 3,000-4,000 acres and prioritize new seedings on a case by case basis.**
- **Implement strategies to progress towards meeting land health standards.**

Recreation and Visitor Services

- Manage 848,620 acres of land outside of special recreation management areas as extensive recreation areas.
- Manage three existing special recreation management areas under the provisions of their current management plans.
- Designate two new special recreation management areas totaling 108,557 acres.
- Provide accessible camping opportunities for disabled visitors at all developed campgrounds in compliance with federal law.
- Limit camping to 14 consecutive days and 28 days annually.
- Prohibit camping within 200 feet of creeks, rivers, lakes and reservoirs unless posted otherwise. Enforce additional buffers near guzzlers at the following five Lassen County wells: Butte, Shaffer, Tableland, Table Mountain, and Belfast.
- Designate 7 additional scenic byways to promote recreational sightseeing.
- Apply restrictions to energy and mineral development to protect recreation experiences.
- Close the Bizz Johnson Trail to snowmobile travel accept for emergency and administrative use.
- Acquire the Modoc Line Railroad corridor for recreational use.
- Develop a management plan for Honey Lake Valley Rim Trail and provide public access to the shoreline.
- Develop hang glider launch areas in hills north of Wendel.
- Apply Recreation Opportunity Spectrum (ROS) classes to all lands to provide a diversity of recreational experiences:

Backcountry	675,335 acres
Roaded Natural	109,497 acres
Primitive	237,953 acres

Soils

- Implement practices to promote recovery of 113,236 acres of upland soils not meeting Standards for Rangeland Health.
- Ensure all management activities result in no net loss of soil mass or productivity within the management area.
- Consumptive uses and developments would be restricted to soils which are considered unproductive or most suitable for construction purposes.
- Minimize management activities within perennial and intermittent drainages where watershed function would be adversely affected.
- Implement soil protection practices that emphasize mitigation, natural recovery and bio-engineering. Use of additional restoration practices would be employed where natural recovery efforts are not sufficient.
- Employ bio-engineering projects to improve soil condition and achieve proper functioning condition (PFC).
- Apply sediment intrusion buffer zones >50 feet around sensitive resources on a case-by-case basis.

- **Implement mitigation actions to offset soil and productivity losses within the same sixth-level watershed area (conceptually 10,000 – 40,000 acres).**

Special Area Designation: *Areas of Critical Environmental Concern (ACECs)*

- **Designate seven new ACECs totaling 89,397 acres:**
    - **Eagle Lake Basin – 34,320 acres**
    - **Susan River – 2,495 acres**
    - **Pines Dunes Research Natural Area – 2,887 acres**
    - **Willow Creek – 2,130 acres**
    - **Lower Smoke Creek – 894 acres**
    - **Buffalo Creek Canyons – 36,515 acres**
    - **North Dry Valley – 10,156 acres**
- **Livestock grazing would be managed according to permit stipulations, allotment management plans, and ACEC management plans.**
- **Noxious weeds would be aggressively controlled in all ACECs.**
- **An approved plan of operation is required for locatable minerals in an ACEC; other restrictions may apply for leasable or salable minerals. Where ACECs overlap WSAs, further constraints on mineral activities apply under the Wilderness IMP.**

Special Area Designations *Historic Trails*

- **Develop a management plan for 38 miles of the Nobles Emigrant Trail to include inventory, interpretation and protection.**
- **Initiate inventory and interpretation of six additional historic trails.**
- **Secure public title or access to abandoned railroad grades.**
- **Designate Buffalo Creek Canyons and Lower Smoke Creek as scenic and historic ACECs.**

Special Area Designations *Wild & Scenic Rivers (WSR)*

- **Recommend portions of Upper Smoke Creek as suitable for designation as a Wild and Scenic River, with *wild* classification.**

Special Area Designations *Wilderness Study Areas (WSA)*

- **Prioritize acquisition of land parcels within all WSAs on a willing-seller basis.**
- **Establish Recreation Opportunity Spectrum (ROS) primitive areas within all WSAs.**
- **Close 91 miles of selected routes within ROS core primitive areas.**
- **Construct 68 miles of non-motorized/non-mechanized routes within selected WSAs.**

Travel Management

- Manage 1700 miles of GPS-inventoried routes in the field office area.
- Routes closed or not designated through this RMP or subsequent amendments would be closed and rehabilitated.
- Implement designated route network modification criteria for changes in designation, new route construction, route realignment, route closures, rehabilitation or obliteration.
- Permanently close 59 miles of routes, and implement seasonal closures at Cleghorn Access Road, Tablelands and Horse Lake Areas.
- Assign off-highway vehicle use area designations:

○ Open	419	acres
○ Limited to designated routes	760,837	acres
○ Closed	261,511	acres

- Construct up to 15 miles of new motorized routes.
- Construct 277 miles of non-motorized routes in selected special management areas.
- Manage boating on Biscar Reservoir and the Susan River for human-powered watercraft only.
- Manage boating on Round Corral and Buckhorn Reservoirs for human- powered watercraft and low speed trolling motors.

Utilities, Transportation, and Telecommunications

- Wilderness study areas would be designated as rights-of-way avoidance or exclusion zones. All proposals must meet non- impairment criteria which prohibit permanent facilities unless they are grandfathered, have valid existing rights, or provide access to private inholdings.
- Corridor width would be a minimum of 2000 feet unless adjacent to exclusion areas.

Vegetation

- Maintain vegetation alliances, associations, and ecological sites rated as “healthy”. Restore those rated as “healthy/lacking key attributes” and those rated as “at risk”.
- Grazing areas with vegetation alliances, associations and ecological sites rated as “unhealthy” would be closed until restoration is complete. Selected shrub sites would be rested from livestock grazing every two years to promote viable seed production.
- Prioritize restoration of sagebrush–steppe communities on 500 – 4000 acres/year.
- Restore native grassland communities on 50 – 100 acres/year.
- Vegetation communities encroached by invasive juniper would be treated using prescribed fire, mechanical, chemical, and manual treatments. Manage to conserve juniper on sites comprised of woodland soils.
- Restore Wyoming and mountain big sagebrush ecosystems containing sage-grouse habitat.
- Use locally gathered native seed when re-seeding.

Noxious Weeds & Invasive Species

- Implement integrated weed management (IWM) procedures on all BLM lands. Review all project proposals to determine necessary IWM actions and coordinate treatment with local agencies.
- Conduct inventory of noxious weeds.
- Monitor treatment sites to determine effectiveness and effects on non-target species.
- Increase public understanding of noxious weeds and their effects through education.

Riparian/Wetland Associations

- Continue riparian photo studies to document changes in vigor and function.
- Protect riparian areas from grazing damage by constructing exclosures, fencing and alternative water sources.

Special Status Plants

- Manage all special status species habitats and populations so that BLM actions do not contribute to the need to list these species as federally threatened or endangered.
- Reduce or eliminate impacts to special status species and their habitat when conducting ground disturbing activities.
- Acquire lands from willing sellers that support unprotected populations of special status plants.
- Provide additional protection measures to 'special interest' species to prevent them from becoming listed as special status plants.

Visual Resources

- Manage all wilderness study areas as VRM Class I.
- Assign VRM Inventory Class designations to all BLM-administered lands, and manage lands according to these class requirements, to protect scenic quality:

VRM Class I	0 acres (WSAs not listed to avoid duplication of acres)
VRM Class II	507,843 acres
VRM Class III	442,028 acres
VRM Class IV	72,896 acres

Water Resources

- Achieve measurable progress toward proper functioning condition (PFC) or desired future condition (DFC) on 37 miles of perennial and intermittent streams and 59 acres of riparian/wetland areas.
- Implement restorative measures to improve water quality and progress toward meeting state standards. Emphasize natural recovery processes, grazing exclosures, planting of woody riparian vegetation and construction of in-stream structures.
- Uses will not be restricted as long as they do not impede the restoration of state water quality standards or riparian health objectives.
- Prioritize restoration efforts on Smoke, Shoals, Cottonwood and Red Rock Creeks.
- Maintain existing water sources and manage to promote wildlife habitat, improve distribution of livestock and wild horses, and provide for recreational uses.

- **Prioritize development of new water sources to extend seasonal water availability for wildlife, and to benefit desired ecosystems.**
- **Withdraw state-appropriated water rights on waters that are not 'waters of the state'.**
- **Assert in-stream flow rights in Nevada and riparian rights in California on all perennial and important intermittent streams.**
- **Projects that involve inter-basin transfer of water would be coordinated with local and regional governments.**

Wild Horses and Burros

- **Manage wild horses within three established herd management areas (HMAs), on 828,569 acres.**
- **Conduct censuses on at least one of three HMAs annually.**
- **Prioritize selection of animals returned to BLM-administered lands after gathers based on historical traits.**
- **Maintain populations within established appropriate management levels (AMLs) by conducting regular gathers.**
- **Conduct fertility research and control to assist in maintaining populations at AMLs.**
- **Develop facilities for public viewing, education and wild horse adoptions.**

Wildlife and Fisheries

Federally Listed Species

Carson Wandering Skipper

- **Conduct surveys to determine habitat suitability and cooperate as a partner in recovery plans.**

Bald Eagle

- **Conduct population surveys and implement seasonal protection measures.**
- **Develop GIS information system for nesting, roosting and foraging areas.**
- **Manage suitable forest habitat to retain potential nest trees.**

Lahontan Cutthroat Trout

- **Cooperate with California Department of Fish and game on local planting of hatchery stock and related habitat issues.**

Yellow Billed Cuckoo and Oregon Spotted Frog

- **Contribute to survey efforts and develop action plan if populations are found on BLM administered lands.**

Wildlife and Fisheries

State and BLM Listed Sensitive Species

- **Cooperate with partners to obtain information on species occurrence, abundance and distribution. Develop a GIS database to document and track information.**
- **Manage suitable habitat to retain forest characteristics for California Spotted owls.**

Wildlife and Fisheries
Ungulates

- **Control cheatgrass, invasive juniper and noxious weeds to improve habitat conditions.**
- **Use plantings, seedings, willow thinning and other vegetation treatments to maintain and improve terrestrial and aquatic habitats.**
- **Develop GIS system to manage information for habitat use areas, herd management areas and hunting zones**
- **If Rocky Mountain elk populations become established in the field office area, coordinate with state wildlife agencies and other partners, including livestock operators, to develop and implement management plans.**
- **Upon voluntary surrender of local domestic sheep grazing permits, coordinate with state wildlife agencies and other partners to develop a reintroduction plan for California bighorn sheep.**

Wildlife and Fisheries
Sagebrush Ecosystems and Sagebrush Obligate Species

- **Implement the *Conservation Strategy for Sage-Grouse and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit.***
- **Reduce invasive juniper and noxious weeds, implement seasonal protection measures and buffer zones, and timber and fuels treatments to maintain and improve habitat.**
- **Avoid practices that permanently convert sagebrush habitat to non-native grassland or agricultural land.**

Wildlife and Fisheries
Other Native Wildlife Species

- **Manage migratory birds in accordance with the *Migratory Bird Treaty Act and Migratory Bird Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds.***
- **Follow BLM policy, guidelines, current conservation plans, memorandums of understanding (MOUs) and best management practices (BMPs) in the management of species and habitats.**
- **Coordinate reintroductions, augmentations and translocations of native species with state wildlife agencies.**
- **Build brush piles for upland game birds where cover is insufficient.**
- **Develop 'watchable wildlife' opportunities and develop interpretive programs.**

Wildlife and Fisheries
Native and Non-Native Fish and Aquatic Species

- **Improve streams and springs not in proper functioning condition (PFC), and maintain native fish-bearing streams in proper water quality and riparian function.**
- **Restore and rehabilitate streams by maintaining or improving minimum pool depths, increasing clean spawning gravels and stabilizing stream banks.**
- **Coordinate with state agencies when implementing management actions, including the planting of fish in suitable waters.**
- **Coordinate with local county fish and game commissions and sportsmen's groups to determine management priorities and enhancement opportunities.**

Wildlife and Fisheries
Non-Native Terrestrial Species

- **Manage, control or eliminate non-native species in cooperation with state plans and other applicable conservation plans.**

Environmental Consequences

The potential environmental consequences (or impacts) of the five alternatives were analyzed for each natural resource, resource use, and social and economic conditions. Detailed descriptions of the direct and indirect impacts of resource management under all five alternatives are provided in Chapter 4, along with a discussion of the possible cumulative impacts that could result from actions taken in this RMP. A comparison summary of these impacts is described in the Impacts Summary Table in Chapter 2.

The Preferred Alternative would enhance the ability of BLM to achieve the purpose and need of this document, as outlined in Chapter 1, as well as meet desired future conditions, goals and objectives of specific resources as outlined in Chapter 2. Alternatives 1, 3 and No Action lack the degree of management emphasis required to restore degraded sagebrush steppe communities and habitats, in relation to the encroachment of juniper.

The Preferred Alternative would result in overall minor to moderate adverse impacts to resources, and these impacts would continue to be mitigated. Management actions under the Preferred Alternative would result in moderate to major beneficial impacts to native vegetation communities from restoration efforts, and the use of prescribed fire to remove invasive juniper. Improvements to riparian areas, water bodies, and other special habitats would improve soil and water resources, and wildlife habitat. The designation of seven areas of critical environmental concern, one wild and scenic river, and an increased emphasis on cultural resource protection and management would have beneficial impacts to these important and unique resources.

TABLE OF CONTENTS

VOLUME 1

Chapter 1. Purpose and Need

Chapter 2. Alternatives

Chapter 3. Affected Environment

Chapter 4. Environmental Consequences

Chapter 5. Consultation and Coordination

List of Tables

List of Maps

TABLE OF CONTENTS

VOLUME 2

Appendixes

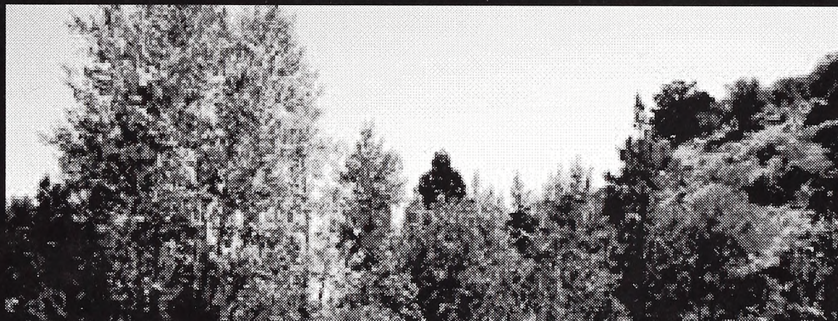
Maps (28" x 28")

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

BLM MISSION

To sustain the health, diversity, and productivity of the public Lands for the use and enjoyment of present and future generations.

Chapter 1: PURPOSE AND NEED



Chapter 1. Purpose and Need

1.1 Purpose and Need for the Plan

The purpose of this planning effort is to develop a resource management plan (RMP) that will provide overall management and long-term direction for the public lands and resources administered by the Eagle Lake Field Office of the Bureau of Land Management (BLM). This RMP is being developed in accord with the Federal Land Policy and Management Act of 1976, as amended (FLPMA). FLPMA requires BLM to "develop, maintain, and, when appropriate, revise land use plans which provide by tracts or areas for the use of the public lands" (43 USC 1712 [a]). Typically BLM uses a period of 15-20 years as a basis for impact analysis. An RMP may be amended or revised at any time to reflect changed circumstances or new information.

The Eagle Lake Field Office Draft RMP was developed in coordination with the Alturas and Surprise Field Office RMPs to provide a consistent framework for managing public lands and resource uses in northeast California and northwest Nevada. A resource management plan (RMP) documents broad-scale land use plan decisions for all resources and resource uses. The RMP determines which lands are open for certain uses, including any restrictions, and lands that are closed to certain uses. The decisions derived from the plan will guide later site-specific implementing of management actions. This RMP establishes the following:

- goals and objectives for resource management,
- measures needed to achieve goals and objectives, and
- parameters for using BLM-administered lands.

Current management direction for the Eagle Lake Field Office is contained in ten land use plans or amendments that were developed from 1973-2002. New information, changed circumstances and resource conditions since these plans were prepared require a single updated RMP.

Approval of an RMP is considered a major federal action with the potential to significantly affect the quality of the human environment (43 Code of Federal Regulations [CFR] Section 1601.0-6). BLM has prepared this draft resource management plan and environmental impact statement in accord with the Council on Environmental Quality (CEQ) regulations and BLM's own procedures for implementing the National Environmental Policy Act (NEPA). The EIS portion of the document analyzes the effects of planning alternatives for the Eagle Lake Field office. The RMP and EIS are integrated into this document and are not separate reports.

1.2 Changed Circumstances

Population growth in the vicinity of Reno, Nevada and Redding, California has caused an increased demand for use of public lands to support community needs and low impact recreation. The Eagle Lake Field Office has experienced an increase in requests for land tenure decisions or adjustments and for land use permits and authorizations, particularly those for renewable energy development.

In addition to traditional consumptive uses, public interest has expanded in uses that emphasize aesthetic values such as open space and low-impact recreational opportunities. Changes in the type of recreation uses and the demand for diversified recreational opportunities can result in conflicts between uses and resource concerns that the old land use plans were not designed to address. Concerns include how these uses affect ecosystem health; local communities; and state, regional, and tribal interests.

The number of plant and animal species recognized by California and Nevada as special-status species has increased. In addition, the decline of sage-grouse populations in the western United States has triggered BLM national, state, and local strategies with new guidance to address habitat requirements of the species. Vegetation communities continue to be impacted by both encroachment of western juniper into sagebrush-grasslands and from the invasion of annual exotic grasses and noxious weeds.

New protocol agreements between the BLM and the State Historic Preservation Offices of California and Nevada guide the protection, inventory, and conservation of cultural resources as they relate to other resources and land uses. Emphasis is being placed on finding and managing traditional cultural properties in accord with local tribes.

1.3 Planning Area

This resource management plan discusses two distinct geographic areas: 1) the Eagle Lake Field Office area boundary, and 2) BLM-administered lands within this boundary that are the basis for planning decisions within this RMP.

The Eagle Lake Field Office area encompasses 4,858,251 acres, not all of which is under BLM's management (Table 1-1, Figure 1-1). The planning and decision area for resources and resource uses within this RMP refers to the 1,022,767 surface acres of public lands within the field office boundary, which are under BLM jurisdiction. These lands vary from small, scattered parcels to large, contiguous blocks. Management decisions in this RMP will apply only to these lands.

Table 1-1 Land Ownership in the Eagle Lake Planning Area

Ownership	Acres
Bureau of Land Management	1,022,767
Indian land	1,791
Military	82,894
National Park Service	35,836
Private	1,530,539
State	68,739
USDA Forest Service	2,115,685
Total	4,858,251

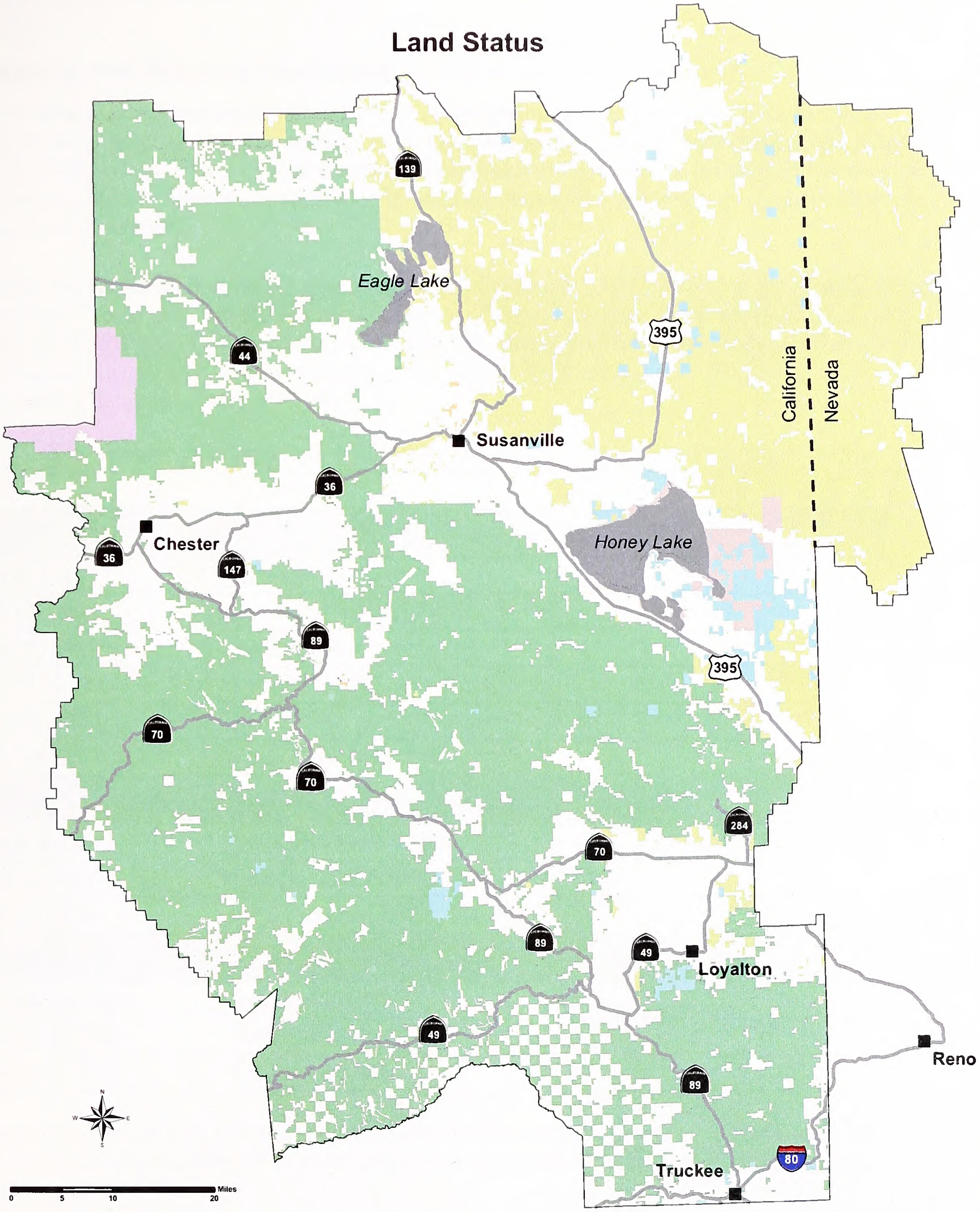
BLM-administered lands in the planning area are located in four counties: Lassen, Plumas and Sierra Counties in California, and Washoe, County, Nevada. (Table 1-2, Figure 1-1 Land Status).

Table 1-2 BLM-Administered Lands in the Four-County Eagle Lake Planning Area

County	Acres by County[a]
Lassen, CA	699,564
Sierra	3,417
Washoe	309,698
Plumas	10,088
Total	1,022,767

[a] All acreages are approximate.

Land Status



U.S. DEPARMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

LEGEND

- ■ Cities
- ▬ Highways
- ▨ Lakes

- 🟨 Bureau of Land Management
- 🟩 Forest Service
- 🟪 National Park Service
- 🟨 Bureau of Reclamation
- 🟩 US Fish and Wildlife Service
- 🟥 Military
- 🟦 State Lands
- 🟫 County / City / Regional
- 🟧 Indian Lands
- ⬜ Private
- 🟦 Water

1.4 Planning and Scoping Processes

Issues related to resource management in the Eagle Lake planning area were assembled during the scoping process consisting of public scoping meetings, field tours, socioeconomic workshops, and interactions with federal, state, tribal, and county collaborators. These issues, summarized below, were used to develop alternatives and are addressed in other sections of the resource management plan (e.g. effects on local economies).

BLM hosted six public scoping meetings in August and September 2003. A total of 205 people attended these meetings. Table 1-3. lists the dates and locations of these meetings. Four meetings were held within the planning areas. Other meetings were held in Redding, California, and Reno, Nevada, to ensure that BLM heard the concerns of user groups residing outside the planning area. BLM also conducted a scoping meeting in the field in August 2003.

Table 1-3 Public Scoping Meetings for the Surprise, Alturas, and Eagle Lake Planning Process

Date	Location
Scoping Meetings	
August 6, 2003	Cedarville, CA
August 13, 2003	Susanville, CA
August 20, 2003	Alturas, CA
August 27, 2003	Redding, CA
August 28, 2003	Reno, NV
September 10, 2003	Fall River Mills, CA
Field Tours	
August 9, 2003	Surprise Field Office
August 16, 2003	Eagle Lake Field Office
August 23, 2003	Alturas Field Office
Social and Economic Outreach Workshops	
November 20, 2003	Susanville, CA
December 2, 2003	Alturas, CA
December 3, 2003	Cedarville, CA

A community workshop was conducted to discuss economics and social values in November 2003. The workshop focused on presenting economic data and working with residents to arrive at a common understanding of the following:

- economic drivers of communities,
- local social values related to places and natural resources,
- community goals and visions, and
- BLM's role in the community.

1.5 Issues Raised During the Scoping Process

Summarized here are the comments and issues submitted to date and the issues identified by the BLM that will be addressed in the planning process.

Issue 1: ***How should upland ecosystems be managed?***

Vegetation has numerous values, both consumptive and non-consumptive, including wildlife habitat, wild horses, livestock grazing, forest products, and watershed protection. There is concern that resource use may be affecting the natural function and health of upland plant communities, soil productivity, and cultural resource site stability. The Northeastern California and Northwestern Nevada Standards for Rangeland Health and Guidelines for Livestock Grazing Management adopted by the Secretary of the Interior in July 2000 will help frame decisions in the RMPs. Management objectives are needed for upland vegetation, which will help determine allowable uses, treatment methods, and other activities.

Specific concerns that BLM will consider:

- Current health, ecological status, and trends of the various ecosystems and plant communities, including those lands subject to juniper encroachment and other invasive species and noxious weeds (cheatgrass, yellow starthistle, medusahead).
- Current status and condition of habitat needed to support guilds or suites of species, including threatened and endangered and special status species, neo-tropical birds, and species disjoint from their population center or at the edge of their range.
- Options to restore and maintain healthy native plant communities.
- A mix of consumptive and non-consumptive uses.
- Options to maintain or improve soil productivity and site stability.
- Potential vegetative treatments, including seeding, grazing, mechanical, herbicides, biomass harvesting, fuel wood harvesting, and prescribed burning.
- Appropriate management of wild horses and burros.
- Policies regarding use of toxic substances, including pesticides.
- Management of species with cultural significance.

Issue 2: ***How will forestry issues be managed, and how will forest resources be utilized?***

Forests have numerous values, both consumptive and non-consumptive. There is concern that resource use may be affecting the natural function and health of forest ecosystems and ecosystem components. Management objectives, which will help determine allowable uses, treatment methods, and other activities, are needed for forests.
Specific concerns that BLM will consider:

- Managing the resources to furnish a supply of forest products.
- Supporting traditional forestry uses.
- Maintaining healthy forests.
- Maintaining/enhancing habitat value/function of forests.
- Invasive and native juniper management.

Issue 3: *How will water resources be managed and utilized?*

Water quality and quantity in a region have far-reaching impacts on watershed health, ecosystem health, and the pursuit of various land or resource uses. There is concern that resource use, both within and outside of BLM's jurisdiction, may be affecting the quality and quantity of water in the area.

Specific concerns that BLM will consider:

- Protecting water quality and quantity.
- Making adequate water supplies available for domestic and commercial uses.
- Protecting existing water rights, and acquiring additional water rights.
- Use of water for power plant usage.

Issue 4: *How will visual resources be managed and preserved?*

Visual resources have a large impact on people utilizing land for recreation. There is concern that resource use may be affecting the quality of visual resources in the area.

Specific concerns that BLM will consider:

- Preserve visual nature of area while providing protection for the objects within the area and their identified uses.
- Reconcile uses (such as mining) with their potential visual impacts.
- Visual impact of the removal of junipers.
- Visual impact of man-made intrusions, including energy projects.

Issue 5: *How should riparian areas and wetlands be managed?*

Riparian and wetland vegetation provides the foundation for many resource uses on public lands, including habitat for wildlife and forage for domestic animals. Healthy riparian areas stabilize the soil, store water during spring, and release it throughout the year, prevent erosion, and improve water quality. There is a concern that resource uses may be affecting the natural function and health of riparian areas and wetlands.

Specific concerns that BLM will consider:

- Current health, ecologic status and trend of riparian/wetland plant communities.
- Current status of riparian and aquatic systems relative to habitat quality for and population status of fish, wildlife, plants and invertebrates.
- Options to maintain or improve soil productivity, and soil and cultural resource site stability.
- Restoration and rehabilitation of riparian areas to proper functioning condition.

- Options to meet BLM standards and to promote hydrologic recovery including:
    - Meeting State numeric, narrative, and non-degradation standards,
    - Meeting needs of aquatic assemblage of native species,
    - Meeting needs of other beneficial uses.

Issue 6: ***How will wildland fire and prescribed fire be managed and utilized?***

Wildland fire is recognized as having a vital role in the health of ecosystems in the planning area. It can also have significant impacts on the communities, economies, and infrastructures.

Specific concerns that BLM will consider:

- Fire history in the area, and its effect and anticipated fire trends.
- The role of fire in upland and riparian ecosystems.
- Appropriate fire management response.
- Fuels management and the use of prescribed fire.
- Wildland-urban interface considerations and the National Fire Plan.
- Using fire to restore natural ecological systems to their proper functioning conditions.
- Management of areas after fires (restoration).

Issue 7: ***How should vehicular access and travel be managed on public lands?***

Currently, public lands in the area are generally accessible by motorized vehicles to agency personnel for resource management, to commercial enterprise for permitted use or extraction of public resources, and to the general public for recreation and enjoyment of public lands. There is a need to balance access to public lands with resource management and protection.

Specific concerns that BLM will consider:

- Areas where off-highway vehicle (OHV) use, season of use, or the existing transportation system is in conflict with other goals and objectives.
- Appropriate area designations of open, closed, or limited OHV use and selection of routes of travel to meet goals and objectives.
- The extent and condition of existing roads and ways, including an analysis of road and trail expansion, both sanctioned and unsanctioned, in the recent past.
- Expansion, restriction, or reclamation of existing roads and trails.
- Implementation of a "closed unless posted open" policy for OHV access.
- Assessment of safety and stability of existing roads and trails.
- Acquisition of legal access to promote resource management and public use.
- Clear delineation of adopted roads and trails network and limitations or restrictions on use.
- Impacts from OHV activity on other resources.
  - Sensitive resources (e.g. water, cultural resources, sensitive plants or habitats),
  - Property,
  - Maintenance costs,
  - Health and safety.

Issue 8: ***How should the public lands be managed to sustain the traditional practices and traditional cultural properties of Native American cultures?***

Specific concerns that BLM will consider:

- Tribal consultation and input.
- Inventories of archaeological and cultural resources.
- Impacts to sites from land uses, including wild horses.
- Archaeological looting.
- Development of a Tribal consultation protocol.
- Management of traditional cultural properties and ethnographic sites, including rock art/petroglyph and other types of sites.
- Resource extraction.
- Future monitoring and partnerships.

Issue 9: ***How should the public lands be managed to meet the needs of local communities?***

The small communities which are associated with public lands in this area depend on public land resources for economic and social benefits.

Specific concerns that BLM will consider:

- Economic and social benefits to local and regional communities that are derived from the public lands.
- Management decisions supporting local/regional economies.
- Complement private uses rather than competing with private enterprises (e.g. camping).
- Benefits of biomass energy to community.
- The importance of these benefits to local and regional economies.
- Lifestyle and quality of life of local communities.
- Dependency of private ranch land on public land grazing and impacts from private land conversion.

Issue 10: ***How will grazing and rangelands be managed?***

Livestock and wild grazing animals have a large impact on the habitat that they occupy. There is concern that current grazing and range practices may be affecting the health and appearance of ecosystems in the area.

Specific concerns that BLM will consider:

- Providing adequate forage in planning area lands to support existing permit levels.
- Furnishing adequate infrastructure to support domestic animal grazing.
- Minimize increase of invasive, undesirable species, such as juniper.
- Management of rangeland resources to ensure healthy and ecologically sustainable communities, and to provide appropriate habitat elements for wildlife species.
- Current conditions and management situations in Herd Management Areas.
- Current Appropriate Management Levels for Herd Managcment Areas.
- Management of neighboring non-isolated Herd Management Areas as herd complexes.

Issue 11: ***What lands will be identified for retention, exchange, disposal and acquisition?***

Scattered tracts of public lands present throughout the area often complicate management or limit access or opportunity for enjoyment by the public. Opportunity exists to increase public benefits by disposing of some public lands through sale or exchange, or to acquire offered lands in areas which would enhance public enjoyment and facilitate resource management.

Specific concerns that BLM will consider:

- Public lands that are central or not central to BLM's mission or RMP goals and objectives.
- Isolated parcels of BLM lands and private in-holdings, especially in-holdings in WSAs.
- Effective management of isolated parcels.
- Existing rights-of-way and utility corridors.
- Extending/continuing trails from other areas and states, including historic trails such as the Applegate, Lassen, and Noble emigrant trails.

Issue 12: ***What lands are available for energy and mineral development?***

Potential for and interest in the development of renewable and non-renewable energy occurs across the planning area. Extraction of a variety of mineral materials occurs on public lands in the area and constitutes an important economic use of public land resources. Interest in decorative rock collection has also increased. Energy and mineral development may not be appropriate for all lands, such as those having special resource values.

Specific concerns that BLM will consider:

- BLM's potential participation in the licensing process for power plants on adjacent lands that may impact BLM lands.
- Potential for renewable energy, such as wind, geothermal, and biomass.
- Compatibility of energy and mineral development with other resource uses, goals, and objectives.
- Establishment of utility corridors.
- Migratory bird routes.
- Impacts of mining on ground and surface waters.
- Potential impacts of decommissioning hydroelectric facilities.
- Timing of permits for renewable energy sources to coordinate with ongoing resource uses.
- Using woodlands as sources of biomass.
- Reclamation issues.
- Dismantling unused poles to reduce avian roosting/resting sites.

Issue 13: ***How will recreation opportunities be managed?***

With the rapid population growth of urban areas in northeastern California and northwestern Nevada, the demand for recreation opportunities has increased substantially in recent years.

In addition, a significant shift in the demographics of these urban areas, as well as in some of the more rural small communities, has noticeably changed the types of recreation experience traditionally sought on public lands.

Specific concerns that BLM will consider:

- Current extent and nature of demand for recreational opportunities in the analysis area.
- Compatibility with adjacent land uses and resources.
- Impact of OHVs and other recreation uses on hunting, grazing, water quality, riparian ecosystem health, scenic quality, wilderness characteristics, and wildlife, as well as other resources and land uses.
- Management of trails to address OHVs, hiking, and horse riding.
- Management of user fees - Where will they be required? How will the fees be used?
- Master trail plan updates, integrations, extensions, etc.
- Integration of commercial recreation operations and opportunities with AELS resources.
- Changing demands for recreation on public lands:
    - Hang gliding.
    - Additional water sources.
    - Primitive camping.
    - Scenic driving.
    - Rock hounding.
    - Accessible to disabled populations.

Issue 14: ***How will fish, wildlife, and special status species be managed?***

Lands in the planning area are habitat for a range of fish, wildlife, and special status species. The habitat needs for healthy populations will be integrated into management decisions in the plan. Hunting and fishing activities are popular throughout the planning area as well and must be considered

Specific concerns that BLM will consider:

- Habitat needs of special status species, including species listed as threatened or endangered by the US Fish and Wildlife Service.
- Habitat needs of fish and wildlife in the planning area.
- Importance of habitats on BLM lands to overall populations.
- Management of domestic livestock while considering wildlife needs.
- Implementation of population monitoring plans.
- State agency populations of interest.
- Demand for hunting and fishing.
- Interest in reintroduction of bighorn sheep.
- Sage-grouse conservation strategies.

Issue 15: ***How should special values and special management areas be managed?***

Existing special management areas, including Wilderness Study Areas (WSAs), Areas of Critical Environmental Concern (ACECs), and Wild and Scenic Rivers require special management to protect particular values and/or resources. New areas may require special management, including free-flowing rivers and streams; unique vegetation types; habitats for threatened, endangered, and sensitive species; cultural resources and unique geologic resources.

Specific concerns that BLM will consider:

- Resources and values to be managed.
- Manageability of the areas.
- Current and potential land uses.
- Existing special management area effectiveness and appropriateness.
- Travel and OHV usage in WSAs.
- Appropriate new designations.
- Visitor educational opportunities.
- Review Wild and Scenic status of all streams and rivers.

1.6 Issues Considered but Not Addressed

Issues beyond the scope of the Eagle Lake planning process or BLM's jurisdiction were also raised during the scoping process. Table 1-4 summarizes these concerns and explains why they were considered outside the scope of the RMPs.

Table 1-4 Issues Beyond the Scope of the Eagle Lake Resource Management Plan

Issue Raised during Public Scoping	Reason That Issue Is beyond the Scope of the Eagle Lake Planning Process
Ticketing and fines or penalties by BLM for those not using land properly	BLM enforces existing laws, regulations, and decisions to the best of its ability, given law enforcement and budgetary constraints. The level of fines for citations is not a decision an RMP can make.
More funding by BLM to support law enforcement of off-highway vehicle use	Funding levels are determined by the President and Congress, not by an RMP. This comment has been forwarded to management for consideration in developing future budgets.
Use of BLM lands for small hydroelectric facilities for private home use	Regional water quality control boards have jurisdiction over instream uses. Therefore, RMPs do not address this issue.
Mitigation for hazards by the Army before BLM acquires land	Specific land acquisitions would require site-specific environmental review before completion. This issue would be addressed for a specific acquisition.
Involvement of local fire districts in BLM's fire training	BLM coordinates many training opportunities for local fire districts, including classes at Lassen Community College, refresher courses, and periodic joint training sessions with local volunteers.
Public involvement in plan implementation	Near the completion of the RMP, BLM will involve the public in developing an implementation strategy for the plans. This strategy will include volunteer and other public participation opportunities.
Use of fees from extraction activities to fund plan implementation	Funds gathered as part of the sale or lease of minerals and timber are deposited into the United States Treasury. Distributing these Treasury funds is the authority of Congress. BLM will propose funding from Congress for plan implementation when the plan is complete, but the RMP does not discuss the use of funds.

1.7 Planning Criteria

BLM planning regulations (43 CFR 1610) require preparing planning criteria to guide development of all RMPs. Planning criteria are the constraints or ground rules that guide the development of the plan. The criteria determine how the planning team develops alternatives and ultimately selects a Preferred Alternative. These criteria ensure that plans address defined issues and that BLM avoids unneeded data collection and analysis. Planning criteria are based on the following: 1) standards prescribed by laws and regulations; 2) agency guidance; 3) the results of consultation and coordination with the public; other federal, state, and local agencies and governmental entities; and Native American Indian tribes; and 4) analysis of information pertinent to the planning area. Planning criteria may change as the planning process proceeds.

The planning criteria for the Eagle Lake RMP that were developed and refined through scoping are as follows. BLM will:

- Develop RMPs in compliance with the Federal Land Policy and Management Act (FLPMA); National Environmental Policy Act (NEPA); BLM planning regulations; and all other laws, regulations, executive orders, and policies.
- Establish economic and social baselines and consequences in coordination with local governments.
- Initiate government-to-government consultation with federally recognized tribes on federal land management agency obligations under tribal treaties and laws or executive orders relating to Native American reserved rights, religious freedoms, and traditional use areas.
- Designate areas where off-highway vehicle (OHV) use is allowed and prohibited and select specific routes in the planning process.
- Develop RMPs that address wild and scenic river eligibility and suitability.
- Store all new data collected and its explanatory metadata in a data base. All metadata will meet the Federal Geographic Data Committee (FGDC) standards.
- Incorporate the Standards for Rangeland Health and Guidelines for Livestock Grazing Management into the RMPs.
- Coordinate resource inventory, planning, and management with other federal agencies, state and local governments, and Native American tribes to the extent consistent with administering the public lands.
- Provide opportunities for public involvement, including early notice and other opportunities for citizens, interested groups, and others (including Native American tribes) to participate and comment on the plan.
- Closely coordinate the planning effort with national and state fire management planning to provide needed program direction.
- Closely coordinate the planning effort with U.S. Fish and Wildlife Service (USFWS) under the Consultation Agreement between the U.S. Fish and Wildlife Service and Bureau of Land Management for the Northeastern California Resource Management Plans.

The alternatives in this RMP were developed according to the purpose and need; to address issues described above; to meet legal mandates, such as the Clean Water Act and the Endangered Species Act; to satisfy many regulatory constraints; to support national policy, including BLM Strategic Plan goals; and to follow State Director guidance (see 43 CFR 1610.0-4[b]). A detailed list of legal and regulatory guidance is provided in Appendix A.

1.8 Collaboration

BLM planning is community-based, where interested groups and people–often with varied or opposing interests–work together to devise solutions with broad public support for managing BLM-administered lands. Cooperating local, state, tribal, and federal agencies have been part of the planning team for the RMPs to the fullest extent possible. During plan implementation, BLM will continue partnerships with these public and local, state, and tribal governments and agencies to select high priority projects and to resolve emerging issues.

The Council of Environmental Quality defines a cooperating agency as any agency that has jurisdiction by law or special expertise for proposals covered by National Environmental Policy Act (NEPA) (40 CFR 1501.6). Any federal, state, or local government jurisdiction with such qualifications may become a cooperating agency by agreement with the lead agency. The following are formal cooperating agencies for this RMP:

- Lassen and Modoc Counties, California;
- Washoe County, Nevada;
- U.S. Fish and Wildlife Service;
- California Department of Fish and Game;
- Nevada Department of Wildlife;
- Nevada and California State Historic Preservation Offices; and
- Susanville Indian Rancheria.

The Northeast California Resource Advisory Council (RAC) contributed issues and reviewed goals, objectives, and management alternatives. Other groups that participated in the planning process include California Department of Forestry, and Lassen National Forest.

1.9 Coordination and Consistency with Other Plans

Planning decisions in the Eagle Lake RMP will be compatible with existing plans and policies of adjacent local, state, tribal, and federal agencies to the extent practical, consistent with federal law and regulations (Federal Land Policy and Management Act, Section 202(c)(9)). BLM-administered lands in the planning area are located in two states and four counties. The lands also share boundaries with tribal lands. BLM manages land near or contiguous with Lassen and Plumas National Forests.

Cooperating agencies helped BLM develop of a full range of alternatives, and the preferred alternative, which are consistent with management goals on lands adjoining BLM lands. The following is a list of key plans consulted in developing the RMP:

- Lassen County General Plan
- Master Plan of Washoe County
- Lassen and Plumas National Forest Plans
- National Historic Tails Plan.

Decisions in the RMP are also compatible with decisions in land use plans for BLM-administered lands adjoining the planning area.

Chapter 2: ALTERNATIVES

Chapter 2. Alternatives

Introduction

The Bureau of Land Management (BLM) developed management alternatives for the Eagle Lake Field Office Draft Resource Management Plan (RMP) using input and comments from public scoping meetings, written comments, as well as ideas from staffs of BLM and other cooperating agency partners. National Environmental Policy Act (NEPA) regulations and BLM resource management planning regulations require the formulation of a reasonable range of alternatives that seek to address identified planning issues and management concerns. Each alternative must be evaluated to ensure that it would be consistent with resource goals and objectives, current laws, regulations, and policy.

Alternatives are developed to establish a framework to evaluate the potential impacts on the planning area that might occur as a result of implemented management decisions. In some cases, the alternatives include specific actions or action plans to be followed in order to make necessary changes in resource management within the planning area. However, not all issues can be resolved in a RMP; some would require that subsequent actions be taken to determine exactly how to reach desired conditions or to achieve a desired result.

The four management alternatives developed for the Eagle Lake RMP are detailed in this section, including:

No Action Alternative (required by NEPA): Retains current management through guidance and direction from current policies, and existing management plans.

Alternative 1. Resource / Economic Development: Emphasizes commodity production from BLM resources in accordance with local economies and land use plans from local communities and counties.

Alternative 2. Ecosystem Restoration or Protection: Maximizes efforts to maintain, restore, or improve components of the ecosystem using natural ecosystem processes.

Alternative 3. Traditional or Historical Uses: Emphasizes traditional community uses of resources and/or emphasizes historical uses and values.

Preferred Alternative: The Preferred Alternative was "crafted" from all of the other alternatives and combines management actions from all four of the above listed alternatives. This alternative has been designed and selected to best meet the purpose and need of the plan as described in Chapter 1; meet desired future conditions, goals, and objectives of individual and combined resources and resource uses.

Each alternative listed above has a somewhat different concept and emphasis on how natural resources and resource uses would be managed. Chapter 2 provides a detailed description of alternative management actions for 23 resource subjects. The desired future conditions, goals, objectives, and management actions for each major resource area are discussed in detail. Then a summary of each alternative is provided, with emphasis on the concepts behind the alternative, and management guidance for those topics that vary from alternative to alternative. The *Alternatives Summary Table*, at the end of this chapter, contains a summary of the alternatives by resource subject, with emphasis on the key features described below and those aspects that differentiate the alternatives from one another.

Alternatives Development

The basic goal of developing alternatives was to explore the range of resource use, natural resource protection, and management tools that would achieve an optimum balance between protection of the planning area's natural character, and a variety of resource uses and management issues. Alternatives must: meet the project purpose and need (see Chapter 1); be viable and reasonable; provide a mix of resource protection, management use, and development; be responsive to issues identified in scoping; and meet the established planning criteria (see Chapter 1), federal laws and regulations, and BLM planning policy.

The alternatives described below identify different strategies for accomplishing the mission, goals and objectives of the Eagle Lake Field office, while meeting a variety of public needs. The No Action Alternative is a continuation of current management, and was developed from existing planning decisions, policies, land use allocations, and programs. Alternatives 1, 2, and 3 were developed with input from public scoping, public workshops, and collaborative work among the BLM interdisciplinary planning team. The team initially identified large-scale themes and priorities for each alternative scenario, then articulated the specific objectives and actions for each resource program. The team then fine-tuned the alternatives and ensured compatibility of treatments for different resource types within each alternative. Chapter 5 describes the collaborative activities BLM has engaged in to develop these alternatives.

The Preferred Alternative was selected from a range of reasonable options, and represents an effort to provide balance in managing both resources and uses of the planning area. Issues considered during this alternatives development process include: environmental impacts of the alternatives; issues and comments submitted throughout the planning process; specific environmental values, resources, and resource uses; conflict resolution; public input; and applicable laws and regulations.

Alternatives and Actions Considered but Not Analyzed in Detail

The Council on Environmental Quality (CEQ) guidelines for implementing NEPA requires federal agencies to analyze all "reasonable" alternatives that substantially meet the purpose and need for the proposed action. The purpose of the Eagle Lake Draft RMP is to provide for management of BLM-administered lands, and to meet the requirements of the Federal Land Policy and Management Act (FLPMA) and other laws and regulations.

The following specific alternatives, or actions that could be components of alternatives, were suggested but not analyzed:

No Livestock Grazing

Based on public scoping, and BLM internal and cooperating agency issues, a "no livestock grazing" alternative would not meet the purpose and need as outlined in Chapter 1; and would not be consistent with the multiple use planning concepts within the Eagle Lake Field Office. The BLM's authority to manage grazing under existing laws, regulations, and policies would continue under all the alternatives considered. Lands available for grazing would be limited to those under BLM authority and where BLM's process allows grazing to continue.

Designation of Areas of Critical Environmental Concern (ACEC)

A primary focus of this management plan, and the preferred alternative, is the designation of areas of critical environmental concern that meet certain requirements according to BLM Manual 1613, and Relevance and Importance Criteria. During scoping, BLM received a very detailed request from the

California Wilderness Coalition that outlined several geographical areas thought to be eligible for this designation. The Eagle Lake Field Office has analyzed all of these areas thoroughly, and the results are listed in the Preferred Alternative. BLM has proposed most of these areas to be designated as an ACEC, however, several general areas of a specific landscape or vegetation type were also listed. These include all riparian areas, all aspen stands, and many wildlife habitat areas.

To be designated as an ACEC, an area must meet both the relevance and importance criteria listed in BLM Manual 1613, *and* require special management to protect and prevent irreparable damage to the relevant and important resource values. An analysis of these areas has shown that they do not meet these parameters, and therefore are not considered for ACEC designation under any of the alternatives.

Other Alternatives

No other comprehensive alternatives were submitted by outside interests, including tribes, state and local governments, or other groups.

Summary of Alternatives

The Alternatives Summary Table at the end of this chapter contains a summary of the major features and management actions that would be associated with each of the five alternatives. This table provides a condensed summary of management actions that are common to all the alternatives, as well as the key alternative-specific actions for each.

Summary of Environmental Consequences

The Impacts Summary Table, at the end of this chapter, contains a comparative summary of the key environmental consequences for each of the five alternatives. A detailed description of these impacts can be found in Chapter 4, Environmental Consequences.

Environmentally Preferred Alternative

The Environmentally Preferred Alternative is defined as "the alternative that would promote the national environmental policy as expressed in §101 of the National Environmental Policy Act." Section 101 states, "…it is the continuing responsibility of the federal government to…

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
- Achieve a balance between population and resource use that would permit high standards of living and a wide sharing of life's amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources."

Compared to the other alternatives analyzed, Alternative 2 and the Preferred Alternative best meet the national environmental goals identified above. Alternative 2 provides the highest level of protection of natural and cultural resources, however it does not allow for a wide range of beneficial uses of the environment.

The Preferred Alternative would enhance the ability of BLM to achieve the purpose and need of this document, as outlined in Chapter 1, as well as meet desired future conditions, goals and objectives of specific resources as outlined in Chapter 2. Alternatives No Action, 1, and 3 do not contain the degree of management emphasis required to protect benchmark native vegetative communities and restore degraded sagebrush steppe habitat found in the Preferred Alternative. Portions of the field office area that are currently in a degraded condition can only be improved with the scope of active restoration efforts provided for in the Preferred Alternative.

The Preferred Alternative would result in overall minor to moderate adverse impacts to resources, and these impacts would continue to be mitigated. Management actions under the Preferred Alternative would result in moderate to major beneficial impacts to native vegetation communities from restoration efforts, and the use of prescribed fire to remove invasive juniper. Improvements to riparian areas, water bodies, and other special habitats would improve soil and water resources, and wildlife habitat. The designation of eight areas of critical environmental concern, one wild and scenic river, and an increased emphasis on cultural resource protection and management would have beneficial impacts to these important and unique resources.

2.1 Air Quality

The Clean Air Act (CAA) requires federal agencies to comply with all federal, state, and local air pollution standards. The CAA also requires that each state develop an implementation plan to ensure that national ambient air quality standards are attained and maintained for criteria pollutants.

National ambient air quality standards have been established for six pollutants, as described in the CAA. Of the six criteria pollutants; only one, the production of particulate matter, is largely affected by natural resource management activities. Most particulate matter produced by wildland fire is less than 10 micrometers (PM10) in diameter--which is the size class regulated and of particular concern for human health. Because fire and smoke are a natural part of forest and rangeland ecosystems, PM10 produced by wildland fires does not appreciably affect these ecosystems.

Land managers and the public must make choices regarding particulate emissions from prescribed fires and wildland fire use versus emissions from uncontrolled wildfires. Land managers have little control over where, when, and how much smoke is produced during wildfires. However, with prescribed fire, smoke levels can be managed.

2.1.1 Desired Future Condition

Air quality in the Eagle Lake Field Office management area would be maintained at or above national air quality standards for the six criteria pollutants described in the Clean Air Act.

2.1.2 Goal

All federal, state, and local air pollution standards with respect to particulate matter (specifically PM10), would be achieved and maintained throughout the management area.

2.1.3 Objectives

Eagle Lake Field Office to follow the direction and requirements of the Northeast Air Alliance (covering Butte, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Tehama air pollution control districts) to achieve acceptable air-quality standards while implementing fuel reduction projects, prescribed fires, and wildland fire use projects.

2.1.4 Legislative, Regulatory, and Policy Direction

- The Clean Air Act (CAA) of 1963 as amended (42 U.S.C. 7401 et seq)
- California Code of Regulations. Title 17, Section 80101 and California code of Regulations title 14, 1561,1
- Regulations, MOUs, etc. for applicable counties

2.1.5 Management Common to All Alternatives

Prescribed fire projects and wildland fire use would be timed and/or managed in such a manner that federal (CAA), state, and local standards for particulate matter (PM10) are not exceeded.

2.1.6 No Action Alternative

The Eagle Lake Field office currently burns less than 100 acres yearly using prescribed fire. Under this option, smoke management plans would continue to be written and implemented for all prescribed fires. Prescribed fire activities would be coordinated with local and state air resource boards as they are at present. If PM10 limits are exceeded, alternative fuel reduction treatments would be considered.

No wildland fire use would be employed in this alternative.

2.1.7 Alternative 1. Economic Development

Prescribed fire would be utilized to a maximum of 1,500 acres burned yearly to achieve resource management objectives, providing air-quality standards can be maintained.

No wildland fire use would be employed in this alternative.

2.1.8 Alternative 2. Ecosystem Restoration

This alternative is identical to the preferred alternative.

There is approximately 10,000 acres of wildland fire use in this alternative.

2.1.9 Alternative 3. Traditional Uses

Under this alternative, prescribed fire would be implemented on up to 500 acres per year.

No wildland fire use would be employed in this alternative.

2.1.10 Preferred Alternative

Under this alternative, wildland fire use and prescribed fire would be implemented on a yearly limit of approximately 15,000 acres to obtain maximum benefit in achieving resource management objectives.

2.2 Cultural Resources and Paleontology

The BLM cultural resource program manages prehistoric, historic, ethnographic, and paleontological resources on public lands and ensures their protection. Native Americans are consulted to ensure that important traditional sites and objects are preserved and protected.

2.2.1 Desired Future Condition

All qualifying cultural sites would have been placed into use categories as defined by the National Register of Historic Places (NRHP). Qualified and NRHP-eligible sites would be protected and managed to control deterioration of these resources. An increase in site stewardship, along with the education and participation of the public and Native American tribes, would enhance protection efforts. Through collaboration with tribes, new properties and sites would be identified and suitable protection provided for eligible and qualifying sites. Similarly, significant paleontological sites would be identified and suitably protected.

2.2.2 Goals

Significant cultural sites would be protected and preserved insuring their availability for appropriate uses and activities both in future and at present, and in compliance with existing laws, regulations, and executive orders.

Identify priority geographic areas for future inventory of cultural sites in order to reduce imminent threats to these sites from natural or human-caused deterioration or potential conflicts with other resource users.

Encourage increased public appreciation of and respect for cultural artifacts and paleontological sites as well as greater sensitivity to Native American issues.

Through consultation with tribes, provide for Native American use of culturally significant resources and properties. Nominate as traditional cultural properties those areas that qualify.

2.2.3 Objectives

All known sites would be evaluated for National Register of Historic Places quality and Cultural Resource Considerations, prioritizing sites that are noticeably deteriorating and sites expected to experience significant adverse impacts in the future.

Identify priority geographic areas for future inventory of cultural sites in order to reduce imminent threats from natural or human-caused deterioration or potential conflicts with other resource users.

Interpret significant cultural and paleontological resources and ensure that they can be enjoyed by present and future generations.

Find, protect, manage, and/or use traditional Native American use and sacred areas (TCPs) after consultation and collaboration with affected tribes or interested Native Americans.

Continue to use BLM/State Office of Historic Preservation protocols as a National Environmental Policy Act (NEPA) management tool. Avoid reverting to Section 106 (as revised) of the National Historic Preservation Act (NHPA) (undertaking an activity that could affect historic properties).

2.2.4 Legislative, Regulatory, and Policy Direction

- National Environmental Policy Act (NEPA) (1969)
- Federal Land Policy Management Act (FLPMA), Sec. 103c, 201 a, and 202 c (1976)
- National Historic Preservation Act (NHPA), Sec. 110, 106 (1966)
- Archaeological Resources Preservation Act (ARPA), Sec. 14a (1979)
- Historic Sites Act (HSA) (1935)
- Antiquities Act (1906)
- Historical and Archaeological Data Preservation Act (1974)
- Native American Graves Protection and Repatriation Act (NAGPRA) (1990)
- Executive Order no. 13,007 - Indian Sacred Sites (May, 1996)
- BLM–California State Historic Preservation Office (SHPO) Protocol Agreement (1998)
- BLM Information Bulletin no. 2002-101 (May, 2002)
- American Indian Religious Freedom Act (1978)
- Cultural Resource Considerations in Resource Management Plans, BLM Information Bulletin No. 2002-101 (5/29/2002)

2.2.5 Management Common to All Alternatives

- Comply with Sections 106 and 110 of the National Historic Preservation Act (NHPA) regulations and other agreements that conform to the intent of NHPA, such as the following:
    - protocols between BLM and state historic preservation officers,
    - the Archaeological Resource Protection Act (ARPA) ,and
    - Native American guidelines and laws such as the Native American Religious Freedom Act.
- As a part of any action, consult with Native Americans to determine concerns and potential traditional cultural properties (TCPs). Continue to implement cooperative agreements with Native Americans and protect four Native American special interest areas from adverse impacts.
- Monitor 30 cultural sites and inventory 640 acres annually as a part of the Section 110 program.
- Use Range Standards and Guidelines (land health standards) to evaluate site conditions. Where possible, manage by ecosystem, site type, watershed, or cultural or natural landscape.
- As specified in BLM Information Bulletin No. 2002-101, evaluate all currently recognized archaeological sites, as well all sites found in the future, for placement in one of six management categories.
- The field office area's one known paleontological area has been inventoried but is not suitable for any type of intensive management.

2.2.6 No Action Alternative

Under the No Action Alternative, current management of cultural resources would continue. The following are management actions under this alternative:

- Manage 15 areas covering 9,084 acres as cultural resource management areas (CRMAs).
- Continue post-wildfire monitoring to assess the effects of fire on site stabilization.
- Continue to manage Upper Smoke Creek, Lower Deep Cut Creek, and Belfast as ecosystem projects.

- Annually, continue to monitor 30 sites (5,079 acres) and inventory 640 acres.

Table 2.2-1 Existing Cultural Resource Management Actions under the No Action Alternative

Site Name	Acres	Watershed and Type of Resource
Eagle Lake Basin	3,233	Eagle Lake Basin Watershed; CA (Prehistoric/Historic)
Rice Canyon enclosure	5	Horse Lake Watershed, CA (Prehistoric)
Belfast enclosure and special management area	50	Horse Lake Watershed, CA (Prehistoric)
Snowstorm enclosure	1,000	Horse Lake Watershed, CA (Prehistoric/Historic)
Tommy Tucker Cave	1	Susan River/Honey Lake Watershed, CA (Prehistoric/Ethnographic)
Tupi t'waba enclosure	360	Susan River/Honey Lake Watershed, CA (Ethnographic)
Upper Smoke Creek enclosure and special management area	825	Horse Lake Watershed, CA (Prehistoric/Historic)
Rocky Table Spring enclosure	5	Horse Lake Watershed, CA (Prehistoric)
Laird Spring enclosure	240	Smoke Creek Desert Watershed, NV (Prehistoric/Historic)
Whithugh Cave enclosure	1	Smoke Creek Desert Watershed, NV (Prehistoric)
Dryden Cave	1	Smoke Creek Desert Watershed, NV (Prehistoric)
Dry Valley Camp	2	Smoke Creek Desert Watershed, NV (Prehistoric/Historic)
Lower Deep Cut Creek enclosure	800	Horse Lake Watershed, CA (Prehistoric)
No-Name Cave	1	Smoke Creek Desert Watershed, NV (Prehistoric)
Upper Deep Cut enclosure	2,560	Horse Lake Watershed, CA (Prehistoric)

2.2.7 Alternative 1. Economic Development

Alternative 1 emphasizes working with the local communities, tourist bureaus, city and county development departments, Native Americans, and other interested organizations (e.g. Sierra Club, Audubon Society, and recreational interest groups) to develop new commercial opportunities and improve and increase opportunities for cultural resource use. Examples include developing more guided tours, interpretive sites, drives along historic trails, and brochures. Develop four historic trails with inventory, signs and brochures, as needed:

- Nobles Emigrant Trail (a national historic trail),
- Bieber-Merrillville Wagon Road,
- Fort Churchill-Fort Bidwell Military/Stage Road
- Buffalo Hills Toll Road.

Allow local Native Americans to locate and exploit traditional cultural properties (TCPs), such as plant gathering, special areas, and ceremonial areas with the potential to be developed into economic opportunities.

Develop 10 (1,146 acres) cultural resources management areas (CRMAs), as outlined in Table 2.2-2.

Table 2.2-2. Proposed Cultural Resource Management Areas and Interpretive Site Development in the Eagle Lake Field Office Area under Alternative 1

Site Name and Watershed	Acres	Cultural Resource Type and Proposed Interpretive Development
Belfast CRMA/ Horse Lake Watershed	30	Rock art, prehistoric and environmental: interpretive signing, trail, and brochure.
Tommy Tucker Cave CRMA/ Susan River/Honey Lake Watershed	1	Rock art, prehistoric: interpretive signing and brochure.
Eagle Lake Basin CRMA/ Eagle Lake Basin Watershed	40	Historic, prehistoric, natural: interpretive signing, trail, and brochure.
Honey Lake Kiln CRMA/ Susan River/Honey Lake Watershed	1	Historic: interpretive signing and brochure.
Whithugh/Dryden/No-Name Cave CRMA/ Smoke Creek Desert Watershed	2	Prehistoric: interpretive signing and brochure.
Dry Valley Camp CRMA/ Smoke Creek Desert Watershed	2	Prehistoric, historic: interpretive signing and brochure.
Susan River/Honey Lake Watershed	N/A	Historic: interpretive signing, trail, and brochure.
Laird Spring CRMA/ Smoke Creek Desert Watershed	240	Historic, prehistoric: interpretive signing, trail, and brochure.
Rice Canyon CRMA/ Horse lake Watershed	5	Rock art, prehistoric: interpretive signing, trail, and brochure.
Upper Smoke Creek CRMA/ Smoke Creek Desert Watershed	825	Rock art, prehistoric, historic, natural: interpretive signing and brochure.

2.2.8 Alternative 2. Ecosystem Restoration

- Expand existing cultural resource management areas (CRMAs) where possible, to incorporate more cultural landscapes.
- Inventory individual sites and new geographic areas to assess cultural resource sensitivity.
- Create protective buffer zones and building fences
- Limit OHV use to existing roads and trails, impose no surface occupancy stipulations on mineral development, and limit grazing
- Use Class I Overview and other data to determine culturally sensitive areas;
- Conduct reconnaissance and Class II/III/Reconnaissance Inventories to access cultural significance;
- Develop plans to protect, interpret, or better manage the area's resources;

- Use the ecosystem and cultural ecology of a specific area as management tools to enhance the resource (see Map CR-1).
- Describe the field office area's cultural resources as a part of the ecosystem and manage them to highlight the holistic relationship between humans and the environment.
- Implement prescribed burning to enhance the natural ecosystem.
- Fence and plant deflated or eroded sites to rehabilitate the cultural matrix (physical condition of each cultural resource site or sensitive cultural area), using native species to protect and enhance the cultural environment.
- Use the after-fire burned area emergency stabilization and rehabilitation (BAER) process to protect affected resources, and to delineate specific cultural landscapes, settlement pattern areas, watersheds, and areas for special management.
- Use upland health data to determine which areas need intensive management to stabilize and rehabilitate the site matrix.
- Manage 19 cultural resource management areas (CRMAs) covering 56,782 acres.
- For all areas, develop cultural resource management plans (CRMPs) or other types of plans.
- Manage three CRMAs in cooperation with the recreation program: Belfast Special Recreation Management Area (SRMA)/CRMA, Upper Smoke Creek SRMA/CRMA, and Eagle Lake Basin SRMA/CRMA.
- Manage North Dry Valley as an area of critical environmental concern (ACEC).
- Prepare interpretive materials for the four historic trails listed under Alternative 1.
- Develop an extensive consultation program with Native American tribes to recognize traditional cultural properties (TCPs) and other areas of significance. Where properties are found, encourage ecological restoration of traditional uses.
- Conduct other reconnaissance surveys (based on project work or Class I Overview and Class II data and sensitivity models) to find new sites and geographic areas of potential cultural significance. Develop management plans if needed.

Potential management actions under the Ecosystem Restoration Alternative are shown in Table 2.2-3. Areas with potentially significant cultural sites proposed for inventory are shown in Table 2.2-4.

Table 2.2-3 Potential Management Actions for Cultural Resources under Alternative 2

Site Name, Project type, and Designation	Potential Management Action(s)	Acres	Watershed/ (Cultural Resource Type)
Eagle Lake/ Rehabilitation/CRMA	Maintenance, inventory, interpretation, educational, buffer	6,498	Eagle Lake Basin Watershed (Prehistoric/Historic)
Belfast/ Rehabilitation/ CRMA	Maintenance, inventory, interpretation, educational, buffer	3,840	Horse Lake Watershed (Prehistoric/Historic)
Snowstorm/ Fire rehabilitation/CRMA	Maintenance, inventory	7,000	Horse Lake Watershed (Prehistoric/Historic)
Tupi t'waba/CRMA	Maintenance	360	Susan River/Honey Lake Watershed (Ethnographic)

Table 2.2-3 Potential Management Actions for Cultural Resources under Alternative 2

Site Name, Project type, and Designation	Potential Management Action(s)	Acres	Watershed/ (Cultural Resource Type)
Deep Cut/ Rehabilitation/ CRMA	Maintenance, re-inventory, fencing	2,560	Horse Lake Watershed (Prehistoric/Historic)
Upper Smoke Creek/ Rehabilitation/CRMA	Maintenance, re-inventory, interpretation, educational, buffer	5,120	Horse Lake Watershed (Prehistoric/Historic)
Laird Spring/ Rehabilitation/CRMA	Maintenance, re-inventory, interpretation, buffer	240	Smoke Creek Desert Watershed (Prehistoric/Historic)
Dry Valley Camp/ Rehabilitation/CRMA	Re-inventory, interpretation	1	Smoke Creek Desert Watershed (Prehistoric/Historic)
Little Mud Flat/ Rehabilitation/CRMA	Inventory	2,560	Horse Lake Watershed (Prehistoric/Historic)
Balls Canyon-Secret Creek/Rehabilitation/ CRMA	Inventory, fence, buffer	440	Horse Lake Watershed (Prehistoric)
Buckhorn/ Rehabilitation/CRMA	Inventory	3,000	Horse Lake Watershed (Prehistoric)
Dodge Reservoir/ Rehabilitation/CRMA	Inventory	2,560	Horse Lake Watershed (Prehistoric)
SOB Lake/ Rehabilitation/CRMA	Inventory	2,500	Smoke Creek Desert Watershed (Prehistoric)
Pete's Creek/ Rehabilitation/CRMA	Inventory	4,480	Horse Lake Watershed (Prehistoric)
Dairy Spring/ Rehabilitation/CRMA	Inventory	3	Willow Creek, CA (Prehistoric)
Smoke Creek Desert Shoreline/ Fire Rehabilitation/CRMA	Maintenance, re-inventory, interpretation (includes Dryden, No-Name, and Whithugh Caves)	2,000	Smoke Creek Desert Watershed (Prehistoric)
Dry Slick/ Rehabilitation/ CRMA	Re-inventory	320	Smoke Creek Desert Watershed (Prehistoric)
Upper Dry Valley ACEC/ Rehabilitation/ CRMA	Re-inventory	8,320	Smoke Creek Desert Watershed (Prehistoric)
Saddle Rock/ Rehabilitation/ CRMA	Inventory, fence, buffer	4,440	Horse Lake Watershed (Prehistoric/Historic)
Lower Deep Cut/ Rehabilitation	Maintenance	800	Horse Lake Watershed (Prehistoric)
Merrillville-Beiber Wagon Road/CRMA	Re-inventory, interpretation, educational	5–10 miles	Horse Lake Watershed (Historic)
Nobles Trail/CRMA/Trail	Re-inventory, interpretation, educational	30 miles	Cal-Neva, CA/NV (Historic)
Buffalo Hills Toll Road/ACEC	Inventory, interpretation	10 miles	Smoke Creek Desert Watershed (Historic)
Fort Churchill-Fort Sage-Sand Pass-Fort Bidwell Military/ Stage/ Supply Trail	Inventory, interpretation	60 miles	Smoke Creek Desert Watershed (Historic)

Table 2.2-4 Areas with Potentially Significant Cultural Sites Proposed for Inventory under Alternative 2

Site Name or Area	Acres	Location by Watershed
Snow Storm	7,000	Horse Lake Watershed
Deep Cut	2,560	Horse Lake Watershed
Upper Smoke Creek	5,100	Smoke Creek Desert Watershed
Balls Canyon-Secret Creek	440	Horse Lake Watershed
Saddle Rock	4,440	Horse Lake Watershed
Upper Dry Valley	8,320	Smoke Creek Desert Watershed
Eagle Lake Basin	3,000	Eagle Lake Basin Watershed
Parsnip Spring/Buffalo Hills	10,000	Smoke Creek Desert Watershed
Dry Valley and Twin Peak Wilderness Study Areas	20,000	Smoke Creek Desert Watershed
Upland Health site data points	280,000	Various

2.2.9 Alternative 3. Traditional Uses

Alternative 3 would be the same as described for the No Action Alternative except that all traditional cultural properties (TCPs) and areas of special interest would be protected from conflicting resource use through such measures as exclosures and reduced livestock grazing, as in Alternative 2. Religious sites and TCPs would be managed for continued use by Native Americans and would be retained in federal ownership. BLM would manage recognized traditional use areas in coordination with tribes.

2.2.10 Preferred Alternative

- Inventory culturally sensitive areas in the existing data base, such as Upper Dry Valley, Snowstorm Mountains, Deep Cut Creek, and Mud Flat.
- Develop a priority threat list for new activity/management plans.
- As under Alternative 2, recognize the area's cultural resources as a part of the ecosystem and manage to highlight the holistic relationship between humans and the environment.
- Use data from the Upland Health Project, Class I Overview (King and others 2004) project work, and other surveys to locate areas with a high potential to contain sites eligible for the National Register of Historic Places (NRHP). These sites may need to be further inventoried to determine the locations, numbers, types, and conditions of cultural resources. Existing sites may need intensive management to protect, stabilize, and rehabilitate the existing site matrix.
- Manage traditional cultural properties (TCPs) and areas of special interest for continued use. Protect them from conflicting resource use through such measures as exclosures and reduced grazing.
- Manage cultural resource management areas (CRMAs) historic trails and cultural areas of environmental concern (ACECs) the same as under Alternative 2 (See Tables 2.2-3 and 2.2-4) except that the area encompassing the Buffalo Hills Toll Road would be designated as the Buffalo Creek Canyon. Buffalo Hills Toll Road would be managed as an ACEC rather than a CRMA (Table 2.2-3).

2.3 Energy and Minerals

Energy and mineral resources are organized into three program areas: Leasable minerals (including oil, gas and geothermal energy), locatable minerals (gold, silver, etc.), and saleable minerals (gravel, sand, decorative rock, etc.).

The potential for oil and gas development is low throughout the field office area. Existing oil and gas leases in the Honey Lake and Ravendale areas have not resulted in development or production. Oil and gas leasing is not expected to increase unless technological advances reduce the risk of exploring beneath the existing volcanic cover.

Existing geothermal sources in the field office area have generated new interest at a preliminary discussion level. Geothermal energy production by Honey Lake Power continues in the Wendel-Amedee Known Geothermal Resource Area (KGRA). Another geothermal production facility is proposed for the KGRA.

Potential locatable minerals in the Eagle Lake Field Office area include mercury, gold, silver, and zeolites. The Hayden Hill District is expected to remain active, with sporadic exploration probable, depending on gold prices. This district is partially within the Alturas Field Office area. The Diamond Mountain District and Crescent Mills comprise two lode claims and two placer claims on minor vein gold mineralization. Although the claims would be retained, activity is expected to remain low to nonexistent. Other locatable mineral activity is expected to be sporadic and mainly focused on areas of known mineral occurrences (i.e. existing claims).

Sand, gravel, and flat rock are the main saleable minerals in the Eagle Lake Field Office area. Present management encourages free use permits for materials and material sales for aggregates to meet public demand.

2.3.1 Desired Future Condition

Facilitate opportunities to explore for and develop energy and mineral resources while retaining compatibility with other resources.

2.3.2 Legislative, Regulatory and Policy Direction

- The Mineral Leasing Act of 1920, as amended
- The Geothermal Steam Act of 1970, as amended
- The Mining and Mineral Policy Act of 1970
- Section 102 of the Federal Land Policy and Management Act (FLPMA) Executive Order 13212
- The 2001 President's National Energy Policy
- BLM Mineral Policy (1984)
- Executive Order 13212
- The General Mining Law of 1872
- The Material Act of 1947

2.3.3 Leasable Minerals

Potential for oil and gas is low throughout the field office area. There is however, potential for geothermal development.

3.1 Goal

Provide opportunities for exploration and development of leasable energy and mineral resources while protecting other sensitive resources.

3.2 Objectives

Where potential for leasable mineral development exists, apply standard lease terms, conditions, and stipulations to protect and reclaim associated resources. Use increasingly restrictive terms as needed for ecosystem protection, particularly wildlife, plant, and water protection issues.

3.3 Management Common to All Alternatives

The existing Wilderness Study Areas (380,359 acres) are closed to all leasable minerals. Any WSAs, or portions thereof, that are not designated as wilderness and are released by Congress from WSA status would be open to leasing unless closed by other management actions.

The following definitions are provided for standards and restrictions used in leasable mineral development:

Standard Lease Terms*:* These are the standard terms and conditions applied to all leases (sections 6 of Form 3110-11, “Offer to Lease and Lease for Oil and Gas,” and Form 3200-4, “Offer to Lease and Lease for Geothermal Resources”). They are the only conditions applied to a lease where others measures are not considered necessary to protect resources.

Geophysical operations would also be subject to the proposed lease restrictions listed above except for certain types of activity requiring little or no surface disturbance, such as gravity and magnetic surveys.

Seasonal restrictions*:* This stipulation is applied to land where sensitive resources such as raptor nesting areas, sage-grouse leks or big game winter range cannot be adequately protected by standard lease terms, but do not require yearlong restrictions. Less restrictive stipulations (such as controlled surface use or standard stipulations) were considered but determined to provide insufficient protection.

No Surface Occupancy (NSO*)*: This stipulation is applied to land where resources such as sensitive plant sites or areas of high scenic value, cannot be adequately protected by standard stipulations or less-restrictive special stipulations, such as timing limitations.

Closed to leasing*:* This restriction involves both nondiscretionary and discretionary closures. Nondiscretionary closures, such as wilderness study areas (WSAs) are closed to leasable minerals. Discretionary closures are the result of management decisions arrived at through the planning process. Discretionary closures involve land where (a) the resources are considered so important that they outweigh any economic return that can be expected from mineral development and (b) environmental impacts from lease operations could irreparably damage those resources.

Special stipulations*:* These are specific operating conditions that are imposed when a lease is issued that modify the original terms and conditions of the lease (standard lease terms).

Exceptions: Exemption or waiver of these stipulations would only be allowed if it can be shown that existing or emerging technology can be used to meet management objectives for the sensitive resource.

Other special stipulations: This stipulation does not fit the commonly identified stipulation categories. It is applied where a resource requires protection but either covers a large geographic region, or information may be incomplete and is therefore applied to all leases.

3.4 No Action Alternative

Under the No Action Alternative, 642,408 acres would remain open to mineral leasing and development under BLM standard terms and conditions. The existing wilderness study areas (380,359 acres) are closed to all leasable minerals. No other restrictions would apply unless stated during the environmental assessment process.

3.5 Alternative 1. Economic Development

- 602,427 acres would remain open to leasing and development (mainly geothermal) under BLM standard terms and conditions.
- 414,679 acres would be closed to mineral leasing.

Table 2.3-1 Areas Closed to Energy and Minerals Leasing under Alternative 1

Closed Areas		Acres
Eagle Lake Basin ACEC		34,320
Existing WSAs		380,359
Total		**414,679**

- Seasonal and other restrictions would apply to 160 acres within the Pine Dunes Research Natural Area (RNA).
- Other restrictive stipulations would apply within 0.25 miles of greater sage-grouse leks, known raptor nests, and pronghorn kidding grounds.
- Permanent no surface occupancy (NSO) restrictions would apply to 5,501 acres within the Bizz Johnson Trail Special Recreation Management Area (SRMA) and the Aspen Groves Area of Critical Environmental Concern (ACEC).

3.6 Alternative 2. Ecosystem Restoration

- 391,339 acres would be open to leasing and development under BLM standard terms and conditions.
- 417,435 acres would be closed to mineral leasing.

Table 2.3-2 Areas Closed to Energy and Minerals Leasing under Alternative 2

Closed Areas		Acres
Eagle Lake Basin ACEC		4,320
Bizz Johnson Trail SRMA		2,756
Existing WSAs		380,359
Total		**417,435**

- Other closed acres would include all lands within 0.25 miles of greater sage-grouse leks, or known or occupied sage-grouse habitats and land within 0.25 miles of known raptor nests. Other sensitive wildlife habitat may also be closed as additional information is obtained.
- Seasonal and other restrictions would apply to 137,071 acres:
  - 28,494 acres in Fort Sage Special Recreation Management Area (SRMA)
  - 61,764 acres in Antelope/Shaffer/Bald Mountain SRMA, and
  - 46,813 acres in South Dry Valley SRMA.
- Other restrictive stipulations would apply to lands within 0.60 to 2.0 miles of greater sage-grouse leks. Suitable buffers for each level of restrictive stipulations would be implemented as important habitat is located.
- Permanent no surface occupancy (NSO) restrictions would apply to 76,922 acres to protect unique resources:
  - 24,340 acres for the Nobles Emigrant Trail
  - 2,887 acres for Pine Dunes ACEC
  - 2,130 acres for Willow Creek ACEC
  - 894 acres for Lower Smoke Creek ACEC
  - 10,156 acres for North Dry Valley ACEC
  - 36,515 acres for Buffalo Creek Canyon ACEC
- NSO would also be required for all lands within 0.25 miles of greater sage-grouse leks, 0.5 miles from known raptor nests and 0.25 miles from pronghorn kidding grounds.
- Major constraints or NSO stipulations at the leasing stage would be required on parcels with high public resource values.

3.7 Alternative 3. Traditional Uses

- 591,337 acres would be open to leasing and development under standard terms and conditions.
- 414,679 acres would be closed to leasing.

Table 2.3-3 Areas Closed to Energy and Minerals Leasing under Alternative 3

Closed Areas		Acres
Eagle Lake Basin ACEC		34,320
Existing WSAs		380,359
Total		**414,679**

- Seasonal and other restrictions would apply to the following 11,210 acres:
  - 160 acres in Pine Dunes RNA
  - 894 acres in Lower Smoke Creek ACEC
  - 10,156 in North Dry Valley ACEC
- Restrictions would also apply within 0.50 miles of greater sage-grouse leks and known raptor nests and within 0.25 miles of pronghorn kidding grounds.
- Permanent no surface occupancy (NSO) restrictions would apply to 5,501 acres in the Bizz Johnson Trail SRMA and Aspen Groves ACEC.

3.8 Preferred Alternative

- 391,339 acres would be open to mineral leasing under standard terms and conditions.
- 414,679 acres would be closed to mineral leasing, identical to Alternative 3 (See Table 2.3-3)
- Seasonal and other restrictions would apply to the following 137,071 acres:
  - 28,494 acres - Fort Sage SRMA
  - 61,764 acres - Antelope/Schaefer/Bald Mountain ACEC
  - 46,813 acres - South Dry Valley SRMA
- Permanent no surface occupancy (NSO) restrictions would apply to the following 79,678 acres:
  - 24,340 acres along the Nobles Emigrant Trail
  - 2,756 acres in the Bizz Johnson Trail SRMA
  - 2,887 acres in Pine Dunes ACEC
  - 2,130 acres in Willow Creek ACEC
  - 894 acres in Lower Smoke Creek ACEC
  - 10,156 acres in North Dry Valley ACEC
  - 36,515 acres Buffalo Creek Canyon ACEC
- Other no surface occupancy (NSO) restrictions would apply:
  - 0.25 to 0.60 miles from sage-grouse leks,
  - 0.25 to 0.50 miles from known raptor nests
  - 0.25 miles of pronghorn kidding grounds
- No surface structures that could serve as raptor perches would be allowed within 2 miles of active sage-grouse leks.
- Leasable mineral activities would be consistent with the conservation strategy for sage-grouse within the Buffalo-Skedaddle population management areas.
- Other sensitive wildlife habitat may be designated as permanent NSO.

2.3.4 Locatable Minerals

4.1 Goal

Provide opportunities for exploration, location, development, and production of locatable minerals.

4.2 Objectives

Allow for the exploration and development of locatable minerals while protecting other resources. Ensure that final reclamation and results conform to BLM standards and special stipulations are stated. Stipulate special mitigation to preserve habitat, cultural resources, wildlife, and other resources.

4.3 Management Common to all Alternatives

All wilderness study areas (WSA) are open to exploration for and development of locatable minerals but would be limited to activities that do not require reclamation, unless the operation has established grandfathered uses or valid existing rights on October 21, 1976.

Locatable minerals development and exploration within areas of critical environmental concern (ACEC) would require preparation and approval of a plan of operations before development.

4.4 No Action Alternative

The entire field office area (1,022,767 acres) would be open to locatable minerals development, with stipulations to protect other resources.

4.5 Alternative 1. Economic Development

- 1,020,272 acres would be open to locatable minerals development.
- 2,495 acres in the Susan River ACEC would be closed to locatable minerals development.

4.6 Alternative 2. Ecosystem Restoration

- 969,885 acres would be open to locatable minerals development with stipulations to protect other resources.
- 52,882 acres would be closed to locatable minerals development.

Table 2.3-4 Areas Closed to Locatable Minerals Development within ACECs under Alternative 2

Closed Areas	Acres
Pine Dunes ACEC	2,887
Susan River ACEC	2,495
Willow Creek ACEC	2,130
Lower Smoke Creek ACEC	894
Eagle Lake Basin ACEC	34,320
North Dry Valley ACEC	10,156
Total	**52,882**

4.7 Alternative 3. Traditional Uses

The entire field office area (1,022,767 acres) would be open to locatable minerals exploration and development, with stipulations to protect other resources.

4.8 Preferred Alternative

- 1,014,361 acres would be open to locatable minerals development.
- 8,406 acres would be closed to locatable minerals development.

Table 2.3-5 Areas Closed to Locatable Minerals Development within ACECs / Preferred Alternative

Closed Areas	Acres
Pine Dunes ACEC	2,887
Susan River ACEC	2,495
Willow Creek ACEC	2,130
Lower Smoke Creek ACEC	894
Total	**8,406**

2.3.5 Saleable Minerals

5.1 Goal

Provide mineral materials to meet the demands of local, state, and federal agencies and the public for mineral materials. Meet public demand for decorative flat rock.

5.2 Objectives

Ensure that mineral material pits are developed, used, maintained, and closed in a manner that minimizes impacts on other resources. Ensure that commercial and noncommercial flat rock is collected in an environmentally sensitive manner within environmentally cleared areas.

5.3 Management Common to All Alternatives

All wilderness study areas (WSAs) (380,359 acres) would be closed to saleable mineral extraction. Standard leases or restrictive stipulations would be determined during the environmental assessment or environmental impact statement process.

5.4 No Action Alternative

- 639,753 acres would continue to be open to saleable mineral extraction.
- 383,014 acres would continue to be closed to saleable mineral extraction, as outlined in Table 2.3-6.

Table 2.3-6 Areas Closed to Saleable Mineral Extraction / No Action Alternative

Closed Areas	Acres
Existing WSAs	380,359
Pine Dunes RNA	160
Bizz Johnson Trail SRMA	2,495
Total	**383,014**

- Materials for BLM, state, county, and city uses would be provided from existing or previously closed pits.
- New mineral materials sites would be provided after National Environmental Policy Act (NEPA) compliance.
- Decorative rock collection for personal and commercial use would be allowed when compatible with other resource values and uses.

5.5 Alternative 1. Economic Development

- 637,008 acres would be open to saleable minerals extraction.
- 5,400 acres would be closed to saleable minerals extraction.

Table 2.3-7 Areas Closed to Saleable Mineral Extraction / Alternative 1

Closed Areas		Acres
Susan River ACEC		2,495
Pine Dunes RNA		160
Aspen Groves ACEC		2,745
Total		**5,400**

- Mineral availability would be based on public demand for local and regional development projects.
- Existing pits would be expanded and closed pits reopened as needed to meet local demand.
- New community pits in other areas would be allowed as needed.
- Sources for commercial sales of sand and gravel would be provided.
- Developments of new sources of sand and gravel would be allowed when activities are compatible with high-value resources or could be satisfactorily mitigated.
- Sand and gravel would be provided for county and state road maintenance.
- Decorative rock sales and collection would be allowed for personal and commercial use when compatible with other resource uses.

5.6 Alternative 2. Ecosystem Restoration

- 553,011 acres would be open to saleable mineral extraction.
- 385,759 acres within WSAs and seven ACECs would be closed to saleable mineral extraction.

Table 2.3-8 Areas Closed to Saleable Mineral Extraction within ACECs / Alternative 2

Closed Areas		Acres
Pine Dunes ACEC		2,887
Eagle Lake Basin ACEC		34,320
Susan River ACEC		2,495
Willow Creek ACEC		2,130
Lower Smoke Creek ACEC		894
Buffalo Creek Canyons ACEC		36,515
North Dry Valley ACEC		10,156
Total		**89,397**

- Existing community sand and gravel pits would be kept open, but no expansion would be allowed as materials are exhausted.
- Old pits would be reclaimed. No new community sand and gravel pits would be built.
- Existing county and state sand and gravel pits would remain open. Expanding would be considered with restrictive stipulations.
- All minimally used pits would be closed and reclaimed.
- New pits would be opened as needed for road maintenance, subject to restrictive stipulations.
- Decorative rock (flat rock) sales and collection would be prohibited.

5.7 Alternative 3. Traditional Uses

Areas open and closed to mineral extraction would be identical to Alternative 1. Management would differ from Alternative 1, as more restrictive stipulations would be applied to mitigate resource conflicts.

- Sand and gravel would be provided for the local community within existing pits, and pits would be expanded as needed to respond to local demand.
- Commercial sales of sand and gravel would continue within existing pits.
- Previously closed and reclaimed pits would be considered for reactivation if dictated by local demand.
- Sand and gravel for county and state roads would be sourced from existing pits. Expansion would be considered as needed.
- New sand and gravel pits would be permitted as needed for road maintenance after existing and previously closed pits have been exhausted, if the disturbance doesn't conflict with other resources.
- Decorative rock (flat rock) collection for personal use would continue. Commercial decorative rock collection would continue in designated areas compatible with other resource uses.
- Areas designated for decorative rock collection would be restricted to locations accessed by existing roads.
- Only small, rubber-tired (low-impact) equipment or hand collection would be allowed off of existing roads and active disturbance areas.
- Sales would be limited to an appraised value of $2,000 per application.

5.8 Preferred Alternative

- 634,002 acres would be open to saleable minerals extraction.
- 388,765 acres within existing WSAs and four ACECs would be closed to saleable minerals extraction.
- Management actions would be the same as in Alternative 3.

Table 2.3-9 Proposed Saleable Minerals Closures within ACECs / Preferred Alternative

ACEC		Acres
Pine Dunes		2,887
Susan River		2,495
Willow Creek		2,130
Lower Smoke Creek		894
Total		**8,406**

2.4 Fire Management (Appropriate Management Response)

Federal Fire Policy defines Wildland Fire as: "Any non-structural fire that occurs in the wildland." Three distinct categories of wildland fire have been defined as follows:

Wildfires--Either caused by man or naturally ignited, these are suppressed using the appropriate management response (AMR).

Wildland Fire Use--These are naturally ignited fires which are allowed to burn in order to realize resource benefits.

Prescribed Fires--Planned, deliberately ignited fires set by resource managers in order to accomplish resource management objectives.

Management actions with regard to fire are defined and discussed in "Federal Wildland Fire Policy" (2001), Appendix D, pages 43-44. This Federal fire policy direction addresses and defines the following management actions:

Response to Wildland Fire: Fire, as a critical natural process, would be integrated into land and resource management plans and activities on a landscape scale and across agency boundaries. Response to wildland fire is based on the ecological, social and legal consequences of that fire. The circumstances of the fire and its likely consequences to firefighter and public safety are of primary concern. After this, consideration is given to the protection of natural and cultural resources. These factors dictate the appropriate response.

Use of Wildland Fire: Wildland fire would be used to protect, maintain, and enhance resources and--as far as possible--be allowed to function in its natural ecological role. Use of fire would be based on approved Fire Management Plans and would follow specific prescriptions contained in operational plans.

Protection Priorities: As stated previously, the protection of human life is the single, overriding consideration. After this, setting priorities between protecting communities and infrastructure, and natural and cultural resources, would be based on health and safety needs, the resources requiring protection and the cost of that protection.

Suppression: Fires would be suppressed at minimum cost consistent with human safety and resource objectives, the value of the resources requiring protection, and the likely benefits of fire suppression efforts.

2.4.1 Appropriate Management Response

Appropriate Management Response (AMR) consists of any specific and suitable action taken to meet public and firefighter safety needs plus resource objectives. AMR may encompass the entire spectrum of tactical options from monitoring to intensive and aggressive management actions. The AMR is developed using objectives and strategies identified in the NorCal Fire Management Plan. Response to wildland fire is based on evaluation of risk to firefighters and the public, the circumstances under which the fire occurs (especially weather and fuel conditions), natural resource management objectives, and the protection of property and other human values. Priorities are set based on a holistic analysis and evaluation of the specific fire context, local geography and the national wildland fire situation.

Appropriate Management Responses typically fit one of the following three management scenarios:

- Prompt and aggressive suppression to control the fire as quickly as possible and keep burned area to a minimum. Some examples would be fires within the Wildland Urban Interface (WUI), developed recreational sites and facilities, and critical resource or cultural areas where wildfire is not desired.
- Monitoring a wildland fire provided topographic, weather, and fuel conditions reflect a minimal threat to other government-owned or private lands, resource objectives are enhanced (or at least not imperiled) and safety considerations are reasonable.
- Aggressive suppression on one portion of a wildland fire and monitoring on another portion of the same fire.

The Eagle Lake Field Office (ELFO) fire management plan is periodically revised, and segues to the general fire management direction of this RMP. It describes the Appropriate Management Response--up through full suppression--throughout the management area. It identifies conditions and potential locations for wildland fire use and for prescribed burning, as well as other factors pertaining to fire management in the planning area. It describes appropriate management response for initial attack and full suppression of all wildland fires threatening BLM and other federal lands, as well as state and private property. Sensitive areas such as habitat of endangered or threatened species and significant cultural sites are also addressed in the plan.

2.4.2 Desired Future Condition

The BLM has a mandate to restore and maintain a healthy ecosystem with a diversity of seral stages and age classes of vegetation. This is essential to provide adequate forage for livestock; sufficient food, thermal, and escape cover for wildlife; healthy and productive forests and watersheds and to enhance recreational opportunities. Fire is essential to accomplishing these goals. However, it is also necessary to suppress unplanned fires where they threaten the WUI, private timber and property, special resource features, sensitive areas and areas at risk of vegetation type-conversion to monocultures of noxious weeds.

Fire managers must lower suppression costs and promote the reintroduction of fire, and its associated ecological benefits, back into the ecosystem—something which would dramatically lower the cost of fire suppression in the long-term. A ‘confine-and-contain’ strategy would be typical of the flexibility required of fire managers in the use of adaptive management to achieve these ends.

2.4.3 Goals

Wildland Fire Management

Provide an appropriate management response to all wildland fires, with emphasis on firefighter and public safety. With this as the highest priority, further prioritization and decision-making would be based on relative values of resources and property requiring protection, commensurate with fire management costs.

Risk Mitigation and Education

Enhance public awareness and knowledge of hazards associated with fuel accumulation and fire, as well as practical preventive measures--especially in the Wildland Urban Interface. The public must also be educated as to the natural role of fire in the ecosystem and the necessity of prescribed fire for the protection of property, reduction of fuels and maintenance of healthy plant and animal communities.

2.4.4 Objectives

Wildland Fire Management

Suppress all wildland fires that merit full suppression, at minimum cost and with the smallest possible acreage burned. The full array of management actions available may be used unless site-specific restrictions apply (e.g., Wilderness Study Areas, Research Natural Areas, Areas of Critical Environmental Concern, known NRHP-eligible [National Register of Historic Places] sites). Aggressive suppression is paramount in the WUI and in important habitat areas.

Fire should be used as much as possible as a natural and cost-effective means of restoring, maintaining, and improving ecosystems. Areas with a history of wildland fire--under conditions showing little potential for spreading—should be considered for wildland fire use, monitoring, or a containment-and-confinement strategy. This must be accomplished with minimal firefighter risk and at the lowest possible cost.

The NorCal Fire Management Plan would be used at all levels for fire management decision-making. This Plan provides details for all activity levels of wildland fire management response as well as various suppression options. It also identifies conditions and potential locations for wildland fire use, prescribed burning and other fuel-reduction treatments.

Risk Mitigation and Education

Education would emphasize community protection procedures and public safety measures. ELFO fire managers are committed to providing fire education assistance to communities that have been or may be threatened by wildland fires. Active community participation and citizen-driven solutions are essential in reducing the risk of fire in the WUI. More specifically, the ELFO provides support for citizen education on fuel reduction and the effects of fire, the development of Community Wildfire Protection Plans, volunteer firefighter refresher training (on a yearly basis) and equips rural and volunteer firefighters when funding is available. Communities may take action to live safely in fire-prone areas by availing themselves of grant programs such as Rural, State and Volunteer Fire Assistance and Economic Action Programs, available through various State and Federal agencies.

Eagle Lake Field Office fire and resource managers work with communities, Fire Safe Councils and other government agencies to identify wildland fire hazards and create mitigation strategies, as well as providing public education on the subject of fire ecology and fire as a natural ecosystem process.

2.4.5 Legislative, Regulatory, and Policy Direction

5.1 General

- Federal Wildland Fire Management Policy and Program Review 1995, revised 2001
- Interagency Fire Management Plan Template
- A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-year Comprehensive Strategy Implementation Plan
- The Interagency Standards for Fire and Aviation Operations (published annually)
- Department of the Interior Departmental Manual (DM 910)
- BLM Manual 9200
- Fire Management Plan Guidance: IM No. 2003-38
- Land Use Plan Guidance: IM No. 2004-007

- A memorandum of understanding (MOU) is in effect between all federal and state agencies concerned with fire management operations on public and private lands within California. It exists as the Cooperative Fire Protection Agreement between the USDI, BLM for CA and NV; USDI,NPS, Pacific West Region; USDA, FS, Regions Four, Five, and Six; and the CDF.
- The BLM uses the Fire Program Analysis (FPA) software to allocate resources and determine fire management budgets in relation to natural resource goals and objectives.

5.2 Specific to Eagle Lake Field Office

MOUs with other agencies:

- Fire Suppression Operating Plan – Reno Fire Protection District, Washoe County Nevada
- Interagency Protection Agreement – USDI BLM, Winnemucca District
- Interagency Protection Agreement – USDI BLM, Carson City Field Offices; USDA USFS Tahoe National Forests
- Interagency Protection Agreement – USDA Forest Service Modoc National Forest
- Interagency Protection Agreement – BLM, Lakeview District
- Cooperative Fire Protection Agreement – Janesville Fire Department
- Cooperative Fire Protection Agreement – Lake Forest Fire Department
- Cooperative Fire Protection Agreement – Milford Fire Department
- Cooperative Fire Protection Agreement – Spaulding Fire Department
- Cooperative Fire Protection Agreement – Standish-Litchfield Fire Department
- Cooperative Fire Protection Agreement – Stones Bengard Fire Department
- Cooperative Fire Protection Agreement – Susanville City Fire Department
- Cooperative Fire Protection Agreement – Susan River Fire Department
- Cooperative Fire Protection Agreement – Termo-Ravendale Fire Department

BLM plans:

- California Master Agreement between USFS, USFWS, BIA, NPS, CDF, and BLM
- NorCal Fire Management Plan
- Eagle Lake Field Office Fire Management Direction (From Phase I Fire Planning)
- Risk Assessment and Mitigation Strategies
- Private Land protection for CDF (SRA lands) and Reno (SRA Nevada Lands)

2.4.6 Management Common to All Alternatives

6.1 *Wildland Fire Management*

When severe fire-intensity levels exist—as described in the NorCal Fire Management Plan (FMP)—aggressive, initial attack and full suppression would be the appropriate management response (AMR) for all areas, especially in the WUI. Exceptions would be made only where resource objectives would be achieved and the fire could be safely contained.

When low fire-intensity levels exist, a less aggressive AMR would be indicated. Response interventions would be determined by identified resource management objectives for the area.

Suppression efforts in initial attack may include the use of engines, aircraft, retardant, hand crews and heavy equipment. Use of heavy equipment would be avoided in ACECs, approved RNAs, WSAs and known NRHP-eligible sites--except where deemed necessary by the Line Officer.

Local resources, contractors, and personnel would be used as much as possible in suppression efforts.

6.2 *Risk Mitigation and Education*

Fire prevention classes and education programs concerning the natural role of fire would be given in local schools.

BLM fire management representative(s) would attend local Fire Safety Council meetings to present programs dealing with the risks of hazardous fuel build-up and wildland fire as well as information on basic fire ecology and the beneficial role it plays in local ecosystems.

There would be ongoing hazard assessment and identification of at-risk areas. This would be followed by mitigation project proposals, in cooperation with local agencies.

Local volunteer fire departments would be assisted with yearly safety training and would be issued equipment as funding permits.

The BLM would work with local communities to develop and implement Community Wildfire Protection Plans.

2.4.7 No Action Alternative

This alternative focuses on the suppression of all wildland fires at minimum cost and with the smallest possible acreage burned. The full array of available management actions and equipment would be used unless site-specific restrictions apply, (e.g., WSAs, ACECs, approved RNAs and known NRHP-eligible sites).

Wildland fire use would not be an option in this alternative.

2.4.8 Alternative 1. Economic Development

This alternative is identical to the No Action Alternative.

2.4.9 Alternative 2. Ecosystem Restoration

This alternative emphasizes the use of the AMR and adaptive management considerations. It would allow fire to play a significant role in most vegetation types in a context which is as natural as possible, given existing constraints.

The ecosystem restoration approach would employ the full range of AMR suppression options, from active suppression to restricting the spread of wildland fires. Confinement in the latter option would utilize direct and indirect actions plus the use of natural and man-made barriers (e.g., roads). Fuel and weather conditions would be critical factors in adaptive management decisions.

A wildland fire use plan or monitoring strategy would be part of appropriate management response plans for designated areas.

If it's apparent that a wildland fire is achieving resource benefits (e.g., fuel reduction, restoration of natural conditions on rangeland) it would be managed using a contain-and-confinement strategy and allowed to burn to natural or man-made barriers.

Use of heavy equipment would be avoided in ACECs, approved RNAs, known NRHP-eligible sites, WSAs and other sensitive areas. Employment of this equipment in these areas would require Line Officer approval. If used, heavy equipment would be restricted to existing roads and trails except where judicious off-way use is deemed essential by the line officer.

2.4.10 Alternative 3. Traditional Uses

This alternative is identical to the No Action Alternative.

2.4.11 Preferred Alternative

The Preferred Alternative is the same as Alternative 2. This alternative emphasizes the use of the AMR and adaptive management considerations. It would allow fire to play a significant role in most vegetation types in a context which is as natural as possible, given existing constraints.

The ecosystem restoration approach would employ the full range of AMR suppression options, from active suppression to restricting the spread of wildland fires. Confinement in the latter option would utilize direct and indirect actions plus the use of natural and man-made barriers (e.g., roads). Fuel and weather conditions would be critical factors in adaptive management decisions.

A wildland fire use plan or monitoring strategy would be part of appropriate management response plans for designated areas.

If it's apparent that a wildland fire is achieving resource benefits (e.g., fuel reduction, restoration of natural conditions on rangeland) it would be managed using a contain-and-confinement strategy and allowed to burn to natural or man-made barriers.

Use of heavy equipment would be avoided in ACECs, approved RNAs, known NRHP-eligible sites, WSAs and other sensitive areas. Employment of this equipment in these areas would require Line Officer approval. If used, heavy equipment would be restricted to existing roads and trails except where judicious off-way use is deemed essential by the line officer.

2.5 Forestry

The forestry program is a small but significant component of the Eagle Lake Field Office. Forestry has generally been conducted on the best growing sites and in brush fields caused by wildfire, where tree plantations have later been established. Timber has been harvested mainly in mature stands, with the objective of removing older, high-risk trees. Forestry emphasized species and stocking control (i.e. preferred tree species and desired optimal density), preferential production of saw logs, wildfire suppression, and insect and disease control. BLM has managed forests under the authority of the Willow Creek Management Framework Plan (MFP) (BLM 1983) and the Sustained Yield Unit 15 Plan (BLM 1981a).

Forests under field office management tend to be patchy and interspersed with rangeland. Therefore, BLM has not conducted large timber sales. Green timber sales during the 1960s through 1980s were of less than 100,000 board feet) and 100-200 acres. But the 1990s saw an upturn in salvage timber sales–either fire or insect killed. These sales have been much larger (up to 20 million board feet) of dead or dying timber occupying up to 2,000 acres. This mortality echoes a pattern seen throughout the forests of the West and has spurred Presidential initiatives and legislation to restore healthy forests.

The Healthy Forests Initiative (begun in 2002) and the Healthy Forests Restoration Act of 2003 provide for reduction of hazardous fuels accumulations and restoration of wildfire damaged areas. The Healthy Forests Initiative implements core components of the National Fire Plan's 10-Year Comprehensive Strategy and Implementation Plan which establishes a framework for protecting communities and the environment through local collaboration on thinning, planned burns and forest restoration projects.

Coniferous forests and juniper woodlands total 47,080 acres in the field office area. Of this total, coniferous forests make up 21,962 acres in all canopy cover classes. But only 11,020 acres of that total is productive enough to be regarded as commercial forest.

2.5.1 Desired Future Condition

The desired future condition (DFC) is one in which all components of the forest ecosystem are present and functioning normally. Such a condition would require the following:

- Trees are sufficiently spaced to promote vigorous growth and a healthy understory.
- Food and escape and thermal cover are sufficient for wildlife.
- Fuels treatments are appropriate for encouraging lower intensity surface fires.
- Forests consist of all age classes and sizes, which also reflect the desired species composition.

Generally speaking, these goals would be achieved by selective thinning and ground cover burning to keep fire out of the forest canopy. Tree stocking levels, which meet the desired future condition may range from a high of 200 seedling/sapling trees per acre to as low as 10-20 large trees per acre in the mesic growing sites of the Eagle Lake Field Office area.

2.5.2 Goal

Manage for sustainable, healthy forest ecosystems in all seral stages under conditions desirable for wildlife, normal watershed function, fire control, recreational uses, wood production, and other objectives.

2.5.3 Objectives

- Conduct forest improvement interventions on commercial and noncommercial forests and woodlands.
- Reduce hazardous fuels accumulation on commercial and noncommercial (i.e. low-site) forest land.
- Provide commercial forest products through stewardship and timber sale contracts.
- Restore juniper-infested rangeland to healthy functioning condition.
- Conduct timber salvage sales as needed on commercial and noncommercial forests and woodlands.
- Plant desirable tree species and plan implementations that encourage adequate growth where forests are damaged by wildfire or other significant disturbances.
- Design logging and fuels removal projects to increase age and size class diversity, including all suitable forms of commercial and noncommercial forestry practices.
- Achieve desired age, size, stocking density, and forested acreage for timberlands in the field office area, under all alternatives, as expressed in Table 2.5-1.

Table 2.5-1 Desired Age, Size, Stocking Density, and Forested Acreage for Timberlands under All Alternatives

Age (years) (Size Class)	Density (trees per acre)	Forest Acreage by Alternative (%)				
		No Action Alternative	Alternative 1 Economic Development	Alternative 2 Ecosystem Restoration	Alternative 3 Traditional Uses	Preferred Alternative
<10 (max 1" diameter)	200–300	5	15	10	5	10
<30 (max 6" diameter)	50–200	5	15	10	5	10
<60 (max 12" diameter)	25–50	30	20	10	25	10
<100 (max 24" diameter)	10–25	30	20	20	35	20
>100 (over 24" diameter)	1–10	30	30	50	30	50

2.5.4 Legislative, Regulatory, and Policy Direction

Management alternatives are subject to and guided by the authority of the following legislative, regulatory, and policy directives:

- Federal Land Policy and Management Act (FLPMA) of 1976
- Code of Federal Regulations 43 CFR Part 5000, Forest Management
- The Healthy Forests Restoration Act of 2003
- The President's Healthy Forests Initiative
- Timber Management Final Environmental Impact Statement (FEIS) (1976)
- California Vegetation Management FEIS (1988)
- Timber Management Environmental Assessment: SYU 15 (BLM 1981a)
- Memorandum of Agreement (MOA) with the Lahontan Water Quality Control Board
- MOA with California Department of Fish and Game
- MOA with U.S. Fish and Wildlife Service for threatened and endangered species
- Willow Creek Management Framework Plan (1983)

2.5.5 Management Common to All Alternatives

Manage 11,020 acres as commercial forest, using a mix of silvicultural methods that includes commercial thinning, even-age management (clearcut and shelterwood), uneven-age management (group selections, individual tree selection, and sanitation/salvage) and pre-commercial thinning. Emphasize a late seral stage plant community.

Continue to meet the maximum sustained yield defined in the *Timber Management Environmental Assessment: Sustained Yield Unit 15* (BLM 1981).

The 1,332 forested acres within the Bizz Johnson Trail Special Recreation Management Area (SRMA) would be managed for recreational purposes and community wildfire defense using commercial and precommercial thinning and hazard reduction techniques.

Activities to restore 773 acres of recent wildfire-affected forest land would continue. These activities include undesirable species control, planting, and precommercial thinning. Dead woody material, including snags, downed logs, and litter, would be left on site after management activities.

Treat quaking aspen stands that are being invaded by competing species to remove competition and expand stands to their full potential.

2.5.6 No Action Alternative

The No Action Alternative would continue the forestry program as mandated in the Willow Creek Management Framework Plan (BLM 1983) and in the Timber Management Plan for Sustained Yield Unit (SYU) 15 (BLM 1981a). Trees and biomass would be harvested from 400 acres annually. The 1,734 forested acres in the Tunnison WSA would continue to be managed for wilderness values rather than timber production. Upper Murrer Meadows would be managed as commercial forest. Strategies of investing in intensive forestry practices, commercial thinning, and planting would continue. The Eagle Lake Field Office would also conduct insect and disease reduction efforts. Prescribed understory burning would be used to reduce fuels where surface fuels can be safely burned.

2.5.7 Alternative 1. Economic Development

The Economic Development Alternative would allow the highest level of consumptive and nonconsumptive uses in the field office area, while still remaining within established management thresholds and with restorative action determined by cost/value principles.

- Harvest trees and biomass from 670 acres annually.
- On commercial timberlands (i.e. high sites), even-aged management would be emphasized, and harvest would be proposed at Culmination of Mean Annual Increment (i.e. the point where growth of a mature stand starts to decline; generally around 120 years of age and 22 inches dbh).
- Implement fuel reduction treatments on the 1,734 forested acres of the Tunnison WSA. Continue to manage this WSA for wilderness values using fire régime restoration techniques.
- Manage Upper Murrer Meadows as commercial forest. Leave designated larger trees standing as potential nesting sites.
- Continue the strategy of investing in intensive forestry methods, commercial thinning, and planting.
- Conduct insect and disease reduction efforts, similar to those under No Action but emphasize management of commercial forest. Use prescribed understory burning to reduce fuels where economically feasible.

2.5.8 Alternative 2. Ecosystem Restoration

The Ecosystem Restoration Alternative would focus on restorative thinning and fuels reduction. It would permit a greater number of stands to be treated during the life of the RMP than would the other alternatives. The predominant strategy would be to invest in forestry practices that emphasize restoration of the natural fire regime to approximate the normal variability of a healthy plant community while also taking needed precautions to protect human lives and property.

- Harvest trees and biomass from 1,100 acres annually.
- Cull trees with late seral characteristics to reduce competition, decrease the likelihood of crown-consuming wildfire, and reduce insect and disease infestations.
- In forest land near human settlements emphasize commercial thinning and biomass removal to protect lives and property.
- Manage forested acres in Tunnison WSA in the same manner as under Alternative 1.
- Manage Upper Murrer Meadows as commercial forest, emphasizing wildlife values and a late seral stage ecosystem.
- Restore 1,300 acres of oak woodlands using individual tree removal and prescription burning of understory vegetation to remove competing conifers.

2.5.9 Alternative 3. Traditional Uses

The Traditional Uses Alternative is similar to No Action option but would emphasize traditional practices such as clearcutting, pesticide use, and fertilization. Investment in forest management would continue forestry practices that have been traditionally employed by the local community.

- Harvest trees and biomass from 300 acres annually.

- Manage the 1,734 forested acres in Tunnison WSA, and Upper Murrer Meadows identically to No Action.
- Closely tailor overall forest management to local needs and be responsive to local industry, small business, and private individuals.
- As under the Ecosystem Restoration Alternative, conduct commercial thinning and biomass removal with an emphasis on prescribed burning as a main tool to protect lives and property near human settlements.

2.5.10 Preferred Alternative

For managing forests, the Preferred Alternative is the same as Alternative 2. Closely resembling the direction in which forest management practices have been headed since the introduction of the National Fire Plan in 2002, this management strategy provides for treatment of the largest possible area and would meet desired future condition goals within the lifespan of this RMP. Under this alternative, 90% or more of existing forest would be restored to a healthy, vigorous state. Community protection from catastrophic wildfire would also be most effective under this alternative.

2.6 Fuels Management

Fuels management decisions for the BLM Eagle Lake Field Office are based upon; the NorCal Fire Management Plan (BLM 1998b), this resource management plan (RMP), and the best available science. Treatments are necessary to alter, maintain, or restore vegetative communities in order to achieve desired resource conditions as well as protecting life, property, and the resource itself.

The Healthy Forest Restoration Act (HFRA) of 2003 provides direction and guidance for the purpose of fuels management. Those purposes include reducing wildfire risks to communities, municipal water supplies, and other at-risk sites on or next to federal lands. This act also provides general guidance for protecting watersheds, threats to forest and rangeland ecosystem health, and recovery of threatened and endangered species.

2.6.1 Desired Future Condition

Fuels management would be designed to mimic naturally occurring wildfire effects in order to maintain healthy ecosystems and restore plant communities to a condition approximating the natural and/or historical biological diversity of local ecosystems. Hazardous fuels reduction projects would be designed and in place to protect the wildland-urban interface (WUI) by creating fuel breaks and defensible space around at-risk communities.

2.6.2 Goal

Reduce hazardous fuels within the Eagle Lake Field Office area, especially in the wildland-urban interface, using a variety of fuels treatment methods.

Develop hazardous fuels treatment plans to restore both ecosystem health and wildlife habitat and to protect culturally sensitive areas.

Reintroduce fire as a normal and natural component of ecosystem health.

2.6.3 Objectives

Fuels treatments would include mechanical, prescribed burning, chemical, and biological methods. Project location and type would be determined by the following:

- the need to protect local communities,
- the judgment of resource specialists, and
- the use of the Risk Assessment and Mitigation Strategies (RAMS) software system.

Fuels treatment projects would target the wildland-urban interface of communities within sagebrush steppe ecosystems experiencing invasion by western juniper and any areas that have excess fuel accumulations due to the exclusion of fire. Such projects would also address culturally sensitive areas and important wildlife habitat.

Long-range fuels treatment projects would be developed and implemented to do the following:

- protect high at-risk communities;
- restore, maintain, and improve forest and rangeland ecosystems;

- increase livestock forage;
- enhance culturally significant traditional gathering areas;
- provide improved recreation opportunities; and
- reduce hazardous fuels in general.

2.6.4 Legislative, Regulatory, and Policy Direction

General Guidance

- Federal Wildland Fire Management Policy and Program Review 1995 (USDI 1995) and 2001
- Interagency Fire Management Plan Template
- A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-year Comprehensive Strategy Implementation Plan (Western Governors Association and others 2002)
- The Interagency Standards for Fire and Aviation Operations (published annually)
- USDI Departmental Manual (DM 910)
- BLM Manual 9200
- Fire Management Plan Guidance: IM No. 2003-38
- Land Use Plan Guidance: IM No. 2004 --007
- A memorandum of understanding (MOU) is in effect between all federal and state agencies concerned with fire management operations on public and private lands within California. It exists as the Cooperative Fire Protection Agreement between the USDI, BLM for CA and NV; USDI,NPS, Pacific West Region; USDA, FS, Regions Four, Five, and Six; and the CDF.
- The BLM uses the Fire Program Analysis (FPA) software to allocate resources and determine fire management budgets in relation to natural resource goals and objectives.

BLM Planning Specific to the Eagle Lake Field Office

MOUs with other agencies

Development of a Lassen County Collaborative Fuels Treatment Program—U.S. Department of Agriculture, Forest Service, Natural Resource Conservation Service; State of California CDF; Lassen County; Lassen County Fire Safe Council.

BLM Plans

- NorCal Fire Management Plan (BLM 1998b)
- Risk Assessment and Mitigation Strategies (RAMS)

2.6.5 Management Common to All Alternatives

- Set as the highest priority the treatment of excessive fuels within the wildland-urban interface to protect at-risk communities from catastrophic fire.
- Use such methods as mechanical, prescribed burning, chemical, and biological alternatives.

- Develop and implement hazardous fuels reduction plans to protect human life and property. This process would involve consulting with resource specialists and using the Risk Assessment and Mitigation Strategies (RAMS) software. Implementation would involve creating fuel breaks and defensible space around at-risk communities. In addition, such plans and projects would seek to reduce hazardous fuels over a wider area, especially targeting invasive western juniper. To maintain healthy ecosystems and restore plant communities to a condition approximating their natural or historical biological diversity, projects would be designed to preserve cultural sites, maintain acceptable visual appearance, and mimic the effects of naturally occurring wildfires.

Prescribed burning would be integral to this process and would have as its highest priority the protection of human life and property. Burn plans would be designed and approved on a project specific basis by qualified resource specialists.

Hazardous fuels treatment projects would be implemented by BLM crews and/or private contractors.

2.6.6 No Action Alternative

- Use currently developed fuels treatment plans and implementation strategies to achieve the goals and objectives discussed above.
- Apply management actions that are currently in place.
- Monitor the effects of prescribed burning and other implementation components.
- Modify hazardous fuels treatment plans, including prescribed burning plans, as required using an adaptive management approach.

Table 2.6-1 summarizes fuels treatments under the No Action Alternative.

Table 2.6-1 Proposed Fuels Treatments under the No Action Alternative

Treatment	Acres/Year
Mechanical Treatments	0 to 500
Prescribed Burning	0 to 100

2.6.7 Alternative 1. Economic Development

Develop hazardous fuels treatment plans to maximize commodity production, provide more and better recreational opportunities, and enhance and protect renewable resources such as grazing lands, forested areas, and traditional gathering areas.

For a variety of reasons, particularly under conditions where prescribed burning is too hazardous, use a combination of mechanical treatments to reduce hazardous fuels. These treatments may include cutting, chipping, mowing, masticating, and pulverizing. Treatments such as these would be carried out using tracked vehicles such as faller-bunchers, skid-mounted shears, excavators, and bulldozers. Rubber-tired vehicles could also be used in suitable locations and may include skidders, tractor-mounted shears, masticators, and chippers. To achieve the desired results, mechanical treatment would typically be followed by prescribed burning after a suitable interval and when prescribed burning is safe.

Biological fuels treatment would involve livestock grazing by animals such as goats, sheep, or cattle to consume excess fuel. When this method is used, livestock are confined to a relatively small area with movable fencing. The confinement forces the animals to consume the target plant species.

Chemical fuels treatment would use herbicides to target specified undesired or noxious plants for removal or reduction. Such treatment would generally be used to control highly invasive non-native plants or alter successional trends in the plant community (e.g. medusahead, cheatgrass, and western juniper).

In carrying out its treatments, BLM would support local communities by purchasing fuels treatment products locally whenever possible and using local labor and contractors for fuels management projects.

Table 2.6-2 summarizes fuels treatments under the Economic Development Alternative.

Table 2.6-2 Proposed Fuels Treatments under Alternative 1

Treatment	Acres/Year
Mechanical Treatments	500 to 2,500
Prescribed Burning	0 to 1,500
Chemical Treatments	50 to 500
Biological Treatments	50 to 500

2.6.8 Alternative 2. Ecosystem Restoration

- Develop hazardous fuels treatment plans emphasizing the use of prescribed burning to restore healthy ecosystems.
- Reintroduce the concept of fire as a natural and vital component of the ecosystem. When designing fuels treatment projects, consider recent wildland fire history and modify treatments to achieve desired resource objectives. For example, if a wildfire has recently burned close to a fuels treatment site or prescribed burn, consult with resource specialists to determine whether the projects should be postponed or cancelled

Table 2.6-3 summarizes fuels treatments under the Ecosystem Restoration Alternative.

Table 2.6-3 Proposed Fuels Treatments under Alternative 2

Treatment	Acres/Year
Mechanical Treatments	500 to 3,500
Prescribed Burning	0 to 4,500
Chemical Treatments	50 to 500
Biological Treatments	50 to 1,500

2.6.9 Alternative 3. Traditional Uses

- Develop fuels treatments to increase livestock forage, provide better hunting opportunities, improve timber production, reduce hazardous fuels buildup, and provide for community protection.
- Use local labor contracts for fuel treatment projects as a means of supporting local economies.
- Monitor prescribed burn and fuels treatment effects and adjusts hazardous fuels treatment plans and prescribed burn plans as needed using an adaptive management approach.

Table 2.6-4 Proposed Fuels Treatments under Alternative 3

Treatment	Acres/Year
Mechanical Treatments	500 to 2,500
Prescribed Burning	0 to 500
Chemical Treatments	500 to 1,500
Biological Treatments	50 to 500

2.6.10 Preferred Alternative

- Develop fuels treatment plans emphasizing restoration of ecosystem health.
- Reintroduce the concept of fire as a natural and vital component of the ecosystem. Emphasize treatment of hazardous fuels generally, but particularly near wildland-urban interface (WUI) areas, critical wildlife habitat, and culturally sensitive sites or areas.

The need to protect communities from catastrophic wildfire would guide the developing and implementing of hazardous fuels treatment plans and projects. These plans and projects would be formulated by resource specialists who would use the Risk Assessment and Mitigation Strategies (RAMS) software and system.

Areas of priority for fuels treatment projects are the following:

- the wildland-urban interface,
- deteriorated or over-mature forest and range ecosystems,
- culturally sensitive sites, and
- critical wildlife habitat.

Other projects of importance would include, for example, western juniper invasive areas. Fuels treatment projects would be developed for hazardous fuels reduction and also specifically for wildland-urban interface protection.

Long-range fuels treatment plans and projects would be developed to

- restore and maintain healthy natural ecosystems,
- protect at-risk communities,
- reduce hazardous fuels buildup,
- increase livestock forage,
- improve timber production,
- improve hunting opportunities, and
- protect traditional gathering areas.

Table 2.6-5 Proposed Fuels Treatments under the Preferred Alternative

Treatment	Acres/Year
Mechanical Treatments	500 to 3,500
Prescribed Burning	0 to 4,500
Chemical Treatments	50 to 500
Biological Treatments	50 to 1,500

2.7 Lands and Realty

Lands and realty actions in the Eagle Lake Field Office are organized into two program areas: land tenure adjustment (acquisition and disposal), and rights-of-way.

Map-LANDS-1 identifies broad geographic areas containing legally and/or geographically isolated parcels of public land that the BLM does not intend to actively manage--typically, small areas surrounded by private land and without road access. Disposal of these parcels may be through exchange, sale, or transfer to other agencies. Also within the broad geographic disposal areas, the BLM has also identified parcels within these broad geographic disposal areas which would be retained in public ownership for their resource value.

A historical problem for BLM lands is public land with sensitive and valued resources and/or facilities for which there is no identified legal access. Access may be required for public use and enjoyment, management activities, or administrative purposes. Decisions and prioritization on access acquisition for such areas is necessary and overdue.

2.7.1 Goal 1: Lands for Potential Acquisition

Acquire and maintain access to public lands to improve management efficiency and facilitate multiple uses. Retain in public ownership lands with high resource values. Adjust land ownership to consolidate public land holdings to meet public and community needs.

1.1 Management Common to All Alternatives

Generally retain federal ownership of public lands with high resource values and maintain or improve public access through all land ownership adjustment transactions.

- Manage newly acquired lands for the highest potential purpose for which they were acquired.
- Manage lands acquired within special management designation areas with specific congressional mandates in conformance with established guidelines for those areas.
- Manage lands acquired within special management designation areas that contain unique or fragile resources in the same manner as comparable surrounding public lands.
- If over the life of the plan land status changes, select other parcels administered by BLM, manage them for retention or disposal in the same manner as parcels next to or near them.
- When opportunities arise, acquire from willing sellers isolated tracts of nonfederal land within special management areas to consolidate ownership and eliminate nonfederal inholdings.
- Acquire easements from willing landowners to gain access to public lands.
- Use the following acquisition methods: purchase, donation, exchange, transfer, withdrawal, condemnation, or less-than-fee approaches such as conservation easements, access and utility easements, and mineral and water rights.
- Work with willing private landowners to complete land acquisitions that would provide public land management benefits as well as benefits for private landowners.

- Focus retention and acquisition efforts in areas with larger expanses of public lands with small private inholdings with unique characteristics of the geographic area (e.g. historic resources, ecologically critical areas, abandoned railroad alignments) next to or within large contiguous public land bases and areas needed for public access.
- Retain in public ownership larger tracts of BLM lands that are fairly well blocked.
- Also retain lands where site-specific examination of lands selected for disposal reveal important resources or unique characteristics and the authorized officer determines that these resources are present. Designate these lands as custodial (to be retained under BLM's management). Once the custodial determination is made, BLM could no longer dispose of them.

The acquisition of and access to land is a critical tool in improving resource protection, enhancing recreation opportunities, serving communities and using resources.

- Acquire private lands with unique characteristics of the geographic area (e.g. historic resources, ecologically critical areas, abandoned railroad alignments) next to or within large contiguous public land bases. Purchase easements (partial interests in land) for administrative use or public access.

1.2 No Action Alternative

Pursue acquisition of lands listed in existing management framework plans (MFPs) and lands considered to have high resource and important public interest/resource values and important public access. The planning and land use context of the Eagle Lake Field Office area has changed greatly to respond to population growth and to reflect different local and national trends. Continued management under prior MFPs would promote some efficiency of land management but would not necessarily reflect BLM's current planning goals and objectives.

1.3 Alternative 1. Economic Development

This alternative would focus on the following:

- Acquire lands or access for public use when useful for commodity production and recreation.
- Acquire private lands within and next to wilderness study areas (WSAs) and areas with special designations.
- Focus adjustments on actions to promote commodity production on lands previously administered by BLM.

1.4 Alternative 2. Ecosystem Restoration

Acquisition of lands would emphasize protecting environmental resources. Land tenure decisions would emphasize ongoing retention and management of the BLM-administered lands within and adjacent to areas with special designations.

1.5 Alternative 3. Traditional Uses

This alternative is identical to No Action Alternative.

1.6 Preferred Alternative

Under the Preferred Alternative, BLM would consider acquiring nonfederal lands on a case-by-case basis under the following conditions:

- The lands have resources with unique characteristics of the geographic area (e.g. historic resources, ecologically critical areas, abandoned railroad grades).
- The lands lay next to or within large contiguous public lands bases.
- The lands would allow important administrative and public access.

The advantage of fee acquisition is that the purchase would be permanent and would facilitate future operation and maintenance because all or most of the interests would be under BLM's stewardship. Fee title donations require no federal funds. Donations may also have tax advantages to the donor. Finally, BLM's acquiring of fee title would reduce conflicts caused by the absence of reserved rights, which would constrain the meeting of agency goals and objectives.

BLM would also consider acquiring lands not listed in the RMP if the acquisition did the following:

- helped meet resource management objectives,
- conformed to other RMP decisions,
- was in the public interest, and
- would meet one or more of the following criteria.
    - The acquisition would be in the public interest. The public would benefit from land resources coming into public ownership. The changes would also meet the needs of local and state governments, including the needs of public purposes, community growth, and the economy.
    - BLM would gain important manageable public land resources, such as crucial wildlife habitat, significant cultural sites, mineral or water resources, listed-species habitat, or areas key to productive ecosystems.
    - The acquisition would ensure administrative and public access to lands where access is needed and couldn't otherwise be obtained.
    - The changes would promote more effective management and meet essential resource objectives by consolidating land ownership.
    - The land acquired would serve regional or national priorities stated in policy directives or legislation.

2.7.2 Goal 2: Lands for Potential Disposal

Dispose of lands that have generally low or unknown resource values or that are isolated or fragmented from other public ownerships making them difficult to manage.

BLM would retain parcels within its administrative jurisdiction except where needed to meet one or more of the following objectives.

- Improve natural resource management by consolidating federal, state, and private lands.
- Obtain key property needed to protect special status species–including threatened and endangered species–promote biological diversity; increase recreational opportunities; and preserve archaeological, paleontological, and historical resources.

2.1 Management Common to All Alternatives

Focus land disposals, either by sale or exchange, on smaller, scattered, isolated parcels surrounded by private land and in areas where BLM does not generally intend to pursue intensive management. BLM doesn't dispose of lands specifically for resource use. The secondary benefit of land disposal is that it creates opportunities for improved resource use and management efficiency, e.g. disposal of lands allows for improved grazing management and opportunities for increased mineral leasing and development.

2.2 No Action Alternative

The Eagle Lake Field Office would pursue land tenure adjustments in accord with the prior management framework plans (MFPs). Land disposal would focus on lands leased under the Recreation and Public Purposes Act and a U.S. Army Corps of Engineers (Corps) withdrawal of contaminated land near the former demolition area, next to Skedaddle Mountain and Dry Valley Rim WSAs.

2.3 Alternative 1. Economic Development

Under Alternative 1, land tenure decisions within the Eagle Lake Field Office would focus on the use of tenure adjustments to promote commodity production on the BLM-administered lands. Land disposal would focus on resolving good-faith unintentional occupancy trespass, and lands selected for disposal would be eliminated from any restoration or rehabilitation plans. BLM administration of land tenure under this alternative would mainly respond to public requests for productive use of BLM-administered lands.

2.4 Alternative 2. Ecosystem Restoration

Under the Ecosystem Restoration Alternative land tenure decisions would emphasize protecting environmental resources and ongoing retention and management of the BLM-administered lands. Land disposal would conform to the Federal Land Policy and Management Act, but the RMP would not promote disposal to achieve other management goals and objectives. BLM would dispose of lands only after a National Environmental Policy Act (NEPA) analysis reveals no significant resources are present (e.g. cultural, water, active/inactive sage-grouse leks, and fawning grounds).

2.5 Alternative 3. Traditional Uses

The Traditional Uses Alternative would dispose of lands listed for disposal in the existing management framework plans (MFP) if the public generates interest in disposal. Disposal of other parcels would require a plan amendment after BLM determines that the local community benefit outweighs public retention of the specific parcel and the public interest would be well served.

2.6 Preferred Alternative

The Preferred Alternative would seek disposal of BLM-administered lands shown on Map Lands-1 (24,041± acres) by the following methods:

- Recreation and Public Purposes (R&PP) lease or sale,
- Desert Land Entry (DLE),
- sale, exchange, and withdrawals,
- resolution of trespass, or
- sale into private ownership.

These lands are small, scattered, isolated parcels surrounded by private land in areas where BLM does not generally intend to focus on long-term continued management.

If site-specific examination of lands identified for disposal reveals important resources or unique characteristics and the authorized officer determines that these resources are present, the lands would be classed as custodial (lands to be retained under the management of BLM). Once the determination is made, the lands would not be transferred from BLM management by any method during the life of the plan.
In addition, at the discretion of the BLM authorized officer, BLM-administered lands may on rare occasions if they meet the following criteria:

1. The tract is difficult and uneconomic to manage because of its location or other characteristics. The tract is no longer required for its originally intended federal purpose. Disposal of such a tract would serve a public objective, such as expansion of communities and economic development, and outweighs other public objectives, including recreation and scenic values. Although not shown on Map LANDS-1, certain small scattered/isolated parcels within retention areas would be considered for sale or exchange (APN 65-24-15 and 65-24-16 - 3.688 acres). Also to be considered for disposal in the RMP are other small tracts that are difficult and uneconomic to manage, are not annotated on the Map LANDS-1, and were overlooked or unknown, and do not provide legal access to other areas of public lands.

2. The sale is needed to resolve good-faith unintentional occupancy trespass involving the following:

- substantial buildings that cannot be feasibly moved;
- the occupancy trespass has resulted from survey errors, or updated surveys that show the buildings were inadvertently located on public land;
- The occupancy trespass cannot be resolved under either Section 315 or Section 316 of the Federal Land Policy and Management Act (FLPMA);
- such lands are not suitable for disposal by third-party or direct land exchanges.
- Funding is available, either within the Eagle Lake Field Office's Lands and Realty budget appropriation, or through contributed funds from potential purchasers, to conduct the needed environmental studies before sale of the specific parcels.
- Such sales would be limited to the smallest feasible part or lot that would resolve the trespass, as determined by the BLM authorized officer.

3. The sale is needed to resolve land management problems that consist of small "slivers" of public land isolated by larger areas of private land, resulting from prior survey errors or more-recent surveys of previously unsurveyed lands. Such lands do not provide legal access to other areas of public lands, either because they are too small to feasibly accommodate such access or because they do not connect to other public lands; and such lands are not suitable for disposal by direct land exchanges with the surrounding landowner. Funding is available, either within the Eagle Lake Field Office's Lands and Realty budget appropriation, or through contributed funds from potential purchasers, to conduct the needed environmental studies before the sale of the specific parcels.

Such sales would be limited to the smallest feasible part or lot that would resolve the issue, as determined by the BLM authorized officer.

4. Desert Land Entry (DLE): BLM would make a final determination on the DLE (case file CACA 5902). Lands classified as unsuitable for desert land entry under the previous management framework plans or land use plans would remain classified as unsuitable for entry.

Soils classified by the Natural Resources Conservation Service (NRCS) as having a Land Capability Classification of IV or higher are not considered suitable for Desert Land Entry. Soils with a classification of III or better would be considered on an individual basis.

Wilderness study areas (WSAs), areas of critical environmental concern (ACECs), wild and scenic rivers (WSRs), and other special management areas are designated for retention in federal ownership, and this designation would preclude disposal.

5. Recreation and Public Purposes (R&PP): BLM would complete conveyance of lands under lease for the dumps/landfills/transfer stations (CAS 5810) Johnstonville/Bass Hill, CASO 79547 - Herlong, CACA 4300 - Stone's Transfer Station, and recreational use (CACA 6072) Lassen County Rifle Range–Rice Canyon.

6. Withdrawals: Public lands administered by BLM could be withdrawn for specific purposes by agencies other than BLM. As part of the management of lands in the Eagle Lake Field Office area, BLM may be required to review current withdrawals to determine the need for their continuation, modification, revocation, or termination. BLM would consider future withdrawals on a case-by-case basis in accord with Section 204 of Federal Land Policy and Management Act (FLPMA). The Secretary of the Interior may act to terminate withdrawals other than those made by act of Congress.

Withdrawn lands in the field office area include a portion of lands within the Sierra Army Depot. The withdrawn lands are shown on the master title plats maintained in the BLM's California State Office. The Sierra Army Depot is charged with receiving, issuing, and renovating munitions, and the efficient and safe demilitarizing of surplus ammunition. In 1990, a detonation extended beyond the demolition range boundary and onto BLM-administered land. In 1991, the Sierra Army Depot built a quality distance fence for public safety and withdrew public access to another 1,328 ± acres of BLM-administered lands. In accord with 43 CFR 2300, the U.S. Army Corps of Engineers is working on the official withdrawal of this acreage.

Other withdrawn lands managed by BLM include areas of critical environmental concern (ACECs), wilderness study areas (WSAs), research natural areas (RNAs), national cooperative land and wildlife management areas, public water reserves, national historic and scenic trails, and other legally designated special-status areas (established by act of Congress, executive order, secretarial order, withdrawal, or other formal agency designation through a *Federal Register* notice).

2.7.3 Goal 3: Rights-of-Way

Manage public lands to support goals and objectives of other resource programs, respond to public requests for land use authorizations, and acquire administrative and public access where needed. Continue managing in a manner that would prevent needless environmental damage to the quality of scientific, scenic, historical, ecological, air and atmospheric, water resource, and archaeological values.

3.1 Management Common to All Alternatives

Land use authorizations include such authorizations and agreements to use BLM lands as rights-of-way grants, road use agreements, and associated temporary permits under several different authorities:

- leases, permits, and easements under Section 302 of the Federal Land Policy and Management Act (FLPMA);
- airport leases under the Act of May 24, 1928; and
- Recreation and Public Purposes (R&PP) leases. R&PP transfers are discussed under the Land

Ownership Adjustment section.

BLM would analyze requests for land use authorizations and apply mitigation on a case-by-case basis in compliance with the National Environmental Policy Act (NEPA) process. BLM would follow the Interim Management Policy for Lands under Wilderness Review (BLM 1995b) as suitable. In accord with current policy, BLM would not issue land use authorizations for uses that would involve the disposal or storage of materials that could contaminate land (hazardous waste disposal sites, landfills, rifle ranges). Rights-of-way, leases, permits, or easements would not be required for activities that are considered casual use of public lands.

New right-of-way facilities would be located within or next to existing rights-of-way, to the extent practical, to minimize adverse environmental impacts and the proliferation of separate rights-of-way.

Owners of nonfederal land surrounded by public land managed under the Federal Land Policy and Management Act (FLPMA) would be allowed a degree of access across public land, which would provide for reasonable use and enjoyment on the nonfederal land. The use of certain rights-of-way built on public lands before FLPMA would be recognized as a valid use even though the authorities authorizing the use have since been repealed (e.g. ditches and canals under the Act of July 26, 1866; highways, roads, and trails under R.S. 2477,). But no regulations exist to either assert or recognize R.S. 2477 rights-of-way.

Realty-related unauthorized use would be abated by preventing, detecting, and resolving such uses. Upon settlement of trespass liabilities, unauthorized use of public lands would be resolved through termination, authorization, or sale or exchange. BLM lands affected by unauthorized uses would be rehabilitated as needed.

3.2 No Action Alternative

Lands used by the public are available for leases or other land use rights or authorizations subject to restrictions based on conflicting land uses or resources. If activities are not specifically prohibited, they would be considered an acceptable use. All applications for rights-of-way involving projects are evaluated on a case-by-case basis. They are generally reviewed and permitted with mitigation measures unless environmental analysis shows potential significant adverse impacts to resources.

3.3 Alternative 1. Economic Development

Under the Economic Development Alternative, the Eagle Lake Field Office would continue to accept applications for rights-of-way, including easements; leases; permits; or licenses to occupy, use, or cross public lands. Alternative 1 would maximize resource area use, with wilderness study areas (WSAs) as the major avoidance or exclusion zone. All utility corridors included in the Western Regional Corridor Study (Western Utility Group 2003) would be reviewed and used unless environmental analysis shows potential significant impacts to resources. Under Alternative 1, corridor widths vary by the number of parallel facilities but are at least 2,000 feet (1,000 feet on either side of existing centerlines) unless next to exclusion areas.

3.4 Alternative 2. Ecosystem Restoration

Under the Ecosystem Restoration Alternative, BLM would do the following:

- accept applications for rights-of-way, including easements, leases, permits, or licenses to occupy, use or cross public lands;

- minimize resource area use by selecting for avoidance or exclusion areas (WSAs, WSRs. ACECs and other special designation management areas) that are considered to have high resource and public interest values;
- continue activities that, if not specifically prohibited. would be considered acceptable uses,
- expand the number of avoidance areas (e.g. WSAs, WSRs, ACECs); and
- not grant rights-of-way for overhead lines, microwave towers, or wind turbines within 2 miles of active or inactive sage-grouse leks or any other sensitive species.

3.5 Alternative 3. Traditional Uses

Under the Traditional Uses Alternative, BLM would continue accepting applications for leases or other land use rights or authorizations subject to restrictions based on conflicting land uses or other resources (e.g. easements, leases, permits, or licenses to occupy, use or cross public lands).

- To the extent practical, locate new right-of-way facilities within or next to existing rights-of-way, to minimize adverse environmental impacts and the proliferation of separate rights-of-way.
- In particular, group new communication site users into suitable existing sites to reduce impacts and expedite application processing.
- Review and use all utility corridors included in the Western Regional Corridor Study unless environmental analysis finds potential significant impacts to resources.
- Complete site plans before authorizing communication sites in new areas. Consider the use of alternative energy sources where there is no electric power.

3.6 Preferred Alternative

The Preferred Alternative proposes the following management actions for rights-of-way.

- Locate new right-of-way facilities within or next to existing rights-of-way, to the extent practical, to minimize adverse environmental impacts and the proliferation of separate rights-of-way.
- In particular, group new communication site users into suitable existing sites to reduce impacts and expedite application processing.
- Complete site plans before authorizing communication sites in new areas. Consider the use of alternative energy sources where there is no electric power.
- Classify or open no lands for agricultural entry or leasing in the field office area.

The Alturas Transmission Line route, reported by the Western Utility Group as having the highest potential for being developed within the Eagle Lake Field area and shown in the January 2003 updated Western Regional Corridor Study (Western Utility Group 2003), would be designated as a right-of-way corridor. Nominal corridor width would be 1,000 feet on each side of the centerline of the existing facility, except where the alignment might encounter the boundary of a special designation management area. Then the width would be 2,000 feet on the opposite side of the boundary. Applicants for electrical transmission lines 69 Kv and larger and pipelines 10 inches in diameter and greater would be encouraged to locate such facilities within this designated corridor.

Other management actions under the Preferred Alternative are as follows.

- Provide access across public lands to and along right-of-way corridors and use areas needed to maintain existing facilities and build new ones.
- Permit other uses of right-of-way corridors to the extent that they don't interfere with or preclude the use of these locations for their intended purpose and conform to other portions of the plan.
- Designate right-of-way use areas for communication sites on Antelope, Shaffer, and Grasshopper Mountains.
- Encourage applicants for communications site facilities to locate within these designated areas.
- Develop and periodically update site plans for the Shaffer and Grasshopper Mountain communications sites, as needed.
- Define boundaries for the three communication sites in each site plan. Require a cadastral survey of the site. Prepare a map to show the location of all facilities on the site, and the legal access.

2.8 Livestock Grazing

The rangelands of the Eagle Lake Field Office area support a wide variety of uses and activities. Livestock grazing is the dominant resource use in the area. The field office area has 54 grazing allotments and 49 permittees whose livestock annually graze about 1 million acres (987,779) with about 52,000 animal unit months (AUMs) of forage. Allotment boundaries are shown on Map GRAZ-1, Livestock Grazing Allotments by Planning Unit (North and South). (See Appendix J. Livestock Grazing Allotments.) The field office area has three planning units–the Cal-Neva, Willow Creek, and Honey Lake Beckwourth. Planning units are used as administrative boundaries and management units.

Generally, all grazing allotments are used annually and considered active. Livestock use varies by annual forage condition and water availability. Most allotments have large blocks of public land (Cal-Neva and Willow Creek Planning Units), whereas the Honey Lake Beckwourth Planning Unit is a mixture of small parcels of public lands surrounded by private land. A few isolated and scattered parcels of public land are unallocated for grazing use. Some of these lands may be considered for livestock grazing in the future. These lands would be analyzed through site-specific environmental assessments, which would determine whether short- or long-term grazing, or both, are suitable for meeting or making progress toward land health standards.

2.8.1 Desired Future Condition

- Manage livestock grazing areas for long-term productivity and sustainability of native plant communities.
- Maintain and enhance native herbaceous and woody perennial vegetation through plant diversity and reasonable utilization.
- Continue to manage areas infested by annual grasses for the remaining native perennial plants that exist.
- Attempt to rehabilitate areas affected by annual grass and limit its spread to surrounding areas. Focus attention on areas that would respond to reestablishing desirable vegetation compatible with existing soils and climatic conditions.
- Make livestock or management adjustments when land health is at risk or being significantly harmed. Management actions may include the following:
  - adjusting season of use,
  - improving water availability and distribution,
  - modifying or adding new fences or other facilities,
  - incorporating rest or deferred use pastures, and
  - adjusting livestock numbers if stocking rates need changing.

2.8.2 Goal

Provide for a sustainable level of livestock forage (grazing) consistent with other resource objectives and public land uses (allocations).

2.8.3 Objectives

Continue to modify and adjust grazing management to ensure that a vigorous plant community is sustained in combination with livestock grazing. Adjustments may involve:

- developing of an intensive grazing strategy as implemented through an allotment management plan (AMP) or
- adjusting season of use with associated actions to improve livestock distribution in allotments without formal management plans.

Concentrate management in allotments or areas where plant communities are at risk or have the potential of improving before degrading and becoming less productive.

2.8.4 Legislative, Regulatory, and Policy Direction

- The Federal Land Policy and Management Act (FLPMA), (1976)
- Public Rangelands Improvement Act (PRIA)
- Approved Northeastern California and Northwestern Nevada Standards and Guidelines for Livestock Grazing, (S&Gs) (July, 2000)
- Native Plant Materials Policy, California BLM Manual Supplement 1745
- Code of Federal Regulations (CFR), Title 43, Subpart 4100 (Grazing Administration)

2.8.5 Management Common to All Alternatives

Management actions would conform to the Taylor Grazing Act and other range/grazing policy and direction.

An allotment management plan (AMP) would be developed after the RMP is implemented if a determination is made that an AMP is needed in individual allotments to ensure stabilization and recovery.

Grazing management would be implemented and adjusted or modified as needed to attain and make progress toward land health standards.

Rangeland improvements would include various methods, in various combinations, on a site-specific basis:

- prescribed fire;
- wildland fire in an appropriate management response (AMR);
- mechanical manipulation;
- biological agents;
- chemical agents;
- seeding with native perennial species;
- maintaining existing seedings using suitable species;
- managing grazing;
- water developments (including wells, spring developments, catchments, and new technology (solar and wind power) for pumping water; and
- new and reconditioned fences built to BLM wildlife specifications.

Continue to use and update selective allotment management categories improve (I), maintain (M), and custodial (C) as needed to refine and prioritize grazing management actions.

Select small isolated parcels of public lands for future land sales or exchanges. These parcels may include unallocated public land parcels and parcels that were previously allocated for livestock grazing.

Consider newly acquired and unallocated public land for livestock grazing use. Newly proposed grazing use would be analyzed through site-specific environmental assessment. Such lands would be incorporated into adjacent grazing allotments or designated as a new grazing allotment in accordance with grazing regulations.

2.8.6 No Action Alternative

The No Action Alternative would continue existing livestock use (acreage and permitted animal unit months [AUMs]) and management. A total of 987,779 acres (98%) of the field office area would be open for grazing, and 20,160 acres would be closed to grazing. Livestock management would continue where it currently exists. Presently unallocated lands might be considered for grazing. Under No Action from 75 to 85% of acres (or 48% of all allotments grazed) would receive either rest or deferment from grazing. The No Action Alternative would permit 52,250 animal unit months (AUMs) of forage, subject to seasonal variation. From 75 to 90% of AUMs would be used annually. About 10,000 cattle would consume 47,459 AUMs, and 4,000 sheep would consume 4,791 AUMs.

Range improvements would continue to be maintained, but new range improvement projects would not be emphasized. From 20 to 30 miles of fencing may be built over a 20-year period, depending on need. This mileage would include rebuilding or replacing existing fencing and some new management fences. About 12 large existing livestock exclosures occupying 2,200 acres would be maintained, but this alternative would not emphasize building more.

Current seedings, consisting of 3,000 to 4,000 acres, would continue to be monitored, and new seedings would be considered if needed (for example, for post-fire recovery and where native perennial plants grow but not densely enough to meet standards or desired future condition). Native perennials plants would generally be used as the preferred species in seedings. But crested wheatgrass and other non-native plants would be considered on a case-by-case basis to rehabilitate seedings where non-natives were used in the past.

Juniper reduction would continue, focusing treatment on areas with juniper canopy classes from 21 to 35% and from 6 to 20%. These areas have the best or fastest response because the plant community is still considered healthy or in fair condition.

2.8.7 Alternative 1. Economic Development

Management under Alternative 1 would maximize livestock grazing on public lands. About 99% (997,858 to 1,007,938 acres) of the field office area would be open to grazing. Permitted use (AUMs) would increase (90 to 110%) where land health standards are being met or progress is being made toward meeting the standards. From 52,250 to 60,000 AUMs would be permitted. Up to 10,080 acres would be closed to grazing. This alternative would require minimal livestock rest or deferment on 40-60% of acres and 25-40% of allotments.

Range improvements would emphasize actions to increase grazing opportunities, such as more cross fencing to expand the number of grazing pastures, or new water developments in areas currently grazed or where there is forage. From 60 to 90 miles of new or rebuilt fencing would be considered. Existing livestock exclosures would not be maintained, and these areas might be considered for livestock use. Alternative 1 would not emphasize building more exclosures.

New seedings would be considered, and crested wheatgrass might be considered on a case-by-case basis to rehabilitate old crested wheat seedings where forage production is the main goal. Up to 8,000 acres of new seeding (including rehabilitating existing seedings) would be proposed.

Juniper reduction would focus treatment in high-canopy cover classes (21-35% canopy cover) for the greatest economic return, while improving land health.

2.8.8 Alternative 2. Ecosystem Restoration

The Ecosystem Restoration Alternative focuses on an accelerated timetable for restoring and enhancing ecosystems. This alternative would consider 977,770 acres for grazing with about 30,000 acres closed or unavailable to grazing.

The key component of this alternative is the requirement that all lands grazed by livestock be grazed only 1 out of every 3 years. The entire allotment or individual pastures would be rested for the 2 years out of every 3 years. Rested areas would be scheduled among available pastures within allotments with multiple pastures. BLM would consider creating new pastures for livestock to allow the rest requirement to be met. For 2 years out of 3 livestock could not graze allotments without multiple pastures.

The Ecosystem Restoration Alternative would reduce grazing by 70% during a 3-year period in allotments having only one pasture. Total permitted AUMs would range from 15,675 to 52,250. As a result, the potential hardship for permittees under this alternative would require BLM to try to develop new management opportunities to reduce or lessen the immediate and long-term financial impact. Creative management might allow some operators to maintain economic stability with some annual livestock use where their operations include multiple allotments with multiple internal pastures. But by significantly reducing or eliminating grazing during the rest cycle, the Ecosystem Restoration Alternative would seriously affect all permittees, especially those with one allotment and no separate pastures.

Future adjustments of livestock use, which might include season-of-use adjustments or reduced animal unit months (AUMs), would be based on existing and future allotment monitoring data. These adjustments would ensure that the Northeastern California and Northwestern Nevada Resource Advisory Council (RAC) or Susanville RAC Health Standards are met, or that progress is being made. Livestock grazing in any given year would be maintained at levels that minimize livestock impacts on other resources. If needed to meet other resource needs, measures such as the following would be considered:

- seasonal closures or adjustments,
- extended rest,
- long-term exclosures, and
- unallocating acres to livestock use.

General upland utilization would use the lowest utilization level as recommended by the Northeast California and Northwest Nevada Resource Advisory Council (RAC) rather than the upper limits or highest allowable use levels.

BLM would set priorities on vegetation manipulation to restore ecosystem processes, focusing on encroaching juniper in sagebrush-steppe communities, closed canopy big sagebrush, and cheatgrass dominated communities. New seedings would not be encouraged except where needed to rehabilitate burned areas or restore vegetation and wildlife habitat. Local native perennial species would be used whenever possible to meet objectives. Existing non-native seedings would be allowed and encouraged to return to native shrub-steppe communities with a desirable native perennial assemblage of plants.

Regardless of the livestock rest proposed by the Ecosystem Restoration Alternative, domination by annual grasses and weeds would continue to suppress native plant recovery due to competition for water and soil nutrients. For example, many of the existing long-term (>20 years) fenced livestock exclosures dominated by annuals have shown little improvement or change as revealed by the limited increase of native perennial species. Chemical herbicides and mechanical seeding may be required to allow native species to reestablish in areas with concentrations of annuals.

Existing water developments (spring developments, exclosure fences, water wells, reservoirs and pits, and water troughs) would be maintained to meet the water needs of livestock, wild horses, wildlife, and recreation, even when allotments are rested from livestock. BLM would consider new water developments, where feasible, to ensure that all needs are met. About 60 miles of new or rebuilt fence might be required. Developments would also have to be maintained, and maintenance would impose an added expense for grazing permittees when mandatory rest (2 out of 3 years) would not allow an economic return.

Existing livestock exclosures would be maintained with an emphasis on building more if a need is determined.

2.8.9 Alternative 3. Traditional Uses

Alternative 3 is similar to the No Action Alternative but incorporates traditional livestock use areas that livestock grazed in the past. Livestock would graze about 99% of lands in the field office area. The existing 987,779 acres would remain open to grazing with the opportunity to graze more lands now excluded or closed to grazing. A few isolated and scattered parcels of public land are unallocated for grazing but would be considered for grazing use. Up to 20,160 acres would be closed to livestock grazing. A total of 52,250 AUMs would be allocated for grazing. This alternative calls for minimal livestock rest or deferment on only 30-40% of acres or 20-30% of allotments.

The Traditional Uses Alternative emphasizes present and past (or traditional) livestock use areas. Such areas may include those now rested or deferred from livestock grazing, such as riparian livestock exclosures, pastures, and associated uplands. Existing livestock exclosures would not be maintained and might be considered for livestock use. Alternative 3 would not emphasize building more exclosures.

The opening of exclosures would increase by about 5,000 to 10,000 acres of rangeland that could be used by livestock but are now restricted from livestock use. At first, overall utilization might slightly drop in the uplands. But utilization would increase in riparian areas because livestock tend to concentrate in the lowlands.

Existing crested wheatgrass seedings may be rehabilitated by reseeding with crested wheatgrass. Lands would be rehabilitated on a case-by-case basis where forage production is the main objective. Non-native plants would be used when livestock forage production is the priority in order to rest and recover surrounding native rangelands by deferring livestock use of uplands.

Juniper reduction methods would emphasize prescribed fire and woodcutting in all areas where the juniper canopy exceeds 1%.

2.8.10 Preferred Alternative

The Preferred Alternative is similar to No Action but with important differences. The Preferred Alternative emphasizes adjusting and enhancing existing grazing strategies within allotments that have made progress toward land health goals. In addition, other allotments would be selected and prioritized where further refining or adjusting is needed to maintain or improve range conditions. A total of 98% (987,779 acres) of the field office area would be open for grazing, and 20,160 acres would be closed to grazing. In addition, a few isolated and scattered parcels are unallocated for grazing but would be considered after a site-specific environmental assessment finds that grazing these parcels would complement and support the main goal and desired future condition as described below.

A total of 52,250 AUMs would be permitted, with 75-90% AUMs used annually. A total of 10,000 cattle would consume 47,459 AUMs, and 4,000 to 6,000 sheep would consume 4,791 AUMs.

Other livestock rest or deferment would be considered and applied to achieve rangeland, riparian goals and meet land health standards. BLM would investigate enlarging existing riparian areas and protecting new ones. Fencing and intensive livestock management, based on site-specific assessments and need, would be used to accelerate recovery. Existing livestock exclosures would be maintained, with an emphasis on building more if a need is determined.

The Preferred Alternative would determine whether new grazing plans are needed in areas that are not meeting or making significant progress toward meeting land health standards. The alternative's desired future condition and primary goal is to "provide for long-term productivity and sustainability of native plant communities while providing for a sustainable level of livestock forage (grazing) consistent with other resource objectives and public land uses or allocations."

Allotment management plans (AMPs) and other less formal management plans would be encouraged and developed. Grazing strategies would be refined as needed, with intensive management focused on areas with moderate departure from land health standards or those areas "at risk." Observations have shown that these areas have the greatest chance of recovery or improvement because many of the land health components are still present. That these lands have the greatest ability to respond to management changes and adjustments has been documented in many riparian areas, as shown by an upward trend.

Changes or modifications in existing grazing strategies or plans would include the following:

- Season of use would be adjusted on sensitive soils or until soils can support the weight of livestock and when adequate forage is available.
- Permitted grazing may be modified (may include reduced season of use and livestock numbers) annually to reflect current conditions, especially during drought or when there is not enough water to support livestock for an entire grazing season.
- Conversely, AUMs may be temporary increased, season of use temporarily extended, or livestock numbers temporarily rose when forage production is above average. BLM would consider long-term or permanent increases where land health standards are being met or progress is being made, but only after a site-specific environmental assessment ensures the permanent presence of forage.

- Unfenced riparian/wetland areas (springs and seeps) and creeks would be protected where current livestock management is not meeting or making progress toward meeting properly functioning condition or land health standards. New protective fencing would be built after fencing is determined to be the proper management action. All new and rebuilt fencing would meet BLM wildlife specifications.
- Range improvements would focus on using fencing and water developments and other improvements (springs, wells, catchments and reservoirs, seeding, herding, and new technology such as solar- and wind-powered water pumping) that would improve livestock distribution to maintain and enhance land health. From 60 to 80 miles of new or rebuilt fencing might be built over a 20-year period if deemed necessary. Old fences that are not compatible with current fence standards would be modified to meet BLM wildlife specifications after BLM determines that they need to be rebuilt.

2.9 Recreation and Visitor Services

This section covers general recreation and deals with special recreation permits, hunting, camping, fees, recreation access, and interpretation. The bulk of management actions concern special recreation management areas (SRMAs) and extensive recreation management areas (ERMA). The recreation resources program also includes visual resource management (VRM), the Recreation Opportunity Spectrum (ROS), and travel management, including roads, trails, and off-highway vehicle (OHV) designations. These subjects are discussed in their own sections. Recreation-related special designations, such as areas of critical environmental concern (ACECs), historic trails, wild and scenic rivers, and wilderness study areas (WSAs), are also discussed in separate sections.

2.9.1 Desired Future Condition

Areas where the concentration of unique resources, visitor use, and visitor impacts require focused management would be managed as special recreation management areas (SRMAs). The rest of the field office area would be managed for dispersed recreation in the extensive recreation management area. (ERMA).

Visitors would be able to easily locate and use information about public lands through a variety of sources. BLM staff would be well informed, courteous, and helpful about public land resources.

BLM would interpret natural and cultural resources to enhance understanding and enjoyment of public land resources and management of those resources. Interpretive methods would emphasize brochures, broadcast media, and the Internet. Brochures would be distributed through gateway communities, visitor centers, and BLM offices. BLM would develop high-quality interpretive exhibits where suitable through an interpretive management plan.

2.9.2 Goal

Provide and enhance developed and undeveloped recreation opportunities, while protecting resources, reducing user conflicts, and improving customer service.

2.9.3 Objectives

Manage public lands for the following purposes:

- Focus on special recreation management areas (SRMAs) where the mixture of visitor use, resource issues, user conflicts, and health and safety issues warrant increased management and investment in facilities.
- Manage the area not included in an SRMA as an extensive recreation management area (ERMA) for dispersed recreation that emphasizes self-sufficient exploration and discovery. Facilities would be developed only for the purpose of meeting management goals for land health and customer service, including visitor impact mitigation, resource protection, interpretation and information.
- Increase opportunities for revenue and public contribution to BLM management efforts through expanded volunteer projects and donations.

- Provide a spectrum of recreation experiences with an emphasis on self-sufficient exploration and discovery:
  - Primitive Non-motorized experiences with minimal facilities and management presence.
  - vehicle-based recreation experiences with directional signing and visitor information.
  - camping and day use experiences with facilities and visitor services appropriate for the level of site development.
  - legal access to and through public lands used for recreation experiences, emphasizing use of existing roads and trails.
  - high-quality recreational travel experiences that connect population centers and activity areas on looped routes and trail systems, including visitor information and interpretation.
  - Interpretation of public land resources and management programs that enhances user awareness and understanding.

2.9.4 Legislative, Regulatory, and Policy Direction

- Federal Land Policy and Management Act [FLPMA] (43 U.S.C. 1701-1782)
- Land and Water Conservation Fund Act, as amended (16 U.S.C. 4601-4)
- Antiquities Act (16 U.S.C. 433)

2.9.5 Management Common to All Alternatives

5.1 Special Recreation Permits (SRPs)

- Issue SRPs for commercial, competitive and group events. Activities allowed by permit are subject to procedures required by BLM Special Recreation Permit Manual 2930, and must comply with the National Environmental Policy Act (NEPA) and land use and visitor management objectives.
- Deny SRPs for activities if adverse impacts could not be mitigated by the applicant or would result in conflicts with recreation or resource management objectives.

5.2 Facility Fees

- Charge fees commensurate with the level of facility development and service at recreation sites and special use areas.
- Develop new ways to generate revenue from intensively used recreation areas to support operation.
- Seek ways to increase revenue from and utilization of low-use developed facilities or consider closing them to save operating costs.

5.3 Camping

- Provide opportunities for self-contained camping consistent with the self-sufficient exploration and discovery experiences sought by many public land users in the area.
- Maintain developed recreation facilities where regular use or public support justifies continued expenditure.

- Use suitable evaluation techniques, including land health standards and Limits of Acceptable Change when deciding to close or relocate camping areas due to resource impacts or user conflicts.
- Redirect dispersed camping into designated primitive camping areas when casual campsite proliferation results in adverse impacts to resources. Impacts include excessive fire rings, charcoal and litter build up, soil compaction, vegetation removal, human waste buildup, wildlife displacement or disturbance.
- Use public education and environmental awareness programs, including Leave No Trace and Tread Lightly, to help reduce adverse impacts of camping on public lands.

5.4 Camping Accessibility

- Provide accessible camping opportunities for disabled visitors at all developed campgrounds in compliance with federal laws.
- Modify existing day use facilities to provide access for disabled visitors.
- When developing new campgrounds and other new recreation sites, provide for disabled access to all facilities, not just the minimum required by law.

5.5 Camping Time Limits

- Prevent problems of long-term occupancy under the guise of camping by enforcing the following limits:
    - Maximum of 14 days per campsite for any one location, and 28 days per calendar year unless extended by an authorized officer.
    - If campers have occupied a campsite for the 14 day limit and wish to continue camping within field office boundaries, they must relocate to a new camping area to prevent occupancy of the same area for up to 28 days.

5.6 Camping Setbacks from Water

- Inform users of the California Department of Fish and Game and Nevada Department of Wildlife regulations against camping close to small water sources. These regulations are in place to assure that camping activity does not keep wildlife away from limited water supplies.
- Prohibit camping within 200 feet of creeks, rivers, lakes, and reservoirs to protect water quality unless other regulations are posted at the use area.
- Prohibit camping within 600 feet of guzzlers.
- Prohibit camping within ¼ mile of the following Lassen County wells: Butte, Shaffer, Tableland, Table Mountain, and Belfast.
- If impacts from camping along shorelines, reservoirs, and stream corridors cause resource damage that cannot be mitigated, close the area to camping and relocate to sites that can handle the impacts of intensive use.

5.7 Camping Information

- Provide accurate maps to improve public awareness of locations open for camping, and the type of camping allowed in each area (primitive or developed campsites).

- Provide accurate route maps showing open routes of travel to and through public lands to improve access to camping opportunities.

5.8 Hunting and Shooting Sports

- Manage most of the field office area to provide opportunities for hunting and shooting sports regulated under California or Nevada state hunting and shooting regulations.
- Enforce standard Code of Federal Regulations shooting restrictions at developed recreation sites to provide for safety of visitors in concentrated use areas.
- Where needed to assure public safety or protect natural resources, close undeveloped but concentrated recreation activity areas to shooting of any type of firearms or projectiles.
- Close recreation activity areas to paintball shooting to protect resources and facilities from damage. Direct paintball to areas of public land where it would not conflict with other resource uses.
- Resolve safety issues regarding target shooting in the OHV play riding area at the mouth of Rice Canyon, in the old borrow pit and riding trails east of Rice Canyon Road in T30N R13E, portions of Sections 28, 29, 23, and 33.
- Manage Antelope Pit west of Highway 139 and 7 miles north of Susanville for continued use as a target shooting area, taking the following actions:
    - Implement actions needed to improve safe use of the pit by shooters.
    - Work with local shooting enthusiasts to help keep the pit safe and clear of target debris.
    - Request that the California Department of Transportation (Caltrans) take on a more active role in managing the portion of the pit within its right-of-way, or have Caltrans relinquish to BLM the portion of the right-of-way no longer needed for operating Highway 139.
- Close BLM lands to hunting and shooting within the rim-to-rim area of the Susan River Canyon between Susanville city limits and Highway 36 at Devil's Corral.
- Close to hunting and shooting the area within ¼ mile of the Bizz Johnson Trail, from Highway 36 west to the Lassen National Forest boundary on the west side of Bunnel Ranch in T29N R10E Section 1 to provide for visitor safety in this high-use recreation area.

2.9.6 Public Access for Recreation Use of Public Lands

- Acquire legal public access across lands that provide access to public lands with recreational value or other public benefits.
- If attempts to acquire legal public access are not successful, create alternative access if feasible and justifiable.
- Acquire lands from willing sellers that have value for public recreational use and that support recreation management objectives.

2.9.7 Interpretation

- Develop an interpretive plan that enhances visitor understanding and enjoyment of public land and improves delivery of quality information.

- Focus interpretive efforts on resources unique to the field office area:
    - Natural and human history.
    - Historic trails and railroads.
    - Prehistoric resources.
    - Intersection of major geologic regions - Great Basin, Sierra Nevada Range, Cascade Range, Modoc Plateau.
    - High Desert Rivers - Susan River, Willow Creek, Smoke Creek.
    - Unique animals and plants.
    - Wild horses and burros.
- Update maps and brochures and develop new material for each special recreation management area to inform visitors about resources, regulations and restrictions.
- Develop interpretive information for scenic driving routes and scenic and backcountry byways.
- In cooperation with local schools, conduct environmental education programs to increase understanding and enjoyment of natural and cultural resources on public lands and public land management.

2.9.8 Special Recreation Management Areas (SRMAs)

Manage the three existing SRMAs under the provisions of their existing activity-level management plans. In the future these plans might need to be revised to respond to changing recreation uses and land management issues.

8.1 Bizz Johnson Trail SRMA

Manage the Bizz Johnson Trail SRMA (2,756 acres) as specified in the Bizz Johnson Trail Management Plan, completed in 1983. Management strategy is to serve both local residents and the destination recreation tourism market. This includes weekend visitors who travel from 1 to 6 hours one way, and long distance travelers who make trips beyond 6 hours to use the trail.

This SRMA has five primary management zones that serve the following recreation niches:

Bizz Johnson Trail: Non-motorized use – pedestrian, mountain biking, equestrian, cross country skiing, snowshoeing, Susan River access.

Susan River: fishing, swimming and wading, inner tubing, kayaking.

Hobo Camp Day Use Area and Trailhead: picnicking, group gatherings, environmental education, staging area for trail use.

Susanville Trailhead, Caboose, and Depot: staging area for trail use and events, visitor center for interpretation of trail resources, information center regarding recreational opportunities throughout northeast California and northwest Nevada. Privately owned and operated in partnership with BLM.

Devil's Corral Trailhead: staging area for trail and river use, restroom and picnic stop for highway travelers.

Lower use management zones and their recreation niches:

South Side Trail: pedestrian, equestrian and mountain biking.

Pigeon Cliffs: rock climbing, rappelling, and sightseeing.

Bizz Johnson SRMA Management Actions:

- Manage the Susan River Canyon, the Susan River, and the Bizz Johnson Trail to maintain and enhance high scenic quality and undeveloped landscape character (VRM Class II except at trailheads where Class III would apply to allow for trailhead facilities).
- Use the Recreation Opportunity Spectrum (ROS) range of experiences.
- Permit special events if they conform to management objectives and meet requirements of BLM Special Recreation Permit Manual 2930.
- Interpret natural and cultural resources to enhance visitor understanding and enjoyment of the area and its history.
- Provide opportunities for school groups and others to use the trail and river canyon setting for environmental education.
- Continue acquisition of remaining private lands within the Susan River Canyon on a willing-seller basis to provide better public access to the river along South Side Trail and to retain the canyon's undeveloped character.
- Designate a *no shooting area* in the Susan River Canyon between Susanville and Highway 36 at Devil's Corral, west to the Lassen National Forest boundary in T29N R10E Section 1, to provide public safety within the Susan River Canyon. (Also see Hunting and Shooting section).
- Prohibit paintball shooting to protect the natural-appearance of the landscape and prevent vandalism of natural features and developed facilities.
- Close the area to livestock grazing except on parcels that are away from the river and behind livestock exclosures.
- Withdraw 1,500 acres along the Susan River and the Bizz Johnson Trail from mineral development as stated in the 1983 Bizz Johnson Trail Management Plan.

Bizz Johnson Trail Recreation Management Zone:

- Manage the Bizz Johnson Trail to provide opportunities for multiple Non-motorized trail uses: walking, dog walking, running, mountain biking, horseback riding, cross-country skiing, and snowshoeing if the type and amount do not conflict.
- Separate non-motorized trail uses if use levels and mixtures create hazards among users. Use an alternative parallel trail on the south side of Susan River to allow continued access through the lower Susan River to users who may have to be relocated off the Bizz Johnson Trail in the high-use segment next to Susanville.
- Establish the South Side Trail by linking existing old dirt roads south of the river with new trail segments. This new trail in the Susan River Canyon would serve as an alternative to the Bizz Johnson Trail. Together, the two trails would provide a looped trail experience for all Non-motorized users and provide connections to the trail at Hobo Camp at the railroad bridge east of Cady Springs, and in the Devil's Corral area.

- Relocate equestrian use to the South Side Trail if it causes the trail surface to become too soft for walking, running or cycling, or use by the disabled.
- Allow use of quiet low-speed motorized wheel chairs and other quiet conveyance for disabled trail users. (All other motorized vehicle use of the trail would be limited to maintenance and emergency vehicles.)

Susan River Recreation Management Zone:

- Manage access to the Susan River and its corridor to provide opportunities for fishing, swimming, floating, kayaking, riverside picnicking, and short-term camping.
- Develop accessible fishing areas along the river.
- Manage the river to maintain the trail grade and bridges using natural stream bank stabilization when feasible, and techniques to naturalize human-made stabilizing structures.
- Remove human-made obstacles from the river that pose a safety hazard to recreational river use.

Susanville Trailhead and Depot Visitor Center:

- Continue the partnership with Lassen Land and Trails Trust. Support the Trust's operation of the facility as the primary Susanville trailhead and visitor center for the Bizz Johnson Trail and for public lands in the Eagle Lake Field Office area.
- Continue to develop and present quality interpretive brochures, exhibits, and programs at the visitor center about the trail's railroad, logging and natural history.
- Continue to manage the railroad tracks and caboose owned by BLM on the first ¼ mile of the Bizz Johnson Trail west of the depot, as interpretive features that reinforce the railroad heritage of the Bizz Johnson Trail. Use those features for visitor use and enjoyment.
- Continue to issue special recreation use permits to authorize use of the railroad tracks and caboose for special events where those events conform to the trail's management objectives.

Hobo Camp Trailhead and Picnic Area Recreation Management Zone:

- Continue to manage picnic area for casual and group use.
- Limit this area to day use. (Authorized overnight use may be allowed for special events.)
- Continue to provide a full hookup host site for volunteer hosts who help with site and trail maintenance.
- Develop other host sites as needed to support operation of the Susanville Depot Visitor Center and Bizz Johnson Trail.
- Expand lower and mid-level parking areas.
- Build connector trails for pedestrian use from the upper parking lot to the picnic area, and for all Non-motorized use from the upper parking lot to the South Side Trail.
- Extend water to central locations among the picnic sites.

Devil's Corral Recreation Management Zone:

- Provide trailhead parking for trail and river access, visitor information, and picnicking.
- Limit this area to day use. (Authorized overnight use may be allowed for special events.)
- Prohibit paintball play.

Pigeon Cliffs Recreation Management Zone:

- Provide safe access to the top and bottom of the cliffs for rock climbing, rappelling, and rescue.
- Work with California Department of Transportation to limit the size and location of signs along Highway 36 directly above Hobo Camp and Pigeon Cliffs. Situate signs so that they're not readily visible from the Susan River Canyon in the Hobo Camp area or from the first 2 miles of the Bizz Johnson Trail and Susan River west of Susanville.

South Side Trail Recreation Management Zone:

- Develop the South Side Trail for Non-motorized trail use by connecting 5 miles of existing dirt roads (most no longer used by motor vehicles) with 2 miles of new single-track trail. This new trail would provide a looped trail experience connecting with the Bizz Johnson Trail at Hobo Camp, Devil's Corral, and at the fourth railroad bridge west of Susanville, directly east of Cady Springs.
- Provide a looped hiking, running, and riding route for all Non-motorized users.
- If needed, redirect equestrian use off the Bizz Johnson Trail to the South Side Trail to reduce impacts and reduce user conflicts.

8.2 Eagle Lake Basin SRMA

The Eagle Lake Basin serves two primary recreation markets - day use and overnight camping. Both markets include Lassen County residents and visitors who travel from 1 to 8 hours, one way, to camp at Eagle Lake. BLM's visitor management strategy is to serve both local residents and the destination recreation tourism market.

This SRMA has four primary recreation management zones that serve the following recreation niches:

North Eagle Lake Campground: developed camp facilities with level sites, fireplaces, grills, picnic tables, potable water, and vault toilets.

Primitive Drive-In Shoreline Use Areas: Highway 139 corridor, Rocky Point, and Tunnel Beach: fishing, both from the shore and from small to medium sized motor boats, recreation vehicle and tent camping, picnicking, wildlife watching, windsurfing, small-boat sailing, and power boating.

Primitive Undeveloped Shoreline Areas: Non-motorized sections of Rocky Point, Buck Point, Troxel Point, Little Troxel Point, Black Mountain shoreline and public lands northeast of the Lassen County Youth Camp: fishing, camping and wildlife watching.

Uplands away from the Lake Shore: wood cutting, deer hunting, and sightseeing.

Eagle Lake Basin SRMA Actions (1991 Eagle Lake Basin Plan):

- Manage as VRM Class II to assure that management actions do not significantly alter the natural-appearance and undeveloped character of the landscape.
- Meet BLM Land Health Standards for water quality and to protect wildlife.
- Acquire undeveloped areas from willing sellers via exchange or other means to retain the area's open space character.
- Work with Lassen National Forest and congressional staff to transfer isolated Forest Service parcels adjoining BLM land to BLM management.
- Maintain livestock grazing closure on BLM shorelines used for camping, fishing, picnicking and swimming.
- Adopt the off-highway vehicle (OHV) designations specified in the Travel Management section of this plan. OHVs would be limited to designated roads and trails and designated shoreline access areas. Areas inaccessible to vehicles (walk-in and boat-in shoreline areas) would be closed to motorized use.
- Prohibit paintball shooting on public lands where paint marks would be visible from the Eagle Lake shoreline or other concentrated recreation use areas, developed or unimproved.
- Develop non-motorized trails that provide opportunities for viewing of scenic vistas, wildlife, undeveloped open space and travel through varied terrain.
- Work with Lassen National Forest to develop high-quality visitor maps and brochures about the natural and cultural history of the Eagle Lake Basin and to inform visitors of area regulations.
- Provide opportunities for motorized vehicle operation on the existing network of primitive roads.
- Work with the California Department of Transportation to provide for plowed pull-off areas along Highway 139 near Heavy Mountain and at Fredonyer Lookout Road for winter sports parking.

North Eagle Lake Campground:

- Provide Semi-Primitive developed campsites with centralized water, vault toilets, and an onsite host when feasible.
- Charge fees comparable to those charged at sites with similar developments.

Highway 139 Corridor and Eagle Lake Shoreline Use Area:

- Designate pull-off areas to provide vehicle access to water for light boat launching and parking for fishing and swimming.
- Prohibit vehicle access to segments of shoreline that have well established vegetation serving as wildlife forage and cover.
- Require all self-contained campers to use *Leave No Trace* practices. This includes disposing of soapy wash water and human waste in portable toilets, onsite permanent toilets, or recreational vehicle dump stations.
- Continue to monitor camping along the highway. If impacts on water quality do not meet BLM standards, limit shoreline use to day uses, and relocate campers to alternative areas.

- If shoreline camping along the highway must be closed due to impacts from that cannot be mitigated, develop a campground east of the highway.
- Acquire private parcels or access through those parcels from willing sellers along the Merrillville-Beiber Wagon Road.
- Develop wildlife viewing information and signing along the highway.
- Develop accessible fishing areas along the highway that are usable at varying water levels.
- Interpret prehistoric and historic resources along the highway corridor.

Rocky Point Recreation Management Zone:

- Manage for self-contained camping, fishing, and water sports.
- Use traffic-calming features and speed limits to keep speeds low on access road.
- Establish area regulations for evening quiet times in the camping areas.
- Manage camping along Rocky Point on both east and west sides to allow for self-contained camping in a primitive undeveloped setting, provided that BLM water quality standards can be met.
- Require all self-contained campers to use *Leave No Trace* practices. This includes disposing of soapy wash water and human waste in portable toilets, onsite permanent toilets, or recreational vehicle dump stations.
- If campers do not follow clean camp practices and water quality standards cannot be met, close shorelines to camping and relocate campers to alternative areas.
- Monitor compliance using staff and volunteers.
- Install toilets that meet disability standards, where needed.
- Provide fishing areas accessible throughout the fishing season.
- Provide campground host sites with full utilities to facilitate retention of hosts throughout the use season.
- Maintain, improve or realign the east side access road to improve water quality, and to provide a route for toilet servicing and low-speed public access to the shoreline use area and primitive camping area. (The rough road that currently exists limits the number of visitors and impacts.)

Tunnel Beach Recreation Management Zone:

- Seek to secure public access to the Tunnel Beach shoreline or acquire Tunnel Beach to provide public use from adjoining public lands and for boaters.
- Manage public lands for primitive self-contained camping.

Primitive Undeveloped Shoreline Areas:

- Allow for walk-in and boat-in camping along shorelines inaccessible to vehicles.
- Promote *Leave No Trace* camping practices in walk-in and boat-in areas.
- If walk-in and boat-in use becomes popular, monitor use and if needed, require use of portable toilets or install suitable toilets to meet water quality standards.

- Continue efforts to acquire public access to Buck Point.

Stone Ranch Management Zone:

- Uphold the Stone Ranch conservation easement to maintain and improve provisions for pedestrian access by securing access to easement land from Highway 139 near Eagle Lake.
- Seek ways to provide a designated non-motorized trail through the Stone Ranch conservation easement in order to link public lands along Highway 139 (Merrillville - Beiber Wagon Road) with public lands south and west of the ranch.
- Complete annual monitoring requirements of conservation easement.

Uplands away from Shoreline Areas:

- Manage to provide public access on existing dirt roads for hunting, wood cutting, vehicle-based sightseeing, and motorcycle and all-terrain vehicle (ATV) riding.
- Authorize off road travel for wood cutting through directed use regulated by the wood permit process.
- Provide Non-motorized trails that connect campgrounds and shoreline. Use areas with scenic vista points and wildlife viewing. Allow looped hiking, mountain biking, and horseback riding (see Non-motorized Trails section of Travel Management).

8.3 Fort Sage SRMA

Manage the Fort Sage Special Recreation Management Area (28,494 acres) as specified in the Fort Sage environmental assessment, summarized below:

The recreation market for the Fort Sage SRMA consists of two primary activities and groups - OHV riding, horseback riding and hiking by day users from Lassen and Plumas Counties, California, and Reno and Sparks areas of Washoe County, Nevada, and destination use by visitors from throughout northern California. This second group of users typically travels from 2 to 8 hours to spend a minimum of two nights camping and riding at Fort Sage OHV area.

The recreation management zones and associated recreation niches are as follows:

Fort Sage Trailhead*:* camping, picnicking, motorcycle, ATV, equestrian use and special events.

Fort Sage Road and Trail System*:* motorcycle, ATV, four-wheel drive use, equestrian use, mountain biking and backcountry sightseeing.

Fort Sage Mountains (roadless uplands east of Indian Springs)*:* hiking, equestrian use, and hunting.

Widowmaker Trailhead: staging for motorcycle events.

Fort Sage SRMA Actions:

- Manage all uplands above the floor of Honey Lake Valley as visual resource management (VRM) Class II, and manage the valley floor as VRM Class IV.
- For motorcycles and ATVs provide low, moderate, and high skill level riding opportunities suitable for casual and competitive riding while protecting soil, vegetation, and wildlife.

- In addition to motorized uses, manage for mountain biking on designated roads and trails and hiking and horseback riding throughout the area.
- Manage the steeper uplands east of the eastern end of Indian Spring Road for Non-motorized experiences, including hunting, hiking, and horseback riding.
- Manage the entire area to provide hunting opportunities. Provide for public safety by establishing no shooting areas (including paintball shooting) within ¼ mile of all developed facilities and trailheads.
- Manage the Fort Sage OHV trailhead in T26N R17E Section 33 for day use and primitive self-contained camping with defined parking areas, visitor information, a central vault toilet, picnic tables, and fire rings to meet user needs.
- Manage the Widowmaker Trailhead for special event use and self-contained camping with portable toilets brought in by event promoters during special events.

2.9.9 No Action Alternative

Special Recreation Management Areas (SRMAs)

Manage three existing SRMAs as stated under Management Common to All Alternatives. No additional SRMAs would be designated.

Existing SRMAs:

Eagle Lake Basin SRMA	34,320 acres
Bizz Johnson Trail SRMA	2,756 acres
Fort Sage SRMA	28,494 acres
Total	**65,570 acres**

Extensive Recreation Management Area (ERMA)

Lands which have not been designated as an SRMA area (957,197 acres) would be managed as an ERMA. No management plan would be prepared for the ERMA. Specific management actions would be included in individual project plans prepared as needed to manage activity areas where ongoing or new uses are concentrated.

Focus management attention on the following existing recreation activity areas within the ERMA:

- Dodge Reservoir and Campground
- Ramhorn Campground
- Biscar Reservoirs and Cooperative Wildlife Management Area
- Buckhorn Reservoirs
- Round Corral Reservoir
- Willow Creek
- Smoke Creek
- Skedaddle/Amedee Mountains
- Dry Valley Rim

  - Horse Lake Road
  - Buckhorn Road
  - Smoke Creek Road
  - Buffalo Creek Canyon Road
  - Skedaddle Road
- Manage Ramhorn and Dodge Campgrounds to provide a primitive camping experience (no utilities at individual campsites).
- Maintain developed sites with fire rings, picnic tables, trash cans, and a central vault toilet.
- Develop a host site with septic tank/leach field and potable water if necessary to assist with campground operations.
- Reestablish onsite potable water if practical within the constraints of current public drinking water laws and BLM operation budgets.
- If not feasible to provide onsite potable water at Ramhorn Campground or within piping distance, consider alternative locations for a developed campground where potable water could be developed and maintained.
- Acquire and manage physically abandoned railroad grades for trail uses–Modoc Line, Fernley and Lassen Branch Line. (See Chapter 2.16.12 Travel Management, Non-motorized Trails.)
- Acquire private lands valuable for recreational uses if the lands become available from willing sellers.
- If private lands with water, shade trees, or the potential to grow shade trees are acquired and camping is an established use on the parcel(s), evaluate the feasibility of developing primitive or Semi-primitive campgrounds on the acquired parcels to manage the established camping use.

2.9.10 Alternative 1. Economic Development

Special Recreation Management Areas (SRMAs)

- Designate two new SRMAs - Antelope/Shaffer/Bald Mountain (61,764 acres) and South Dry Valley (46,813 acres) to better manage current uses and provide opportunities to develop trails for local residents and area visitors.
- Manage the three existing SRMAs as described under Management Common to All Alternatives.

New SRMAs:	
Antelope/Shaffer/Bald Mountain	61,764 acres
South Dry Valley	46,813 acres
Existing SRMAs:	
Eagle Lake Basin SRMA	34,320 acres
Bizz Johnson Trail SRMA	2,756 acres
Fort Sage SRMA	28,494 acres
Total:	**174,147 acres**

Antelope/Shaffer/Bald Mountain SRMA (61,764 acres)

Designate the Antelope/Shaffer/Bald Mountain SRMA (61,764 acres) and develop a recreation activity management plan to implement goals listed below. (Note: The Bald Mountain portion of this SRMA is also listed on Map LANDS-1 for potential disposal, as it has potential public values as a state wildlife management area. If a disposal action does not occur, the area would be managed as an SRMA.)

The recreation market for the Antelope/Shafer/Bald Mountain SRMA consists of Honey Lake Valley residents and is expected to remain largely local. As the proposed trail system is developed, it is expected to become a destination attractions for mountain bikers, equestrians, and hikers.

The current recreation management zones and recreation niches are as follows:

Rice Canyon: off-highway vehicle (OHV) play riding, regulated rifle range shooting, model airplane flying, wood cutting, (unregulated target shooting occurs but would be closed at Rice Canyon due to safety concerns with OHV riders).

Antelope Pit: unregulated target shooting.

Antelope Mountain: hang glider launching, sightseeing.

Willow Creek Canyon: stream fishing, hiking.

Belfast Petroglyphs: petroglyph viewing, environmental education.

Shaffer Mountain: chukar hunting, target shooting, OHV riding, mountain bike riding, wildlife viewing, sightseeing.

Bald Mountain: target shooting, hiking, horseback riding, dog walking.

Susanville Ranch Parcels: hiking, mountain biking, horseback riding, dog walking.

Management Actions:

- Designate the Antelope/Shaffer/Bald Mountain SRMA to focus management on the urban/rural interface area, where an increasingly diverse mixture of recreation use is occurring.
- Manage as VRM Class II, III and IV.
- Using the Recreation Opportunity Spectrum categories, manage mostly for Backcountry experiences with a small amount of Roaded Natural experiences.
- Prepare a management plan in collaboration with an advisory group of hikers, mountain bikers, equestrians, motorcycle and ATV riders, resource specialists, livestock permittees, and other interested users. The advisory group would help set management goals and objectives, establish boundaries and develop an implementation plan.
- Work with the City of Susanville and Lassen County to implement an interconnected trails system linking residential areas with public lands on the north side of the valley, as stated in the 1991 Susanville General Plan and the 2000 Lassen County General Plan.
- Build high-quality multiuse non-motorized trail loops on Antelope Mountain, Shaffer Mountain and Bald Mountain. Work to include three BLM parcels next to and north of Susanville Ranch in the ranch's trail system.

- Build non-motorized trails as multiuse trails with the following area-specific emphases: multiuse on Antelope Mountain, mountain bike trails on Shaffer Mountain, equestrian trails on Bald Mountain, and multiuse trails at Susanville Ranch. (Segregate uses only if needed to improve user safety and the quality of user trail experiences.)
- Develop trails using the expertise of local, regional, and national trail groups. Work with the City of Susanville and Lassen County to establish trail links across their jurisdictions.

Actual trail alignments would differ from those shown on the conceptual map of proposed non-motorized trails (See Map TRAVEL-7) which shows the intent to create multiple looped trails and connections between activity areas, other trails, and population centers. Actual trail alignments would be determined through an interdisciplinary team process that would locate trails where best suited to create sustainable trails that meet user interests.

Antelope Mountain Recreation Management Zone:

- Develop a drive-in hang glider launch site on Antelope Mountain away from the communication site. Select and develop access to a landing zone on BLM land if feasible.
- When developing the hang glider launch site, provide more area for a public scenic overlook of the Honey Lake Valley and Diamond Mountains.
- Develop a system of looped single track trails for hiking, horseback riding, and mountain bike riding to provide short, medium, and long distance riding and hiking options at varying challenge levels. Primary visitors would be local residents and occasional visitors.
- Optimize scenic vistas and overlooks of Honey Lake Valley and the Diamond Mountains when determining trail routes.
- Plan trails to connect with City of Susanville and Lassen County trails.
- Direct motorcycle and ATV riding onto trails that extend north of Antelope Mountain and away from the south side of the mountain where residential growth is likely to occur.
- Manage the Antelope Pit shooting area, 7 miles north of Susanville on the west side of Highway 139, to provide a safe area close to Susanville for target shooting.
- Work with the California Department of Transportation (Caltrans) to resolve right-of-way issues in Antelope Pit. Have Caltrans either take on more active management or relinquish its right-of-way to BLM to a width sufficient for maintaining Highway 139.

Rice Canyon Recreation Management Zone:

- Manage off-highway vehicle (OHV) riding at the mouth of Rice Canyon for continued riding in the gravel pit next to Rice Canyon Road, on adjacent trails within 0.5 miles of the gravel pit, and on the adjacent hill climb area, to provide a close-to-town OHV play area. Evaluate whether there are locations where motorcycle trail riding could be routed north of Antelope Mountain to avoid conflicting with Non-motorized trails proposed for Antelope Mountain.
- Monitor impacts from OHV use and modify management as needed to meet land health standards and state water quality standards and resolve impacts to adjoining private lands.
- If needed for public safety, close the Rice Canyon OHV riding area to target shooting to reduce potential for accidental shooting of riders.

- Work with Lassen County and the Sierra Sportsmen to determine if there are ways to increase the availability of the Rice Canyon Riffle Range for public use (a BLM Recreation and Public Purposes project).
- Work with Lassen County and the Lassen Amateur Radio Control Club to increase the availability of the Rice Canyon Radio Control Runway for public use (a BLM Recreation and Public Purposes Act project).
- Manage visitor uses to minimize conflicts and impacts to known petroglyph sites.

Willow Creek Canyon Recreation Management Zone:

- Manage Willow Creek Canyon to preserve, protect, and interpret the natural and cultural values of the canyon.
- Continue management actions to improve riparian habitat, water quality, and stream function.
- Limit livestock access to the creek to locations necessary for stock watering, consistent with BLM Standards for Land Health and riparian improvement.
- Secure legal public access to the upstream end of the BLM segment of Willow Creek Canyon for public access to the creek for hiking and stream fishing.
- Acquire parcels from willing sellers along Willow Creek to provide public access through the canyon for hiking and fishing.
- Build a hiking trail through the canyon to provide creek access.
- Continue to provide access to the Belfast petroglyph site for education and interpretation.

Shaffer Mountain Recreation Management Zone:

- Manage to protect state and federally listed wildlife species.
- Develop a network of single-track trails that provide varied distances and challenge levels for non-motorized trail users, with emphasis on mountain bike riding.
- Provide scenic overlooks and sightseeing opportunities on existing roads that cross and ascend Shaffer Mountain.
- Work with willing land owners and Lassen County to provide more motorcycle and ATV play riding opportunities in gravel pits along the Pleistocene lake terrace areas of Honey Lake Valley along the base of Shaffer Mountain.
- Consider disposal of public lands through exchange or other means, if it would facilitate acquisition of land that would benefit public recreation.

Bald Mountain Recreation Management Zone:

- Provide non-motorized hiking, horseback riding, and mountain biking opportunities.
- Develop a system of looped, single-track trails to provide varying trail lengths and a variety of scenic vistas of Honey Lake Valley and surrounding mountains.

Susanville Ranch Recreation Management Zone:

- Manage BLM parcels next to or near Susanville Ranch to provide for non-motorized trail experiences and undeveloped open space.
- Retain BLM parcels in support of Lassen County's Susanville Ranch Master Plan to provide for more trails and maintain undeveloped open space in the area seen from Susanville Ranch Park trails and meadows.
- If feasible, use BLM parcels not seen from Susanville Ranch as exchange properties to acquire lands that are within the viewshed west of the Susanville Ranch Park Meadow and north of Paiute Creek Canyon.

South Dry Valley Special Recreation Management Area

Designate the South Dry Valley Special Recreation Management Area (46,813 acres) and develop a recreation activity management plan.

The recreation market for this SRMA consists of day use OHV riders from Lassen and Plumas Counties, California, and the Reno and Sparks areas, and additional visitors from throughout northern California who travel two to eight hours to camp and ride OHVs. Hunters from Washoe County also utilize the area.

The recreation management zones and associated recreation niches are as follows:

Turn of the Road Trailhead: staging for competitive motorcycle races.

Roads and Trails Network: day use, motorcycle events, sightseeing.

Dispersed Use Area: chukar and antelope hunting.

Management Actions:

- Designate the South Dry Valley as an SRMA. It would encompass the northeast side of Honey Lake Valley between Sand Pass and Dry Valley Rim, and between the Wendel - Sand Pass Road and the Sand Pass - Gerlach Road. This SRMA would provide an area dedicated to off-road motorcycle trail riding on a system of designated routes while protecting natural and cultural resources.
- Manage as VRM Class II, III and IV.
- Manage the lands under the Recreation Opportunity Spectrum guidelines to provide mostly Semi-primitive Motorized and a small amount of Roaded Natural experiences under the No Action Alternative and mostly Backcountry and a small amount of Roaded Natural experiences under all other alternatives.
- Prepare a management plan in collaboration with an advisory group of motorcycle riders, equestrians, resource specialists, livestock permittees, and other interested users to set management goals and objectives, define boundaries, and develop an implementation plan.
- Evaluate and realign existing roads and trails, and establish new trails to provide a high-quality mix of looped trail riding, difficulty levels and configurations in locations compatible with existing soils and wildlife habitat.
- Include equestrian groups in trail planning so that trails can be used for equestrian events when not in conflict with off-highway vehicle (OHV) uses.

- Manage Turn of the Road Trailhead for day use and self-contained camping with portable toilets brought in by event promoters during special events.

Bizz Johnson Trail SRMA - Recreation Management Zone

- Impose no surface occupancy restrictions on mineral development for the entire area (2756 acres).
- Allow snowmobiles to cross the Susan River on the Bizz Johnson Trail where the trail crosses the Susan River west of the Devil's Corral trailhead.

Pigeon Cliffs Recreation Management Zone:

- Improve safety of the descent from the top of the cliffs by building a trail.
- Link the base of the cliffs to Hobo Camp and the Bizz Johnson Trail by building a trail downstream, along the base. This would also provide an emergency evacuation route for injured climbers.

Extensive Recreation Management Area (ERMA)

Management of the ERMA (848,620 Acres) under Alternative 1 would be the same as under No Action, with the addition of the following:

- Acreage would be reduced by the amount included in the two new SRMAs, Antelope/Shaffer/Bald Mountain and South Dry Valley.
- Acquire abandoned railroad grades of the Modoc Line and Fernley and Lassen Branch Line for trail use. Develop a trail management plan and consider designating the corridor as a special recreation management area.
- Develop trails in the Skedaddle Mountains, Dry Valley Rim, and Twin Peaks areas as listed in Chapter 2.16.19 Travel Management, Non-motorized section, Alternative 1.
- Work with local trail groups, Lassen County, and Lassen and Plumas National Forests to develop a Honey Lake Valley Rim Trail that would circle Honey Lake Valley on mostly BLM and National Forest lands. The trail would have joint use alignments and dual alignments in other areas to serve Non-motorized and motor vehicle trail enthusiasts.
- Work with the Honey Lake Conservation Team, California State Lands Commission, Lassen County, and other groups to provide public access to the Honey Lake shoreline for wind sports, paddle sports, warm water fishing, waterfowl hunting, wildlife viewing and dry land recreation activities on the playa when the lake dries up.
- Work with local hang glider enthusiasts to provide hang glider launch areas on hills north of Wendel and at other sites subject to user demand.
- Designate scenic and back country byways to promote recreational driving and sightseeing on the following roads:
    - Clark Valley Road to Buckhorn Road via Tuledad Road and via Duck Flat and Highway 447
    - Buckhorn Road to Smoke Creek Road via North Fork of Buffalo Creek and via Highway 447 and Sand Pass Road

  - Smoke Creek Road to Wendel Road via Sand Pass Road
  - Eagle Lake Loop using Highway 139, A-1 and Highway 36
  - Fredonyer Peak Scenic Loop Road from Highway 139 using the fire lookout access road and the logging road around the east and north sides of the mountain connecting with the Grasshopper Road and Highway 139
  - Highway 139
  - Highway 395
- Work with the California Department of Transportation (Caltrans) to prepare a plan and establish a partnership for developing a scenic and interpretive overlook at the top of the Highway 36 hill, two2 miles west of Susanville overlooking Honey Lake Valley.
- Develop visitor information featuring "Premier Peaks, Panoramas, and Vistas" of the Eagle Lake Field Office area to better inform visitors of the high-quality scenic vistas. Include both motorized and non-motorized vista points. Featured vista points are shown in Table 2.9-1.

2.9.11 Alternative 2. Ecosystem Restoration

- The total acreage of SRMAs would be the same as under the No Action Alternative.
- No new SRMAs would be designated.
- Close both the Bizz Johnson Trail and Eagle Lake Basin SRMAs to locatable, saleable and leasable mineral development.
- Management of the Extensive Recreation Management Area would be the same as No Action.

2.9.12 Alternative 3. Traditional Uses

- The total acreage of SRMAs would be the same as under the No Action Alternative and Alternative 2. No new SRMAs would be designated.
- Impose no surface occupancy restrictions (2,756 acres) on the Bizz Johnson Trail SRMA.
- Close the Eagle Lake Basin SRMA to leasable mineral development to protect subsurface hydrology of this closed basin (34,320 acres).
- Management of the Extensive Recreation Management Area would be the same as under No Action and Alternative 2.

2.9.13 Preferred Alternative

- Designate two new SRMAs as under Alternative 1, to better manage current uses and to provide opportunities to develop trails for local residents and area visitors.
- Manage three existing SRMAs as under Alternative 1, with the addition of the following actions:
  - Close the Bizz Johnson Trail SRMA to locatable and saleable mineral development. Impose no surface occupancy restrictions on leasable mineral development.
  - Close the Eagle Lake Basin SRMA to leasable mineral development. Require restrictive stipulations on locatable and saleable mineral development.
- Manage the balance of the Eagle Lake Field Office area as an Extensive Recreation Management Area.

Table 2.9-1 Proposed Access to Vista Points under Alternative 1 and the Preferred Alternative

Vista Point	ROS Category	Access From	High Clearance 2WD	4WD	Hiking	Mountain Biking	Horseback Riding
Driving and Riding Access							
Fredonyer Peak	Backcountry	10 mile dirt road to summit planned trail	x	x	x	x	x
Shaffer Mountain	Backcountry	8 mile dirt road to summit	x	x		x	x
Observation Mountain	Backcountry	6 mile rough dirt road to summit		x		x	x
Antelope Mountain	Backcountry	1 mile new dirt road to ridge east of summit	x	x		x	x
Hiking and Riding Access							
Eagle Lake East Rim	Backcountry	Cross country planned trail from Highway 139 to and along rim			x		
Skedaddle Mountains	Primitive	4 mile cross-country ridge hike planned trail			x	x	
Twin Peaks	Primitive	6 mile cross-country ridge hike planned trail			x		
Shinn Mountain	Backcountry	2 mile rough dirt rd, .5 mile hike			x		x
Dry Valley Rim	Primitive	Skedaddle Rd or Pipe Springs Rd and cross-country planned trails			x		x
Fort Sage Mountains	Backcountry	Indian Springs Road and Wild Horse Trail			x		
Bald Mountain	Backcountry	Byers Pass Road via new proposed trail to summit			x	x	x

2.10 Recreation Opportunity Spectrum

The Recreation Opportunity Spectrum (ROS) is a method of evaluating and managing public lands to give visitors a broad range of outdoor recreation experiences. From Primitive areas, where visitor-to-visitor contact is low, management presence is absent or slight, and natural processes predominate, to areas with facilities for visitor service, use, information, direction and enjoyment, where contact among visitors is high and management presence is common. The amount and location of ROS classes vary with the type of land being evaluated and the type of visitor use, both current and projected, in given area. ROS classes would apply to all public lands in the field office area.

2.10.1 Desired Future Condition

Public lands would offer a spectrum of recreational opportunities. Most of the area would provide opportunities for self-sufficient exploration and discovery in large expanses of undeveloped land, where natural processes predominate. Some areas would provide developed visitor information facilities, campgrounds, and trails.

2.10.2 Goal

Use the Recreation Opportunity Spectrum (ROS) system to inventory and classify the range of recreational experiences offered on public lands in the Eagle Lake Field Office area. Apply different mixtures of ROS classes under each alternative.

2.10.3 Objectives

- Define the ROS classes.
- Inventory and classify current management of resources by ROS class.
- Apply ROS classes to the land base under each alternative.
- Manage lands using the broad guidance in ROS classes.

2.10.4 Legislative, Regulatory, and Policy Direction

- Priorities for Recreation and Visitor Services (BLM 2003), page 19, Milestone 4; page 20, Milestone 5.
- BLM Land Use Planning Handbook, H-1601-1, March 11, 2005, Appendix C, pages 15 and 16.

2.10.5 Management Common to All Alternative

Corridors widths would be established along designated travel routes that allow for road maintenance, vehicle pull-offs, camping, signs, visitor information, and visitor service facilities. Corridors and would be designated Roaded Natural in the ROS class system, and widths would be as follows:

- On state highways, corridor width would not exceed 200 feet on either side of the centerline.
- On all other travel routes, corridor width would not exceed 150 feet on either side of the centerline.
- Within Wilderness Study Areas (WSAs) corridor width would not exceed 4 feet on either side of the centerline.

If any or all land within a wilderness study area is released from WSA status by Congress, established ROS classes would still apply and direct recreation management.

Modifications to the motorized and Non-motorized designated route network would be allowed if they conform to the ROS class in the project location, are necessary to meet management objectives, and meet the route modification criteria in the Travel Management section of this plan.

Roaded Natural corridors would be monitored in areas where camping is concentrated to determine the extent of impacts to natural resources. If impacts are found to be impeding progress towards, or maintenance of land health standards or other plan objectives, sites would be relocated or closed and rehabilitated.

Land acquired by BLM would be managed to meet the program objectives that justified the acquisition and designated with the most suitable ROS class.

2.10.6 Recreation Opportunity Spectrum (ROS) Class Definitions:

Primitive (Alternative 2 and Preferred Alternative)

- *Setting*: The setting is a natural-appearing environment free from most evidence of humans and onsite controls.
- *Experience:* These areas allow visitors to achieve solitude and isolation from human civilization in a predominately natural environment. These areas may have some evidence of vehicle ways and trails, but motorized or mechanized uses would no longer be permitted.
- *Activities*: Typical activities include hiking, backpacking, horseback riding, wildlife viewing, nature study, photography, and chukar, deer, and antelope hunting.
- *Management:* These areas are managed to maintain a very high probability of experiencing isolation from others and little to no managerial contact. Signage is absent or the minimum necessary to manage visitor use. Grazing is allowed under BLM permit and is managed to meet land health standards. Motorized or mechanized uses are not allowed.

Semi-primitive Non-motorized (SPNM) (Under No Action Alternative only)

- *Setting:* These areas are predominately natural landscapes. They may have some vehicle ways and trails.
- *Experience:* These areas allow visitors to achieve solitude and isolation from human civilization in a predominately natural environment.
- *Activities:* Activities include hiking, backpacking, horseback riding, wildlife viewing, nature study, photography, wood gathering under permit, and chukar, deer, and antelope hunting.
- *Management:* These areas are largely free from evidence of humans and onsite controls. Where there is evidence of others, interaction is low, and few management controls exist. Project designs stress protection of natural values. Natural resource consumption, including wood gathering and grazing, is allowed in accord with land health standards. Motorized vehicle travel is allowed only on designated routes and within Roaded Natural corridors.

Semi-primitive Motorized (SPM) (Under No Action Alternative only)

- *Setting:* These areas are predominately natural landscapes with some evidence of others and few management controls.

- *Experience:* The experience provides isolation from human civilization and a high degree of interaction with the natural environment. Visitors are likely to encounter other visitors on travel routes, particularly during popular use periods such as hunting season. Concentration of users is generally low.
- *Activities:* Activities include hunting, mountain biking, snowmobiling, and off-highway vehicle use on designated routes. Wood gathering, livestock grazing, and flat rock gathering are authorized under permit only.
- *Management:* With the exception of snowmobiles, vehicle travel is allowed outside of designated routes only when authorized by permit, in support of consumptive use (wood cutting, grazing and flat rock collection). Administrative vehicle use is allowed. Interpretive facilities, low-standard roads and trails, trailheads, and signs emphasize the natural environment, and are the minimum necessary to manage visitor use. Effort is taken to reduce the impact of surface-disturbing activities.

Backcountry (Alternatives 1, 3, and Preferred)

This designation combines the Semi-primitive Non-motorized and Semi-primitive Motorized designations into one designation–Backcountry. With establishment of a designated roads and trails system, Semi-primitive Non-motorized differs little from Semi-primitive Motorized because almost all vehicle use would be ‘limited to designated roads and trails’.

- *Setting:* These areas are predominately natural landscapes, with some evidence of other users and few management controls.
- *Experience:* The experience provides for isolation from human civilization and a high degree of interaction with the natural environment. Concentration of users is generally low except at trailheads and camping areas along roads, and some developed campgrounds which are within the Roaded Natural designation.
- *Activities:* Activities include hunting, hiking, backpacking, horseback riding, wildlife viewing, nature study, photography, snowmobiling, mountain biking and off-highway vehicle use on designated routes. Wood gathering, livestock grazing, and flat rock gathering are authorized under permit only.
- *Management:* With the exception of snowmobiles, vehicle travel is allowed outside of designated routes only when authorized by permit, in support of consumptive use (wood cutting, grazing and flat rock collection). Administrative vehicle use is allowed. Interpretive facilities, low-standard roads and trails, trailheads, and signs emphasize the natural environment and are the minimum necessary to manage visitor use. Effort is taken to reduce the impact of surface disturbance. Designated routes are maintained and modified within Roaded Natural corridors. Additional motorized and non-motorized routes are built if necessary to meet management objectives.

Roaded Natural (RN) (under all alternatives)

- *Setting:* These areas are near improved and maintained roads where the road density is higher than in Semi-primitive Motorized or Backcountry areas. While these areas are mostly natural in appearance, human modifications are evident, with the possibility of encountering visible management controls, developments and a moderate to high amount of visitors.

- *Experience:* The experience provides for a higher sense of security through the likelihood of encountering higher numbers of other visitors and developments. User concentrations are generally low to moderate. Rights-of-way, utility corridors, facilities, and other surface disturbance may be present.
- *Activities:* Activities include interpretive experiences, camping, and two-wheel drive and off-highway vehicle use on designated routes. Natural resource consumption is allowed except at developed trailheads, recreational sites, and recreation activity areas.
- *Management*: These areas are more intensively used and managed than other ROS classes, but they still provide natural appearing environments. With the exception of snowmobiles, vehicle travel is allowed outside of designated routes only when authorized by permit, in support of consumptive use (wood cutting, grazing and flat rock collection). Administrative vehicle use is allowed.

.

2.10.7 No Action Alternative

Designations of ROS class under present management are a result of established recreational activity patterns. (See Map REC-2).

Table 2.10-1 Recreation Opportunity Spectrum Classes under the No Action Alternative

ROS Designation		Acres
Primitive		0
Semi-primitive Non-motorized		717,688
Semi-primitive Motorized		195,600
Roaded Natural		109,479
Total		1,022,767

2.10.8 Alternative 1. Economic Development

Under Alternative 1, new non-motorized trails would be developed. Motor vehicle based recreation would be promoted on an extensive system of designated roads and trails open for use in the large Backcountry area, which is the Semi-primitive Non-motorized and Semi-primitive Motorized areas combined. Existing roads and trails would become designated roads and trails. (See Map REC-3)

Table 2.10-2 Recreation Opportunity Spectrum Classes under Alternative 1

ROS Designation	Subtotal Acres	Total Acres
Primitive		0
Semi-primitive Non-motorized (SPNM)	423,350	
Semi-primitive Motorized (SPM)	489,938	
Backcountry (SPNM + SPM combined)		913,288
Roaded Natural		109,479
Total		1,022,767

2.10.9 Alternative 2. Ecosystem Restoration

Under Alternative 2, management would emphasize non-motorized recreation in Primitive areas. Non-motorized use would continue where established in roadless areas between Roaded Natural corridors. Primitive areas would be established within core areas of wilderness study areas (WSAs), and in some large roadless areas outside WSAs. Vehicle routes within Primitive areas would be closed.

Continued motor vehicle use would be allowed on designated routes including those that are cherry stemmed into Primitive areas. Private lands within Primitive areas would be acquired from willing sellers. (See Map REC-4).

Motor vehicle based recreation would be promoted on an extensive system of designated roads and trails open for use in the large Backcountry area, which is the Semi-primitive Non-motorized and Semi-primitive Motorized areas combined.

Table 2.10-3 Recreation Opportunity Spectrum Classes under Alternative 2

ROS Designation	Subtotal Acres	Acres
Primitive		300,382
Backcountry (SPNM + SPM Combined)		612,906
Semi-primitive Non-motorized (SPNM)	417,306	
Semi-primitive Motorized (SPM)	195,600	
Roaded Natural		109,479
Total		1,022,767

2.10.10 Alternative 3. Traditional Uses

Under Alternative 3, ROS classes would be the same as under No Action except that the Semi-primitive Non-motorized and Semi-primitive Motorized Areas would be combined under the Backcountry designation (See Map REC-5).

Table 2.10-4 Recreation Opportunity Spectrum Classes under Alternative 3

ROS Designation	Acres
Primitive	0
Backcountry (SPNM + SPM combined)	913,288
Roaded Natural	109,479
Total	1,022,767

2.10.11 Preferred Alternative

The Preferred Alternative is most similar to Alternative 2 with areas designated as Primitive slightly reduced, and Backcountry area slightly increased. Non-motorized use would continue where established in roadless areas between Roaded Natural corridors. Primitive areas would be established within core areas of wilderness study areas (WSAs), and in some large roadless areas outside WSAs. Vehicle routes within Primitive areas would be closed. Continued motor vehicle use would be allowed on designated routes including those that are cherry stemmed into Primitive areas.

Private lands within Primitive areas would be acquired from willing sellers. (See Map REC-6).

Table 2.10-5 Recreation Opportunity Spectrum Classes under the Preferred Alternative

ROS Designation	Acres
Primitive	237,953
Backcountry	675,335
Roaded Natural	109,479
Total	1,022,767

2.11 Soil Resources

Soil is the foundation for all vegetation growth. Without a good base of intact, healthy, and productive soil, management goals for watershed health, vegetation, and ultimately wildlife and livestock, would not be achieved. Soils in the Eagle Lake Field Office area are semiarid, young, and poorly developed. Chemical and biological soil development processes such as rock weathering, decomposition of plant materials, accumulation of organic matter, and nutrient cycling proceed slowly in this environment. Soil recovery processes are slow as well. As a result, soil disruption can lead to long-term adverse changes in soil ecology and productivity.

2.11.1 Desired Future Condition

Soils would be in properly functioning condition (PFC) and exhibit moisture infiltration and permeability rates appropriate to climate, landform and soil type. Soils would demonstrate certain physical, chemical and biological characteristics–including formation of biological crusts. PFC means that soils are adequately protected from human-caused wind and water erosion and that soil fertility is maintained at, or restored to, an appropriate level for the site. Where biological threshold conditions occur (i.e. sites in a stable but non-natural or degenerate condition)–such as in sagebrush/cheatgrass dominated sites–appropriate characteristics are those that would be expected under those threshold conditions. Under such conditions, change to more robust soil characteristics would be expected only over a very long timeframe, perhaps 100 years or longer, although some visible progress should be expected within the life of this RMP.

2.11.2 Goal

Long-term health and productivity of Eagle Lake Field Office area soils would be assured, including no net loss of soil fertility. Sediment would be controlled to prevent threats to sensitive resources, human health, and property. Lithic and earthen materials would be provided for suitable uses (e.g., roads, gravel, livestock water, and facilities).

2.11.3 Objectives

Health of soils now satisfying land health standards would be maintained, and site stability and/or soil productivity would be substantially improved where soils do not meet these standards. Erosion and sedimentation would be prevented so as not to threaten human health and property. Sedimentation of sensitive aquatic environments would also be prevented. Development of any kind would be restricted to suitable soils. Earth materials would be provided to satisfy the needs of county and state road departments.

2.11.4 Legislative, Regulatory, and Policy Direction

- Standards for Rangeland Health and Guidelines for Livestock Grazing Management on BLM-Administered Lands in Northeastern California and Northwestern Nevada (Appendix B)
    - A portion of this document addresses the Soils Health Standard, which states that upland soils must exhibit infiltration and permeability rates appropriate to soil type, climate, and landform, and exhibit functional biological, chemical, and physical characteristics. Stated differently, this statement means that precipitation can enter the soil surface and percolate downward at a rate appropriate to soil type, climate, and landform.

  - This statement also means that soil is adequately protected against human-caused wind or water erosion and that soil fertility is maintained or brought up to the defined level.
  - Although other standards guide and influence soil management decisions, the Soil Health Standard provides the basis for determining soil health and the desired future condition. The goals and objectives stated above are based on this standard.

2.11.5 Management Common to All Alternatives

The term "management practices" as used in the Soil Resource section of this RMP includes methods, measures, and practices used to achieve the desired future condition (DFC) and to set goals and objectives for soil health. Management practices are applied as a system of practices rather than a single intervention. They are applied on a site-specific basis and reflect the natural background conditions (i.e. climate, ecology, geology, and landform) as well as current social, economic, and political considerations and technical feasibility. Under all alternatives, management practices would be used to do the following.

- Promote the recovery of approximately 100,000 acres of soil known not to meet land health standards. These practices would be applied on a site-specific basis at the project level. But this figure would change because evaluation is not yet complete. Currently, approximately 200,000 acres have been assessed, with approximately 800,000 acres yet to be evaluated. When this assessment is completed, other soils found not to be meeting land health standards would be added to this figure and included in implementation strategies.
- Ensure that no management activities result in net loss of soil productivity or productive potential. Use soils with the most suitable characteristics as a foundation material for activities and uses, such as roads and trails, stock ponds, and reservoirs. (Soil survey reports are available for the entire field office area. Soil suitability characteristics for activities are included in the reports and are also on the Internet).
- Use soils with the most suitable characteristics, as well as unproductive soils, in locating the most suitable sites for road and trail construction, for developing stock ponds and reservoirs, and for other developments. Soil survey reports are available for the entire field office area and may be found at the local office of the Natural Resource Conservation Service (NRCS). These reports contain interpretations of soil characteristics and their suitability for various uses. These reports and interpretations are also available on the Internet from the NRCS, Soil Data Mart: soildatamart.nrcs.usda.gov.
- Manage livestock grazing to promote healthy watersheds. Such management requires preserving productive soil, maintaining proper hydrologic function, and maintaining biological integrity and biological crusts.
- Maintain wild horse and burro herd management areas (HMAs) at appropriate management levels (AML), or reduce AML if impacts to soil are attributed to wild horses.
- Minimize management activities and all use of perennial and intermittent drainages where these activities would adversely affect watershed function or processes.
- Treat invasive plants and noxious weeds or adapt management on sites where soil function and integrity are being compromised. Medusahead and juniper-infested sites (except where juniper is a significant component of the ecological site description) are of particular concern.
- Use broad-scale vegetation treatment plans, for logging, prescribed burning, fuel-reduction, and juniper treatments to address levels of woody residue for soil.

- Prevent damage to soils with high shrink-swell characteristics by limiting compacting activities (e.g. grazing, OHV use, maintenance activities) to periods when soils are dry and firm enough to mechanically support the activity and resist compaction damage–when soil compression of no greater than 2 inches for the sum of all activities. Appraise and manage infrequent activities (i.e. those that occur at greater than 10-year intervals) by soil structural changes following the compacting activity, rather than by the compression standard.

2.11.6 No Action Alternative

Present management emphasizes prescriptive grazing strategies and implements management practices on an as-needed basis to maintain soils in proper functioning condition (PFC). The following are management actions this alternative would implement.

- Establish sediment intrusion buffer zones only where an erosion problem is likely or apparent.
- Restrict recreational activities–including OHV use–as under No Action in the Travel Management section of this RMP, Chapter 2.16.
- Soil productivity loss due to management activities, where such losses are realized or inevitable (e.g. gravel pits OHV recreation areas, stock watering developments, road building, and mining), would be offset by measures to recover or enhance soil productivity elsewhere in the field office area. This action contrasts with the Preferred Alternative, where losses must be offset within the same sixth-level watershed.

2.11.7 Alternative 1. Economic Development

Alternative 1 emphasizes the greatest use of the soil resource for economic benefit and the aggressive restoration of degraded soils–where soil condition is limiting economic benefits. Bio-engineering projects would be actively employed to achieve PFC. Important management actions for this alternative are given below.

- Encourage new roads for recreational use and administrative access. Apply mitigation measures and management practices at the project level.
- Rehabilitate or close roads only where needed to meet land health standards or meet the 'no net loss' requirement. Roads could be relocated to less productive soils or where maintenance costs could be reduced.
- Restrict construction (e.g. roads, facilities, troughs) to locations where it would least affect soil productivity and where construction and maintenance costs would be the lowest.
- Apply actions to ensure no net loss of soil productivity at the fifth-level watershed (conceptually 40,000 to 250,000 acres).
- Establish sediment intrusion buffer zones no more than 50 feet wide around sensitive sites (e.g. water bodies, sensitive plants, and archaeological sites) and develop them properly. Roads and trails are of primary concern, but this action applies to any soil-disturbing activity that would create significant wind- or water-borne sediments, which in turn would threaten sensitive resources or human health and property.
- Impose restrictions on recreational activities–including OHV use–identical to those under Alternative 1 in Chapter 2.16 Travel Management.

- Use livestock management strategies designed to protect and enhance soil productivity. These strategies would be identical to those described for No Action under Chapter 2.8 Livestock Grazing.
- Employ management intervention to restore productivity only where the intervention would show an economic benefit. Interventions could include the following:
    - building exclosures and fencing uplands,
    - intensive planting of woody riparian vegetation,
    - manipulating vegetation,
    - installing in stream structures (e.g. root balls, boulders, or other rock structures).
    - prescribed burning or other fuel treatments, followed by reseeding, and
    - building check dams and other erosion-control structures.
- Do not restrict heavy equipment to roads near perennial and intermittent drainages or where soils are not meeting land health standards, except where restrictions are needed for rehabilitation or restoration.

2.11.8 Alternative 2. Ecosystem Restoration

The Ecosystem Restoration Alternative emphasizes the natural recovery process by limiting or excluding activities from areas not meeting the soils land health standard. Management practices used to control livestock would include building exclosures and fencing uplands. Management practices used to exclude recreational activities would include signing or barriers of natural or artificial materials. Permitted uses would be restricted within the conditions of the permit. Where exclosures and other limitations would not achieve the desired future condition in the specified timeframe, the following measures would be used:

- intensive planting of woody riparian vegetation,
- manipulating vegetation, and
- installing in stream structures.

Important management actions for this alternative are given below.

- Apply actions to ensure no net loss of soil productivity at the sixth-level watershed. (conceptually 10,000 to 40,000 acres).
- Apply the same livestock management strategies to protect soils as described for Alternative 2 under Chapter 2.8 Livestock Grazing (including 2 years rest from grazing out of every 3 on selected rangelands).
- Close, rehabilitate, and, where needed, relocate roads to less-impacting locations.
- Restrict construction (e.g. roads, facilities, troughs) to locations having the most suitable characteristics for development. Use soil suitability data from soil survey reports and site investigations for this purpose.
- Employ management practices to restore productivity if rest and natural recovery would be inadequate to achieve the desired future condition. Such practices would include the following:
    - building exclosures and fencing uplands,
    - intensive planting of woody riparian vegetation,
    - manipulating vegetation,
    - installing in stream structures (e.g. root balls, boulders, or other rock structures),

  - prescribed burning–or other fuel treatments–followed by reseeding, and
  - building check dams and other erosion-control structures.
- Restrict heavy machinery to roads near perennial and intermittent drainages or where soils are not meeting land health standards, except where heavy equipment is needed for rehabilitation or restoration.
- Establish sediment intrusion buffer zones of at least 100 feet around sensitive sites (e.g. water bodies, sensitive plants, and archaeological sites) and developed property. Roads and trails are of primary concern, but buffer zones would apply to any soil-disturbing activity that would create significant wind or water-borne sediments and threaten sensitive resources or human health and property.

2.11.9 Alternative 3. Traditional Uses

For soil resources, Alternative 3 is the same as the No Action Alternative.

2.11.10 Preferred Alternative

Soil protection and management under the Preferred Alternative would mainly involve efforts to mitigate the effects of soil-disturbing activities. These efforts would be carried out on a case-by-case basis. When management practices alone would not result in satisfactory soil conditions–such as when soil threshold conditions have been exceeded–more emphasis would be placed on bio-engineering projects to obtain proper functioning condition. Where they would most rapidly achieve desired future condition, management practices would focus on the following:

- building exclosures and fencing uplands,
- intensive woody riparian vegetation plantings,
- manipulating vegetation, and
- installing in stream structures.

Otherwise the Preferred Alternative would promote natural recovery.

Where significant progress is being made in meeting land health standards, emphasis would be placed on the natural recovery processes, including activity exclusion. Other management actions are given below.

- Continue road maintenance at current rates.
- Emphasize prescribed burning, other fuel treatment projects, and soil treatment, followed by reseeding or replanting, where indicated.
- Build check dams and other water control structures to control erosion.
- Keep new road construction to a minimum.
- Restrict construction (e.g. roads, facilities, troughs) to locations having the most suitable characteristics for development. Use soil suitability data from soil survey reports and site investigations for this purpose.
- Close, rehabilitate, and, where needed, relocate roads to less impacting locations. See the Travel Management section of this RMP for details on locations.
- Apply actions to ensure no net loss of soil productivity in the sixth-level watershed. (conceptually 10,000 to 40,000 acres).

- Establish sediment intrusion buffer zones of at least 50 feet around sensitive sites (e.g. water bodies, sensitive vegetation, and archaeological sites) and developed property. Roads and trails are of primary concern, but buffer zones apply to any soil-disturbing activity that would create significant wind or water-borne sediments and threaten sensitive resources or human health and property.
- Restrict heavy equipment to roads near perennial and intermittent drainages, or where soils are not meeting land health standards, except where heavy equipment is needed for rehabilitation or restoration.

Special Area Designations

2.12 Areas of Critical Environmental Concern

The Code of Federal Regulations and BLM policy state that areas with potential for designation as areas of critical environmental concern (ACECs) be recognized and considered during the planning process. Areas containing high value resources, systems, processes or hazards are eligible for consideration if they meet relevance and importance criteria. To meet the criteria, the resources must carry significant historical, cultural, scenic, or habitat value, or contain a significant natural system, process, or natural hazard. It also requires that the significance or consequence of the resources extend beyond local importance or concern.

2.12.1 Desired Future Condition

Recommended ACECs would be designated to protect important values from irreparable harm and to enhance those values where suitable.

2.12.2 Goal

Designate new areas of critical environmental concern (ACECs) where the relevance and importance criteria are met and implement management actions to protect recognized values.

2.12.3 Objectives

Identify and protect all sites that meet the relevance and importance criteria. Prevent irreparable damage to resources and natural systems. Protect life and promote safety where natural hazards exist. Designate all areas that meet the requirements as areas of environmental concern.

2.12.4 Legislative, Regulatory, and Policy Direction

- Code of Federal Regulations, Title 43, Part 1610
- BLM Manual Section 1613
- Land Use Planning Handbook, BLM H-1601-1, 11/2000

2.12.5 Management Common to all Alternatives

Management of the Pine Dunes Research Natural Area (RNA) would continue under provisions of its existing plan, with the following additions:

- Designate existing area (160 acres) as an ACEC/RNA. The RNA title would continue under the ACEC designation.
- Protect the area from livestock and wild horse grazing, and OHV disturbance.
- Expand protective management to include the entire stand of Ponderosa pine through acquisition of private lands.
- Control disease as necessary to protect the unique Ponderosa pine community.

2.12.6 No Action Alternative

Designate Pine Dunes Research Natural Area (RNA) as an ACEC/RNA (160 acres).

2.12.7 Alternative 1. Economic Development

Designate the following ACECs:

- Pine Dunes ACEC/ Research Natural Area (160 acres)
- Aspen Groves ACEC (2,745 acres)

7.1 Aspen Groves ACEC Management Actions

- Designate the Aspen Groves ACEC (2,745 acres).
- Manage aspen (1,407 acres), California black oak (1,298 acres), and buffaloberry stands (40 acres) to support healthy, diverse seral stages capable of supporting the unique vegetation, wildlife, soil, and geologic associations found within.
- Continue monitoring and treatment of aspen stands.
- Protect remaining buffaloberry stands with fencing.
- Develop an implementation plan for managing and monitoring California black oak.
- Maintain healthy aspen and California black oak stands using science-based ecosystem maintenance methods, including periodic disturbance, to maintain vigor in understory grasses and forbs and to retain or replace tree overstory.
- Use functional/structural groups, including biological soil crusts, as indicators.
- Restore *healthy/lacking key attributes*, *at risk*, and *unhealthy* aspen and California black oak stands through prescribed fire, appropriate wildland fire response, judicious use of herbicides, and conifer removal.
- Apply sufficient rest from grazing and recreation use to allow newly restored stands to grow to a height that would be out of the reach of livestock, wild horses and burros.
- Consult with scientists to develop a plan to support ecologically healthy buffaloberry stands.

2.12.8 Alternative 2. Ecosystem Management

Designate the following ACECs:

- Pines Dunes Complex ACEC/RNA which combines the Madeline Dunes (2,727) acres and the Pine Dunes ACEC/RNA (160 acres) totaling 2,887 acres.
- Eagle Lake Basin ACEC (34,320 acres)
- Susan River ACEC (2,495 acres)
- Willow Creek ACEC (2,130 acres)
- Lower Smoke Creek (894 acres)
- Buffalo Creek Canyons ACEC (36,515 acres)
- North Dry Valley ACEC (10,156 acres)

8.1 Pine Dunes Complex ACEC/RNA Management Actions

- Combine the Pine Dunes Research Natural Area (RNA) and the Madeline Dunes and designate as the Pine Dunes Complex ACEC.
- Acquire 1,648 acres of private land, currently intermingled with BLM lands, from willing sellers and include them in the ACEC.
- Extend protective fencing to enclose the Pine Dunes Complex ACEC.
- Continue monitoring and research. Focusing on recovery and determine the characteristics of a potential natural community for this unique ecosystem.
- Manage the newly enclosed portions of the dunes complex according to 43 CFR 8223, and as established within the Pine Dunes RNA:
    - Close the area to off-highway vehicles (OHVs) and woodcutting.
    - Maintain fences to exclude livestock and wild horses and burros.
    - Encourage research.
    - Control disease and insect infestations as needed.
    - Implement fire protection and control methods.
    - Update the Pine Dunes RNA Management Plan (BLM 1987a) to manage the Pine Dunes Complex.

8.2 Eagle Lake Basin ACEC Management Actions

- Designate all 34,320 acres of public lands within the Eagle Lake Basin as an (ACEC).
- Manage land to meet land health standards.
- Protect wildlife habitat.
- Mange as visual resource management (VRM) Class II.
- Meet state water quality standards. Reduce adverse shoreline impacts from visitor use and other actions.
- Provide vehicle access to designated areas of public shoreline on Highway 139, along 1.3 miles of east Rocky Point east shoreline, on west Rocky Point and at Tunnel Beach.
- Provide legal walk-in access to Buck Point, non-motorized portions of Rocky Point, Troxel and Little Troxel Points, and Black Mountain, subject to seasonal wildlife protection requirements.
- Allow non-motorized trail use on the Merrillville Beiber Wagon Road along Eagle Lake, east of Highway 139.
- Provide non-motorized trails that cross scenic landscapes, provide wildlife viewing, link recreational activity areas and connect communities.
- Monitor shoreline use to promote compliance with self-contained camping practices and off-highway vehicle (OHV) designations.
- Monitor bald eagles to comply with the Endangered Species Act.
- Monitor livestock grazing to support maintenance of land health standards.

- Locatable and saleable mineral development would be restricted to protect the natural, cultural, historic and scenic resources.
- The area would be closed to leasable minerals development.

8.3 Susan River ACEC Management Actions

- Designate 2,495 acres, from rim to rim along 8 miles of the Susan River Canyon, as the Susan River ACEC.
- Manage under provisions of the updated Bizz Johnson Trail Special Recreation Management Area (SRMA) plan, protecting the river corridor for public recreational use. Non-motorized public access would be maintained along 8 miles of the river adjacent to the BLM managed portion of the trail.
- Motor vehicle use would be allowed for emergency, administrative and maintenance purposes only.
- Manage as VRM Class II to retain the natural landscape.
- Public recreational use of the river for fishing, swimming, floating, and picnicking would continue, with access along its entire length.
- Historic railroad bridges and tunnels would be protected in compliance with Section 106 of the National Historic Preservation Act.
- The river canyon would continue to be closed to livestock grazing.
- Private land would be acquired from willing sellers to preserve the existing undeveloped character.
- Riparian and aquatic habitats would be maintained and improved.
- The river would continue to be open to water sports activities. Education would be provided to users regarding the hazards of Class I to Class V rapids.
- The area would be closed to saleable and locatable minerals development.
- No surface occupancy (NSO) restrictions would apply to leaseable energy and minerals activities.
- Protect fill areas on the trail and bridge abutments that are vulnerable to scouring and undercutting by high river flows with the least disruptive, most effective stream bank stabilization measures.
- Relocate equestrian use to the South Side Trail if it causes the trail surface to become too soft for walking, running or cycling, or use by the disabled.
- Closed the area to snowmobile use to provide a quiet environment for cross-country skiing and snowshoeing.
- Establish a non-motorized trail along the south bank of the river by linking existing dirt roads with single-track segments.
- Monitor changes to the river channel to determine impacts to the Bizz Johnson Trail grade and bridge structures.
- Monitor water quality and meet state standards.
- Measure use of the Bizz Johnson Trial.

- Recruit and train volunteers to patrol the trail and assist with litter pickup and facility maintenance.

8.4 Willow Creek ACEC Management Actions

- Designate all of Willow Creek within the Tunnison Mountain wilderness area, as an ACEC (2,130 acres).
- Manage Upper and Lower Willow Creek as non-motorized areas.
- Retain high scenic values. Manage as VRM Class I while the Tunnison Mountain area remains a wilderness study area (WSA). If it is released from WSA status, manage as Class II.
- Protect prehistoric and historic resources under the provisions of Section 106 of the National Historic Preservation Act.
- Keep livestock out of the creek except at designated small water gaps for livestock watering.
- Maintain access road to Belfast Trailhead so that local school groups and others can continue to visit the Belfast Petroglyph site and hike in the canyon during most of the year.
- Seek to acquire private lands from willing sellers along the creek to protect natural values and to provide legal public access.
- Acquire legal access to Sheep Bridge for fishing and hiking.
- Build a six mile hiking trail through Upper and Lower Willow Creek Canyon.
- Manage land adjacent to the Tunnison Wilderness Study Area (WSA) according to Wilderness Interim Management Plan (IMP) policy to protect wilderness qualities.
- Manage surrounding BLM lands in the Tunnison WSA to protect their natural appearance and wilderness qualities until Congress acts to designate or release the WSA from BLM's Wilderness Interim Management Policy (BLM 1995b).
- Close the canyon to saleable and locatable minerals development.
- No surface occupancy restrictions would apply for leasable minerals activities within .5 miles of the canyon rim.
- Monitor water quality, riparian conditions, cultural resources, and visitor use to meet management objectives.
- Sustain and enhance healthy and functioning riparian areas and aquatic habitat.
- Provide opportunities for fishing, hiking, and historic sightseeing.
- Provide an undisturbed setting for Native American heritage uses.

8.5 Lower Smoke Creek ACEC Management Actions

- Designate the Lower Smoke Creek ACEC (894 acres).
- Improve riparian condition by strictly limiting livestock grazing.
- Protect the traces and undisturbed setting of the Nobles Emigrant Trail under Section 106 of the National Historic Preservation Act.
- Manage as VRM Class II to retain the existing character of the landscape.

- Close the canyon to saleable and locatable minerals development. No surface occupancy restrictions would apply for leasable minerals activities within .5 miles of the canyon rim.
- Acquire private land from willing sellers to improve riparian conditions, water quality, and public access and to protect and interpret historic sites along the Nobles Emigrant Trail and Smoke Creek Station.
- Manage land within Dry Valley Rim Wilderness Study Area (WSA), which includes Lower Smoke Creek, to preserve wilderness values until Congress acts to either designate it as wilderness or release it from consideration.
- Monitor visitor use, water quality, riparian conditions, and scenic and historic resources to meet management objectives.
- Continue to provide opportunities for primitive self-contained camping, hiking, hunting, and recreational and historic sightseeing.

8.6 Buffalo Creek Canyons ACEC Management Actions

- Designate the Buffalo Creek Canyons ACEC (36,515 acres).
- Work with BLM Winnemucca Field Office to encourage expansion of this ACEC to include the upper segments of the canyons that drain off the west side of Poodle Mountain.
- While the lands within the Buffalo Creek Canyons ACEC are under interim management as wilderness study areas (Buffalo Hills and Poodle Mountain WSAs), manage the area as a VRM Class I area to preserve the existing character of the landscape.
- Manage remaining lands as VRM Class II area to retain the character of the existing landscape and to protect the setting of the Buffalo Hills Toll Road.
- Designate as ROS Primitive designation to provide a pristine recreational experience for hiking, wildlife observation, historical sightseeing and chukar hunting.
- Improve the health and function of riparian and upland areas to meet land health objectives.
- Restrictive stipulations would apply to standard mining permits to ensure compliance with historic preservation laws. Extraction of saleable minerals would be limited to areas that are not visible from the Buffalo Hills Toll Road or the four-wheel-drive road through the North Fork of Buffalo Creek.
- No surface occupancy (NSO) restrictions would apply to leasable minerals activities areas visible from the Buffalo Hills Toll Road route or other access roads.
- Monitor grazing practices and wild horse numbers and manage to meet land health standards.

8.7 North Dry Valley ACEC Management Actions

- Designate the North Dry Valley ACEC (10,156 acres).
- Protect cultural resources under provisions of Section 106 of the National Historic Preservation Act.
- Protect raptor nesting sites under provisions of the Migratory Bird Act, and the Bald Eagle Act (includes golden eagles).
- Provide for continued use as an antelope kidding ground.

- Protect scenic values of escarpments and cliff faces.
- Issue a BLM right-of-way to Washoe County for public use and maintenance of the existing disturbed area of the Sand Pass Road. Road maintenance activities must meet land health standards and VRM Class II objectives.
- Acquire private land from willing sellers to provide public access and protection of habitat and cultural resources.
- Monitor impacts of visitor use to determine effects on cultural resources, wildlife and scenic landscapes.

2.12.9 Alternative 3. Traditional Uses

Alternative 3 is identical to Alternative 1.

2.12.10 Preferred Alternative

The Preferred Alternative is identical to Alternative 2.

Table 2.12-1 Management Summary for Existing and Proposed Areas of Critical Environmental Concern

Alternative	Acres	ROW	VRM	Grazing	OHV	Minerals			Timber Harvest/ Wood-cutting	Wildland Fire Manage-ment	Recreation Mining Equipment
						Leasable	Saleable	Locatable			
Pine Dunes Resource Natural Area (RNA) Area of Critical Environmental Concern (ACEC)											
No Action	160	AV	III	Closed	Closed	SL	Closed	Open	Closed/ Closed	FS	NA
1	160	AV	III	Closed	Closed	SL-RS	Closed	Open	Closed/ Closed	FS	NA
2	2,887	AV	II	Closed	Closed	NSO	Closed	Closed	Closed/ Closed	FS	NA
3	160	AV	III	Closed	Closed	SL-RS	Closed	Open	Closed/ Closed	FS	NA
Preferred	2,887	AV	II	Closed	Closed	NSO	Closed	Closed	Closed/ Closed	FS	NA
Susan River ACEC											
No Action	0	AV	II	Closed	Closed[1/]	SL	Closed	Open	Open[2/]/ Closed	FS	Open to all types
1	2,495	AV	II	Closed	Closed[1/]	NSO	Closed	Closed	Open[2/]/ Closed	FS	Non-motorized
2	2,495	AV	II, III	Closed	Closed[1/]	Closed	Closed	Closed	Open[2/]/ Closed	FS	Non-motorized
3	0	AV	II	Closed	Closed[1/]	NSO	Closed	Open	Open[2/]/ Closed	FS	Open to all types
Preferred	2,495	AV	II, III	Closed	Closed[1/]	NSO	Closed	Closed	Open[2/]/ Closed	FS	Non-motorized
Willow Creek ACEC											
No Action	0	Open[3/]	II[5/]	Open[6/]	Closed—686 acres	SL	Open	Open	Closed/[7/] Closed[7/]	FS	Open to all types
1	0	AV[3/]	II[5/]	Open[6/]	Closed—686 acres	SL	Open	Open	Closed/[7/] Closed[7/]	FS	Open to all types
2	2,130	AV[3/ 4/]	II[5/]	Open once every 3 years[6/]	Closed—2130 acres	NSO	Closed	Closed	Closed/[7/] Closed[7/]	FS	Non-motorized
3	0	AV[3/]	II[5/]	Open[6/]	Closed—686 acres	SL	Open	Open	Closed/[7/] Closed[7/]	FS	Open to all types
Preferred	2,130	AV[3/ 4/]	II[5/]	Open[6/]	Closed—2130 acres	NSO	Closed	Closed	Closed/[7/] Closed[7/]	FS	Non-motorized

Alternative	Acres	ROW	VRM	Grazing	OHV	Minerals			Timber Harvest/ Wood-cutting	Wildland Fire Manage-ment	Recreation Mining Equipment
						Leasable	Saleable	Locatable			
Lower Smoke Creek ACEC											
No Action	0	Open[3/]	II[5/]	Open[8/]	Open	SL	Open	Open	NA/ Closed[7]	AMR	Open to all types
1	0	Open[3/]	II[5/]	Open[8/]	LD—894 acres	SL	Open	Open	NA/ Closed[7]	AMR	Open to all types
2	894	AV[1/ 3/]	II[5/]	Open once every 3 years[8/]	LD—894 acres	NSO	Closed	Closed	NA/ Closed[7]	AMR	Non-motorized
3	0	Open[3/]	II[5/]	Open[8/]	Open	SL-RS	Open	Open	NA/ Closed[7]	AMR	Open to all types
Preferred	894	AV[1/ 3/]	II[5/]	Open[8/]	LD—894 acres	NSO	Closed	Closed	NA/ Closed[7]	AMR	Non-motorized
Eagle Lake Basin ACEC											
No Action	0	Open	II	Shorelines closed to grazing; Uplands open with restrictions	Closed—1,611 acres, LD—32,709 acres[9/]	SL	Open	Open	Open/[2]/ Open	FS	Open to all types
1	0	Open	II	Shorelines closed to grazing; Uplands open with restrictions	Closed—1,611 acres, LD—32,709 acres	Closed	Open	Open	Open/[2]/ Open	FS	Open to all types
2	34,320	AV	II	Shorelines closed to grazing; Uplands open once every 3 years	Closed—1,611 acres, LD—32,709 acres	Closed	Closed	Closed	Open/[2]/ Open	FS	Non-motorized
3	0	Open	II	Shorelines closed to grazing; Uplands open with restrictions	Closed—1,611 acres, LD—32,709 acres	Closed	Open	Open	Open/[2]/ Open	FS	Open to all types

Alternative	Acres	ROW	VRM	Grazing	OHV	Minerals			Timber Harvest/ Wood-cutting	Wildland Fire Manage-ment	Recreation Mining Equipment
						Leasable	Saleable	Locatable			
Preferred	34,320	AV	II	Shorelines closed to grazing; Uplands open with restrictions	Closed—1,611 acres, LD—32,709 acres	Closed	Open[10/]	Closed	Open/[2]/ Open	FS	Non-motorized
North Dry Valley ACEC											
No Action	0	Open	II, III, IV	Open	Open	SL	Open	Open	NA/NA	FS	Open to all types
1	0	Open	III, IV	Open	LD	SL	Open	Open	NA/NA	FS	Open to all types
2	10,156	AV	II, III	Open once every 3 years	LD	NSO	Closed	Closed	NA/NA	FS	Non-motorized
3	0	Open	II, III, IV	Open	Open	SL-RS	Open	Open	NA/NA	FS	Open to all types
Preferred	10,156	AV	II, III	Open	LD	NSO	Open[10/]	Open[10/]	NA/NA	FS	Non-motorized
Buffalo Creek Canyon ACEC											
No Action	0	Open (WSA)	II, IV[5/]	Open	LE[11/]	SL	Open	Open	NA/ Closed[7]	AMR	Open to all types
1	0	Open (WSA)	II, IV[5/]	Open	LE[11/]	SL	Open	Open	NA/ Closed[7]	AMR	Open to all types
2	36,515	AV	II[5/]	Open once every 3 years	LD	NSO	Closed	Open[10/]	NA/ Closed[7]	AMR	Non-motorized
3	0	Open (WSA)	II, IV[5/]	Open	LE[11/]	SL	Open	Open	NA/ Closed[7]	AMR	Open to all types
Preferred	36,515	AV	II[5/]	Open	LD[11/]	NSO	Open[10/]	Open[10/]	NA/ Closed[7]	AMR	Non-motorized
Aspen Groves ACEC											
No Action	0	Open	Various	Limited	Open	SL	Open	Open	Closed/ Closed	FS or AMR	NA
1	2,745	Open	Various	Limited	LD	NSO	Closed	Open[10/]	Closed/ Closed	FS or AMR	NA
2	0	Open	Various	Limited - once every 3 years	LD[/]	SL	Open	Open[12/]	Closed/ Closed	FS or AMR	NA

Alternative	Acres	ROW	VRM	Grazing	OHV	Minerals			Timber Harvest/ Wood-cutting	Wildland Fire Manage-ment	Recreation Mining Equipment
						Leasable	Saleable	Locatable			
3	2,745	Open	Various	Limited	LD	NSO	Closed	Open[10/]	Closed/ Closed	FS or AMR	NA
Preferred	0	Open	Various	Limited	LD	SL	Open	Open[12/]	Closed/ Closed	FS or AMR	NA

AMR = Appropriate management response. (AMR—may include full suppression)
AV = Right-of-way avoidance area.
FS = Full suppression.
LD = Limited to designated routes.
LE = Limited to existing routes.
NA = Not applicable.
NSO = No surface occupancy allowed during exploration, development, or extraction of oil, gas, or geothermal resources.
RS = Restrictive stipulations.
SL = Standard lease.

[1/] Closed to motorized off-highway vehicles (OHVs) except quiet low speed motorized wheel chairs or other similar purpose conveyances for disabled trail users. Closed to motorized over-snow vehicles (except for administrative, emergency and maintenance access).

[2/] Open to commercial timber harvest and fuel reduction actions with restrictions to assure actions are compatible with VRM Class II objectives to retain natural appearing landscapes and with provisions of appropriate management plans.

[3/] This ACEC is primarily within a Wilderness Study Area (WSA). Issuing rights-of-way (ROWs) within WSAs is guided by the BLM WSA Interim Management Policy for Lands under Wilderness Review (H-8550-1). If WSA status is removed, issue ROWs only if ACEC values would be protected and ACEC would benefit.

[4/] ROWs excluded for water diversions or dam construction within ACEC; all other ROWs avoided or allowed only if ROW would benefit ACEC.

[5/] This ACEC is within a WSA and VRM Class I applies as long as WSA status remains in effect. The listed VRM Class would apply if the WSA status were removed.

[6/] Open to livestock grazing, but with limited access to Willow Creek at designated water gap areas, to allow for livestock water use.

[7/] Area is within a WSA. No woodcutting or timber harvest is allowed within a WSA. If WSA status is removed, area would be open with restrictive stipulations to protect scenic, cultural and historic values

[8/] Open, but only for short limited grazing periods. Livestock grazing is closely monitored to assure grazing use meets land health standards.

[9/] The No Action Alternative has existing limited and closed OHV designations that apply to the entire Eagle Lake Basin.

[10/] Open, but with restrictive stipulations to protect values for which the ACEC is established to protect.

[11/] Limited to existing routes within Buffalo Hills and Poodle Mountain WSAs.

[12/] Open, but with restrictive stipulations to protect unique habitats – aspen, black oak, and buffaloberry.

2.13 Historic Trails

Currently, the Nobles Emigrant Trail, a branch of the California National Historic Trail, is the only designated national historic trail in the Eagle Lake Field Office area. Although no new trails would be recommended for designation when this RMP is adopted, BLM would evaluate other historic trails in the field office area to determine if further protective actions are needed and these trails should be nominated for listing on the National Register of Historic Places and for inclusion in the National Historic Trails System.

Where trail traces remain and where trail routes pass through areas that still look much like the undeveloped land that the original trail users passed through, these segments of historic trails would be managed to protect

- historic trail traces (visible trail remnants) and
- the largely undisturbed landscapes surrounding those historic trail traces.

The landscape would be protected where trail traces remain and where they have disappeared but the general trail route is known and the adjacent landscapes remain largely undeveloped. Such landscapes give the visitor following the trail route the sense of passing through landscapes similar to what original trail users passed through. Retaining the undeveloped landscapes and historic sites enhances the historic integrity of the trail alignment and enhances the experience of the visitor following a historic trail route. Landscapes would be protected along trails segments that have high integrity due to lack of landscape-altering developments. Where landscapes have been altered by trail construction, those features would be retained. In the case of historic railroad grades, those grades would be maintained for public use and enjoyment.

2.13.1 Desired Future Condition

- Existing historic trail traces would be preserved for future viewing by historic trails enthusiasts.
- Undeveloped landscapes next to historic trails would be managed to maintain their undeveloped appearance, retain the undeveloped character of the historic trail route, and enhance the experience of visitors traveling the route of historic trails.
- Using media (brochures, websites, signs, interpretive presentations) to interpret and convey the heritage of trails, the Eagle Lake Field Office would enhance visitor and resident awareness, understanding, and appreciation of the historic trails in the field office area.
- For visitor use and enjoyment, BLM would prepare and distribute high-quality, accurate interpretive information about the historic trails in the field office area.
- BLM would form partnerships with local communities to market the heritage tourism opportunities of the field office area's historic trails and expand and diversify the recreational experiences offered by the area.

2.13.2 Goal

Complete field inventories of historic trail routes to locate, map, and record accurate locations of trail alignments, associated historic sites and features and protect and interpret the historic and scenic trails in the Eagle Lake Field Office jurisdiction for people interested in the heritage value of historic trails.

2.13.3 Objectives

3.1 Nobles Emigrant Trail

- Manage the Nobles Emigrant Trail, a route on the California National Historic Trail, to preserve and protect trail traces and trail settings. Designate a VRM Class II corridor along the Nobles Trail. (See management actions for Historic Trails in Chapter 2.21 Visual Resource Management.)
- Complete an inventory of the Nobles Trail to verify trail alignments, camps, and other historic sites along the trail.
- Interpret the history and significance of Nobles Trail in cooperation with other land management jurisdictions and interest groups.
- Sign the route of the Nobles Trail, where suitable and where sign maintenance would be feasible. Use signs that conform to the standards for alignments of the California National Historic Trail.

3.2 Other Historic Trails

- Protect historic trail traces and settings to retain their historic value for present and future generations to experience and enjoy.
- Inventory and evaluate historic trails in the Eagle Lake Field Office area to determine their eligibility for listing on the National Register of Historic Places and, if suitable, nominate them for listing.
- Determine if the historic trails in the field office area warrant designation under the National Historic Trails Act and, if they qualify, work to get them designated.
- Use suitable methods to interpret all historic trails in the field office.

2.13.4 Legislative, Regulatory, and Policy Direction

- National Historic Preservation Act of 1966, as amended
- National Trails System Act of 1968, as amended
- Code of Federal Regulations, Title 43, Part 8350
- BLM Priorities for Recreation and Visitor Services, May 2003
- BLM Land Use Planning Handbook, H-1601-1, November 11, 2000

2.13.5 Management Common to All Alternatives

5.1 Nobles Emigrant Trail

Inventory and protect about 38 miles of the Nobles Emigrant Trail, a branch of the California National Historic Trail.

- Develop a management plan for the Nobles Emigrant Trail between the Smoke Creek Desert and Highway 395. Preserve the historic resources and undeveloped landscapes next to the high-quality trail segments.
- Develop an interpretive plan for the Nobles Trail. Implement actions from that plan to inform visitors of the trail's history.

- Manage a corridor 3 to 5 miles wide on either side of the Nobles Trail as VRM Class II to retain the landscape's current character.

5.2 Other Historic Trails

- Adhere to Sections 106 and 110 of the National Historic Preservation Act in inventorying, evaluating, protecting, and interpreting the trails shown in Table 2.13-1.
- Develop management plans (e.g. cultural, national historic trails, etc.) for National Register eligible trails.
- In the future, inventory and evaluate other trails for eligibility.
- Research, develop, design, and produce or maintain interpretive brochures, signs, exhibits, and presentations for all historic trails in the field office area, subject to budget priorities.

Table 2.13-1 Historic Trails in the Eagle Lake Field Office Area[1/]

Name	Miles
Merrillville-Bieber Wagon Road – Willow Creek area segment across BLM lands	9
Merrillville-Bieber Wagon Road – Eagle Lake segment next to Eagle Lake	7
Fort Churchill to Fort Bidwell Military Road and Stage Route	37
Buffalo Hills Toll Road	34
Military Patrol Road	50
Fernley-Lassen Branch Line	38
Modoc Line	52

[1/] Not including the Nobles Emigrant Trail.

2.13.6 No Action Alternative

Secure public title or access to abandoned railroad grades within the field office area.

2.13.7 Alternative 1. Economic Development

Secure public title or access to abandoned railroad grades within the field office area.

2.13.8 Alternative 2. Ecosystem Restoration

- Designate as a scenic and historic area of critical environmental concern (ACEC) the viewshed along the North Fork of Buffalo Creek from BLM land north of Buffalo Creek Ranch to the Stone Corral in T34N R19E Section 12.
- Designate as a scenic and historic ACEC lower Smoke Creek Canyon between the Smoke Creek Road crossing of Smoke Creek and the Sand Pass Road crossing of Smoke Creek.

2.13.9 Alternative 3. Traditional Uses

No management actions are unique to Alternative 3; See Management Common to All Alternatives.

2.13.10 Preferred Alternative

- Secure public title or access to abandoned railroad grades within the field office area.
- Designate as a scenic and historic ACEC the viewshed along the North Fork of Buffalo Creek from BLM land north of Buffalo Creek Ranch to the Stone Corral in T34N R19E Section 12.
- Designate lower Smoke Creek Canyon as a scenic and historic ACEC.

2.14 Wild and Scenic Rivers

The Wild and Scenic Rivers Act of 1968 provides legal protection for free flowing segments of rivers and streams from alteration or degradation. All free flowing rivers and streams on BLM land must be evaluated to determine if they have segments that contain one or more "outstandingly remarkable values", including scenic, recreational, geological, , historical, cultural or wildlife values. If eligible river segments are identified, BLM is required to protect the values that qualify that segment as eligible. Eligible waterways are classified under one of three categories; *wild, scenic* or *recreational.* Classification of *wild* offers the highest degree of protection. *Scenic* and *recreational* classifications allow broader use, while still protecting qualifying values. (See Appendix L. Wild and Scenic River Eligibility and Suitability.)

If a river segment is determined to be suitable for designation, BLM recommends this action to Congress under the appropriate river classification. Until Congress acts to either designate an eligible river or release it from protection, it is managed to protect identified values and free flowing characteristics.

Portions of the Susan River, Willow Creek, Upper Smoke Creek and Lower Smoke Creek are eligible for designation.

2.14.1 Desired Future Condition

Provide legislative protection for as many miles of eligible, free flowing rivers and streams as possible by designated them as National Wild and Scenic Rivers. These environments would then remain free from the possibility of dewatering by river diversions, or inundation by dam impoundments. Unique, dependent fish and wildlife would continue to thrive, and the public would have the opportunity to experience the natural river and stream environments in perpetuity.

2.14.2 Goal

Protect and enhance outstandingly remarkable values of rivers determined to be administratively suitable for potential inclusion in the national Wild and Scenic River system, until Congress acts to designate or release them from consideration and protection.

2.14.3 Objectives

Provide a range of alternative management approaches for river segments determined to be eligible under the Wild and Scenic Rivers Act evaluation process.

2.14.4 Legislative, Regulatory, and Policy Direction

- Wild and Scenic Rivers Act , Section 5(d) (1) as amended.
- BLM Land Use Planning Handbook, H-1601-1, Appendix C, III B2.
- BLM Manual 8351, U.S. Departments of Agriculture and Interior Guidelines published in Federal Register Vol. 7, No.173, September 7, 1982

2.14.5 Management Common to All Alternatives

River and stream segments determined to be both eligible and suitable for protection under the Wild and Scenic Rivers Act would be managed to preserve the outstandingly remarkable values that qualified the identified segment(s) as eligible.

River segments not recommended for designation would be released from further protection.

5.1 Susan River

- Manage under provisions of the updated Bizz Johnson Trail Special Recreation Management Area (SRMA) plan, protecting the river corridor for public recreational use. Non-motorized public access would be maintained along 9 miles of the river adjacent to the BLM managed portion of the trail. Motor vehicle use would be allowed for emergency, administrative and maintenance purposes.
- Manage as VRM Class II to retain the natural landscape.
- Public recreational use of the river for fishing, swimming, floating, and picnicking would continue, with access along its entire length.
- Historic railroad bridges and tunnels would be protected in compliance with Section 106 of the National Historic Preservation Act.
- The river canyon would continue to be closed to livestock grazing.
- Acquire private land from willing sellers to preserve the existing undeveloped character.
- The river would continue to be open to water sports activities. Education would be provided to users regarding the hazards of Class I to Class V rapids.
- The river canyon would be closed to saleable and locatable minerals development.
- No surface occupancy (NSO) restrictions would apply to leaseable energy and minerals activities.
- Protect fill areas on the trail and bridge abutments that are vulnerable to scouring and undercutting by high river flows with the least disruptive, most effective stream bank stabilization measures.

5.2 Willow Creek

- Manage Upper and Lower Willow Creek as non-motorized areas.
- Manage as VRM Class II to retain the natural landscape.
- Protect prehistoric and historic resources under the provisions of Section 106 of the National Historic Preservation Act.
- Keep livestock out of the creek except at designated small water gaps for livestock watering.
- Maintain access road to Belfast Trailhead so that local school groups and others can continue to visit the Belfast Petroglyph site and hike in Willow Creek Canyon during most of the year.
- Seek to acquire private lands from willing sellers along the creek to protect natural values and to provide for legal public access.
- Acquire legal access to Sheep Bridge for fisherman and hikers.
- Build a six mile hiking trail through Upper and Lower Willow Creek Canyon.
- Manage land adjacent to the Tunnison Wilderness Study Area (WSA) according to Wilderness Interim Management Plan (IMP) policy to protect wilderness qualities.

5.3 Upper Smoke Creek

- Manage to protect cultural sites and continue riparian area recovery.
- Keep livestock out of the creek by maintaining exclosure fencing.
- Conduct limited guided interpretation tours of prehistoric and historic sites.
- Manage as VRM Class II.
- Vehicles cross the creek on one rough rocky two track road .75 miles north of Shinn Ranch and pass by the head waters at Big Spring on private land. A rough dirt road parallels the lower portion of Upper Smoke Creek; however, traffic along the south rim is mostly out of sight of the creek.
- Manage land adjacent to Smoke Creek within Twin Peaks WSA according to Wilderness IMP policy to protect wilderness qualities.

5.4 Lower Smoke Creek

- Limit grazing periods and selectively exclude livestock to improve riparian condition. Nobles Emigrant National Historic Trail traces would be protected under section 106 of the National Historic Preservation Act.
- Protect Nobles Emigrant Trail traces.
- Manage as VRM Class II.
- Continue maintenance of Smoke Creek Road by Washoe County.
- Acquire adjacent private lands from willing sellers to assure public access, improve riparian conditions, water quality, and to protect historic sites.
- Manage land adjacent to the creek within Dry Valley Rim WSA according to Wilderness IMP policy to protect wilderness qualities.

2.14.6 No Action Alternative

- No designations of eligible river segments would be recommended. Eligible segments would be released from further consideration and protection.
- All eligible river segments would be managed under current land use plans to protect the unique resources along those streams.

2.14.7 Alternative 1. Economic Development

7.1 Susan River

- Designate six out of eight eligible miles of the Susan River into the Wild and Scenic Rivers system, and classify as *recreational.*
- The segment would extend from below a proposed dam site to .4 milcs downstream of the Williams Creek confluence, to 100 feet upstream of the inlet to Ramsey Ditch, 0.3 miles west of the Susanville city limit.

7.2 Willow Creek

- Designate 4.75 out of eight eligible miles into the Wild and Scenic Rivers system, and classify as *wild.*
- This portion includes two segments, above and below a proposed dam site located 1.5 miles downstream of the Pete's Creek confluence. The upper segment begins where Willow Creek enters BLM land in Tunnison WSA, and extends downstream 3 miles to the beginning of the area vulnerable to inundation from the proposed dam. The lower section is below the proposed dam site and includes the remainder of Willow Creek through BLM land.
- The river canyon would be closed to saleable and locatable minerals development.
- No surface occupancy (NSO) restrictions would apply to leaseable energy and minerals activities.

7.3 Upper Smoke Creek

- Designate all 10.6 miles of the eligible river segment into the Wild and Scenic River system, and classify as *wild.*
- This segment stretches from where the creek enters BLM land below Big Springs to where it leaves BLM land near Smoke Creek Reservoir. This encompasses 9.4 miles on BLM land and 1.2 miles on California Department of Fish and Game Land.
- Land within 1 mile of the creek would be closed to locatable minerals development.
- No surface occupancy restrictions would apply for leasable minerals activities within .5 miles of the canyon rim.
- The canyon would be closed to saleable minerals development.

7.4 Lower Smoke Creek

- Designation all 3.2 miles of eligible river into the Wild and Scenic River System, and classify as *recreational.*
- This segment encompasses Lower Smoke Creek on BLM land within Lower Smoke Creek Canyon.
- The canyon would be closed to saleable and locatable minerals development.
- No surface occupancy restrictions would apply for leasable minerals activities within 0.5 miles of the canyon rim.

2.14.8 Alternative 2. Ecosystem Restoration

8.1 Susan River

- Designate all eight eligible miles of river into the Wild and Scenic Rivers System, and classify as *recreational.*
- The eight mile segment extends from where the river enters BLM land (T29N R11E Section 6) eastward to 100 feet upstream of the inlet to Ramsey Ditch, 0.3 miles west of the Susanville city limit.
- Manage the entire BLM segment of the Susan River to protect the values that qualify it for designation until it is officially designated or released from consideration.

- Designate all of the Susan River as an area of critical environmental concern (ACEC) to protect recreational, scenic, historic and riparian values.

8.2 Willow Creek

- Designation all eight miles of eligible river into the Wild and Scenic Rivers system, and classify as *wild.*
- This segment is within in the Tunnison WSA, extending from where the creek enters BLM land (T30N R13E Section 5) to the end of BLM land (T30N R14E Section 18), encompassing 1 mile on private land.
- Designate all of Willow Creek through BLM land as an area of critical environmental concern to protect cultural and scenic values.
- Manage the entire BLM segment of the Willow Creek to protect the values that qualify it for designation until it is officially designated or released from consideration.
- The canyon would be closed to saleable and locatable minerals development.
- No surface occupancy restrictions would apply for leasable minerals activities within .5 miles of the canyon rim.

8.3 Upper Smoke Creek

- Designate all 10.6 eligible miles into the Wild and Scenic Rivers system, and classify as *wild.*
- This segment extends from where Smoke Creek enters BLM land below Big Springs to the end of BLM land, 1.2 miles upstream of Smoke Creek Reservoir. It encompasses 9.4 miles on BLM land and 1.2 miles on California Department of Fish and Game land.
- Manage the entire BLM segment of Upper Smoke Creek to protect the values that qualify it for designation until it is officially designated or released from consideration.
- The canyon would be closed to saleable and locatable minerals development.
- No surface occupancy restrictions would apply for leasable minerals activities within .5 miles of the canyon rim.
- Close the river and surrounding area to OHV use.

8.4 Lower Smoke Creek

- Designate all 3.2 eligible miles into the Wild and Scenic Rivers system, and classify as *recreational.*
- This segment encompasses Lower Smoke Creek on BLM land within Lower Smoke Creek Canyon.
- Designate the river and surrounding lands as an ACEC to protect cultural, scenic, riparian and historic values (Nobles Emigrant Trail).
- No surface occupancy restrictions would apply for leasable minerals activities within .5 miles of the canyon rim.
- The canyon would be closed to locatable minerals development.

- The canyon would be closed to saleable minerals development from Lower Smoke Creek Canyon within the recommend ACEC, to the bottom of the slope on the south side of Smoke Creek Road.

2.14.9 Alternative 3

Alternative 3 is the same as the No Action Alternative.

2.14.10 Preferred Alternative

- Designate all 10.6 eligible miles of Upper Smoke Creek into the Wild and Scenic Rivers system, and classify as *wild,* as in Alternative 2.
- No other eligible river segments would be recommended for designation.

Table 2.14-1 Wild and Scenic River Designations and Use Restrictions

Alternative	WSR Designation (Miles)	Designation Type	VRM Class	Livestock Grazing Restrictions	Off-Highway Vehicle Restrictions	Restrictions to Energy & Mineral Development (Acres)			Dam Construction and Water Diversions Allowed
						Leasable	Saleable	Locatable	
						'No Surface Occupancy'	'Closed'	'Closed'	
Susan River									
No Action	0	NA	II	Closed	Closed	0	0	0	Yes
1	6	Recreational	II	Closed	Closed	1,840	1,840	1,840	No
2	8	Recreational	II	Closed	Closed	2,495	2,495	2,495	No
3	0	NA	II	Closed	Closed	0	0	0	Yes
Preferred	0	NA	II	Closed	Closed	0	0	0	Yes
Willow Creek									
No Action	0	NA	II	Limited	Closed	0	0	0	Yes
1	4.75	Wild	II	Limited	Closed	1,520	1,520	1,520	No
2	8	Wild	II	Limited	Closed	2,240	2,240	2,240	No
3	0		II	Limited	Closed	0	0	0	Yes
Preferred	0	NA	II	Limited	Closed	0	0	0	Yes
Upper Smoke Creek									
No Action	0	NA	II	Limited	Closed	0	0	0	Yes
1	10.6	Wild	II	Limited	Closed	3,392	3,392	3,392	No
2	10.6	Wild	II	Limited	Closed	3,392	3,392	3,392	No
3	0	NA	II	Limited	Closed	0	0	0	Yes
Preferred	10.6	Wild	II	Limited	Closed	3,392	3,392	3,392	No
Lower Smoke Creek									
No Action	0	NA	II	Limited	Closed	0	0	0	Yes
1	3.2	Recreational	II	Limited	Closed	894	894	894	No
2	3.2	Recreational	II	Limited	Closed	894	894	894	No
3	0	NA	II	Limited	Closed	0	0	0	Yes
Preferred	0	NA	II	Limited	Closed	0	0	0	Yes

2.15 Wilderness Study Areas

There are seven existing wilderness study areas (WSAs) within the management area of the Eagle Lake Field Office:

Table 2.15-1 Wilderness Study Areas in the Eagle Lake Field Office

Name of WSA	California		Nevada	
	Suitable (acres)	Non-Suitable (acres)	Suitable (acres)	Non-Suitable (acres)
Tunnison Mountain	7,889	11,995	0	0
Skedaddle	37,644	24,366	0	0
Five Springs	0	49,206	0	1,195
Dry Valley Rim	7,268	10,863	45,127	31,050
Twin Peaks	7,079	18,598	47,837	17,277
Buffalo Hills	0	856	0	45,287
Poodle Mountain	0	4,990	0	137, 160

Management direction for all wilderness study areas (WSAs) is set under the Interim Management Policy for Lands under Wilderness Review (IMP) (BLM 1995b) until Congress decides whether to designate them as wilderness. The IMP generally takes precedence over all other management direction. But when a WSA overlaps another special designation, such as special recreation management area (SRMA) or an area of critical environmental concern (ACEC), if management of these areas is more restrictive than the IMP, the most restrictive management direction would be followed. Management of any congressionally designated wilderness areas would be set in future legislation. Management of areas released from WSA status would be based on existing management plans.

For WSAs studied under Section 202 of the Federal Land Policy and Management Act (FLPMA), existing and new mining operations under the Mining Law of 1872 would be regulated under 43 CFR 3809 to prevent impairing wilderness characteristics. All other activities would be managed under the IMP.

According to the IMP, the use in WSAs of "... mechanical transport, including all motorized devices as well as trail and mountain bikes, may only be allowed on existing ways and within open areas that were designated prior to the passage of FLPMA (October 1976)." For this analysis, existing roads and ways within WSAs are those that existed at the time FLPMA was passed (1976) and were later shown or described in the *Final Intensive Wilderness Inventory, Public Lands Administered by BLM California outside the California Desert Conservation Area* (BLM 1979).

Preserving wilderness values is paramount in managing WSAs and is the main consideration when evaluating any proposed action or use. Wilderness resource management objectives within a WSA would take precedence over all other management objectives.

2.15.1 Desired Future Condition

Wilderness values would be protected in WSAs until Congress either designates them as wilderness or releases them from interim management. Unauthorized vehicle routes within WSAs would be closed and rehabilitated. BLM would manage core Primitive areas of WSAs (See Map REC-5) to provide large areas of public land that are not fragmented by vehicle routes, reserving them for Non-motorized activities. These areas would continue to be managed as Primitive if in the future, they are released from wilderness consideration.

2.15.2 Goal

WSAs would be managed under BLM Interim Management Policy (IMP), which protects their wilderness values pending congressional action, subject to valid existing rights.

2.15.3 Objectives

- Manage lands in WSAs under the Wilderness Interim Management Policy (IMP). BLM-administered land acquired since the1979 wilderness inventory and found to have wilderness values would be included in adjacent WSAs.
- Manage core Primitive areas of each WSA to provide high-quality opportunities for traditional Non-motorized hunting, hiking, horseback riding, wildlife viewing, and other Non-motorized activities away from vehicle routes that remain open for use under BLM IMP guidelines and to provide large areas of public land with wildlife habitat is that not highly fragmented by vehicle routes.

2.15.4 Legislative, Regulatory, and Policy Direction

- Wilderness Act of September 3, 1964, P.L. 88-577
- Federal Land Policy and Management Act of 1976, (FLPMA)
- Interim Management Policy for Lands under Wilderness Review, BLM H-8550-1, 7/95 (BLM 1995b)

2.15.5 Management Common to All Alternatives

Proposals for uses or facilities within WSAs would be reviewed to determine whether they meet the non-impairment criteria. This means that any use, facility, or activity must be temporary. It must not disturb the land's surface or create permanent facilities unless these actions can easily and immediately be terminated upon wilderness designation. When these are terminated, wilderness values must not have been degraded so far as to impair suitability for preservation as wilderness.

Exceptions to non-impairment criteria include:

- Wildfire or search and rescue emergencies
- Reclamation to repair impacts from violations, pre-FLPMA activities and emergency use
- Uses or facilities considered grandfathered or holding valid existing rights under the IMP
- Uses or facilities that enhance wilderness values or are the minimum required to maintain public health and safety

The minimum tool concept would be applied to any approved actions within WSAs. Actions would be accomplished using methods and equipment that have the least impact on the quality of the wilderness experience as well as on physical, biological, and cultural resources.

Use and maintenance of pre-FLPMA developments in WSAs would continue to keep them in usable condition. Developments cannot be modified to exceed the physical and visual impacts existing at the time FLPMA passed (1976). New, temporary developments would need to satisfy the non-impairment criteria and enhance wilderness values.

New, permanent developments must satisfy the non-impairment criteria, enhance wilderness values, and not require motorized access if the area were to be designated as wilderness. Because pre-FLPMA facilities such as waterholes, spring developments, guzzlers, and fences are considered grandfathered, they may be maintained periodically using motorized equipment, if that method qualifies as the minimum tool necessary for maintenance.

Lands acquired within WSAs or adjacent to WSA boundaries are not subject to the IMP. However, they would be managed to protect their wilderness characteristics. Management for these acquired lands is provided in Appendix I.

WSAs would be managed to meet BLM visual resource management (VRM) Class I objectives to preserve the existing character of the landscape.

Unauthorized routes in WSAs would be located, obliterated and prevented as required under the Wilderness IMP.

If a WSA is released from wilderness consideration by Congress, the Recreation Opportunity Spectrum (ROS) and Travel Management actions would govern future management.

Management to meet land health standards would continue to restore areas to natural condition.

2.15.6 No Action Alternative

All non-BLM lands in Tunnison, Skedaddle, Dry Valley Rim, and Twin Peaks WSAs would be acquired on a willing-seller basis. No trails would be developed in the seven existing WSAs, which encompass over 381,000 acres.

2.15.7 Alternative 1. Economic Development

This Alternative is identical to the No Action Alternative.

2.15.8 Alternative 2. Ecosystem Restoration

All private land in WSAs would be prioritized for acquisition on a willing-seller basis to retain the undeveloped character of the area, preclude the need for vehicle access and prevent development that would impair wilderness values.

All private land in WSAs would be prioritized for acquisition on a willing-seller basis to retain the undeveloped character of the area, preclude the need for vehicle access and prevent development that would impair wilderness values.

Non-motorized, non-mechanized routes would be built within the Tunnison, Skedaddle, Dry Valley Rim, and Twin Peaks WSAs (see Map TRAVEL-7) to provide high quality non-motorized experiences. They would be constructed to provide long-term use and require minimal maintenance. (See Table 2.15-2).

2.15.9 Alternative 3. Traditional Uses

Same as Alternative 1, except no new lands would be recommended for acquisition.

2.15.10 Preferred Alternative

The Preferred Alternative is the same as Alternative 2. Table 2.15-2 shows the miles of roads and ways proposed for closure within Primitive areas under Alternative 2 and the Preferred Alternative. Table 2.15-3 shows mileage for proposed non-motorized trail construction within WSAs in Alternative 2 and the Preferred Alternative. (See Map TRAVEL-7).

Table 2.15-2 Proposed Route Closures within Primitive Areas under Alternative 2 and the Preferred Alternative

Wilderness Study Area	Miles
Tunnison	1.0
Skedaddle	19.3
Five Springs	3.2
Dry Valley Rim	4.7
Twin Peaks	7.8
Buffalo Hills	8.0
Poodle Mountain	1.0
Total	**45.0**

Table 2.15-3 Proposed Non-motorized Trails in WSAs under Alternative 2 and the Preferred Alternative

Wilderness Study Area	Trail uses	Miles
Tunnison	Hiking	6
Skedaddle	Hiking, horseback riding	19
Dry Valley Rim	Hiking, horseback riding	37
Twin Peaks	Hiking, horseback riding	6
Total		**68**

2.16 Travel Management

Travel management includes the following:

- designating areas and routes for motorized travel,
- managing non-motorized travel opportunities (trails), and
- determining the type of boating opportunities to allow in a water body.

In 2002 the Eagle Lake Field Office inventoried all of its roads and ways using high-quality global positioning system (GPS) units. Characteristics of each route were noted on site. This information was then entered into BLM's geographic information system (GIS) to produce the most accurate map of roads and trails ever compiled for the field office (See Map TRAVEL-1). Through adoption in this RMP, the routes on this map become the designated travel routes open for vehicle use throughout the field office area. Some routes would be closed for the following reasons:

- to stop resource damage from off-highway vehicle (OHV) use,
- to protect sensitive resources,
- to close illegal routes established in wilderness study areas (WSAs) since 1979, or
- to manage core roadless areas as ROS Primitive areas.

The amount and location of closed areas are listed in the discussion for each alternative.

2.16.1 Off-Highway Vehicle Use and Route Designations

Motorized travel in the field office area consists of the following

- two-wheel-drive (2WD) vehicles,
- four-wheel-drive (4WD) vehicles,
- all-terrain vehicles (ATVs),
- motorcycles, and
- a limited amount of snowmobile use.

The State of California; Lassen, Plumas, and Sierra Counties in California; and Washoe County in Nevada have jurisdiction over most of the maintained roads suitable for 2WD use within the field office area. Therefore, the alternatives in this RMP are directed toward 4WD, ATV, and motorcycle uses on rough four-wheel-drive roads, ways, and single-track trails.

2.16.2 Desired Future Condition

A network of designated travel routes would be established to provide motorized access for the public to pursue recreational activities, and for BLM to complete administrative duties, throughout the field office area.

The designated route network allows motorized activities, but also provides access to areas designated for non-motorized use in a manner consistent with Recreation Opportunity Spectrum (ROS) classes. The ROS Preferred Alternative establishes areas where people can enjoy off-highway vehicle (OHV) experiences and areas where people can enjoy non-motorized experiences.

Therefore, the desired future condition of OHV designations includes the following:

- ‘open’ OHV play areas,
- areas where OHVs are welcome and land health standards can be met by limiting OHV use to designated routes, and
- areas where OHV use is not allowed in order to protect natural and cultural resources, and to provide areas for a variety of non-motorized recreation experiences, including hunting, hiking, horseback riding, and wildlife viewing.

The designated route network would be based mostly on the field office inventory of roads and trails that would be designated for continued use. Routes would be maintained or modified where needed to meet land health standards and changing public needs. Future implementation plans would determine where existing routes may need realigning to meet land health standards and where new routes are needed. New routes would be needed to provide looped travel and trail experiences.

2.16.3 Goal

Design, develop, and maintain a sustainable travel route network that achieves a balance between public and administrative access and resource protection.

2.16.4 Objectives

- Designate ‘open’, ‘limited’, and ‘closed’ areas as required by Executive Order 11644, as amended by Executive Order 11989.
- Establish a travel route system, including motorized and non-motorized routes (trails).
- Designate roads and trails for specific uses within ‘limited to designated routes’ areas.
- Allow for changes to the designated route system where needed to improve access, protect resources, and provide for sustainable travel route alignments.
- Ensure public access for multiple recreational activities.
- Allow access for administrative purposes.

2.16.5 Legislative, Regulatory, and Policy Direction

- Executive Order No. 11644, February 8, 1972, as amended by Executive Order 11989 and 12608.
- Code of Federal Regulations, Title 43, Part 8340, 44 FR 34836, June 15, 1979.
- Interim Management Policy for Lands under Wilderness Review, BLM, H-8550-1, Rel.8-17 (BLM 1995b).
- The BLM’s Priorities for Recreation and Visitor Services (BLM 2003).
- BLM Land Use Planning Handbook, H-1601-1, November 11, 2000 (BLM 2000b).

2.16.6 Management Common to all Alternatives

Travel management would follow BLM’s Northeastern California Resource Advisory Council’s “Guidelines for OHVs”, Appendix C.

The following motorized vehicles are exempt from all restrictions and requirements detailed under these alternatives:

- Any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes.
- Any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved.
- Vehicles in official use where such use conforms to the RMP management objectives for the affected area.
- Any combat or combat support vehicle when used in national defense emergencies.

Where the public has used well-established routes across private land to access BLM-managed land, BLM will

- Seek to acquire easements across private land,
- Acquire those lands, or
- Reroute the travel route on adjacent BLM land to allow continued public access through the area.

Organized off-highway vehicle events would be allowed only on designated routes. Start zones requiring cross-country travel would be cleared through implementation plans such as special recreation management area plans and environmental analysis documents.

For management purposes, designated routes would be built and maintained at the following approximate widths (management width):

- 4WD - 96 inches
- ATV/motorcycle routes - 50 inches

The allowable disturbance area of the designated routes (in wilderness study areas the management width would apply) would be limited to the following approximate widths.

- 4WD - no more than 192 inches
- ATV/motorcycle routes - no more than 96 inches

Routine maintenance on the designated route network would be allowed within the following corridors without further environmental analysis:

- Along county roads: corridor would be no wider than 150 feet on either side of the centerline.
- Along all other designated routes on BLM land: corridor would be no wider than 150 feet on either side of the centerline.
- Within wilderness study areas (WSAs) vehicle travel is limited to the management width of the designated route (96 inches for roads and ways). The Recreation Opportunity Spectrum (ROS) Roaded Natural corridor does not extend beyond four feet on either side of the centerline of the designated routes in WSAs.
- Vehicle pull-offs along designated routes for parking and camping, if such use meets land health standards. If soil, plant, wildlife, and water quality are being degraded, vehicle pull-offs, parking, and camping may be restricted or closed where problems have been documented.

6.1 Designated Route Network Modification Criteria

The following are actions that would modify the motorized and non-motorized designated route network:

- changes in use designations,
- new route construction and designation,
- route realignments,
- temporary and permanent route closures, and
- route obliteration and rehabilitation.

These actions would be allowed if consistent with RMP goals and objectives, and if they meet the following criteria:

- Action would minimize damage to soil, watershed, vegetation, air, or other public land resources to prevent impairing of wilderness suitability.
- Action would minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention would be given to protect endangered or threatened species and their habitats.
- Action would minimize conflicts between existing uses of the same or neighboring public and private lands and would ensure the compatibility of such areas with desired conditions in populated areas, considering noise and other factors.
- Action would improve wilderness values or characteristics.
- Action would remove route from soils poorly suited for travel routes.
- Action would improve or allow access.
- Action would protect public health and safety.

Routes designated as 'closed' or not designated for use through this RMP, or subsequent amendments, would be closed and rehabilitated. Signing of 'closed' routes would be evaluated on a case-by-case basis, and limited to areas where needed most. Closed routes would be naturalized whenever feasible.

Where designated travel routes cross sensitive resources (erodible soils, cultural sites, threatened or endangered species habitat), BLM would monitor known problem areas and other problem areas as they are recognized. BLM would thus determine if impacts from using the travel route meet land health standards. If standards are not being met, plans would be developed to either close the route or to mitigate the impacts through measures such as the following:

- improving route design and reconstruction,
- rerouting the road or trail, or
- limiting use during critical periods when most impacts occur.

The following areas would be designated as 'closed' to any OHV use to protect natural and cultural resources or provide areas for non-motorized recreation.

Table 2.16-1 Areas 'Closed' to Off-Highway Vehicles - Common to All Alternatives

Area	Location	Acres
Bizz Johnson Trail SRMA (other than trailhead access roads)	Susan River Canyon and adjacent lands within Bizz Johnson Trail SRMA	2,756
Eagle Lake Basin SRMA	Little Troxel Point	166
	Troxel Point	592
	Buck Point	317
	Portions of Rocky Point	355
	Black Mountain Shoreline	181
Willow Creek Canyon	Willow Creek Canyon (7.7 miles on BLM and on other lands if acquired)	1,167
Extensive Recreation Management Area	East Bald Mountain	3,111
	Tupi t'waba	78
	Pine Dunes	160
Total		**8,883**

If new parcels are acquired within these 'closed' areas, they would also be designated as 'closed'. If parcels are acquired adjacent to these 'closed' areas, a determination would be made as to which portions would be designated as 'closed' and which would be managed under other designations.

The Cleghorn Access Road (T33N R11E Sections 4, 9, and 10), would be managed under a season closure from December 31 to August 31 each year to protect sensitive species.

Signing within the 'limited to designated routes' areas would be prioritized as follows:

- Within special recreation management areas (SRMAs): Designated routes would be marked with route identification signs to help visitors remain on the designated route network.
- Within the extensive recreation management area (ERMA): Designated routes would not be individually signed to avoid sign proliferation and sign maintenance expenses. Maps of designated routes would be made available and distributed to the public.

Over-the-snow vehicle travel would be open in all of the field office area except for 'closed' areas and wilderness study areas.

2.16.7 No Action Alternative

Under the No Action Alternative, the following OHV area designations would apply:

Table 2.16-2 OHV Designations under the No Action Alternative

OHV Designation	Acres	% of Area
Open (See Table 2.16-3)	562,197	54.9
Limited to Existing Roads and Trails (See Table 2.16-4)	412,966	40.4
Limited to Designated Roads and Trails (Fort Sage OHV area)	22,210	2.3
Closed (Common to all)	8,883	0.8
Undesignated (Sierra Valley and other isolated parcels)	16,511	1.6
Total	**1,022,767**	**100**

The Fort Sage Special Recreation Management Area (22,210 acres) would be managed under the 'limited to designated routes' designation because the travel routes in the area were designated through previous planning efforts.

Table 2.16-3 Areas Designated as 'Open' to OHV Use under the No Action Alternative

Area	Location	Acres
Balance of field office area	Acres not within other area designation categories	562,135
Designated dispersed camping and boat launch areas within the Eagle Lake Basin	Small designated areas of Rocky Point and next to Highway 139 where gravels and rocky shoreline support low-speed vehicle travel (vehicle free play not allowed)	62
Total		**562,197**

Table 2.16-4 Areas Designated as 'Limited to Existing Roads and Trails' under the No Action Alternative

Area		Acres
Bitterbrush WSA		640
Tunnison WSA		19,844
Five Springs WSA		49,206
Skedaddle WSA		62,010
Dry Valley Rim WSA		94,308
Twin Peaks WSA		90,791
Buffalo Hills WSA		38,190
Poodle Mountain WSA		25,330
Eagle Lake Basin		32,647
Total		**412,966**

2.16.8 Alternative 1. Economic Development

All 1,700 miles of routes in the 2002 route inventory would be designated for use under this Alternative. Areas designated as 'limited to existing routes' are the same as in the No Action Alternative, listed in Table 2.16-4.

Under Alternative 1, the following OHV area designations would apply:

Table 2.16-5 Proposed Off-Highway Vehicle Designations under Alternative 1

OHV Designation	Acres	% of Area
Open (See Table 2.16-6)	419	0
Limited to Existing Roads and Trails (See Table 2.16-4)	412,966	40
Limited to Designated Roads and Trails (acres not in other designations)	588,724	58
Closed (See Table 2.16-8)	20,658	2
Undesignated	0	0
Total	**1,022,767**	**100**

Under this alternative, BLM would designate 'open' OHV use areas at 1) sites suitable for intensive OHV use, 2) where there are no compelling resource protection needs, and 3) where there are no use conflicts or public safety issues that warrant limiting cross-country use.

In addition to the hill climb opportunities in the Rice Canyon 'open' area, other 'open' areas would be designated at specific sites in the Fort Sage and South Dry Valley Special Recreation Management Areas (SRMAs). A future plan would be completed to select sites for hill climbing and free play where impacts would not harm sensitive resources. A team of specialists and interested parties would make these recommendations.

Table 2.16-6 Proposed Areas Designated as 'Open' to Off-Highway Vehicle Use under Alternative 1

Area	Location	Acres
Rice Canyon	T30N, R13E, portions of Sections 28, 29, 32, and 33	105
East of Tupi t'waba	T29N R16E Section 19	90
Joey's Pit, south side Skedaddle Mountains	T28N R16E Section 11	224
Fort Sage SRMA Hill Climb	To be determined	
Dry Valley SRMA Hill Climb	To be determined	
Total		**> 419**

Within the 'limited to designated routes' area designation under Alternative 1, the following roads and trails would be designated for specific uses:

Table 2.16-7 Proposed Route Designations within 'Limited to Designated Routes' under Alternative 1

Route	Location	Designation
State and county roads	BLM lands in the Eagle Lake Field Office	Based on state and county regulations
Existing roads and trails[1/]	BLM lands in the Eagle Lake Field Office	4WD, ATV, motorcycle
Routes within the Fort Sage SRMA	Fort Sage SRMA	See specific designations on Map TRAVEL-6.
South Dry Valley Interim Route Network	South Dry Valley SRMA	4WD, ATV, motorcycle

[1/] See Map TRAVEL-1.

Under Alternative 1, the South Dry Valley area would be designated as a special recreation management area (SRMA) to provide for a variety of looped motorcycle and ATV routes of varying difficulty. These routes would provide a mixture of loops, and opportunities to combine loops in different configurations, for varied competitive event courses.

A management plan for the South Dry Valley SRMA would be developed by a team consisting of motorized and non-motorized users, and other interested parties in the Dry Valley riding area. Meanwhile, BLM planning regulations require that an interim route network (IRN) be defined until the final designated route network is established and an RMP amendment is completed. The Dry Valley IRN would consist of the routes detailed in the Preferred Alternative. The Dry Valley SRMA planning team would establish detailed boundaries, determine and resolve issues, analyze the IRN and establish a final designated route network.

Under Alternative 1, the following OHV 'closed' designations would apply:

Table 2.16-8 Proposed Areas Designated as 'Closed' to Off-Highway Vehicle Use under Alternative 1

Area	Location	Acres
Upper Smoke Creek Area	Big Springs to Smoke Creek Reservoir (11 miles on BLM and on other lands if acquired along the creek)	10,812
Willow Creek Canyon	Willow Creek Canyon (7.7 miles)	963
Common to All Alternatives		8,883
Total		**20,658**

Table 2.16-9 details proposed new routes that would be built under Alternative 1. In addition, the designated route network could be modified under the criteria detailed in Management Common to All Alternatives.

Table 2.16-9 Proposed New Routes and Their Designated Uses under Alternative 1

Name	Location	Objective	Designation
Pete's Valley Road connection (subject to release from WSA status)	T30N R13E Sections 1 and 2 T31N R13E Section 35	Access issues	4WD, ATV, motorcycle
Painter Flat to Willow Springs Road connection	T33N R18E Sections 2,3,4,9,10	Road location issues	4WD, ATV, motorcycle
Big Springs Road reroute (pending possible acquisition of lands)	T33N R16E Section 2 T34N R16E Sections 35 and 36	Road location issues	4WD, ATV, motorcycle
Fort Sage OHV area downhill to uphill connector trail (pending possible acquisition of lands)	T26N R17E Sections 21 and 22	Improve loop riding opportunities	ATV, motorcycle
Fort Sage OHV area – South End Loop	T25N R17E Sections 10 and 15	Improve loop riding opportunities	ATV, motorcycle
Fort Sage OHV area – Single track connector	T26N R17E Section 34	Avoid difficult to maintain trail section	ATV, motorcycle

To achieve the objectives stated above about 15 miles of routes would need to be built.

2.16.9 Alternative 2. Ecosystem Management

All 1,700 miles of routes in the 2002 route inventory would be designated for use under Alternative 2. The following off-highway vehicle (OHV) area designations would apply:

Table 2.16-10 Proposed Off-Highway Vehicle Designations under Alternative 2

OHV Designation	Acres	% of Area
Open	0	0
Limited to Existing Roads and Trails	0	0
Limited to Designated Routes	721,123	71
Closed	301,644	29
Undesignated	0	0
Total	**1,022,767**	**100**

Areas within the 'limited to designated routes' designation under Alternative 2 would be identical as those under Alternative 1, listed in Table 2.16-7. The following areas would be 'closed' to OHV use.

Table 2.16-11 Areas 'Closed' to Off-Highway Vehicle Use under Alternative 2

Area	Location	Acres
Upper Smoke Creek area	Big Springs to Smoke Creek Reservoir (11 miles on BLM and more lands if acquired along the creek)	10,812
All core primitive areas in each wilderness study area	Tunnison, Skedaddle, Dry Valley Rim, Five Springs, Twin Peaks, Buffalo Hills, and Poodle Mountain Wilderness Study Areas	233,117
Citizen-proposed roadless areas	Observation Peak, Shinn Mountain, and Snowstorm Mountain roadless areas	47,869
Willow Creek Canyon	Willow Creek Canyon (7.7 miles)	963
Common to All Alternatives		8,883
Total		**301,644**

The following permanent route closures would be implemented under Alternative 2.

Table 2.16-12 Proposed Permanent Route Closures under Alternative 2

Route	Core Primitive Area	Miles
Routes within core primitive areas (See Chapter 2.10 Recreation Opportunity Spectrum)	Tunnison	1
	Skedaddle	19.3
	Dry Valley Rim	4.6
	Five Springs	3.2
	Twin Peaks	7.8
	Buffalo Hills	8
	Poodle Mountain	1
Routes within the Fort Sage OHV Area*		13.1
Route in the proposed Pine Dunes ACEC		.5
Total		**58.5**

*See Map TRAVEL-6.

The routes proposed for permanent closure within the Fort Sage OHV area consist of the following

- routes proposed for closure in previous decision documents but never closed,
- routes proposed for closure in previous decision documents but closed unsuccessfully, and
- routes proposed for closure through this current planning process.

Seasonal route closures would also be initiated under Alternative 2, as shown in the following table.

Table 2.16-13 Proposed Seasonal Route Closures under Alternative 2

Route	Location	Season of Closure	Objective
Cleghorn access road	T33N R11E Sections 10	January 1– April 15, depending on annual weather patterns	Prevent road rutting in very muddy conditions and prevent distribution of noxious weeds
Tablelands	T30N R14E Section 18	January 1– April 15, depending on annual weather patterns	Prevent road rutting in very muddy conditions and prevent distribution of noxious weeds
Horse Lake Road	BLM roads off Horse Lake Road between State Route 139 and U.S. Highway 395	January 1– April 15, depending on annual weather patterns	Prevent road rutting during wet periods

2.16.10 Alternative 3. Traditional Uses

Alternative 3 is identical to the No Action Alternative, except that the 16,511 acres of OHV area designations that would remain undesignated under the No Action would be designated as 'open' under Alternative 3. No other management actions or designations are unique to this alternative.

Under Alternative 3, the following OHV area designations would apply:

Table 2.16-14 Proposed Off-Highway Vehicle Designations under Alternative 3

OHV Designation	Acres	% of Area
Open	578,708	57
Limited to existing roads and trails	412,966	40
Limited to designated routes	22,210	2
Closed	8,883	1
Undesignated	0	0
Total	**1,022,767**	**100**

2.16.11 Preferred Alternative

The focus of the preferred alternative is to manage resources for land health while providing opportunities for recreational uses. A system of designated roads, ways, and trails would be implemented for motorized uses and cross-country travel by non-motorized uses (hiking, horseback riding).

All 1,700 miles of routes in the 2002 route inventory would be designated for use under the Preferred Alternative. Permanent route closures would be implemented as detailed in Alternative 2, Table 2.16-12. Seasonal route closures would be initiated as detailed in Alternative 2, Table 2.16-13. New routes would be built and designated for specific uses under the Preferred Alternative as detailed in Table 2.16-9 Proposed New Routes and Their Designated Uses under Alternative 1.

The following OHV area designations would apply.

Table 2.16-15 Proposed Off-Highway Vehicle Designations under the Preferred Alternative

OHV Designation	Acres	% of Area
Open	419	4
Limited to existing roads and trails	0	0
Limited to designated routes	760,837	72
Closed	261,511	24
Undesignated	0	0
Total	**1,022,767**	**100**

'Open' Designation. Areas that would be designated as 'open' to OHV use under the Preferred Alternative are the same as Alternative 1, Table 2.16-6. The Preferred Alternative would designate 'open' OHV use areas suitable for intensive OHV use where there are no compelling resource protection needs, user conflicts, or public safety issues that warrant limiting cross-country use.

In addition to the hill climb opportunities in the Rice Canyon 'open' area, areas within the proposed Fort Sage SRMA (Fort Sage OHV area) and the proposed Dry Valley SRMA would be evaluated for suitability for hill climbing and free play by a technical review team.

'Limited' Designation. All parts of the Eagle Lake Field Office area not specifically designated as 'open' or 'closed' would be included within the 'limited' designation.

Lands within wilderness study areas (WSAs) would be managed under the 'limited to designated routes' designation unless they are within the proposed primitive core areas, which would be designated 'closed' to OHV use. The Interim Management Policy for Lands under Wilderness Review (BLM 1995b) requires that WSAs be managed under the minimum designation of "limited to existing ways."

Existing ways are routes inventoried in the 1979 BLM Roadless Area Inventory. Through the RMP route designation process, some of these existing ways would be designated for use and some would not. Therefore, the 'limited to designated routes' designation would provide the same, if not more, protection for the WSAs as the 'limited to existing routes' designations. Routes established since 1979, while physically existing, are in violation of BLM Wilderness Interim Management Policy and would be closed and rehabilitated.

'Closed' Designation. The areas shown in the following table would be designated as 'closed' to any OHV use to protect natural and cultural resources or to provide areas for Non-motorized recreation experiences:

Table 2.16-16 Proposed 'Closed' Areas to Off-Highway Vehicle Use under the Preferred Alternative

Area	Location	Acres
Bizz Johnson Trail SRMA	Susan River Canyon	2,756
Eagle Lake Basin SRMA	Little Troxel Point	166
	Troxel Point	592
	Buck Point	317
	Portions of Rocky Point	355
	Black Mountain Shoreline	181
Willow Creek Canyon SRMA	Willow Creek Canyon (7.7 miles)	2,130
Extensive Recreation Area	East Bald Mountain	3,111
	Tupi t'waba	78
Proposed Pine Dunes ACEC	Pine Dunes	3,060
Upper Smoke Creek area	Big Springs to Smoke Creek Reservoir (11 miles)	10,812
All core primitive areas in each WSA	Tunnison, Skedaddle, Dry Valley Rim, Five Springs, Twin Peaks, Buffalo Hills and Poodle Mountain	237,953
Total		**261,511**

If BLM acquires lands within these closed areas, they would receive the 'closed' designation. If lands adjacent to these 'closed' areas are acquired, BLM would determine which portions of the acquired lands would receive 'closed' designations and which lands would receive 'limited to designated routes' designations.

The following routes are proposed for permanent closure within the Fort Sage OHV Area:

- routes that were proposed for closure in previous decision documents but never closed,
- routes that were proposed for closure in previous documents but closed unsuccessfully, and
- routes that are proposed for closure through this current planning process.

2.16.12 Non-motorized Travel

Non-motorized travel includes travel by foot, mountain bike, horse, or other livestock. The Eagle Lake Field Office area has four trails designated for non-motorized use:

- Bizz Johnson Trail,
- Stone's Trail within the Eagle Lake Basin SRMA,
- Wild Horse Trail within the Fort Sage SRMA, and
- Coyote Bluff Trail on a segment of BLM-managed land within Lassen County's Susanville Ranch Park.

In addition to the designated trail systems, the field office area has 1,700 miles of roads, trails, and ways that are suitable for non-motorized use. Non-motorized uses are also allowed off roads and trails throughout the field office area, except for wilderness study areas (WSAs). In WSAs (in compliance with BLM's Wilderness Interim Management Policy) mountain bikes and other non-motorized mechanized transport are not allowed off existing roads and ways.

Non-motorized trail development focuses on recreation activity areas, in scenic backcountry areas, and on existing abandoned railroad grades. Areas prioritized for trail development would include those approved in existing SRMAs with completed environmental assessments authorizing trail work.

2.16.13 Desired Future Condition

Within the life of this RMP, trail enthusiasts and BLM resource specialists would plan, layout, build, and collaboratively maintain a network of non-motorized trails that would provide the following:

- high-quality non-motorized trail experiences within the field office area for walkers, mountain bikers, and equestrians;
- opportunities to enjoy scenic vistas, travel through varied landscapes, and pass by features of visual interest;
- trail loops of varying lengths that enable trail users to avoid backtracking whenever possible;
- a variety of challenge levels from beginner to expert for walkers, mountain bikers, and equestrians;
- an extensive system of trails readily accessible from residential areas and activity centers around Honey Lake Valley and other Lassen County population centers;
- interconnections with trails on city, county, public lands, and national forest lands; and
- sustainable trail alignments that would require little maintenance because of good design, location, and construction that reduces the effects of erosion and trail use on the trail tread.

2.16.14 Goal

Improve the quality of life for local residents by creating a system of non-motorized trails that provides access to and through public lands for recreation, physical fitness, and education.

Create high-quality destination trail attractions that would attract trail enthusiasts to Lassen County and Northwest Washoe County to experience scenic landscapes.

Trails would be part of an extensive trail system that offers varied trail types, lengths, and challenge levels, and that would help local economic diversification through trail-based tourism.

2.16.15 Objectives

Complete the following trails approved in existing special recreation management area (SRMA) plans and approved environmental assessments:

- Stone Trail, Eagle Lake Basin SRMA
- Bucks Point Access, Eagle Lake SRMA
- Fredonyer Peak Trail, Eagle Lake Basin SRMA
- Eagle Lake Loop Trail, Eagle Lake Basin SRMA
- Willow Creek Canyon Trail, Tunnison WSA
- South Side Trail, Bizz Johnson Trail SRMA

Work with Lassen and Modoc Counties to acquire abandoned railroad rights-of-way that are suitable for trail uses. Manage these corridors as rail trails with the mixture of uses to be determined in a trail management plan to be developed if the corridors are acquired for public use:

- Modoc Line, Wendel to Alturas segment,
- Fernley and Lassen Branch line, Susanville to Wendel segment,
- Fernley and Lassen Branch line, Wendel to Flanigan segment (if this segment is abandoned).

Complete trail planning, layout and design, environmental assessments, and construction for a system of looped trails in the proposed Antelope/Shaffer/Bald Mountain SRMA.

Support community efforts to promote rural tourism by creating trails that are destination attractions. Trails would be created to draw people to the area because of the diversity of landscapes accessed by the trails, and due to a variety of trail lengths and range of skill levels required.

Develop trail information to direct visitors to suggested routes through primitive and backcountry areas. Prepare route maps that help visitors enjoy self- sufficient exploration and discovery.

Build new trails in the backcountry when needed to meet the following criteria:

- Reduce the adverse impacts of poorly located user-established trails.
- Locate trails to avoid sensitive resources and unsuitable soils, and to provide for good drainage so that the constructed trail would be sustainable and require minimal maintenance.
- Improve the quality of the trail experience by reducing severe grades that are common in user-established trails. Route trails to take advantage of scenic overlooks, features of interest, and good rest stop sites.
- Enhance visitor enjoyment of the backcountry by building a trail that connects activity areas and destination attractions, or improves access to and enjoyment of unique landscapes, scenic vistas, or interpretive opportunities.

2.16.16 Legislative, Regulatory, and Policy Direction

- BLM's Priorities for Recreation and Visitor Services, (BLM 2003, pages 14-18, 26, 28. (Relevant Priorities: improve public access to public lands; enhance visitor enjoyment of public lands).
- BLM Land Use Planning Handbook, H-1601-1, March 11, 2004, Appendix C, p 18 -20, Section D, Comprehensive Trails and Travel Management.

2.16.17 Management Common to All Alternatives

Non-motorized travel includes travel by foot, livestock, or mountain bike. Multiple uses of non-motorized trails by hikers, equestrians, and mountain bikers would be the standard unless otherwise specified.

Where the public has used well-established routes, non-motorized route management and development would focus on BLM administered lands. Where route segments that connect BLM lands or connect BLM land with other public lands, cross private land, these areas would require easements or land acquisition from a willing seller to provide for continued public access through the area.

When managing and constructing routes, BLM would follow land health standards and guidelines for water quality, biodiversity, streams, riparian areas, and soils. Where designated travel routes cross sensitive resources (erodible soils, cultural sites, threatened or endangered species habitat), BLM would monitor known problem areas, and other problem areas as they are recognized in the future, to determine if impacts from the use of the route meet land health standards. If standards are not being met, plans would be developed either to close the route or to mitigate the impacts by such measures as the following:

- improving the route design and reconstruction,
- rerouting the road or trail, or
- limiting use during critical periods when most impacts occur.

Where non-motorized travel routes cross Vertisol soils or on areas with invasive annual grasses, non-motorized but mechanized vehicles (mountain bikes and other non-mechanized conveyances) would be restricted to designated routes.

For management and analysis purposes, designated trails would be built and maintained at the following approximate widths:

- Single-track trails – 18 to 36 inches (preferred by mountain bikers, hikers, and equestrians).
- Railroad grade trails – 8-foot-wide roadbed with more width when needed to maintain cuts and fills. (Some areas had double track width, and portions of these areas may be maintained for maintenance vehicle pull offs and turnarounds.)

17.1 Designated Route Network Modification Criteria

The following are actions that would modify the non-motorized designated route network:

- changes in use designations,
- new route building and designation,
- route realignments,
- temporary and permanent route closures, and
- route obliteration and rehabilitation.

The following are the network modification criteria:

- Action would minimize damage to soil, watershed, vegetation, air, or other public land resources to prevent impairing wilderness suitability.
- Action would minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention would be given to protect endangered or threatened species and their habitats.
- Action would minimize conflicts between existing uses of the same or neighboring public and private lands and ensure the compatibility of such areas with desired conditions in populated areas, considering noise and other factors.
- Action would improve wilderness values or characteristics.
- Action would remove route from soils poorly suited for travel routes.
- Action would improve or allow access.
- Action would protect public safety and health.

Routes closed or not designated for use through this RMP or an RMP amendment would be closed and rehabilitated. BLM would evaluate signing of closed routes on a case-by-case basis and limit closed signing only to areas where signing is needed. Closed routes would be naturalized whenever feasible.

17.2 Signing

Within special recreation management areas (SRMAs) trails would be marked with route identification signs as needed to direct visitors. Within the Extensive Recreation Management Area (ERMA) routes would not be individually signed to avoid sign proliferation and the expense of sign maintenance. Trail maps would be distributed to the public.

The following existing non-motorized travel routes would be maintained under all alternatives.

Table 2.16-17 Existing Non-motorized Routes and Designations - Common to All Alternatives

Trail or Area	Length/Size	Designation
Bizz Johnson National Recreation Trail	11.7 miles on BLM (total of 25 miles on BLM and USFS)	Non-motorized[1/]
Stone Trail – Eagle Lake Basin SRMA	2.5 miles	Non-motorized
Wild Horse Trail – Fort Sage SRMA	1.5 miles	Non-motorized
Coyote Bluff Trail (segment on BLM land in Susanville Ranch Park)	0.3 miles	Non-motorized
Designated motorized travel routes on BLM land in field office area	1,700 miles	Non-motorized (in addition to designated motorized uses)
Areas off roads and ways within WSAs	380,319 acres	Non-motorized and nonmechanized uses, such as hiking and horseback riding
Areas outside WSAs	642,448 acres	Non-motorized

[1/] Snowmobiles would be allowed to cross the Susan River on the Bizz Johnson Trail on the bridge west of the Devil's Corral.

2.16.18 No Action Alternative

The following new non-motorized trails or trail segments included in existing plans and environmental assessments would be built under the No Action Alternative.

Table 2.16-18 Proposed Non-motorized Routes under the No Action Alternative

Name	Location	Length (miles)
Eagle Lake Basin Special Recreation Management Area (SRMA)		
Stones Trail	Stone subdivision to North Eagle Lake Campground	1
Buck Point Trail	Buck Point Road to Buck Point Saddle	1
Fredonyer Peak Trail	Highway 139 by Eagle Lake to Fredoyner Peak	4
Eagle Lake Loop Trail	Trail around north, east, and southeast sides of lake	16.5
Total Eagle Lake Basin SRMA:		22.5
Bizz Johnson Trail Special Recreation Management Area (SRMA)		
South Side Trail	Hobo Camp trailhead to Devil's Corral trailhead	2
Total Bizz Johnson Trail SRMA trails		2
Wilderness Study Areas (WSAs)		
Willow Creek Canyon Trail (hiking only)	In Willow Creek Canyon from the Sheep Bridge in the W1/4SE1/4, Section 4, T30N, R13E to the petroglyphs in the SE1/4SW1/4, Section 7, T30 N, R14 E, north of Belfast	6
Extensive Recreation Management Area (ERMA)		
Modoc Line	Wendel Road to Moran (railroad siding near Termo)	50
Total Proposed Non-motorized Trails under the No Action Alternative		**80.5**

Lassen and Modoc Counties have been working with BLM under present management since 1996 to acquire, under the "rail banking" provisions of the National Trails System Act, as amended, the Modoc Line railroad right-of-way for possible reactivation as a railroad and to preserve and manage the trail for interim public use. Although the Modoc Line is listed in the above table for non-motorized use, if acquired, the applicable management plans would specify the uses for which the trail would be designated (non-motorized versus motorized or some combination of both).

2.16.19 Alternative 1. Economic Development

Alternative 1 emphasizes the following:

- building a large system of new non-motorized trails near population and activity centers and in scenic backcountry and primitive areas,
- implementing a rails to trails conversion of the abandoned Modoc Line railroad corridor into a rail trail linking rural communities with public lands, and
- developing a Honey Lake Valley Rim Trail (on mostly BLM and Forest Service lands) around the perimeter of Honey Lake Valley. This effort would involve building new trails, combined with using low-use dirt roads, that part of the trail would follow.
- The Modoc Line and Honey Lake Valley Rim Trail would comprise 101 of the 277 miles of proposed new trails under Alternative 1. Most new trails would be single track trails (18 to 36 inches wide) to provide for high-quality walking, hiking, running, and riding experiences for hikers, equestrians, and mountain bikers.

Some of these trails would use segments of low-use dirt roads that are also open for motorized uses. The Modoc Line would use the existing 8-foot-wide abandoned railroad roadbed, trackless since 2004.

The strong trails emphasis of this alternative is intended to do the following:

- improve the quality of life for local residents by providing more trail opportunities in Lassen County and northwest Washoe County, and
- help promote trail-based rural tourism by developing a high-quality system of trails that would attract and retain overnight visitors to the area for a wide variety of trail experiences.

Alternative 1's strong emphasis on new trails would also implement two objectives of the May 2003 National BLM Recreation Guidance Policy, Priorities for Recreation and Visitor Services (BLM 2003):

- "Manage public lands and water for enhanced recreation experiences and quality of life" and
- "Encourage sustainable travel and tourism development with gateway communities (i.e. Susanville) and provide community based conservation support for visitor services."

The Lassen County Draft Trails Master Plan (Simcox and Funke 1999), developed by a diversity of local trails groups, is the basis for most of the trails proposed under Alternative 1.

Table 2.16-9 outlines the new non-motorized routes that would be built.

Table 2.16-19 Proposed Non-motorized Routes under Alternative 1

Name	Location	Length (miles)
Eagle Lake Basin SRMA		
Stones Trail	Stone Subdivision to BLM North Eagle Lake Campground	1
Buck Point Trail	Buck Point Rd. to Buck Point Saddle	1
Fredonyer Peak Trail	Highway 139 by Eagle Lake to Fredonyer Peak	4
Eagle Lake Loop Trail	On north, east, and southeast sides of lake with new trail segments linking 24.5 miles of existing dirt roads	19.5
Merrillville-Bieber Wagon Road	Clear 5 miles of existing old wagon road next to Eagle Lake east of Highway 139 and build 1 mile of new trail	1
East Rim Overlook (hiking only)	Loop trail to rim east of Highway 139, along rim and back to highway	3
Stone Ranch Trail	Trail through Stone Ranch Conservation Easement (1.5 miles) from Highway 139 southwest to BLM parcel in T32N R11E Section 13 with connection to dirt roads to Youth Camp Road	1.5
Total Eagle Lake Basin SRMA Trails		**31**
Bizz Johnson Trail SRMA		
South Side Trail	Hobo Camp to Devil's Corral on mostly existing old roads on south side of Susan River. Some new trail construction needed.	2
Pigeon Cliffs Trail	From top of Cliffs to base and connecting to Bizz Johnson Trail	0.5
Total Bizz Johnson Trail SRMA Trails		**2.5**
Fort Sage SRMA		
Wild Horse Trail-Jesus Springs Loop Trail	Loop trail in canyons east of OHV trails.	2.5
Total Fort Sage SRMA Trails		**2.5**
Antelope/Shaffer/Bald Hills Special Recreation Management Area (SRMA)		
Antelope Mountain		
Name	Location	Length (miles)
Highway 139 to Antelope Mountain	Connects Route 139 north of Lassen College with southwest side Antelope Mountain	3
Skyline – Antelope Mtn	Connects Skyline Trail (City) with Antelope Mountain Trails	2.5
Antelope Mountain–Lower Loop	Loop trail around Antelope Mountain	10
Antelope Mountain–Upper Loop	Loop around Antelope Mountain	3
Total Antelope Mountain Trails		**18.5**
Shaffer Mountain		
Shaffer Mountain Trails	High-quality single-track mountain bike trails. Five loop trails using portions of existing dirt roads (22 miles of new trail and 34 miles of existing dirt roads)	22
Total Shaffer Mountain Trails		**22**
Bald Mountain		
Bald Mountain Loop Trail	Loop around Bald Mountain (equestrian emphasis with multiple use)	8
Bald Mountain Trail	Trail to top of Bald Mountain	3
Total Bald Mountain Trails		**11**

Table 2.16-19 Proposed Non-motorized Routes under Alternative 1(continued)

Susanville Ranch Parcels		
Coyote Ridge Trail	Climbs to overlook area	0.5
North Side Loop Trail	Links BLM parcels; provides loop in hills north of Paiute Creek Canyon	4
Total Susanville Ranch Parcel (BLM) trails		**4.5**
Total Antelope/Shaffer/Bald Mountain SRMA trails		**56.0**
Extensive Recreation Management Area (ERMA)		
Biscar Loop Trail	Trail loops around both Biscar Reservoirs	3
Modoc Line Rail Trail	Existing railroad grade with good trail potential if rights-of-way can be acquired (25 miles on BLM land and 25 to be acquired from railroad; 35 miles also in Alturas Field Office area). Possible joint use with motorized activities in some areas.	50
Honey Lake Valley Rim Trail	Connect public lands on north and east sides of Honey Lake Valley with US Forest Service lands on southwest and west sides of valley. (51 miles of new trails and 51 miles on existing roads and trails. US Forest Service segment: 100 miles with 50 miles of new trail and 50 miles on existing dirt roads and trails).	51
Total ERMA Trails		**104**
Wilderness Study Areas (WSAs)		
Skedaddle WSA		
Name	Location	Length (miles)
Skedaddle Ridge Loop (hiking)	Brubeck Springs Pass to Hot Springs Peak with return segment through Spencer Basin and Wendel Canyon	9
Amedee Ridge Trail (hiking)	Ridge trail connecting Wendel Canyon with Thousand Springs Canyon	8
Wendel Canyon Loop	Loop around North and South Forks of Wendel Canyon (hiking)	1.5
Spencer Basin Saddle Trail (hiking)	Connects Skedaddle Ridge Loop with Amedee Ridge Trail	0.5
Total Skedaddle WSA Trails		**19**
Dry Valley Rim WSA		
Black Mountain Loop (hiking, equestrian)	Follows existing old roads from Rocky Trail Reservoir to Black Mountain and back via a loop (2 miles new construction and 7 miles existing dirt roads)	2
Eagle's Head Loop (hiking, equestrian)	Follows existing old roads to Eagle's Head and back via a loop (3 miles new construction and 6 miles existing dirt roads)	3
Parker – Thomas Canyons Loop (hiking)	Climbs up through Parker Canyon to Dry Valley Rim, crosses rim and descends into Thomas Canyon back to Pipe Springs Road (8 miles new trail and 3 miles existing dirt road)	8
Dry Valley Rim Trail	Crosses entire north-south rim from Turn of the Road Trailhead to Rush Creek (36 miles minus 12 miles included in other loop trails in WSA)	24
Total Dry Valley Rim WSA Trails		**37**
Twin Peaks WSA		
Twin Peaks Trail (hiking, equestrian)	Follows ridge from Burro Mountain Road summit to Twin Peaks summit	6
Tunnison WSA		
Willow Creek Canyon Trail (hiking)	Same trail listed for Antelope/Shaffer/Bald Hills SRMA (mileage listed previously)	6
Total WSA Trails		**81**
Total Proposed Non-motorized Trails under Alternative 1		**277**

2.16.20 Alternative 2. Ecosystem Restoration

The Ecosystem Restoration Alternative emphasizes providing trail opportunities in established special recreation management areas (SRMAs) in the following areas:

- Eagle Lake Basin,
- Susan River Canyon, and
- established activity areas of Willow Creek Canyon, the Biscar Reservoirs, and the Skedaddle Mountain summit ridge.

Trails would enhance public safety by providing a safe walking area off a busy county road at Eagle Lake. Trails would also provide public access to fishing, wildlife viewing, interpretive sites, hunting areas, and to the summit of the Skedaddle Mountains. New trail construction would provide for a sustainable trail alignment that would minimize the adverse impacts of visitor-developed trails in popular use areas.

The following new non-motorized trails or new trail segments would be built under Alternative 2.

Table 2.16-20 Proposed Non-motorized Routes under Alternative 2

Name	Location	Length (miles)
Eagle Lake Basin SRMA		
Stones Trail	Stone Subdivision to BLM North Eagle Lake Campground	1
Buck Point Trail	Buck Point Rd. to Buck Point Saddle	1
Merrillville-Bieber Wagon Road	Clear 5 miles of existing old wagon road next to Eagle Lake east of Highway 139 and build 1 mile of new trail	1
East Rim Overlook (hiking only)	Loop trail to rim east of Highway 139, along rim and back to highway	3
Stone Ranch Trail	Trail through Stone Ranch Conservation Easement (1.5 miles) from Highway 139 southwest to BLM parcel in T 32 N R 11 E section 13 with connection to dirt roads to Youth Camp Road	1.5
Total Eagle Lake Basin SRMA Trails		**7.5**
Bizz Johnson Trail SRMA		
South Side Trail	Hobo Camp to Devil's Corral on mostly existing old roads on south side of Susan River. Some new trail construction needed.	2
Total Bizz Johnson Trail SRMA Trails		**2**
Extensive Recreation Management Area (ERMA)		
Biscar Loop Trail	Trail loops around both Biscar Reservoirs	3
Wilderness Study Areas (WSAs)		
Willow Creek Canyon Trail (hiking only)	Tunnison WSA - In Willow Creek Canyon from the Sheep Bridge in the W1/4SE1/4, Section 4, T30N, R13E to the petroglyphs in the SE1/4SW1/4, Section 7, T30 N, R14 E, north of Belfast	6
Hot Springs Peak Trail	Skedaddle WSA - Brubeck Springs Road pass to Summit Ridge Crest	4
Total WSA Trails		**10**
Total Proposed Non-motorized Trails under Alternative 2		**22.5**

2.16.21 Alternative 3. Traditional Uses

Alternative 3 emphasizes traditional uses, where most recreational use of public lands relied on existing dirt roads or cross-country travel with few developed trails. Trails that would be built are those in approved plans and environmental assessments and in traditional use recreation activity areas:

- Stone Trail would improve safety for Eagle Lake residents by providing an exercise walking area that is close to but off of Lassen County Road A-1, where many people now walk.
- Buck Point Trail would provide legal and physical access to a historically used walk-in shoreline area of Buck Point.
- South Side Trail would provide an alternative route for equestrians off of the popular Bizz Johnson Trail to help reduce conflicts between equestrians and other trail users when use levels are high.
- South Side Trail would also provide a looped trail experience between Susanville and Devil's Corral in conjunction with the Bizz Johnson Trail.
- Biscar Loop Trail would provide improved physical access in an area traditionally used for fishing, waterfowl hunting and wildlife viewing.
- Bald Mountain trails would provide a focused area for horseback riding where access to close-to-home riding areas has become more difficult with recent land ownership changes and closure of areas formerly open for riding.

The following new non-motorized trails or trail segments would be constructed under Alternative 3:

Table 2.16-21 Proposed Non-motorized Routes under Alternative 3

Name	Location	Length (miles)
Eagle Lake Basin SRMA		
Stones Trail	Stone Subdivision to BLM North Eagle Lake Campground	1
Buck Point Trail	Buck Point Rd. to Buck Point Saddle	1
Total Eagle Lake Basin SRMA Trails		**2**
Bizz Johnson Trail SRMA		
South Side Trail	Hobo Camp to Devil's Corral on mostly existing old roads on south side of Susan River. Some new trail construction needed.	2
Total Bizz Johnson Trail SRMA Trails		**2**
Extensive Recreation Management Area (ERMA)		
Bald Mountain Trail	Trail to top of Bald Mountain	11
Biscar Loop Trail	Trail loops around both Biscar Reservoirs	3
Total ERMA Trails		**14**
Total Proposed Non-motorized Trails under Alternative 3		**18**

2.16.22 Preferred Alternative

The Preferred Alternative would be the same as Alternative 1 and result in the same mileage of new trails being built–277 miles. See Table 2.16-19 Proposed Non-motorized Routes under Alternative 1. New trails would include 50 miles of the existing roadbed of the abandoned Modoc Line railroad grade through BLM's Eagle Lake Field Office area (50 of 85 total miles, with the other 35 miles in BLM's Alturas Field Office area) and the proposed Honey Lake Valley Rim Trail (51 miles of new trail segments would be built on BLM lands, linking 50 miles of existing low-use dirt road segments).

Non-motorized trail development would focus on the following areas:

- areas next to the Honey Lake Valley population centers and within the Bizz Johnson Trail SRMA,
- within the proposed Antelope/Shaffer/Bald Mountain SRMA on the north side of Honey Lake Valley,
- within Eagle Lake Basin SRMA in scenic backcountry and primitive areas,
- on an existing abandoned railroad grade (the Modoc Line), and
- on new trail segments that link public lands around the north and east sides of Honey Lake Valley with Forest Service land, and low-use dirt roads to the south and west of Honey Lake Valle. These would also connect with Lassen County and City of Susanville trails.

The following describes the location and purposes of proposed trails under the Preferred Alternative.

22.1 Eagle Lake Basin SRMA

- Stone Trail completion – connects Stone Subdivision to North Eagle Lake Campground.
- Buck Point Trail – provides public access from Buck Point Road to BLM land on Buck Point.
- Fredonyer Peak Trail – provides trail from Eagle Lake Shoreline on Highway 139 to the scenic summit.
- Eagle Lake Loop Trail – connects activity areas around Eagle Lake with a trail that provides opportunities for a diversity of non-motorized trail experiences, traverses the varied landscapes within the Eagle Lake Basin, and offers many scenic vistas and wildlife viewing opportunities.
- Merrillville-Bieber Wagon Road – would be reopened (cleared of brush) and used for non-motorized trail uses along 7 miles of Eagle Lake's northeast shoreline.
- East Rim Overlook Trail – would provide a hiking route from Highway 139 to scenic overlooks of Eagle Lake and back to the wagon road along Highway 139.
- Stone Ranch Trail – would provide a route for non-motorized trail users who want to cross Stone Ranch Conservation Easement from Merrillville Beiber Wagon Road east of Highway 139 to public lands southwest of Stone Ranch.

22.2 Bizz Johnson National Recreation Trail SRMA

- South Side Trail – would connect Hobo Camp Trailhead to Devil's Corral Trailhead, providing a trail loop option for use with the Bizz Johnson Trail. This trail would also provide an area for equestrian use if conflicts arise with other uses, or if Bizz Johnson Trail surface becomes too loose from high amounts of equestrian use.

- Pigeon Cliffs Trail – would provide a safer trail from the top of the cliff to its base than currently exists. This trail would provide a short connector trail to the Bizz Johnson Trail, improving safety for users and providing a better evacuation route if climbers or hikers are injured on the cliffs.
- Allow snowmobiles to cross the Susan River on the Bizz Johnson Trail where it crosses the Susan River west of the Devil's Corral Trailhead.

22.3 Fort Sage Special Recreation Management Area SRMA

- Wild Horse Trail to Jesus Springs Loop Trail – would provide a scenic route through unusual rock formations in two canyons and through the rugged high uplands of the Fort Sage Mountains.

22.4 Antelope/Shaffer/Bald Hills SRMA

Develop a master plan to direct creation of non-motorized, looped trail systems with emphasis on building new single-track trails to serve the following groups:

- Antelope Mountain – multiple non-motorized users (pedestrians, equestrians, and mountain bikers)
- Shaffer Mountain – single track mountain biking emphasis
- Bald Mountain – equestrian emphasis
- Willow Creek Canyon – hiking
- Susanville Ranch BLM Parcels – multiple non-motorized uses

The management plan for the Antelope/Shaffer/Bald Hills SRMA would address the best mix and location of trails and where multiple trail uses might or might not work because of safety and other issues. The plan would be further refined as area-specific trail systems are planned and developed.

22.5 Wilderness Study Areas (WSAs)

Emphasize cross-country travel in most areas. Build new trails in WSAs if:

- demand for trail is supported by trail users' collaboration in trail building and maintenance, or
- visitor-developed trails require trail construction or realignment to reduce erosion from poorly drained trails, or to reduce other adverse impacts from unplanned trails.

Priority for trail building would be given to the following areas, but during the life of this RMP other trail alignments may be justified if they meet the above criteria.

- Skedaddle – Skedaddle Ridge Loop, Amedee Ridge Trail, Spencer Basin Saddle Trail, Wendel Canyon Loop
- Dry Valley Rim– three ridge loops connecting with Dry Valley Rim Trail along the entire ridge crest of Dry Valley Rim
- Twin Peaks – Twin Peaks Ridge Crest /Summit Trail, from Burro Mountain Road to the summit
- Tunnison – Willow Creek Canyon Trail from Sheep Bridge to Belfast Petroglyph site
- Biscar Cooperative Wildlife Area – Build a non-motorized trail around both reservoirs to provide access for fishermen, bird hunters, and wildlife watchers, and to reduce problems caused by visitor- developed shoreline trails.

- Modoc Line–Convert abandoned railroad grade from near Wendel to near Alturas. Use as a multiple-use trail for wildlife viewing, sightseeing, and distance trail events. Retain trail for possible future reactivation for rail use.
- Honey Lake Valley Rim Trail–Assemble this grand loop trail around Honey Lake Valley to provide a long distance trail experience for local residents and area visitors through three diverse geographic regions:
  - the Great Basin Desert,
  - the northern extent of the Sierra Nevada, and
  - the southern end of the Modoc Plateau, a subregion of the Cascade geographic province.

  The Honey Lake Valley Rim Trail would afford visitors excellent vistas, traversing varied landforms, and challenging terrain. This long-distance trail, similar to the Lake Tahoe Rim Trail could be created by linking existing dirt roads, building new trails proposed in the actions above, and developing some connector segments.

  Cooperation among BLM and Plumas and Lassen National Forests would be required to create the Honey Lake Valley Rim Trail. Very little of the route would need to cross private land. Preliminary route evaluations show that about 100 miles would be on BLM land and 100 miles would be in national forests.

22.6 Motorized and Non-motorized Boating

The waterways listed in the following table are open to use and are designated for the listed categories of propulsion to provide a range of experiences. These include: 1) non-motorized uses (fishing, swimming, wildlife viewing), 2) low powered, quiet, no-wake boating, and 3) motorized uses (no restrictions).

Table 2.16-22 Allowable Boating Uses by Alternative

Water Body	No Action Alternative	Alternative 1. Economic	Alternative 2. Ecosystem	Alternative 3. Traditional	Preferred Alternative
Dodge Reservoir	No restrictions	No restrictions	No restrictions	No restrictions	No restrictions
Round Corral Reservoir	Human-powered watercraft and electric trolling motors	Human-powered watercraft and electric trolling motors	Human-powered watercraft and electric trolling motors	Human-powered watercraft and electric trolling motors	Human-powered watercraft and electric trolling motors
Buckhorn Reservoir	Human-powered watercraft and electric trolling motors	Human-powered watercraft and electric trolling motors	Human-powered watercraft and electric trolling motors	Human-powered watercraft and electric trolling motors	Human-powered watercraft and electric trolling motors
Upper Biscar Reservoir	Human-powered watercraft	Human-powered watercraft	Human-powered watercraft	Human-powered watercraft	Human-powered watercraft
Lower Biscar Reservoir	Human-powered watercraft	Human-powered watercraft and electric trolling motors	Human-powered watercraft	Human-powered watercraft	Human-powered watercraft
Eagle Lake	No restrictions	No restrictions	No restrictions	No restrictions	No restrictions
Susan River, Devil's Corral to Susanville	No restrictions	Human-powered watercraft	Human-powered watercraft	No restrictions	Human-powered watercraft

2.17 Vegetation

Terrestrial vegetation is the most obvious resource managed on the land base. Species present, distribution, density patterns, seral stages, alliances and associations, and vegetation health are all determined by a complex interplay of climate, geology, landform, soils, microbes and animals–as well as from human use and management activities. Historically, human use has been consumptive and utilitarian.

Starting in 1982, BLM began using the ecological site inventory (ESI) to evaluate the condition of vegetation on public lands. Ecological sites are: "…a kind of land with a specific potential natural community and specific physical site characteristics, differing from other kinds of land in their ability to produce distinctive kinds and amounts of vegetation and to respond to management. Ecological sites are defined and described with information about soil, species composition, and annual production (Habich 2001)."

The two key factors are that ecological sites have the potential for change and they are associated with specific soil series. Ecological site potential within the ESI is based on the propensity of a given vegetation site to move between stages of succession from the potential natural community (PNC)–the best condition sites–to a variety of earlier stages in response to impacts (e.g. grazing, wildland fire). Originally the tendency for ecological sites was believed to be that they progressed toward PNC when not overused by human activities (such as grazing), and to regress from PNC if overused, or in response to wildland fire. This tendency is known as the succession and regression models for vegetation.

In the late 1980s and early 1990s rangeland and vegetation ecologists (Archer 1989; Friedel 1991) developed 'state' and 'transition' models for vegetation succession. These models differ from succession and regression models in that they show that vegetation can be in a stable state of development until disturbance becomes great enough to push the vegetation site across a threshold. Once a vegetation site crosses this ecological threshold, human intervention and mechanical treatment would usually be needed to bring the site back across the threshold, to its former stable state.

A very common threshold in the Eagle Lake Field Office area occurs when sagebrush/perennial grass sites become sagebrush/annual grass sites. This phenomenon usually occurs when a wildland fire burns a site in which annual grasses are present from a previous disturbance. Non-native annual grasses are highly competitive and tend to replace native, perennial grasses. This replacement, in turn, shortens the fire cycle so that sagebrush cannot recover sufficiently between burns. As a result annual grasses dominate the site. Recovery back across this threshold to the sagebrush/perennial grass association requires intensive human involvement and mechanical treatment.

More recently, (National Research Council, 1994), the vegetation component has been recognized as one of the three attributes of land health. The National Research Council recognized biotic integrity as one of the most crucial factors of the vegetation component, defining it as: "The capability of the site to support characteristic functional and structural communities in the context of normal variability, to resist loss of this function and structure due to disturbance, and to recover following disturbance." In other words, the ability of rangelands and forests to maintain functional health helps support soil and site stability and preserves natural hydrologic function. It is from the perspective of land health that terrestrial vegetation is addressed in this RMP.

2.17.1 Desired Future Condition

Terrestrial vegetation would demonstrate a natural, healthy, and stable association of plant alliances, associations, and ecological sites, characterized by biotic integrity and the greatest possible biological diversity, for the enrichment of the ecosystem and the human experience on public lands.

2.17.2 Goal

Terrestrial vegetation would achieve and maintain its capacity to support natural functional and structural communities within a context of normal variability. This means that plant communities would be able to resist loss of function and structure as a result of disturbance, and to adequately recover following disturbance. Functional/structural groups are defined as: "…a suite or group of species that because of similar shoots (height and volume) or root (fibrous or tap) structure, photosynthetic pathways, nitrogen-fixing ability or life-cycle, are grouped together on an ecological basis (Pellant and others 2000)."

2.17.3 Objectives

Native and desirable non-native plant species, as well as special status species, would demonstrate populations that are diverse, vigorous, and reproductively successful and that support adequate nutrient cycling and energy flow. This objective requires viable, healthy, productive, and diverse populations of native plant species. From a management perspective, this objective would require BLM to do the following:

- Maintain the 30% (306,579 acres) of the field office area that currently has 'healthy' terrestrial vegetation alliances, associations, and ecological sites.
- Restore the 33% (330,496 acres) of the area that has vegetation that is 'healthy but lacks key attributes'.
- Restore and maintain approximately 30% of the area that is currently 'at risk of becoming unhealthy'.
- Restore to potential and bring into compliance with the biodiversity standard for land health the approximately 10% of the area that has unhealthy terrestrial vegetation alliances, associations, and ecological sites (Table 2.17-1).
- Conserve and maintain in perpetuity all healthy and restored terrestrial vegetation and its alliances, associations, and ecological sites.

2.17.4 Criteria to Meet Objectives

Guidelines for management are BLM policy. The Land Health Standards, particularly Standard 5 (biodiversity), require the following.

- Wildlife habitats include seral stages, vegetation structure, and patch size favoring diverse and viable wildlife populations.
- Most species of vegetation demonstrate a variety of age classes.
- Vigor must be adequate to maintain desirable levels of plant and animal species so that reproduction and recruitment of plants and animals would be assured when favorable events occur.
- Distribution of plant species and their characteristic habitats permit successful reproduction and recovery from localized catastrophic events.

- Natural disturbances, especially fire, are present but not catastrophic.
- Non-native plant and animal species are present at acceptable levels.
- Habitat areas would be sufficient to support diverse and viable populations of desirable species, and would be interconnected with other, similar habitat areas in order to promote genetic exchange.
- Adequate organic matter (plant litter and standing dead material) would be present in sufficient quantity for site protection and for decomposition to replenish nutrients and maintain soil health.

Table 2.17-1. Terrestrial Vegetation Health Summary—Area Totals (Acres)[1], less amounts in water, playas, rock, and bare-ground

Vegetation Alliance/Association	Land Health Rating				
	Healthy	Healthy/Lacking Key Attributes[2]	At Risk	Unhealthy	Total
Coniferous Forest (All Canopy Cover Classes)	18,982	1,366	1,614	0	21,962
Juniper Woodland at >20% Canopy Cover	0	4,185	9,837	6,907	20,929
Black Oak Woodland	0	1,298	0	0	1,298
Mountain Mahogany	1,035	465	0	0	1,500
Aspen Forest and Thicket	15	1,176	210	0	1,401
Big Sagebrush – Wyoming Big Sagebrush	2,205	5,788	16,813	2,756	27,562
Big Sagebrush – Mountain Big Sagebrush	14,079	28,660	7,542	0	50,281
Big Sagebrush – Basin Big Sagebrush	14,893	4,869	0	8,878	28,640
Low Sagebrush – Low Sagebrush	42,717	38,220	26,979	4,495	112,411
Low Sagebrush – Lahontan Sagebrush	6,198	54,461	14,282	0	74,941
Great Basin Mixed Shrub	180,539	156,617	146,059	47,781	530,996
Mixed Desert Shrub	24,860	25,462	46,873	9,153	106,348
Herbaceous Grassland – Annual	0	3,007	2,909	11,448	17,364
Herbaceous Grassland - Perennial	1,056	4,922	69	215	6,262
Herbaceous – Forb	0	0	2,483	2,357	4,840
Total Acres by Health Status	**306,579**	**330,496**	**275,670**	**93,990**	**1,006,735**
Percent of Total Vegetation by Health Status	**30**	**33**	**27**	**9**	**100**

---

[1] Acres based on land health assessment sample extrapolation using geographic information system (GIS) analysis. Accuracy is a function of sample size/variability and GIS data integrity.

[2] Healthy but lacking key attributes means that the vegetation's 'healthy' rating was based on the nine indicators for biotic integrity (see Table 2.17-2) but did not fulfill the biodiversity land health standard.

2.17.5 Legislative, Regulatory, and Policy Direction

Legislative Direction

The Federal Land Policy and Management Act (FLPMA) (1976), as amended, states, in Section 102, that: "…(8) the public lands be managed in a manner that would protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values; that, where appropriate, would preserve and protect certain lands in their natural condition; that would provide food and habitat for fish and wildlife and domestic animals; and that would provide for outdoor recreation in human occupancy and use;…"

Regulatory Direction

43 Code of Federal Regulation (CFR) § 4180.1 and 4180.2 directs application of standards for land health. Application of these CFR sub-parts to the Eagle Lake Field Office area, are as follows:

All terrestrial vegetation within the field office area shall meet or be making significant progress toward meeting the standards for land health, including healthy biotic integrity and other associated standards, while supporting appropriate uses of the land.

'Appropriate uses' of the land are those found to be so through the National Environmental Policy Act (NEPA) process. Such uses do not adversely affect conservation of terrestrial vegetation. More specifically, they do not compromise the maintenance of healthy lands, the restoration of lands that are healthy but are lacking key attributes, or the restoration and maintenance of at-risk and unhealthy lands.

Table 2.17-2 compares the nine indicators of biotic integrity from (interagency) Technical Reference 1734-6 (Pellant and others 2000) with the seven criteria used to determine compliance with the biodiversity land health standard

Policy Direction

BLM Manual 4180 – Rangeland (Land) Health Standards:

1. "State Directors are required, in consultation with Resource Advisory Councils (RACs), to develop land health standards for lands within their jurisdiction." The Land Health Standards for Northeastern California and Northwestern Nevada were approved by the Secretary of the Interior in July, 2000.

2. Evaluations would be used to facilitate communication with all interested publics and with local, state, and tribal governments. Progress toward meeting land health standards would be reported on a regular basis.

3. Land health standard evaluations must generally be conducted on fifth level (40,000–250,000 acres), or larger, watersheds.

4. "The BLM would evaluate the health of public lands on a priority basis." In other words, monitoring of progress toward meeting land health standards in high-priority watersheds would take precedence over monitoring low-priority watersheds.

5. "Public lands would be managed to achieve, or make significant progress toward achieving, land health standards developed for that region unless specified otherwise in the land use plan. Appropriate action would be taken to make significant progress toward achieving standards in watersheds where standards are not being achieved. For livestock grazing management, appropriate action would be taken as soon as practicable but no later than the beginning of the next grazing season."

Table 2.17-2 Nine Indicators of Biotic Integrity[a] That Apply to Land Health

No.	Indicator Description
8	Soil Surface Resistance to Erosion. Surface soil is stabilized by organic matter decomposition products and/or a biological crust.
9	Soil Surface Loss or Degradation. Soil surface horizon intact. Soil structure and organic matter content match that expected for the site.
11	Compaction Layer (below soil surface). A compaction layer is a near-surface layer of dense soil caused by the repeated impact on or disturbance of the soil surface. Compaction becomes a problem when it begins to limit plant growth, water infiltration, or nutrient cycling processes.
12	Functional/Structural Groups. Functional/structural groups are a suite of species that because of similar shoot (height and volume) or root (fibrous vs. tap) structure, photosynthetic pathways, nitrogen fixing ability, or life cycle, grouped together on an ecological site basis.
13	Plant Mortality/Decadence. The proportion of dead or decadent (e.g. moribund, dying) to young or mature plants in the community relative to that expected for the site, under normal disturbance regimes.
14	Litter Amount. That portion of the litter component that is in contact with the soil surface (as opposed to standing dead vegetation which is not) provides a major source of soil organic material and the raw materials for onsite nutrient cycling.
15	Annual Production. Above-ground biomass (i.e. annual production) is an indicator of the energy captured by plants and its availability for secondary consumers in an ecosystem, given current weather conditions.
16	Invasive Plants. Plants that are invasive to the area of interest. These plants may or may not be exotic.
17	Reproductive Capability of Perennial Plants (native or seeded [i.e., non-native]). Reproductive growth occurs in a modular fashion, similar to the remainder of the plant inflorescence production (e.g., seed stalks) becomes a basic measure of reproductive potential for sexually reproducing plants and clonal production (e.g. tillers) for vegetative reproducing plants.

a. The determination of biotic integrity is based on the preponderance of evidence in evaluations using the nine indicators.

Table 2.17-3. A Comparison of the Indicators of Biotic Integrity with the Criteria for Biodiversity

Criteria for the Biodiversity Standard for Land Health (with Biotic Integrity Indicator Numbers applicable for each Criterion)[b]
Wildlife habitats include seral stages, vegetation structure, and patch size to promote diverse and viable wildlife populations. (12)
A variety of age classes is present for most species. (13, 15, 17)
Vigor is adequate to maintain desirable levels of plant and animal species to ensure reproduction and recruitment of plants and animals when favorable events occur. (11, 13, 15, 17)
Distribution of plant species and their habitats allows for reproduction and recovery from localized catastrophic events. (12, 13, 17)
Natural disturbances, such as fire, are evident but not catastrophic. (12, 13)
Non-native plant and animal species are present at acceptable levels. (16)
Habitat areas are sufficient to support diverse, viable, and desired populations and are connected adequately with other, similar habitat areas. (landscape ecology)
Adequate organic matter (litter and standing dead plant material) is present for site protection and decomposition to replenish soil nutrients and maintain soil health. (8, 9, 11, 13, 14, 15)

b. All seven criteria used to describe biodiversity must be fulfilled to meet that standard. If biotic integrity is judged 'healthy' (i.e. the nine indicators are fulfilled) but one or more of the criteria for biodiversity have not been met, the vegetation alliance/association is at-risk or unhealthy, and the over-all standard has not been met.

2.17.6 Management Common to All Alternatives

- Maintain healthy vegetation. Restore and maintain vegetation that is at risk of becoming unhealthy, that is healthy but lacks key attributes, and that is unhealthy.
- Develop and implement an ecosystem-based policy and plan for monitoring vegetation health.
- Complete wildland fire emergency stabilization and rehabilitation (ES&R) projects in a manner that ensures ecosystem health. Seek ES&R funding in all cases.
- Close areas to livestock and wild horse and burro grazing after stabilization and rehabilitation of prescribed disturbances and wildland fire until the natural resources interdisciplinary team
    - o determines that the area has sufficiently recovered or is making significant progress toward recovery so that grazing wouldn't adversely affect it, and
    - o recommends re-opening the area to grazing.

2.17.7 No Action Alternative

- Adjust livestock grazing and other human activities to maintain healthy vegetation alliances, associations, and ecological sites.
- Encourage the preservation of biological soil crusts where possible within the grazing regimen.
- Use prescribed fire, wildland fire use, small-area applications of herbicide, and adjusted grazing management for restoration and maintenance interventions on healthy/lacking key attributes and at-risk vegetation alliances and associations, and on designated ecological sites. Preserve biological crusts if feasible within the grazing regime. These interventions also apply to unhealthy vegetation alliances, associations, and ecological sites but would also include some rest from grazing. But this rest would not always require the two growing seasons needed to ensure optimal viable seed production for shrubs such as bitterbrush, serviceberry, and mountain mahogany.
- Use locally gathered native seeds in seedings. If local native seed is not available or cannot be gathered in time, use nonlocal native seeds, with the BLM State Director's approval.
- Pursue active abatement of 11,570 acres of invasive western juniper and 6,907 acres of unhealthy (canopy cover exceeding 35%) with re-conversion of some areas to historic rangeland.
- Base implementation planning on watersheds.
- Pursue and use special funding (e.g. Challenge Cost Share [CCS], Cooperative Conservation Initiative [CCI], National Fish and Wildlife Foundation Grants) to restore at-risk and unhealthy vegetation alliances, associations, and ecological sites.

2.17.8 Alternative 1. Economic Development

Under the Economic Development Alternative, more area (and therefore vegetation) would be taken out of production as a result of recreational activities (including OHV use) and energy development. Vegetation would be managed as a commodity, mainly for consumptive and recreational uses. This alternative would increase the emphasis on the following:

- managing vegetation alliances, associations, and ecological sites for forest and woodland products;
- grazing livestock and wild horses and burros, and

- increasing habitat for game.

Maintain healthy vegetation and restore healthy/lacking key attributes and at-risk vegetation alliances and associations by using prescribed fire and wildland fire use, with limited application of understory herbicide. Consider preserving biological soil crusts only where their presence can be directly linked to economic benefits.

The above-mentioned interventions also apply to unhealthy vegetation alliances, associations, and ecological sites and would also include some rest from grazing. But this rest would not always require the two growing seasons needed to ensure optimal viable seed production for shrubs such as bitterbrush, serviceberry, and mountain mahogany. What is more, rest from grazing would be limited to areas supporting mule deer, where their use is the highest priority. On sites where livestock grazing is considered a higher priority, grazing may resume in less than two growing seasons.

Where data shows a need, restorative interventions would be followed by reseeding of native vegetation. The seed mixture would be designed to best support the prevailing or desired economic activity within and around the disturbed area. Browse and shrub species would be emphasized for game habitat, while grass-dominated seed mixtures would be used in priority grazing areas.

- Complete seedings using locally gathered, native seed obtained from the most economical source. If local native seed is not available, or cannot be gathered in time, use nonlocal native seed with the approval of the BLM State Director.
- Designate as ACECs aspen forests and thickets, California black oak woodlands, and buffalo berry stands, and develop implementation plans for their management.
- Treat all 31,062 acres of western juniper as an invasive species, regardless of where it occurs. Use chipping for generating biomass energy and firewood cutting to reduce juniper woodlands to near-extirpation.
- Develop watershed-based implementation plans reflecting the most economically beneficial use of vegetation.
- Use mitigation funding from permitted projects, as well as special grants (alluded to under the No Action Alternative) for rehabilitation and restoration of healthy/lacking key attributes, at risk, and unhealthy vegetation alliances and associations, and on designated ecological sites.

2.17.9 Alternative 2. Ecosystem Restoration

For terrestrial vegetation, the Ecosystem Restoration Alternative is the same as the Preferred Alternative.

2.17.10 Alternative 3. Traditional Uses

Alternative 3 emphasizes a historical community view of vegetation as a commodity, of value solely for its ability to support consumptive uses. This alternative is similar to Alternative 1 but does not actively seek or support energy development. BLM would work to maintain healthy vegetation alliances, associations, and ecological sites and to restore healthy/lacking key attributes and at-risk vegetation in a similar manner to that described for Alternative 1. But Alternative 3 would not consider biological soil crusts.

The above-mentioned interventions would also apply to unhealthy vegetation alliances, associations, and ecological sites. In addition, this alternative would include total rest from grazing for two growing seasons. But this rest would be limited to the following:

- areas supporting mule deer,
- areas where deer use is the highest priority, and
- areas where deer don't compete directly with livestock.

Rest is needed to ensure optimal viable seed production and health of shrubs such as bitterbrush, serviceberry, and mountain mahogany. On sites where livestock grazing is considered a higher priority, grazing may resume in less than two growing seasons.

Unhealthy vegetation alliances and associations would be restored only if money is available through wildland fire emergency stabilization and rehabilitation (ES&R) funding or through special grants. Maintenance and restorative efforts in general would become extremely problematic because of simultaneous and conflicting demands between consumptive uses and the need to rehabilitate and protect the vegetation resource base on the same areas of ground.

Restorative interventions would be followed by reseeding of native vegetation, where data shows a need. The seed mixture would be designed to best support the prevailing or desired economic activity within and around the disturbed area. Browse and shrub species would be emphasized for game habitat, while grass-dominated seed mixtures would be used in priority grazing areas. Seedings would be completed using locally gathered, native seed. If local native seed is not available, or cannot be gathered in time, nonlocal native seed would be used with the approval of the BLM State Director.

The following are other management actions under the Traditional Uses Alternative.

- Designate as areas of critical environmental concern (ACECs) aspen forests and thickets, California black oak woodlands, and buffalo berry stands. Implement plans developed for managing these ACECs.
- Where needed to support wildlife, retain western juniper in select locations and sizes within the 31,062 acres of juniper woodland.
- Where juniper is allowed to remain, emphasize the maintenance of natural, early seral, and mature stage understory vegetation to provide forage for livestock.
- Develop watershed-based implementation plans reflecting the most economically beneficial use of vegetation.

2.17.11 Preferred Alternative

The Preferred Alternative's top priority would be maintaining, restoring, and rehabilitating, the vegetation upon which most resource uses and wildlife depend (National Research Council 1994). Maintaining healthy vegetation, and restoring healthy/lacking key attributes, at-risk, and rehabilitating unhealthy vegetation would focus on conserving the vegetation functional/structural groups for each vegetation alliance and association (as defined for a particular ecological site). Within ecological sites the functional/structural groups include native perennial grasses and overstory shrubs that define that community. Biological soil crusts would be preserved and used as indicators of the natural ecological sites endemic to particular alliances and associations.

- Maintain 310,300 acres of healthy vegetation from all alliances, associations, and ecological sites in a manner that fulfills the criteria of the biodiversity land health standard.
- Maintain this vegetation over the long term by grazing strategies and periodic disturbances to maintain vigor.

- Where current grazing practices are not conducive to the long-term maintenance of rangeland health, change the grazing regimen.
- Include such methods as prescribed fire and wildland fire use for periodic disturbances.
- For rehabilitation following fire, include natural regeneration where it appears adequate and would not result in proliferation of weeds. Reseed areas where data shows a need for reseeding. Judiciously use herbicides and brush-beating.
- Scientifically determine the causes for at-risk areas, unhealthy areas, and areas found to be healthy but lacking key attributes. Following this determination, restore 330,376 acres of vegetation known to be healthy but lacking key attributes and 271,683 acres of at-risk vegetation to a level that fulfills the biodiversity standard. Progressively, rehabilitate these areas using the same tools discussed for maintenance of healthy vegetation. Close these areas to grazing until restoration is complete, or at least until the site has made significant recovery and carefully managed, limited grazing would not interfere with the site's complete recovery.
- Complete seedings using locally gathered native seed. If local native seed is not available or cannot be gathered in time, use nonlocal native seed with the approval of the BLM State Director.
- Manage aspen forests and thickets, California black oak woodlands, and buffalo berry sites as unique and important vegetation, using the functional/structural groups defined in the ecological site description. Little, however, is known about buffalo berry. Until research provides best restoration practices, representative stands of buffalo berry would be fenced. Rest from grazing must provide enough growing seasons to allow tree saplings to grow out of the reach of livestock.
- Provide rest from grazing for two out of three growing seasons for shrub species where rest is needed for optimum viable seed production, especially on bitterbrush, serviceberry, and mountain mahogany sites.

Of the 31,062 acres of juniper woodlands on BLM-administered lands within the field office area, 20,929 acres have canopy covers exceeding 20%. Within these areas are 6,907 acres of unhealthy woodlands with canopy covers exceeding 35%.

Juniper woodlands occupy 19,552 acres of characteristic juniper woodland soils (i.e. Orhood, Buckbay, Whitinger, and Fiddler soil types). Manage these woodlands for the major successional stages of woodland development and for woodland and understory health as shown in Table 2.17-4.

- On all other sites, pursue active abatement of invasive western juniper. In certain locations, retain some juniper to preserve biodiversity. Convert other areas to historic rangeland.
- When restoring habitats dominated by Wyoming big sagebrush, treat no more than 20% of the habitat within a fifth-level (i.e. 40,000 to 250,000 acres) or larger watershed during a 30-year period, regardless of treatment method used. Include areas burned by wildfire within this 20% maximum. Apply these same restorative stipulations to the management of habitats dominated by mountain big sagebrush (including areas burned by wildfire.)
- But the timeframe could be reduced to 15–20 years under favorable conditions. In all restoration activities, consider the restorative capabilities of functional/structural groups defined for a particular ecological site description within the habitat patch being treated.
- Conduct implementation planning on a watershed basis, emphasizing the natural biodiversity, interconnectedness, and health of vegetation alliances and associations on all ecological sites.
- Aggressively seek conventional and all other funding and helpful technology to restore approximately 100,000 currently unhealthy acres.

Table 2.17-4 Soil Series that Support Juniper Woodlands within the Eagle Lake Field Office with Stages of Woodland Development

Soil Series	Immature Woodlands			Mature Woodlands			Over-Mature Woodlands		
	Height* (FT)	% Canopy	Influence On Understory	Height* (FT)	% Canopy	Influence On Understory	Height* (FT)	% Canopy	Influence On Understory
Orhood	4.5 - 10	10 - 15	Moderate	10 - 26	15 - 20	Strong	26 +	> 25	Sparse or Absent
Buckbay	4.5 - 10	10 - 15	Moderate	10 - 20	15 - 20	Strong	24 +	> 25	Sparse or Absent
Whitinger	4.5 - 10	10 - 15	Moderate	10 - 25	15 - 20	Strong	26 +	> 25	Sparse or Absent
Fiddler	4.5 - 10	10 - 15	Moderate	10 - 20	15 - 20	Strong	20 +	> 25	Sparse or Absent

*Heights are based on the average height of the dominant and co-dominant trees on the site at the successional stage of woodland development (Immature, Mature, Over-Mature).

2.18 Noxious Weeds

Noxious and invasive plants are degrading wildland ecosystem health at a rapid and ever-increasing rate. As a major threat to land health, economic productivity, and species diversity, noxious weeds have even degraded land values. Without major increased exotic plant management, these aggressive plants would continue marching through and degrading lands highly valued lands. The Eagle Lake Field Office manages public lands to prevent and control the spread of noxious weeds. With an integrated weed management (IWM) approach, the Eagle Lake Field Office prevention schedule, the legal direction for weed management, the recognition of the opportunities and partnerships, BLM's budget and weed program opportunities would make a difference in fighting the spread of weeds and improving the health of BLM-managed lands.

Integrated weed management, a combination of treatment tools, is designed with flexibility to cope with the dynamic nature of the noxious weed program. Mechanical, chemical, biological, and manual treatments along with survey combine to produce an integrated weed treatment program. The Eagle Lake Field Office would annually evaluate all known infestations.

As projects are developed the Eagle Lake Field Office prevention schedule is addressed to prevent noxious weed spread.

The field office staff would coordinate noxious weed treatments with local groups and agencies participating in the Cooperative Weed Management Area (CWMA).

2.18.1 Desired Future Condition

The desired future condition is the attainment and maintenance of viable healthy and diverse populations of native plant species. Preventing noxious weed spread and controlling existing noxious weed infestations would provide for ecosystem health, which is clearly a BLM management goal. Whenever possible, decrease the density, control the perimeters, and prevent spread of all noxious weed infestations on BLM-managed lands.

2.18.2 Goal

Manage public lands to maintain, restore, or enhance habitats and improve or maintain good health including species diversity. Control noxious, invasive, and poisonous plants, to improve wildlife habitat and land health. Review all project proposals before implementation to determine integrated pest management and noxious weed prevention elements.

2.18.3 Objectives

To reach the noxious and invasive weed management goal of the Eagle Lake Field Office, use methods described in *Partners Against Weeds; an Action Plan for the Bureau of Land Management* (BLM 1996b). These methods are the following:

- prevention and detection,
- education and awareness,
- integrated weed management,
- coordination and cooperation, and
- monitoring and evaluation.

2.18.4 Legislative, Regulatory, and Policy Direction

Several laws, regulations, and policies govern the management of noxious weeds on public lands (as stated below):

- *California Vegetation Management, Final Environment Impact Statement,* August 1998,
- Partners Against Weeds, *An Action Plan for the Bureau of Land Management*, (BLM 1996b),
- Environmental Assessment, Integrated Weed Management Program EA Number CA 350-04-01,
- Environmental Assessment, Integrated Weed Management Program of Bureau of Land Management Lands, Surprise and Eagle Lake Field Offices, Nevada Lands Portion,
- All herbicide product labels and Material Safety Data Sheets.

The following laws, regulations, and policies provide the foundation for management of noxious weeds on public lands.

- Federal Land Policy and Management Act of 1976
- Public Rangelands Improvement Act of 1978
- Carlson-Foley Act of 1968
- Federal Noxious Weed Act of 1974, as amended by Sec. 15 – Management of Undesirable Plants on Federal Lands, 1990
- Final Environmental Impact Statement Vegetation Treatment on BLM Lands in 13 Western States, 1991
- Final Northwest Area Noxious Weed Control Program Environmental Impact Statement, 1985
- Final Supplemental Environmental Impact Statement for Noxious Weeds, 1987
- Departmental Manual 517 for compliance with the Federal Insecticide, Fungicide, and Rodenticide Act, as amended.
- Departmental Manual 609
- BLM Manual 9011 and Handbook H-9011-1
- BLM Manual 9014
- BLM Manual 9015

2.18.5 Management Common to All Alternatives

- Determine the distribution of noxious weed species through a systematic inventory of all BLM lands. Inventory and mapping guidelines are provided by the "Guidelines for Coordinated Management of Noxious Weeds in the Greater Yellowstone Area" (USDA and USDI 1992).
- Take actions to prevent or minimize the need for vegetation control when and where feasible, considering management objectives for the site.
- Using technical reference *Partners Against Weeds, An Action Plan for the Bureau of Land Management (*BLM 1996b, page 11) and the Eagle Lake Field Office Prevention Schedule for Noxious Weeds, develop a training program for most field office employees.
- Develop and implement outreach plans to improve public understanding of the need to control the spread of noxious weeds and manage existing populations.

- Conduct integrated weed management (IWM) on BLM lands, including authorized land uses; e.g. rights-of-ways and timber sales using the best combination of the following methods: (See *Partners Against Weeds*: *An Action Plan for the Bureau of Land Management,* Appendix 5, for specific guidelines [BLM 1996b]). IWM includes the following types of weed control:
    - cultural measures,
    - physical control,
    - biological controls, and
    - herbicides
- Coordinate treatment of local noxious weeds with all local agencies.
- Work with other agencies, landowners, and groups to establish weed management areas for coordinating noxious weed projects.
- Continue participating and cooperating with the Lassen County Weed Management Area (WMA) Lassen County Special Weed Action Team, Plumas-Sierra Noxious Weeds Management Group and with the Nevada Cooperative Weed Management Area.
- Collect monitoring information on treatment sites to determine effectiveness, effects on nontarget species, and species that invade the treated site.
- Evaluate all treatments each year before making integrated weed management plans for future treatments.

2.19 Riparian-Wetland Associations

Riparian and wetland communities in the Eagle Lake Field Office area occur along the edges of and within creeks, lakes, and playas. Wetland and riparian communities can include marshes, swamps, lakeshores, wet meadows, estuaries, and springs or seeps.

Nationwide, riparian-wetland areas make up less than 9% of the total land base. They are some of the most productive and highly prized resources on BLM-managed public lands. Wildlife species use riparian areas proportionately more than any other type of habitat. In addition, riparian areas are highly prized for their economic and natural values and other uses, which include livestock grazing, recreation (hiking, fishing, photography, biking, and off-highway vehicle use), Native American cultural uses, and educational experiences for students.

The Eagle Lake Field Office completed more than 200 site-specific assessments of streams and creeks and springs and seeps from 1995 to 2002. An interdisciplinary team was created to inventory and assess the functioning condition of all riparian areas. The team consisted of a variety of staff specialists, which included representation from range management, vegetation, botany, wildlife biology, soil and hydrology, and archaeology. The following table summarizes that riparian assessment.

Table 2.19-1. Summary of Wetland and Riparian Functioning Condition

Community Type	Proper Functioning Condition	Functioning at Risk			Non-functional	Not Known	Total
		Trend Up	Trend Not Apparent	Trend Down			
Riparian - flowing water (miles)	62.76	25.14	8.75	0.92	0	3	100.57
Riparian condition class (percent)	63	24	10	1	0	2	100
Wetland - standing water (acres)	120.7	8.28	31.59	18.72	0	0	179.24
Wetland condition class (percent)	65	6	17	10	0	2	100

Source: BLM Riparian/Wetland Inventory 1995 – 2002.

Table 2.19-1 shows more than over 100 miles of flowing water and almost 200 acres of wetland or standing water that have been inventoried and assessed. In both flowing and standing riparian areas, most sites were found to be in properly functioning condition (PFC). Many sites were assessed as functional at risk but with an upward trend. When combined with PFC, these types represent more than 87% of the sites meeting or making progress toward meeting properly functioning condition and land health standards.

Many sites functioning at risk with an upward trend and receiving management would recover and stabilize quickly. Many of the functioning at risk sites as well would move toward PFC on the basis of past inspections and reassessments.

Most sites are moving toward a hydrologic condition that is satisfactory and/or fully functioning. Management efforts have been focused on riparian sites that are assessed as functional at risk with either a static or downward trend. These sites are the highest management priority because without management we can expect a decline in the riparian resource. Photo studies and other documentation (site reassessments) have shown the ability to improve through changes in management including protective fencing, where needed.

Some riparian areas that are dominated by invasive annual grasses and noxious weeds have resisted natural recovery. Chemical herbicides and mechanical reseeding may be needed to allow native plants to reestablish.

2.19.1 Goal

Maintain, restore, or improve riparian vegetation, habitat diversity, and hydrologic stability to achieve healthy, productive riparian areas and wetlands. Manage for public land values such as water, cover, structure, and forage, which are needed to meet the life history requirements of fish and wildlife, public recreation and aesthetics, water quality and quantity, and livestock forage and water.

2.19.2 Objectives

Move toward properly functioning condition (PFC) on most sites. The main objective is to have all riparian areas in or making significant progress toward PFC and meeting Land Health Standards throughout the field office area. The goal of PFC is not the ultimate end point of riparian management but a step toward a fully functioning system with a desired plant community that provides watershed values, wildlife habitat, and the water and forage needs of animals.

The desired future condition would be determined at the implementation or activity plan level, which includes allotment management plans (AMP) and other planning documents.

2.19.3 Management Common to All Alternatives

- Implement and refine existing management to improve and make progress toward Land Health Standards and riparian goals, including properly functioning condition (PFC) and desired future condition (DFC).
- Refine existing grazing strategies to reflect riparian goals and objectives.
- Use the primary monitoring technique of reassessing condition based on Assessing Proper Functioning Condition (referenced in TR 1737-9 [BLM 1993] and 1737-11 [Lentic Riparian-Wetland Area Proper Functioning Condition Work Group 1998.])
- Document other monitoring when desired plant communities (DPC) and/or desired future condition (DFC) is developed.
- Continue with ongoing riparian photo studies for grazing strategies to document changes.
- Ensure that new fences meet BLM specifications for wildlife passage and livestock control. If existing fences are rebuilt, ensure that they meet BLM specifications.

2.19.4 No Action Alternative

The No Action Alternative, or the existing situation, emphasizes maintaining riparian areas through present livestock management with an associated active range improvement program. This program includes the following:

- intensive grazing strategies with routine monitoring and adjustments for drought,
- range improvements (fences, offsite water, new water pumping technologies including solar and wind, herding, and
- season of use adjustments.

Maintenance of existing exclosures would be emphasized rather than building new ones.

Riparian assessments would continue with management priority on functioning at risk static and downward trend sites or areas.

The following condition classes are projected to occur under the No Action Alternative over the life of the RMP. The percentages are based on site-specific assessments and are separated into flowing and standing water categories.

Table 2.19-2 Projected Riparian and Wetland Condition Classes under the No Action Alternative

Flowing Water (Lotic)	%	Standing Water (Lentic)	%
Properly functioning condition	84	Proper functioning condition	85
Functioning at risk, upward trend	14	Functioning at risk, upward trend	6
Functioning at risk, static trend	1	Functioning at risk, static trend	7
Functioning at risk, downward trend	1	Functioning at risk, downward trend	0
Nonfunctioning	0	Nonfunctioning	0
		Unknown	2

Current experience shows that riparian sites assessed as functional at risk but with an upward trend would make progress toward properly functioning condition when they are managed for livestock grazing. When these two condition classes are combined, they represent more than 87% of the total sites assessed. Enhancement and recovery are expected to result under No Action.

2.19.5 Alternative 1. Economic Development

Alternative 1 would emphasize commodity production (livestock forage), which includes the use for livestock, wildlife, and wild horses and burros in some riparian areas that are now being rested or protected. This alternative would less emphasize enhancement and more emphasize maintenance and forage production. It would deemphasized more fencing but would continue to maintain fences in some of the larger riparian areas.

BLM would complete the assessment on the remaining 2% of unknown riparian sites to determine if more forage can be produced in these areas.

The following riparian condition classes are expected to occur under the economic alternative. The reduced percentages are based on expected changes under this alternative, which deemphasizes new exclosures and the use of some existing exclosures. These condition classes are separated into flowing or standing water categories.

Table 2.19-3 Projected Riparian and Wetland Condition Classes under Alternative 1

Flowing Water (Lotic)	%	Standing Water (Lentic)	%
Properly functioning condition	76	Proper functioning condition	71
Functioning at risk, upward trend	18	Functioning at risk, upward trend	13
Functioning at risk, static trend	6	Functioning at risk, static trend	9
Functioning at risk, downward trend	0	Functioning at risk, downward trend	5
Nonfunctioning	0	Nonfunctioning	0
		Unknown	2

Generally under Alternative 1, the percentage of areas in properly functioning condition and functioning at risk with an upward trend would decrease slight to moderate. This decrease would result from an emphasis on producing livestock forage and less emphasis on protection and recovery.

2.19.6 Alternative 2. Ecosystem Restoration

Alternative 2 would emphasize inventory, recovery, and establishing desired future condition on most riparian sites. It would more emphasize protection and recovery and less emphasize forage production. The riparian condition classes are expected to improve under this alternative. The following percentages are based on expected changes due to an emphasis on protection.

Table 2.19-4 Projected Riparian and Wetland Condition Classes under Alternative 2

Flowing Water (Lotic)	%	Standing Water (Lentic)	%
Properly functioning condition	88	Proper functioning condition	87
Functioning at risk, upward trend	11	Functioning at risk, upward trend	9
Functioning at risk, static trend	1	Functioning at risk, static trend	2
Functioning at risk, downward trend	0	Functioning at risk, downward trend	0
Nonfunctioning	0	Nonfunctioning	0
		Unknown	2

The Ecosystem Restoration Alternative would emphasize new fencing and increasing the size of exclosures as a way of accelerating recovery and establishing desired future condition. This alternative would moderately to greatly restrict the access of livestock to riparian areas. Where intensive modification of grazing strategies is not successful in protecting riparian areas, more fencing would be installed or season of use and numbers would be reduced for livestock and wild horses and burros.

2.19.7 Alternative 3. Traditional Uses

Alternative 3 is similar to Alternative 1 but would do the following:

- emphasize past or traditional livestock use areas and forage production and less emphasize riparian protection,
- not emphasize riparian inventory and assessment,
- not maintain most livestock exclosures and might consider them for livestock use, and
- not emphasize building more exclosures.

The following riparian condition classes are expected to decline or not improve under the Traditional Uses Alternative. The reduced percentages would result from the emphasis on livestock and wild horse and burro use rather on than environmental protection.

Table 2.19-5 Projected Riparian and Wetland Condition Classes under Alternative 3

Flowing Water (Lotic)	%	Standing Water (Lentic)	%
Properly functioning condition	76	Proper functioning condition	71
Functioning at risk, upward trend	18	Functioning at risk, upward trend	13
Functioning at risk, static trend	6	Functioning at risk, static trend	9
Functioning at risk, downward trend	0	Functioning at risk, downward trend	5
Nonfunctioning	0	Nonfunctioning	0
		Unknown	2

Generally this alternative would result in a slight to moderate decrease in properly functioning condition and functioning at risk sites. This decrease would result from the emphasis on producing livestock forage and the use of previous or traditional livestock use areas.

2.19.8 Preferred Alternative

The Preferred Alternative is similar to the No Action Alternative with the following important difference. This alternative emphasizes adjusting existing grazing strategies where livestock grazing is limiting progress toward land health goals. Under the Preferred Alternative, BLM would focus its effort on management changes on sites now functioning at risk with a static to upward trend. Site assessments and photo studies have shown that these sites respond positively to management changes. BLM would continue its existing management where sites are being protected and are recovering and progress is being made, as shown by improved condition and trend.

Riparian reassessments would continue, with management priority on functioning at risk static and downward trend sites or areas to monitor trend and condition.

Under the Preferred Alternative, BLM would rebuild old fenced exclosures not meeting current wildlife specifications, build new exclosures, and, if needed, increase the size of exclosures. Wild horse and burro concentration may require adjusting horse numbers and/or building more protection areas not meeting or making progress toward land health standards.

BLM would complete riparian inventory or assessments and begin reassessing priority areas (functioning at risk static and downward trend) and adjust management as identified. BLM would also begin developing desired future condition on riparian sites with an emphasis on at-risk areas.

The following condition classes are expected to improve under the Preferred Alternative. The percentages are based on these actions:

- emphasizing livestock management adjustments,
- maintaining existing exclosures, and
- adding protective fencing where needed.

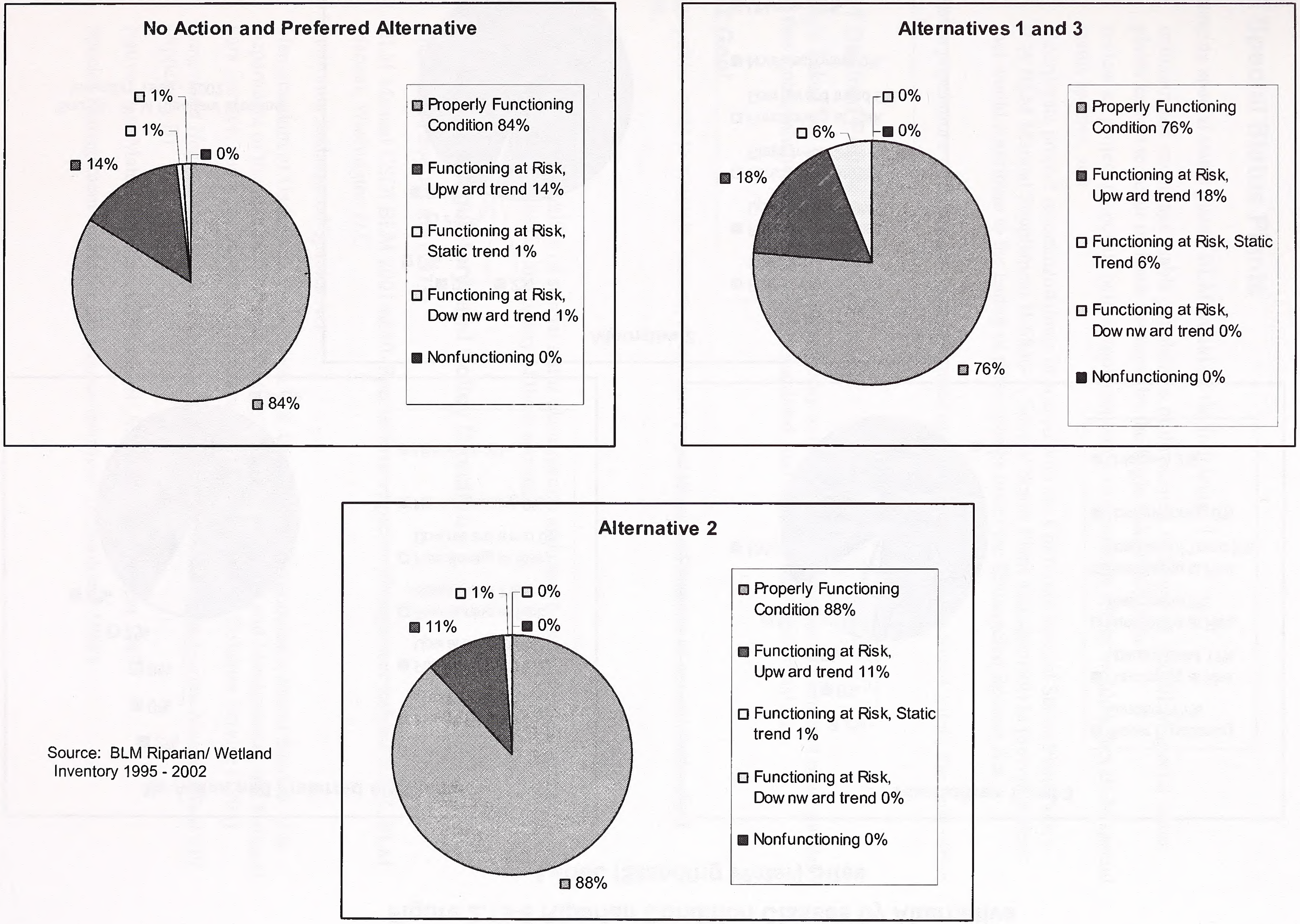
Table 2.19-6 Projected Riparian and Wetland Condition Classes under the Preferred Alternative

Flowing Water (Lotic)	%	Standing Water (Lentic)	%
Properly functioning condition	84	Proper functioning condition	85
Functioning at risk, upward trend	14	Functioning at risk, upward trend	6
Functioning at risk, static trend	1	Functioning at risk, static trend	7
Functioning at risk, downward trend	1	Functioning at risk, downward trend	0
Nonfunctioning	0	Nonfunctioning	0
		Unknown	2

Enhancement and recovery are expected to increase under the Preferred Alternative. Moderate to major improvement is expected because of past improvements with existing management and fencing.

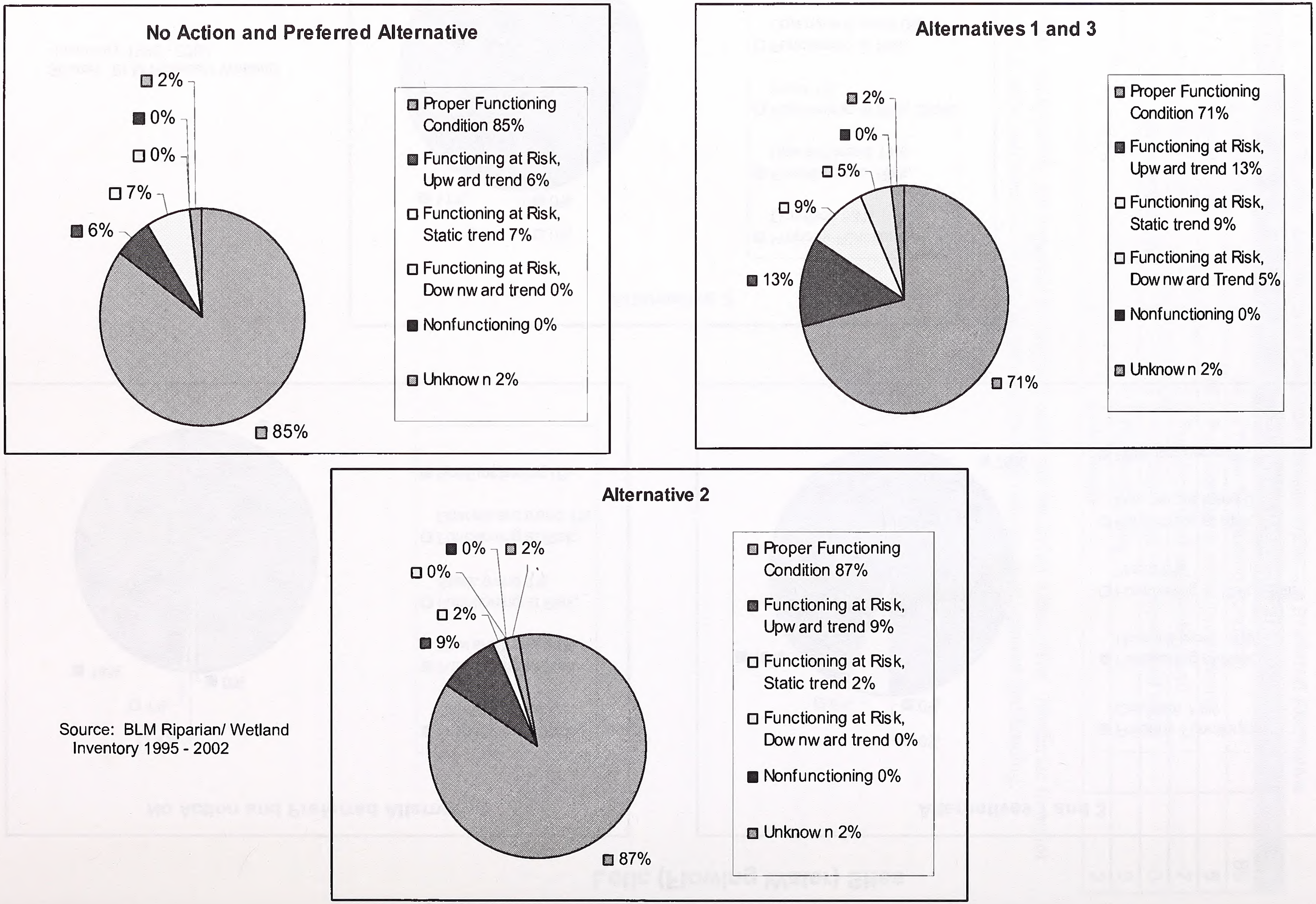
Figure 2.19-7 Riparian Condition Classes by Alternative

Lotic (Flowing Water) Sites



Source: BLM Riparian/ Wetland Inventory 1995 - 2002

Figure 2.19-8 Riparian Condition Classes by Alternative Lentic (Standing Water) Sites



Source: BLM Riparian/ Wetland Inventory 1995 - 2002

2.20 Special Status Plants

In managing special status plants, BLM would do the following:

- maintain and encourage viable populations of threatened, endangered, and BLM special status plants known to occur on lands managed by the Eagle Lake Field Office;
- review all project proposals before implementation to determine if they would affect BLM special status species; and
- incorporate project recommendations in accord with the California Special Status Plant Policy (CA BLM Manual Supplement H-6840-1, Special Status Plant Management) to prevent actions that would contribute to the listing of these species under the Endangered Species Act.

No known populations of federally listed threatened or endangered plants are found within the field office area.

2.20.1 Desired Future Condition

The Eagle Lake Field Office would use its authority to conserve threatened and endangered plant species, ensure that their continued existence is not jeopardized, and maintain their critical habitat.

2.20.2 Goal

Manage public lands to maintain, restore, or enhance populations and habitats of special status plant species.

2.20.3 Objectives

Manage the reproductive viability of special status plant species and ensure that BLM management actions do not contribute to the decline of any of these species.

2.20.4 Legislative, Regulatory, and Policy Direction

- Endangered Species Act (1973)
- BLM Manual USDI BLM 2001-6840- Special States Species Management Release 6-121, BLM Manual, Washington D.C.
- California Endangered Species Act
- Memorandum of Understanding between U.S. Department of Agriculture, Forest Service; U.S. Department of the Interior, Fish and Wildlife Service, Bureau of Land Management, and National Park Service; and U.S. Department of Commerce, National Marine Fisheries Service (1994)
- *Rangeland Health Standards and Guidelines for California and Northwestern Nevada Final* EIS (Appendix B)
- Native Plant Materials Policy, California BLM Manual Supplement 1745
- Species Management Guide for *Eriogonum crosbyae*, (Schoolcraft 1989)

2.20.5 Management Common to All Alternatives

- Maintain reproductive viability of all special status plant species.
- Ensure that management actions do not contribute to the decline of a special status species.
- Monitor existing populations/occurrences to maintain desired plant community health.
- Survey for unknown and suspected special status plant occurrences.
- Develop management guidelines for habitats or plant communities containing significant occurrences of special status plants. These guidelines could be within a grazing strategy or other guidelines developed under an integrated resource management plan, allotment management plan, habitat management plan, or best management practices. Biological evaluation would provide the framework for any resource objectives developed for special status plants or their habitats.
- Develop and employ conservation agreements or species management guides to protect and monitor special status plants.
- For all proposed projects in the field office area conduct surveys to locate and assess the presence and conditions of special status and special interest plants and their habitats. Conduct surveys at the suitable time of year to easily locate and properly identify these plants.

2.20.6 No Action Alternative

- Make no attempt to acquire private lands solely because they support one or more sensitive plant species.
- For all proposed projects, conduct surveys for special status plants and their habitats.
- Conduct surveys at the suitable time of the year to locate and identify these plants and take suitable management actions.
- Give no added protection or management to special interest plants but include them in clearances and inventory.

2.20.7 Alternative 1. Economic Development:

- Emphasize resource use and commodity production. Impose the least restrictive constraints possible on commodity production while adhering to existing policies.
- Manage all special status species habitats or occurrences (populations) so that BLM actions do not contribute to the need to list theses species as federally threatened or endangered.
- Orient management toward providing habitat conditions that meet individual species requirements.
- Develop and implement conservation agreements or species management guides to protect and monitor special status plants.
- Give no added protection or management to special interest plants but still include them in clearances and inventory.
- Collect special status plant seeds as available and provide them for the *Seeds of Success* project.

2.20.8 Alternative 2. Ecosystem Restoration

The Ecosystem Restoration Alternative focuses on restoration, rehabilitation, and recovery of ecosystem processes. It would include aggressive measures for special status species management. Habitats and populations would be restored or enhanced where it would be biologically sound and reasonable to do so. Habitats would be maintained where habitat or population conditions are considered to be at or near their potential.

- Conduct surveys for all special status plants, special interest plants, and habitats of special status plants that are suspected to occur on BLM lands.
- Schedule surveys at the proper time of year to locate and identify special status plants and take suitable management actions (which might require avoidance or mitigation) before implementing a project.
- For proposed land disposals or major land disturbance, survey both occupied and unoccupied habitat in years when weather conditions are conducive to the flowering of that species. This action could involve surveys in later years.
- Implement, monitor, and track management actions needed to protect, conserve, and recover special status plants.
- Seek to acquire suitable lands having populations of species not now protected.
- Manage special interest plants prevent their listing as special status species.
- Prohibit woodcutting within special status plant habitat.
- Allow mechanical reduction of juniper and issue commercial woodcutting permits within known populations of special status and special interest plant communities but require special stipulations such as the following:
    - o limits on road construction,
    - o mandatory use of rubber-tracked vehicles for cross-country travel, and
    - o rehabilitation of all access points to prevent establishing of ways.
- Limit off-highway vehicle (OHV) use to existing roads and trails.

2.20.9 Alternative 3. Traditional Uses

The Traditional Uses Alternative focuses on maintaining and promoting the values and traditional uses of local communities and on planning criteria and a reasonable approach to multiple uses.

- Give no added protection to special interest plants.
- Make no attempt to acquire private lands solely because they support one or more sensitive plant species.
- Allow woodcutting within the habitat of special status plants.
- Do not limit OHV use to roads and trails except where monitoring shows that this activity could damage habitat.
- Collect no special status plant seeds.

2.20.10 Preferred Alternative

- Allow mechanical reduction of juniper, and issue commercial woodcutting permits within known populations of special status and special interest plant communities. But require special stipulations such as the following:
    - limits on road construction,
    - mandatory use of rubber-tracked vehicles for cross-country travel, and
    - rehabilitation of all access points to prevent establishing of ways.
- Limit OHV use to existing roads and trails within the Fort Sage OHV area to protect special status plant species *Loeflingia squarrosa artemisiarum* (sagebrush loefilingia).
- If land use activities appear to be contributing to the decline of known populations of sensitive plant species on private lands, attempt to acquire these lands.
- Manage special interest plants with the same rigor as special status plants. The intent is to avoid their eventual decline from special interest plants to special status species.
- Collect special status plant seeds as available to provide for the *Seeds of Success* project.

2.21 Visual Resources Management

BLM is required by federal law to manage public lands to protect scenic values and to inventory and designate visual resource management (VRM) classes when preparing an RMP.

VRM management consists of four VRM class designations and VRM objectives for each class. The classes and objectives are as follows:

Class I: The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes, but it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

Class II: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Class III: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Class IV: The objective of this class is to provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of attention. But every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance and repeating the basic elements (form, line, color and texture).

The final VRM Class designations in each alternative are based on consideration of scenic values and other resources uses. Development of VRM Classes for each alternative involves completing the BLM's Visual Inventory process (BLM Manual H-8410-1), and then analyzing all other proposed management actions for that alternative to produce the final VRM classes.

The VRM inventory process that serves as the basis of the recommended VRM Classes includes:

- scenic quality ratings
- distance zones from viewing areas (roads, trails, camping areas and other use/observation areas), and
- evaluation of visually sensitive areas (areas where there is public interest in retaining the visual character of an area).

Information from The Northeastern California Outdoor Recreation Market Analysis (Tierney and Rosegard 2002) was also used for completing the VRM inventory. In this report a high percentage of both local residents (68%) and public land visitors from throughout northern California (82%) responded that "maintaining the natural undeveloped appearance and vistas of the Northeastern California and Northwestern Nevada region is extremely important."

This information - combined with strong local interest in seeing public lands managed to provide for quality outdoor recreation experiences – resulted in 'high' to 'moderate' sensitivity ratings being assigned to most public lands viewed from travel corridors and recreational activity areas.

Moderate to high sensitivity ratings, combined with 'A' and 'B' ranked quality scenery, on lands within 3 to 5 miles of public viewing areas (travel corridors, recreation activity areas, homes) produced many VRM Class II and Class III designations throughout the field office area.

Visual design considerations must be incorporated into all surface-disturbing projects regardless of size or potential impact. The contrast rating process (BLM Manual 8431) is used as a visual design tool in project design and as a project assessment tool during environmental review. Contrast ratings are required for proposed projects in highly sensitive areas or high-impact projects but may also be used for other projects where they would appear to be the most effective design or assessment tool. A brief narrative visual assessment is completed for all other projects that require an environmental assessment or environmental impact statement.

The purpose of the visual contrast rating is to determine if the project, as proposed, would meet VRM objectives of the VRM class established in the RMP for the project. Since the overall VRM goal is to minimize visual impacts, mitigating measures should be prepared for all adverse contrasts that can be reduced. This includes reduction of contrasts in projects which have met the VRM objectives (BLM VRM Contrast Rating Manual H-8431-1, II D 4).

If the proposed project cannot meet the VRM objective set for the affected area, BLM can choose to do the following:

- work with the project proponent to modify or mitigate the proposed project so that it does meet VRM objectives,
- work with the proponent to try to relocate the project to an area where it can meet VRM objectives,
- deny the project or amend the RMP to change the VRM class so that the project conforms to the revised VRM class.

Projects may be rated on either a short or long term basis. In evaluating visual contrasts, short term (up to 5 years) and long term (beyond 5 years) contrasts can be evaluated if it appears that there may be two different sets of results from the project. Under the VRM contrast rating manual procedures, a project that does not meet the VRM objectives for the affected area in the short term can still be authorized, if in the opinion of the decision maker, the project's visual contrasts would meet the established VRM objectives for the affected area in the long term.

2.21.1 Desired Future Condition

Public lands within the Eagle Lake Field Office area would be managed to provide protection of the scenic quality of existing landscapes. BLM's management would strongly emphasize (1) preserving and retaining much of the area in its current visual condition, and (2) improving land health and the related natural appearance of the landscape. Protecting the existing visual character of the landscape would be implemented by designating ranges from VRM Class I (preservation), to Class II (retention of existing landscape character), to Class III (partial retention of the existing landscape character). In the Eagle Lake Field Office, the only VRM Class I designations apply to wilderness study areas (WSAs), and change of WSA status requires congressional action.

BLM would also manage public lands to allow for new developments that can significantly alter the character of the existing landscape, if those projects are in areas classified as VRM Class IV (major modification of the existing landscape). This would also be allowed if the land use plan is amended to change restrictive VRM Class II and III areas to Class IV.

Projects such as development of large wind energy farms, high voltage power lines, major utility corridors, and large mines would require completing an environmental impact statement (EIS) prior to development. Analysis of visual impacts would be part of the EIS, and the proposed project would have to be simulated on photographs of the project site to help analyze the extent of change likely to occur. Public involvement would also be a part of the process before any VRM class could be changed through a land use plan amendment.

2.21.2 Goal

Manage BLM lands so that BLM-authorized and or regulated actions meet visual resource management objectives established in the RMP.

2.21.3 Objectives

Designate BLM visual resource management (VRM) classes on all public lands within the Eagle Lake Field Office area. Manage lands according to VRM class objectives to preserve (Class I), retain (Class II), partially retain (Class III) or allow major modification (Class IV) of the existing character of the landscape.

2.21.4 Legislative, Regulatory, and Policy Direction

- Federal Land Policy and Management Act of 1976, 43 U.S.C 1701 et. Seq.; Section 102(a)(8); Section 103 (c); Section 201(a); Section 505 (a)
- National Environmental Policy Act, 43 U.S.C 4321 et. Seq.; Section 101(b); Section 102
- Surface Mining Control and Reclamation Act pf 1977, 30 U.S.C. 1201 et seq.; Section 102 (d)
- The BLM's Priorities for Recreation and Visitor Services, May 2003, page 19, Milestone 4
- BLM Land Use Planning Handbook, H-1601-1, March 11, 2004, Appendix C, page 11
- BLM Manual 8400, Visual Resource Management

2.21.5 Management Common to All Alternatives

Manage wilderness study areas (WSAs) to meet VRM Class I objectives:

- VRM Class I objectives apply to all WSAs until Congress designates or releases the WSAs from BLM's Wilderness Interim Management Policy (BLM 1995b) requirements.
- Should a WSA not be designated as wilderness by Congress and be released to multiple use management, the area within the WSA would return to the VRM class or classes that apply to the area as adopted in the final RMP.
- If portions of a WSA that are released contain special management area designations such as areas of critical environmental concern (ACECs), recommended wild and scenic river segments, or historic trails, the VRM class for that designation would apply, generally VRM Class II.

Manage the following areas to meet VRM Class II objectives. (These are well-known geographic areas with place names. For other VRM Class II areas not listed here, see Maps VRM-1, VRM-2, VRM-3, and VRM-4.):

- All segments of the Susan River, Willow Creek, Upper Smoke Creek, and Lower Smoke Creek that have been determined eligible for wild and scenic river designation (BLM Wild and Scenic Rivers Policy, Manual 8351.31).

These areas would be managed as VRM Class II until each eligible river segment is determined to be suitable for designation under the Wild and Scenic Rivers Act, or are released from the act's protection requirements. In addition, all of the eligible river segments are within areas recommended for designation as VRM Class II under all alternatives, independent of Wild and Scenic Rivers Act requirements. High amounts of public use occur along the Susan River, portions of Willow Creek, and all of Lower Smoke Creek. VRM Class II objectives also apply along Lower Smoke Creek because the Nobles Emigrant Trail follows the creek in this area.

- Eagle Lake Basin Special Recreation Management Area (SRMA)
- Bizz Johnson Trail SRMA,
- Fredonyer Peak on the northeast side of Eagle Lake,
- most of Shaffer Mountain
- most of the Skedaddle and Amedee Mountains
- most of Shinn Mountain
- most of the Twin Peaks Area
- most of Buffalo Creek Canyons
- Upper Smoke Creek Basin viewshed
- Dry Valley Rim escarpment,
- Fort Sage Mountains.

Manage the following to meet VRM Class III objectives: existing communication sites on Antelope and Shaffer Mountains and on the ridge east of Grasshopper Fire Station. (These are well-known geographic areas with place names. For other VRM Class III areas not listed here, see Class III designations on each alternative's VRM map).

Manage under VRM Class IV objectives all areas not within VRM Classes I, II, or III.

Conduct visual contrast ratings for all surface-disturbing activities in highly sensitive areas or for high-impact projects. (BLM Visual Resource Management Manual 8400. 06 A6). Use contrast ratings for other projects where they would be the most effective design or assessment tool. A brief narrative visual assessment would be completed for all other projects that require an environmental assessment or environmental impact statement.

In Table 2.21-1, meeting VRM objectives is evaluated against the general "Degree of Contrast Criteria" (BLM Visual Contrast Rating Manual 8431-1, III D 3).

Since the overall VRM goal is to minimize visual impacts, mitigating measures would be prepared for all adverse contrasts that can be reduced (BLM Visual Contrast Rating Manual 8431-1, III D 4).

If a proposed project does not meet the VRM objectives set for the project area, BLM can do the following:

- work with the project proponent to modify the project so that it meets the objectives,
- relocate the project to an area where it can meet the objectives,
- deny the project, or
- amend the RMP to allow the project (BLM Manual 8431–Visual Contrast Ratings).

Table 2.21-1 Degree of Visual Contrast, Criteria, and Corresponding VRM Class Objective

Degree of Contrast	Criteria	Corresponding VRM Class Objective That This Level of Contrast Would Meet
None	The element contrast* is not visible or perceived.	Class I
Weak	The element contrast can be seen but should not attract attention.	Class II
Moderate	The element contrast can be seen and begins to dominate the characteristic landscape.	Class III
Strong	The element contrast begins to attract attention, would not be overlooked, and is dominant in the landscape.	Class IV

*Element contrast refers to a contrast created by one or more visual characteristics of a proposed project – form, line, color and texture, i.e. is there a noticeable contrast created by the project's form, lines, color colors, and texture as observed from key observer points (places where the project is likely to viewed).

2.21.6 No Action Alternative

All lands within the field office area would be managed to meet VRM objectives according to VRM classes shown in Table 2.21-2. (See Map VRM-1.)

Table 2.21-2 Proposed VRM Classes under the No Action Alternative

VRM Class	Acres
I Applies to wilderness study areas (WSAs) only[1/]	------
II	**403,437**
III	**365,743**
IV	**253,587**
TOTAL of Class II, III, and IV areas,	**1,022,767**

[1/] VRM Class I objectives apply to all the WSAs in the Eagle Lake Field Office (380,319 acres) and overlay all of the other classes, taking precedence until Congress designates the WSAs as wilderness or removes their WSA designations. Upon removal from WSA designation, the portions of the underlying VRM acreages shown above would apply. No acreage is shown in the VRM Class I column because of double counting that would result.

The VRM class designations under No Action are a result of applying the BLM VRM inventory process along with consideration for public sensitivity to visual change as expressed in the Northeastern California Outdoor Recreation Market Analysis (Tierney and Rosegard, 2002). Class II designations include areas of high scenic interest and/or high public sensitivity to change, where the objective is to retain the landscape character. Class III designations include areas where the objective is to partially retain the landscape character. Class IV designations are mainly out-of-sight areas of moderate to low scenic quality, and areas of low scenic quality within the viewing area of travel corridors.

2.21.7 Alternative 1. Economic Development

All lands within the field office area would be managed to meet VRM objectives according to VRM classes shown in Table 2.21-3. (See Map VRM-2.)

Table 2.21-3. Proposed VRM Classes under Alternative 1

VRM Class	Acres
I Applies to wilderness study areas (WSAs) only[1/]	-----
II	**374,616**
III	**432,847**
IV	**215,304**
TOTAL of Class II, III, and IV areas	**1,022,767**

[1/] VRM Class I objectives apply to all the WSAs in the Eagle Lake Field Office area (380,319 acres) and overlay all of the other classes, taking precedence until Congress designates the WSAs as wilderness or removes the WSA designations. Upon remove from WSA designation, the portions of the underlying VRM acreages shown above would apply. No acreage is shown in VRM Class I column because of double counting that would result.

Alternative 1 emphasizes protecting high-scenic-quality areas that are destination recreation attractions by designating these areas as mostly VRM Class II with some VRM Class III. The existing three special recreation management areas (Eagle Lake Basin, the Bizz Johnson Trail and the Fort Sage Mountains) are designated primarily as VRM Class II. VRM Class II areas also include large portions of the primitive backcountry east of Highway 395. This area includes five WSAs and is popular for hunting, primitive recreation, and backcountry road exploration.

The largest perennial streams in the field office area, and their associated canyons, are also proposed as VRM Class II:

- Susan River Canyon,
- Willow Creek Canyon upstream from Belfast,
- Upper and Lower Smoke Creek Canyons, and
- Buffalo Creek Canyon.

Alternative 1 proposes that portions of the Antelope Mountain/ Shaffer Mountain/Bald Mountain SRMA would also be managed to meet VRM Class II objectives. This area forms much of the backdrop for the northwest Honey Lake Valley residential area and is becoming an important recreational area for many residents and visitors. Alternative 1 provides a large amount of VRM Class IV for potential development of wind energy at the southern end of the Madeline Plains east and west of Highway 395. This area is near an exiting 345 KV power line which could be used to send energy generated by a wind farm to electric power users in metropolitan areas.

2.21.8 Alternative 2. Ecosystem Restoration

All lands within the field office area would be managed to meet VRM objectives according to VRM classes shown in Table 2.21-4. (See Map VRM-3.)

Table 2.21-4. Proposed VRM Classes under Alternative 2

VRM Class	Acres
I Applies to wilderness study areas (WSAs) only[1/]	-----
II	**405,943**
III	**534,159**
IV	**82,665**
TOTAL of Class II, III, and IV areas	**1,022,767**

[1/] VRM Class I objectives apply to all the WSAs in the Eagle Lake Field Office (380,319 acres) and overlay all of the other classes, taking precedence until Congress designates the WSAs as wilderness or removes the WSA designations. Upon removal from WSA designation, the portions of the underlying VRM acreages shown above would apply. No acreage is shown in the VRM Class I column because of double counting that would result.

This alternative is similar to Alternative 1, but it does not include Class IV designations on the west and north flanks of Shinn, Spanish Springs, and Observation Mountains for wind energy development. Instead, this alternative emphasizes protecting the scenic quality of these backcountry areas east of Highway 395, to better retain the exiting character of the landscape. These areas would be designated as Class III.

The following are Class II areas under Alternative 2:

- Eagle Lake Basin Special Recreation Management Area (SRMA),
- Bizz Johnson Trail SRMA,
- Fort Sage Mountains SRMA,
- Susan River Canyon and Willow Creek Canyon upstream from Belfast and Buffalo Creek, and
- Many acres within the primitive backcountry area east of Highway 395, that includes five WSAs and is popular for hunting, primitive recreation, and backcountry road exploration.

VRM Class II designations would also apply to all river segments recommended as suitable for wild and scenic river designation, within an area .25 miles wide on either side of the river segment (unless the segment lies within a WSA where VRM Class I applies). This designation is based on BLM policy for protecting suitable wild and scenic river segments until Congress acts on BLM's recommendation.

Visual resources within the seven areas of critical environmental concern (ACECs) proposed under Alternative 2 would be managed as VRM Class II, as described in Chapter 2.12.

2.21.9 Alternative 3. Traditional Uses

Alternative 3 is the same as No Action. This alternative emphasizes retaining much of the existing landscape to provide areas for local residents and visitors to enjoy traditional recreational activities and land uses in largely undisturbed landscapes.

2.21.10 Preferred Alternative

All lands within the field office area would be managed to meet VRM objectives as shown on Map VRM-4. The acreage of each VRM class is listed in Table 2.21-5.

Table 2.21-5. Proposed VRM Classes under the Preferred Alternative

Class	Acres*
I Applies to Wilderness Study Areas (WSAs) only[1/]	-----
II	**507,843**
III	**442,028**
IV	**72,896**
TOTAL of Class II, III, and IV areas	**1,022,767**

[1/] VRM Class I objectives apply to all the WSAs in the Eagle Lake Field Office (380,319 acres) and overlay all of the other classes taking precedence until Congress designates the WSAs as wilderness or removes their WSA designations. If a WSA designation is removed by an Act of Congress, the underlying VRM Classes and associated acreages shown above would apply. No acreage is shown in the VRM Class I column because of double counting that would result from this dual classification.

Manage WSAs to meet VRM Class I objectives (until Congress designates or releases portions or all from BLM Wilderness Interim Management Policy requirements and BLM directives.)

If Congress releases a WSA to multiple-use management, the area within the WSA would return to the VRM class or classes that apply it as adopted in the final RMP. (See Map VRM-4, which shows the VRM classes that would apply without WSA status). If portions of a WSA that are released contain special management area designations, such as areas of critical environmental concern (ACECs), recommended wild and scenic river segments, or historic trails, the VRM class for that designation would apply. These areas would generally be designated as VRM Class II.

All river segments determined to be eligible for wild and scenic river designation under the Wild and Scenic Rivers Act would be managed to meet VRM Class II Objectives. This would protect the outstandingly remarkable values of the rivers until the eligible determination is acted upon.

Manage all river segments recommended as suitable for designation under the Wild and Scenic Rivers Act (Upper Smoke Creek) so that management actions meet VRM Class II objectives (unless the segment lies within a WSA where VRM Class I applies, which is the case for part of Upper Smoke Creek). This Class II designation is based on BLM policy that requires protecting suitable wild and scenic river segments until Congress acts on BLM's suitable recommendation.

The area surrounding all of Upper Smoke Creek would be managed to meet VRM Class II objectives throughout the life of the RMP for the following purposes:

- to retain the scenic values of the existing landscapes that surround this popular hunting and backcountry sightseeing area and
- to protect the undeveloped setting of a historic 1800's cavalry trail that passes through the area near Upper Smoke Creek.

VRM Class II objectives would be applied to the Nobles Emigrant National Historic Trail Corridor in order to retain the physical trail traces and the existing character of the surrounding landscapes. This area includes two segments of the Nobles Trail considered as "high potential" segments in *the Comprehensive Management and Use Plan Final EIS for the California National Historic Trail* (National Park Service 1999). VRM Class II objectives would apply to the trail where it enters BLM jurisdiction northeast of Smoke Creek Canyon, to 38 miles westward.

A Class II corridor would be established to protect the trail setting so that visitors could view the landscape in much the same way as the pioneers viewed it when the trail was in use. Areas up to 3 miles wide along both sides of the trail would be managed as VRM Class II in flat, easily seen areas. Areas up to 5 miles wide on either side of the trail would be Class II where slopes extend gradually up and away from the trail, or to the limits of visibility.

West of the intersection of Nobles Trail and the 345 KV power line near Highway 395, the undeveloped landscape changes with the presence of other small power lines, an abandoned railroad grade, Highway 395, and the beginning of intensively managed agricultural land, homes, and business in the Honey Lake Valley. VRM Class II standards would not apply to this area, but trail traces would be protected by applying requirements of Section 106 of the National Historic Preservation Act to any surface disturbance activities. In addition, VRM Class III objectives would apply to the land next to the trail in this area to partially retain the character of the existing landscape.

Other historic trails within the field office area would be managed within the VRM classes established for the area surrounding the trails. Trail segments designated as VRM Class II include the following:

- the Buffalo Hills Toll Road through the North Fork of Buffalo Creek Canyon,
- the Merrillville Beiber Wagon Road along the north shore of Eagle Lake,
- the segment of the Fernley and Lassen Railway through the Susan River Canyon (Bizz Johnson Trail), and
- segments of the Fort Churchill to Fort Bidwell Military Patrol Route.

Manage the following scenic and unique landforms to retain their existing character by designating them as VRM Class II:

- Eagle Lake Basin SRMA,
- the Bizz Johnson Trail SRMA,
- Fredonyer Peak on the northeast side of Eagle Lake,
- Willow Creek Canyon through Tunnison WSA,
- the south side and portions of the east side of Antelope Mountain north of Susanville,
- Shaffer Mountain,
- the Skedaddle and Amedee Mountains,
- Dry Valley Rim escarpment,
- Twin Peaks Area,
- Buffalo Creek Canyons,
- Observation Peak,
- Spanish Springs Peak,
- Shinn Mountain,
- Upper Smoke Creek Basin,
- Lower Smoke Creek Canyon,
- the Five Springs/Cherry Mountain/Rush Creek Mountain area,
- Fort Sage Mountains,
- some of the BLM parcels along the northern Sierra escarpment, and
- some isolated BLM parcels around Sierra Valley and throughout Plumas and Lassen National Forests.

Existing communication sites on Antelope and Shaffer Mountains and on the ridge east of Grasshopper Fire Station would be retained and designated as small VRM Class III areas. New communication towers and support facilities should be able to meet VRM Class III objectives through use of the contrast rating process and applying good design principles to new projects at these locations.

Fuels reduction treatments and removal of invasive juniper would occur throughout the field office area, within VRM Class designations II, III and IV. Fuels and other treatments would be allowed, depending upon the type of thinning or removal planned.

The following factors would contribute to meeting VRM objectives:

- mimicking natural appearing openings when creating juniper clearings,
- creating irregular edges rather than straight geometric shapes along property lines,
- leaving scattered trees,
- the viewing distance and angle from key observer points where people would view the treated landscape, and
- the extent of or lack of intervening visual screening.

Juniper thinning or removal projects would require VRM contrast ratings as part of the National Environmental Policy Act (NEPA) process. The contrast rating process would help project planners meet VRM objectives for the project area. Although VRM Class II and III stated objectives are to retain or partially retain the landscape's existing character, the emphasis is to retain or partially retain the natural appearing landscape. As treatments are employed to improve land health, vegetation treatments such as juniper removal would alter the existing landscape. But the landscape can be altered in ways that meet VRM Class II and III objectives. Such alteration must allow the existing landscape to return to more natural conditions than existed before landscapes were altered by fire suppression and other practices. By applying good VRM design principles to project layout and implementation, BLM can thin or remove juniper while meeting VRM objectives.

Some areas within the field office jurisdiction would be managed to allow for major modification of the existing landscape. These areas would be designated as VRM Class IV and are shown on Map VRM-4. Other VRM Class IV areas may be established by amending the RMP for project proposals that can greatly change the existing landscape, such as wind energy farms, new high-voltage power lines, and open pit mines. Projects with potential for major visual impacts would be analyzed in an environmental impact statement (EIS). If a project is approved through an EIS and record of decision and they are located where the VRM class is more restrictive, a land use plan amendment would have to be made to change the affected area to VRM Class IV, in order to allow the project to occur.

2.22 Water Quality and Hydrologic Function

Water quality is discussed with respect to water quality indicators and to bodies of water listed as 'impaired.' The following are primary indicators of water quality:

- water temperature
- nutrient levels
- fecal coliform bacteria count
- turbidity
- sediment load
- dissolved oxygen (DO) levels
- stream channel condition

Generally speaking, bodies of water within the Eagle Lake Field Office area do not meet state water quality standards for temperature and dissolved oxygen during summer and fall. But significant progress is being made toward attaining desired potential conditions. Past livestock impacts combined with high ambient temperatures are believed to have contributed to overall failure to meet water quality standards. Upstream non-BLM managed lands are contributing to nonattainment on most streams. Unrealistic state standards are another contributing factor. Three streams in particular are not making substantial progress toward meeting standards: Red Rock Creek, Shoals Creek, and Cottonwood Creek.

2.22.1 Desired Future Condition

Attainment of desired water quality standards would be achieved within 20 to 50 years. In order to achieve the DFC, hydrologic function and water quality would be suitable for all present and potential beneficial uses. Water quality would be improved to provide stable and productive riparian and aquatic ecosystems. Water quality of all natural water bodies would be within state standards, and developed water bodies that are not waters of the state (some stock ponds, waterfowl developments, guzzlers, etc.) would have water quality suitable for the beneficial uses for which they were developed.

Upland, riparian, and aquatic ecosystems would be stable and productive to a degree that leads to acceptable water quality for identified beneficial uses. Stream channel integrity and channel processes are similar to the riparian and aquatic systems from which they developed. Hydrologic and sediment regimes (the characteristic behavior or orderly occurrence of a natural phenomenon or process) in streams, lakes, and wetlands would be appropriate to the surrounding soils, climate, and landform. Instream flows are sufficient to support healthy riparian and aquatic habitats, and stream functions are stable and effective. Flooding streams would discharge without significant damage to the watershed.

Riparian areas and stream habitat conditions would improve as a result of protection and management. Watersheds would be stable and provide for capture, storage, and safe release of water appropriate to soil type, climate, and landform. Most riparian/wetland areas would be in properly functioning condition (PFC) and be meeting water quality and hydrologic function resource goals and objectives, including natural stream flow and sediment regimes related to contributing watersheds. Soil supports native riparian/wetland vegetation to allow water movement, filtration, and storage.

Riparian/wetland vegetation structure and diversity have controlled accelerated erosion, stabilized stream banks, healed incised channels, and would be doing the following:

- shading water areas

- filtering sediment
- aiding in floodplain development
- dissipating energy
- delaying floodwater
- increasing recharge of ground water appropriate to climate, geology, and landform

Stream channels would be narrower, water depth and channel meanders would be increasing, and floodplains would be developing. Stream channels and floodplains would be dissipating energy at high-water flows and transporting and depositing sediment as appropriate for geology, climate, and landform.

Human use of natural resources would be managed to enhance fisheries, improve water quality, and promote healthy riparian conditions. Water quality would be managed so that most streams provide cool, clear, and clean water. High-quality water is in greater demand from all users. Better regulation of runoff would have improved the water supply from rangelands. The following would result:

- increased infiltration on upland sites
- increased ground water recharge
- increased spring flow
- reduced peak flow during floods
- increased stability of base flow during late summer and winter

2.22.2 Goal

Ensure that hydrologic function in streams, wetlands, springs, and uplands is proper and that state water quality standards and the needs of beneficial uses are being met.

2.22.3 Objectives

On a priority basis, improve hydrologic function in areas not meeting water quality and hydrologic function resource goals and objectives, and maintain hydrologic function in areas where they are being met. On a priority basis, improve water quality in areas not meeting standards and maintain water quality in areas that are meeting standards.

Specific objectives from the Standards for Rangeland Health and Guidelines for Livestock Grazing Management on BLM-Administered Lands in Northeastern California and Northwestern Nevada (Appendix B) are as follows: “Maintain the physical, biological, and chemical integrity of waters flowing across or underlying the lands it [BLM] administers.”

- “Protect the integrity of these waters where it is currently threatened.”
- “Insofar as is feasible, restore the integrity of these waters where it is currently impaired.”
- “Not contribute to pollution and take action to remedy any pollution resulting from its actions that violates California and Nevada water quality standards, Tribal water quality standards, or other applicable water quality requirements (e.g., requirements adopted by State or Regional Water Quality Control Boards in California, or Environmental Protection Agency [EPA] pursuant to Section 303(d) of the Clean Water Act or the Coastal Zone Reauthorization Act).

- Where action related to grazing management is required, such action would be taken as soon as practicable but not later than the start of the next grazing year (in accordance with 43 CFR 4180.1)."
- "Be consistent with the non-degradation policies as identified by the States."
- "Develop and execute a Management Agency Agreement with the States of California and Nevada for the efficient protection of water quality associated with BLM management."
- "Work with the States' water quality administrative agencies and the EPA to establish appropriate beneficial uses for public waters, establish appropriate numeric targets for 303(d)-listed water bodies, and implement the applicable requirements to ensure that water quality on public lands meets objectives for the designated beneficial uses of this water".
- "Develop and implement Best Management Practices (BMPs) approved by the States to protect and restore the quality and beneficial uses of water, and monitor both implementation and effectiveness of the BMPs. These BMPs would be developed in full consultation, coordination, and cooperation with permittees and other interests."
- "State or Tribal approved variances or exceptions to water quality standards may be applicable within their Basin Plans for specific types of activities or actions. The BLM would follow State or Tribal administrative procedures associated with variances."

2.22.4 Legislative, Regulatory, and Policy Direction

- Standards for Rangeland Health and Guidelines for Livestock Grazing Management on BLM-Administered Lands in Northeastern California and Northwestern Nevada (Appendix B)
- BLM Handbook 4180-1 Rangeland Health Standards
- BLM Manual 7200, Water Resources
- BLM Manual 7240, Water Quality
- Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management
- President's Clean Water Action Plan
- Memorandum of Understanding with California Water Resource Control Board (WRCB) for Planning and Coordination of Nonpoint Source Water Quality Policies and Activities (2/3/93)
- Lahontan Water Quality Control Board (WQCB) Basin Plan
- Central Valley WQCB Basin Plan
- Nevada Water Quality Standards (Nevada Administrative Code 445A.118 to 445A.225)
- U.S. Forest Service and BLM protocols for addressing 303d listed waters
- Executive Order 12088 -- Federal Compliance With Pollution Control Standards
- Executive Order 11988 -- Floodplain Management
- Executive Order 11990 -- Protection of Wetlands

2.22.5 Management Common to All Alternatives

- Complete assessments of riparian functioning condition where the need arises. Periodically reassess riparian areas to ensure that satisfactory progress is being made toward the stated goal.
- Initiate restorative management along 37 miles of streams and on 59 acres of wetlands and springs known not to be meeting the riparian properly functioning condition (PFC) criteria. Include in needed restoration measures any other riparian areas found not to be meeting PFC.
- Develop and implement best management practices (BMPs) to improve water quality and progress towards meeting state standards and the needs of beneficial uses on 34 miles of stream where existing data does not support that conditions are in compliance. Develop and apply BMPs to any water body later found to have impaired water quality resulting from BLM's management. Other areas that have not been assessed are likely to be at risk of not meeting land health standards. Concentrate restorative efforts on Smoke Creek, Shoals Creek, Cottonwood Creek, and Redrock Creek.
- Amend the basin plans to reflect suitable attainable water quality standards that would meet the needs of desired beneficial uses for water bodies in the Eagle Lake Field Office area. These measures include working with state water quality control regulatory agencies and participating in their triennial reviews and Nevada's basin plan revision.
- In silvicultural and recreation management, select and implement BMPs as part of activity plans. Implement BMPs as part of activity plans for all other activities that have the potential to degrade water quality. Develop BMPs on a site-specific basis according to BLM Manual Section 7240.

2.22.6 No Action Alternative

Under the No Action Alternative, BLM would emphasize a wide range of traditional management strategies and on an as-needed basis would implement minimal management practices to minimize impacts on water quality and riparian function.

- Allow uses and activities within the riparian areas, streams, and contributing watersheds as long as there is progress toward attaining water quality and riparian management goals and objectives.
- For streams and lakes with water quality-limited segments, allow uses and activities in the watershed only if they would not impede restoring water quality to state water quality standards.
- Emphasized types of BMPs would include the following:
- developing new grazing management strategies
- adjusting AUMs of forage or changing livestock season of use
- gathering wild horses and/or adjusting herd numbers
- restricting recreation activities
- protecting spring sources, wetlands, streams, and uplands from overuse by building and maintaining exclosures.

2.22.7 Alternative 1. Economic Development

Alternative 1 emphasizes the use of bioengineering projects to mitigate impacts of management activities and thus achieve water quality and hydrologic function goals and objectives. Uses allowed in riparian areas, streams, and contributing upland watersheds are the same as to those under the No Action Alternative.

2.22.8 Alternative 2. Ecosystem Restoration

Alternative 2 emphasizes the natural recovery process by excluding or substantially reducing activities that have significant negative impacts on the ecosystem (e.g. grazing, roads, and some forms of recreation) from areas that do not meet hydrologic function and water quality goals and objectives. Management practices would focus on the following:

- building exclosures and fencing springs, streams, riparian areas, and contributing uplands from livestock grazing and wild horses/burros, and vehicle access.
- intensive planting of woody riparian vegetation, manipulating vegetation, and installing instream structures, if suitable.

Allowed uses would be similar to those under No Action and Alternative 1. But such uses would be allowed only to the degree to which *unimpeded* progress is made toward achieving hydrologic function and water quality goals and objectives as well as riparian and wetland management objectives.

This alternative incorporates the Ecosystem Restoration Alternative in the Grazing Management section of this RMP. Included in that section, is the requirement that at least 2 years of rest be given for each year of livestock grazing.

At present, BLM management activities are not contributing to the impairment of any body of water listed as “impaired” under Section 303 (d) of the Clean Water Act, i.e. those listed below. On streams and lakes that have water quality-limited segments, polluting–or potentially polluting –uses and activities would be allowed only in the contributing watershed as long as unimpeded progress is being made toward attaining state water quality standards. A “potentially polluting use or activity” is referring to uses or activities that could contribute to the cause of impairment. For example, four impaired water bodies occur on or next to BLM-managed lands.

- Skedaddle Creek is listed as impaired because of high bacteria levels supposedly from livestock. In this watershed BLM would not be allowed to permit livestock grazing in the Skedaddle watershed unless there is unimpeded progress toward attaining the state standard for bacteria. Skedaddle Creek is being considered for removal from the 303d list.
- Eagle Lake is impaired because of high levels of nitrogen and phosphorus, which have several possible sources, including, livestock grazing, forestry, and recreation. Principal management interventions for this area might include eliminating uncontained recreational vehicle (RV) camping and camping outside campgrounds with toilet facilities. Shoreline grazing and trailing of livestock would probably not be allowed. In addition, livestock might not be permitted access to water sources draining into Eagle Lake. Silviculture practices which might alter water quality in Eagle Lake, either directly or indirectly would not be allowed.
- The Susan River is listed as impaired because of unknown toxicity from an unknown source originating downstream of BLM lands. BLM might not be allowed to use toxic substances in the Susan River watershed above the limited reach. This restriction might limit the use of preservatives on bridge decking.

- Honey Lake is impaired because of high arsenic levels from permitted geothermal, natural, and other sources. BLM management activities do not involve the use of arsenic. Geothermal permitting would be subject to Water Quality Control Board provisions to prevent contamination of Honey Lake, in which geothermal fluids are now being re-injected.

2.22.9 Alternative 3. Traditional Uses

Alternative 3 is identical to the No Action Alternative since traditional uses that predate the Clean Water Act and the Federal Land Policy and Management Act would not be allowed if they do not meet the provision of these laws.

2.22.10 Preferred Alternative

The Preferred Alternative would apply a variety of management actions selected from the other alternatives. It would include both restrictive and adaptive management strategies, as well as bioengineering approaches. Allowed uses in upland areas, springs, riparian areas, streams, and wetlands are similar to those under the No Action and Ecosystem Restoration Alternatives.

The Preferred Alternative emphasizes a variety of management strategies and would implement minimal management practices to minimize impacts on water quality and riparian function on an as-needed basis and proposes the following management actions.

- Allow current uses in the riparian areas, streams, and contributing upland watersheds as long as progress is made toward achieving hydrologic function and water quality goals and objectives as well as riparian and wetland management objectives.
- Continue to allow public uses along streams and around other water bodies if state water quality standards are either attained or improved at the same or greater rate than without the activity.
- For streams with water quality-limited segments, allow uses and activities in the watershed only if they would not impede restoring water quality to state water quality standards.

2.23 Water Supply

BLM has employed various forms of water development in its resource management with many levels targeted to improve livestock grazing programs. Water developments for the benefit of wildlife have included installing guzzlers, enhancing or developing wetlands, and building reservoirs, which may also benefit livestock and wild horses and burros. Surface water conditions have gradually changed over many decades as a result of road building and historic heavy livestock grazing. Relatively large irrigation dams have been built on public lands under permit from BLM. Reservoirs are the main instrument of hydrologic change. Other hydrologic changes include stock ponds, spring developments, and a few water diversions. These hydrologic changes are needed to properly distribute livestock as well as wild horses and burros. These changes also provided water for irrigation, wildlife, recreation, and other purposes.

2.23.1 Desired Future Condition

BLM's Standards for Rangeland Health and Guidelines for Livestock Grazing Management on BLM-Administered Lands in Northeastern California and Northwestern Nevada (Appendix B) establish the desired future condition for public lands in this area and is intended to guide and facilitate attaining BLM's Land Health Standards. Desired water supply conditions, as described in these documents, are expected to be achieved and maintained for the life of this RMP in order to meet resource objectives.

Generally speaking, water sources in the Eagle Lake Field Office area meet the needs of the same beneficial uses. Livestock grazing, viable healthy herds of wild horses, wildlife and aquatic species habitats, recreation, and other activities on public lands have enough water to meet their needs. Where available water is not meeting the needs of beneficial uses, water is being developed or improved.

2.23.2 Goal

Assure the availability of high-quality water to meet resource requirements and management needs.

2.23.3 Objectives

Determine in stream flow requirements to support healthy aquatic habitats and riparian values. Acquire and maintain water rights needed to protect federal investments and to ensure a reliable water supply for BLM programs.

2.23.4 Legislative, Regulatory and Policy Direction

- Standards for Rangeland Health and Guidelines for Livestock Grazing Management on BLM-Administered Lands in Northeastern California and Northwestern Nevada (Appendix B) (expanded by the California BLM State Director to apply to all BLM lands and management activities in California).
- Water Quality Health Standard: Water would have characteristics suitable for existing or potential beneficial uses. Surface and groundwater complies with objectives of the Clean Water Act and other water quality requirements, including meeting the California and Nevada state standards, excepting approved variances.
- BLM Water Rights Policy:
    - IM CA-2000-014 Interim Water Rights Policy for Public Lands in Nevada Administered by BLM-California

  - BLM Handbook H-7250 Water Rights and California Supplement H-7250-1 California Water Rights Procedures.
  - Memorandum of Understanding with Lassen County, CA, 2003

2.23.5 Management Common to All Alternatives

- Manage and maintain water sources to ensure adequate water supply for the proper distribution of livestock, wildlife, and wild horses and burros.
- Ensure that water sources are maintained for recreational and other activities.
- Selectively develop springs and exclosures in riparian ecosystems.
- Assert water rights needed to protect federal investments and resources.
- Projects that involve inter-basin transfer of water would be coordinated with local and regional governments.

2.23.6 No Action Alternative

- Continue to maintain existing water sources and, when needed, develop new sources for livestock, wildlife, and wild horses and burros.
- Continue to petition the State of California for water rights on all waters except public water reserves.

2.23.7 Alternative 1. Economic Development

Alternative 1 emphasizes water developments for recreational use (e.g., fishing, boating, swimming, and hunting) and proposes the following management actions.

- Withdraw all water right permits and licenses on sources that are not waters of the state.
- Encourage more water developments to promote better livestock distribution and forage use patterns.
- Encourage the use of water for power production and other commercial uses.

2.23.8 Alternative 2. Ecosystem Restoration

Alternative 2 emphasizes wildlife uses of water developments (e.g. fish habitat and water sources for wildlife) and proposes the following management actions.

- Allow the development of water sources only where it would benefit desired ecosystems.
- Emphasize the need to extend seasonal water availability for wildlife.
- Recognize the need to prolong the availability of water for wildlife by ensuring that reservoirs contain minimum pool storage reserves for this purpose.
- Assert in stream flow rights in Nevada and riparian rights in California on all perennial and important intermittent streams that are waters of the state.

2.23.9 Alternative 3. Traditional Uses

Under Alternative 3 BLM would maintain existing water developments and add more livestock water facilities as the need arises. Stock pond water right permits would be withdrawn on stock ponds that are not diverting waters of the state (CA or NV).

2.23.10 Preferred Alternative

The Preferred Alternative includes elements from each of the other alternatives. Water development would emphasize wildlife use as under the Ecosystem Restoration Alternative. This alternative proposes the following management actions.

- Consider withdrawal of any water right permits and licenses on water sources that are not waters of the state.
- Apply to the state to acquire water rights now under state jurisdiction.
- Assert in stream flow rights in Nevada and riparian rights in California on all perennial and important intermittent streams.

2.24 Wild Horses and Burros

BLM manages wild horses within the Eagle Lake Field Office area in three herd management areas (HMAs), one of which also supports burros. Past management of wild horses and burros has generally consisted of periodic removals to maintain the populations within established appropriate management levels (AMLs). In recent years, the field office has collected baseline genetic data during gather operations. In addition, during the fall of 2003, the Eagle Lake Field Office implemented fertility control research on its Buckhorn HMA. In the future, the Eagle Lake Field Office would continue to collect baseline genetic data on all herds and implement more fertility control research projects.

Over the past 25 years, the Eagle Lake Field Office has attempted to manage wild horses to maintain herd integrity. During gathers, animals released back to the HMAs are carefully selected to ensure that the base herd maintains its historical characteristics, including type of animal, color, size, and conformation. Due to the establishment of these base herds, wild horses in the field office area are generally regarded as high-quality animals. Animals removed during gathers are sought after in the regular adoption program.

The largest HMA, Twin Peaks, encompasses nearly 800,000 acres with an established AML of 448-758 horses and 72-116 burros. The Twin Peaks HMA includes five home ranges with individual AMLs established in 1988. At that time, allotment and pasture fences within the HMA were believed to be limiting the exchange of horses between herds. But after recent gathers, new horses move into gathered areas almost immediately, thus showing that some natural movement is occurring among home ranges.

Because of funding priorities, budget, and scheduling, gathers were postponed for several years, and herd populations greatly increased. In addition, several large, naturally occurring wildfires have affected vegetation condition and forage production within the HMA, requiring emergency gathers. Recent gathers have not been able to return the population to within the AML range.

The remaining two HMAs in the Eagle Lake Field Office are New Ravendale and Fort Sage, neither of which has an established appropriate management level (AML). The areas consist of about 15,000 acres each and have estimated AMLs of 10-25 and 55-65 horses, respectively. Complete monitoring data has not been collected and analyzed to formally establish the AMLs.

These herds have been gathered in the past in response to private landowner requests or emergency situations such as wildfire and drought. The New Ravendale HMA was gathered in 2004, and the current population is within the estimated AML. The Fort Sage HMA is within the estimated AML as well.

2.24.1 Desired Future Condition

HMAs would be managed within appropriate management levels to support a thriving natural ecological balance between wild horse and burro herds, the ecosystem, and other resources and uses. Excess animals would be regularly gathered and offered for adoption through the National Wild Horse and Burro Adoption Program. Animals entering the adoption program would exhibit historical herd characteristics, making them highly desirable to those interested in adopting.

Genetic data would be collected from the animals when gathered to establish baseline data for use in long-term management of each herd's historical character. Fertility control research would be conducted to aid in maintaining the ecological balance between the herds and their habitat.

The wild horse and burro Litchfield Corral Facility would be a well-developed office and corral facility providing viewing and educational opportunities for the public, including school groups, tourists, and potential adopters. The office would provide information on the wild horse and burro program as well as on the relationships between other resources or uses and the managing of wild horses and burros on public lands. The facility would be equipped to support the preparation and gentling of horses by the wranglers, including well-designed alleyways, chutes, working arenas, and viewing areas with the goal of increasing successful adoption of horses from northern California and northern Nevada.

2.24.2 Goal

Maintain and manage wild horse herds in established herd management areas at appropriate management levels to ensure a thriving natural ecological balance between wild horse populations, wildlife, livestock, vegetation resources, and other resource values.

2.24.3 Objectives

- Protect and manage wild horses in three herd management areas (HMAs) established in previous land use plans, at appropriate management levels (AMLs) based on vegetation and population monitoring.
- Maintain the type, conformation, and color of wild horses found historically in each of the three HMAs in the Eagle Lake Field Office area.
- Manage wild horses and burros to promote tourism and economic development in the resource area.

2.24.4 Management Common to All Alternatives

- Manage wild horses and burros in accord with the Wild Free-Roaming Horses and Burros Act of 1971, as amended and all other laws and regulations that apply.
- Maintain herd management areas (HMAs) within established appropriate management levels (AMLs). Reevaluate and adjust AMLs where needed.
- Evaluate HMAs for retention of populations.
- Where applicable, combine HMAs into herd complexes, where similar animals occupy adjacent areas and animals move between HMAs.
- Conduct regular gathers (3-year interval) to maintain populations within AMLs.
- Consider implementing fertility control research in some or all herd management areas.
- Conduct aerial censuses on regular basis (not to exceed 3-year intervals). Monitor populations and habitat.
- Collect genetic data for each of the herds during gathers to establish baseline information for each herd.

2.24.5 No Action Alternative

Under the No Action Alternative, BLM would protect and manage wild horses in three herd management areas (HMAs), established in previous land use plans, and under appropriate management levels (AMLs) based on vegetation and population monitoring.

HMAs would receive periodic gathers to maintain populations within the AML range. Animals returned to the breeding population would be selected for historical traits. The AMLs and acreages for each HMA are listed below.

Table 2.24-1 Herd Management Areas in the Eagle Lake Field Office Area under the No Action, 1, 3, and Preferred Alternatives

Herd Management Area and Number	Appropriate Management Level (Range)	Acres
New Ravendale (CA-243)	10-25 horses	14,883
Twin Peaks (CA-242)	448-758 horses 72-116 burros	797,927
Fort Sage (CA-241)	55-65 horses	15,759
Total	513-848 horses 72-116 burros	828,569

2.24.6 Alternative 1. Economic Development

The Economic Development Alternative emphasizes economic development while still protecting and managing wild horses and burros in three HMAs, similar to the No Action Alternative.
The following are other management actions under this alternative.

- Periodically gather horses but select animals to be returned to the breeding population to be most desirable for the regular adoption program without considering historical herd characteristics.
- Develop and promote the Litchfield Corral Facility to allow more onsite adoptions and to supplement statewide satellite adoptions.
- Manage wild horses and burros to promote tourism and economic development in the field office area.
- Develop and promote public seasonal viewing areas for wild horses and burros with interpretive materials available.

2.24.7 Alternative 2. Ecosystem Restoration

Under the Ecosystem Restoration Alternative, the wild horse and burro management focus is to accelerate the improvement of ecosystem health. The BLM would still protect and manage wild horses and burros in established HMAs, except in the New Ravendale HMA. The appropriate management levels (AMLs) for this HMA would be adjusted to zero because of the lack of suitable year-round water sources on public lands. Table 2.24-2 lists the HMAs and AMLs under this alternative.

In addition, the five home ranges within the Twin Peaks HMA would be managed as a complex with an overall AML range for the entire HMA to better facilitate recovery of at-risk ecosystem components within the HMA. Periodic gathers also would be conducted under Alternative 2 with no effort made to retain historical herd characteristics or to improve herd characteristics. BLM would not publicize herds or build viewing areas.

Table 2.24-2 Proposed Herd Management Areas in the Eagle Lake Field Office Area under Alternative 2

Herd Management Area and Number	Appropriate Management Level (Range)		Acres
New Ravendale (CA-243)		0	0
Twin Peaks (CA-242)		448-758 horses 72-116 burros	797,927
Fort Sage (CA-241)		55-65 horses	15,759
Total		503-823 horses 72-116 burros	813,686

2.24.8 Alternative 3. Traditional Uses

The Traditional Uses Alternative emphasizes the traditional or historic community uses and values of resources and is similar to Alternative 1. The following are management actions under Alternative 3.

- Protect and manage wild horses and burros in the three HMAs within established AML ranges, as listed in Table 2.24-1.
- Periodically gather animals, considering the historical characteristics of each herd when selecting animals to return to the breeding population.
- Provide and publicize seasonal viewing areas with interpretive kiosks.
- Develop the Litchfield Corral Facility to provide public viewing opportunities and education about the wild horse and burro program and natural resource management.

2.24.9 Preferred Alternative

Under the Preferred Alternative, BLM would protect and manage wild horses and burros in three herd management areas at appropriate management levels (AMLs) based on vegetative and population monitoring, as shown in the No Action Alternative, and Table 2.24-1.

The five home ranges within the Twin Peaks HMA would be managed as a complex because there is natural movement and mixing of wild horses among the five home ranges. Managing the home ranges as a complex would facilitate recovery of at-risk ecosystem components and provide flexibility for improving land health by temporarily removing all horses from a portion of the HMA (one home range) while maintaining the overall AML. As areas recover, whether from wildfire or resource improvement projects, horses would be redistributed into all home ranges. Individual AMLs for each home range would be maintained except when a land health issue is recognized and analyzed and an implementation plan developed.

The New Ravendale and Fort Sage HMAs would be managed within their estimated AML ranges until vegetation and population monitoring is complete and an AML is documented and established.

The following are other management actions under the Preferred Alternative.

- Periodically gather animals.
- In selecting horses to be returned to the breeding population, emphasize maintaining the type, conformation, and color of wild horses found historically in each of the three HMAs.

- Promote tourism and economic development in the field office area by selecting and publicizing seasonal viewing areas of wild horses and burros at suitable locations.
- Develop sites using interpretive kiosks and provide a new recreational and educational activity for the public as well as increase the public's interest in and understanding of the wild horse and burro program.
- Develop the Litchfield Corral Facility to provide educational information about the wild horse and burro program and natural resource management for the public. Also develop and promote this facility for more on-site adoptions to supplement the statewide satellite adoption program.

2.25 Wildlife and Fisheries

Due to the complex nature of wildlife issues, alternatives for wildlife management have been addressed under seven separate major goals:

- species listed as threatened or endangered
- other special status species, including state-listed and BLM sensitive species
- ungulates
- sagebrush obligate species
- native wildlife species
- fish and other aquatic species
- non-native wildlife species.

2.25.1 Legislative, Regulatory, and Policy Direction

BLM manages wildlife and their habitats in cooperation with the state wildlife agencies, the California Department of Fish and Game (CDFG), and the Nevada Department of Wildlife (NDOW). The state wildlife agencies manage species populations through management objectives from their management plans. BLM manages the habitat for these populations. BLM policy is to cooperate with the state wildlife agencies to help meet species management goals to the extent they conform to BLM's policies and the principles of multiple use management. A memorandum of understanding (MOU) between the agencies details the manner in which together they manage for a wide variety of wildlife species.

BLM regulations and policies and many legislative acts direct management of public lands to provide habitat for fish and wildlife and to protect the quality of water resources.

BLM policy on listed species is articulated in BLM Manual 6840—Special Status Species Management, which includes the following documents listed in Section (.03) Authority:

- Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), as amended.
- Sikes Act, Title II (16 U.S.C. 670g et seq.), as amended.
- The Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.), as amended.
- Department Manual 235.1.1.A., General Program Delegation, Director, Bureau of Land Management.
- Department Manual 632.1.1-1.6, Endangered Species Management.
- Secretarial Order 3206 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act).
- BLM policy on non-native species is articulated in BLM Manual 1745—Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife and Plants, which includes the following documents listed in Section (.03) Authority:
  - Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.), as amended.
  - The Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701-1782), as amended; and P.L. 98-540 (98 Stat. 2718).
  - National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321-47; 83 Stat. 852; P.L. 91-190).

- Exccutive Order (EO) 11987, Exotic Organisms (dated May 24, 1977), restricts the introduction of exotic species into natural ecosystems of the United States (U.S.).
- BLM Manual Section 6500.
- Endangered Species Act (ESA) compliance includes a dual mandate for land management agencies to both
  - use their authorities by carrying out programs for the conservation of endangered and threatened species, and
  - through consultation, ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species.
- Consultation with U.S. Fish and Wildlife Service is required for actions the managing agency has determined likely to adversely affect a listed species or its designated critical habitat.
- Section 102.8 of the Federal Land Policy and Management Act (FLPMA) requires that public lands be managed to protect the quality of ecological and environmental values, and, where suitable, to protect their natural condition. FLPMA does the following:
  - places fish and wildlife management on a footing with other traditional land uses;
  - requires that part of grazing fees be spent for "range betterment," including aquatic and terrestrial wildlife habitat enhancement, protection, and maintenance where livestock occur; and
  - requires consideration of fish and wildlife resources before approval of land exchanges.

BLM policy requires compliance with Manual 6840—Special Status Species Management, which states in Section .06(D) that state laws protecting state-listed species apply to all BLM programs and actions to the extent that they are consistent with FLPMA and other federal laws. Section .06(E) 7 states that state-listed species should be managed to the level of protection required by state laws or under the BLM policy for candidate species, whichever would provide better opportunity for its conservation. Manual 6840 states in Section .06 (D) that the protection provided by the policy for candidate species shall be used as the minimum level of protection for BLM sensitive species. Policy guidance in BLM Manual 6840 requires that actions authorized on BLM-administered lands do not contribute to the need to list federal candidate or BLM sensitive species under the Endangered Species Act.

Special status wildlife species, including state-listed species and BLM sensitive species, are generally limited in their distributions, populations, or habitats and may be at risk over various geographic areas. Where evidence suggests that land uses are harming special status species not now listed as threatened or endangered, it is in the public interest to prevent the need for federal listing under the Endangered Species Act. Restoration and maintenance may also be a preferred course of action where resource conditions are of high quality or unique to a particular species.

BLM Land Health Standards (43 CFR 4180) require the managing rangelands so that "habitats are, or are making significant progress toward being restored or maintained for Federally threatened and endangered species, Federally proposed…and other special status species."

The "Sikes Act" of 1974 is a congressional mandate for BLM to "plan, develop, maintain, and coordinate programs for the conservation and rehabilitation of wildlife, fish, and game." BLM's role in managing fish and other aquatic resources is to provide the habitat that supports desired aquatic plants and animals.

Plants, animals, and their interactions with each other and the environment are part of the ecological processes important for the health and function of aquatic ecosystems as well as the overall rangeland or forest ecosystem. Species manipulations such as introductions or removals are under the authority of state wildlife agencies.

The following are other pertinent documents:

- Bald and Golden Eagle Protections Acts, as amended (1978)
- Pacific Bald Eagle Recovery Plan (1986)
- Migratory Bird Treaty Act (1918), as amended (1998)
- Memorandum of Understanding (MOU) between USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, USDI National Park Service, and USDC National Marine Fisheries Service (1994)
- Northeastern California and Northwestern Nevada Standards for Rangeland Health and Guidelines for Livestock Grazing Management (Appendix B)
- Migratory Bird Executive Order 13186, Responsibilities of Federal Agencies To Protect Migratory Birds (66 FR 3853) (2001)
- California Endangered Species Act
- California Partners in Flight and the Riparian Habitat Joint Venture, The Riparian Bird Conservation Plan (RHJV 2004)
- Partners in Flight, Western Working Group, “Birds in a Sagebrush Sea” (Paige and Ritter 1999)
- BLM Nevada’s “Migratory Bird Best Management Practices for the Sagebrush Biome”
- Nevada Bat Conservation Plan (Bradley and others 2002)
- BLM Manual 6600- Fish, Wildlife, and Special Status Plant Resources Inventory and Monitoring
- BLM Manual 6525- Wildlife Programs Related to the Sikes Act
- BLM Manual 1745 California Supplement and Associated Handbook
- Master MOU between the California Department of Fish and Game and the Bureau of Land Management, Department of the Interior
- Master MOU between the Nevada Department of Wildlife and the Bureau of Land Management, Department of the Interior
- Nevada Division of Wildlife–Bighorn Sheep Management Plan (2001)
- Nevada’s Pronghorn Antelope Management–Ecology, Management, and Conservation (Tanner and others 2003)
- Local, state, and national guidelines for managing sage-grouse and their habitats, including the Conservation Strategy for Sage-Grouse (Centrocercus urophasianus) and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit (Northern California Sage-grouse Working Group 2005)

2.25.2 GOAL 1–FEDERALLY LISTED SPECIES

2.1 Desired Future Condition

Provide habitat adequate to maintain, restore, recover, or enhance populations and habitats of species federally listed as endangered or threatened; species proposed for listing, including proposed and designated critical habitat; and species having federal candidate status.

2.2 Goal

Manage BLM lands to maintain, restore, recover, or enhance populations and habitats of species federally listed as endangered or threatened; species proposed for listing, including proposed and designated critical habitat; and species having federal candidate status.

2.3 Objectives

- Manage BLM lands in accord with BLM Manual 6840, and Sections 7(a)(1) and 7(a)(2) of the Endangered Species Act.
- Manage threatened and endangered species and critical habitats in accord with the following:
  - completed recovery plans;
  - habitat management plans;
  - regional conservation strategies; and
  - reasonable and prudent measures, terms and conditions, and conservation recommendations from plan and project-level biological opinions.

The following are the current federally listed species for the Eagle Lake Field Office area:

Carson Wandering Skipper (*Psuedocopaeodes eunus obscurus*)—federally endangered

The Eagle Lake Field Office area contains about 3,500 acres of potential Carson wandering skipper habitat in saltgrass habitat along the west shore of the Smoke Creek Desert and on the east side of Horse Lake. No known populations of the species occur on BLM lands, but occupied sites are nearby on California Department of Fish and Game (CDFG), Department of Defense, and private lands.

Bald Eagle (*Haliaeetus leucocephalus*)—federally threatened

The field office area has three bald eagle home ranges (one active and two historic), which include nesting, roosting and foraging habitat. Each home range totals about 12,500 acres, excluding acres of vegetation not representing function and structure of bald eagle habitat. About 3,100 acres of each home range is considered the nesting territory.

In March 2005, the Cleghorn nest tree was found to have fallen due to natural causes. It is not known if annual nest rebuilding had occurred before the tree fell. Cursory surveys of the nesting area did not result in evidence of eagles or a new nest nearby, but surveys would continue in hopes of locating a new nest site. In the interim, BLM would manage the area following the direction outlined in the Cleghorn Habitat Management Plan (Hawks 1982).

Lahontan Cutthroat Trout (*Oncorhyncus clarki henshawi*)—federally threatened

No native populations of this species are known in BLM-administered streams. The California Department of Fish and Game plants hatchery stock locally, however the hatchery stock is not subject to USFWS consultation under Section 7 of the ESA. The owners of Smoke Creek Ranch and the U.S. Fish and Wildlife Service are holding ongoing discussions to convert back to a native Lahontan fishery. Such a conversion would affect Upper Smoke Creek, and further management would ensue.

Yellow-Billed Cuckoo (*Coccyzus americanus*)—candidate species

Surveys by Point Reyes Bird Observatory personnel from 2002-2004 found no occurrences of yellow-billed cuckoos in the Eagle Lake Field Office area (Barton and Holmes 2004). The riparian cottonwood groves along Lower Smoke Creek and the Susanville River are not sufficient to support the species at this time. If populations are found in the future, BLM would develop an action plan.

2.4 Management Common to All Alternatives – Goal 1–Federally Listed Species

Carson Wandering Skipper

- Manage in accord with Sections 7 (a)(1) and 7 (a)(2) of the Endangered Species Act of 1973, as amended, to ensure that no Eagle Lake Field Office actions jeopardize the future existence of the species.
- Cooperate as a partner on recovery plan, and implement appropriate plan measures if Carson wandering skipper populations are found on BLM-administered lands.
- Conduct surveys as time and personnel allow, using geographic information system (GIS) data and U.S. Fish and Wildlife Service (USFWS) interim survey guidelines for determining habitat suitability and presence or absence of the species.

Bald Eagle

- Manage in accord with the following:
    - Sections 7 (a)(1) and Section 7 (a)(2) of the Endangered Species Act of 1973, as amended;
    - Recovery Plan for the Pacific Bald Eagle (USFWS 1986);
    - BLM Manual 6840;
    - the Cleghorn Nesting Territory Habitat Management Plan (HMP) (Hawks 1982);
    - US Fish and Wildlife Service Biological Opinion 1-1-82-F-126 dated October 28, 1982; and
    - Best Management Practices for Bald Eagles in Eagle Lake Basin (Armentrout 2001).
- Conduct annual surveys to monitor bald eagle nest sites, verify presence or absence of individuals, and monitor reproductive success.
- Conduct annual mid-winter surveys with cooperators. (Surveys cover the entire perimeter of Eagle Lake.)
- Implement seasonal protection measures and buffer zones as suitable for permitted activities when identified (see Table 2.26-1).
- In accord with the Cleghorn Nesting Territory HMP (Hawks 1982), install lockable vehicle barriers on roads providing access to the nest vicinity. Use barriers to minimize disturbance to nesting bald eagles from January 1 to August 31.
- Manage forest habitat within suitable habitat (generally within 1 mile of large water bodies) to retain potential nest trees (24 inches diameter at breast height).
- Develop geographic information system (GIS) information for nesting, roosting, and foraging areas.

Lahontan Cutthroat Trout

- Cooperate with the California Department of Fish and Game (CDFG) on local planting of hatchery stock and related habitat issues.

Yellow-Billed Cuckoo (candidate species):

- Develop an action plan if populations are found on BLM-administered lands.
- Contribute to survey efforts as appropriate.

Table 2.25-1 Buffer Zones and Seasonal Restrictions for Raptors and Other Wildlife Species

Species	Buffer Zone—Distance	Seasonal Restriction Dates
Bald Eagle	Nest: ½ mile line of sight; ¼ mile non-line of sight; 1.0 mile blasting (January-August) Winter roosts: ½ mile (December-April)	January 1-August 31 December 1-April 1
Golden eagle	Nest: ½ mile line of sight; ¼ mile non-line of sight	February 1-August 31
Northern goshawk	Current nest: ¼ mile Previous year's nest: ½ mile	March 1-August 31
Cooper's hawk	Nest: ¼ mile	March 1-August 31
Sharp-shinned hawk	Nest: ¼ mile	March 1-August 31
Ferruginous hawk	Nest: ½ mile direct line of sight; ¼ mile with visual buffer	March 1-August 1
Red-tailed hawk	Nest: ¼ mile	March 1-August 31
Swainson's hawk	Nest: ¼ to ½ mile	April 15-August 15
Peregrine falcon	Nest: 1.0 mile	January 1-August 15
Prairie falcon	Nest: ¼ to ½ mile	March 15-August 15
Osprey	Nest: ¼ mile	March 1-August 31
Burrowing owl	Nest: ¼ mile	March 1-August 31
Flammulated owl	Nest: ¼ mile	April 1-September 30
Great gray owl	Nest: ¼ mile	March 1-July 31
Great blue heron	Nest: 660 feet to ¼ mile	March 15-July 15
Townsend's big-eared bat	Hibernaculum: (November-April) Nursery: (April-October)	November 1-April 15 April 15-October 31

2.25.3 GOAL 2–STATE-LISTED AND BLM SENSITIVE SPECIES

3.1 Desired Future Condition

Manage BLM-administered lands for state-listed and BLM sensitive species to contribute to the improvement or removal of species from their current status. Aim to provide diverse, healthy habitats in which populations of these species are in balance with populations of other native wildlife.

3.2 Goal

Manage BLM lands to maintain, restore, recover, or enhance populations and habitats of state-listed species and BLM sensitive species, and to prevent future listing of these species under the Endangered Species Act.

3.3 Objectives

- Manage state-listed species and BLM sensitive species habitats so that BLM actions so not contribute toward the need to list these species as federally threatened or endangered in accord with 43CFR Part 24, and BLM Manual 6840—Special Status Species Management, Section .02(B) and Section .06 (D, E).
- Manage state-listed species and BLM sensitive species habitats in accord with the California Endangered Species Act and provisions in California and Nevada state law that address such species, to meet protection and conservation requirements.
- Conserve state-listed species and BLM sensitive species and the ecosystems on which they depend, in accord with recovery plans, conservation plans, habitat management plans, and conservation recommendations. Follow BLM guidelines and best management practices (BMPs) for individual species.

Current state-listed species for the Eagle Lake Field Office area include the following:

- Swainson's hawk (Buteo swainsoni),
- bank swallow (Riparia riparia),
- willow flycatcher (Empidonax traillii),
- great gray owl (Strix nebulosa),
- greater sandhill crane (Grus canadensis tabida),
- Sierra Nevada red fox (Vulpes vulpes necator),
- California wolverine (Gulo gulo luteus), and
- California bighorn sheep (*Ovis canadensis californiana*) (this species is addressed in the ungulate species goal).

Current BLM sensitive species for the Eagle Lake Field Office area include the following:

- golden eagle (Aquila chrysaetos),
- ferruginous hawk (Buteo regalis),
- California spotted owl (Strix occidentalis occidentalis),
- tri-colored blackbird (Agelaius tricolor),
- northern sagebrush lizard (Sceloporus graciosus graciosus),
- Pacific fisher (Martes pennanti pacifica),
- southwestern river otter (Lutra canadensis sonora),
- juniper titmouse (Baeolophus griseus),
- fringed myotis (Myotis thysandodes),
- long-eared myotis (Myotis evotis),
- small-footed myotis (Myotis ciliolabrum),
- Yuma myotis (Myotis yumanensis),
- pallid bat (Antrozous pallidus),

- Townsend's western big-eared bat (Plecotus townsendii),
- greater sage-grouse (Centrocercus urophasianus), and
- burrowing owl (Athene cunicularia) (The greater sage-grouse and burrowing owl would be addressed in the sagebrush ecosystems goal.)

Surveys have been conducted for a few state-listed and BLM sensitive species of the field office area, including the following:

- Swainson's hawk (nest at Fort Sage in 2002-2003) (Barton and Holmes 2004);
- ferruginous hawk (documented and historical records; nest in Lassen County during 1980s-1990s);
- willow flycatcher (none found during 2003 surveys along the Susan River); and
- California spotted owl (nest in Gold Run Creek vicinity in 1990, site unoccupied 1993-1997 and 1999-2003) (Shaw 2004).

Little information exists on other state-listed and BLM sensitive species within the field office area.

3.4 Management Common to All Alternatives – Goal 2–State-Listed and BLM Sensitive Species

- Continue as an active partner and coordinate with the California Department of Fish and Game (CDFG), Nevada Department of Wildlife (NDOW), U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service (USFS), and other conservation partners to contribute to maintaining or improving the status of state-listed and BLM sensitive species.
- Cooperate with partners to obtain information on state-listed and BLM sensitive species occurrence, abundance, and distribution within the field office area. Develop a geographic information system (GIS) database to document and track information on these species.
- For populations found on BLM-administered lands, develop an interdisciplinary implementation plan with the following components:
  - involvement of experts in the process,
  - a review of known literature and information from local or relevant studies,
  - a list of all potential actions, and
  - a strategy for implementing actions.
- Implement seasonal protective measures and buffer zones, as appropriate, for permitted activities when identified.

2.25.4 GOAL 3–UNGULATES

4.1 Desired Future Condition

Manage BLM-administered lands to provide habitat for deer and pronghorn populations. Habitats–including specific habitats such as aspen, mountain mahogany, oak woodlands, and riparian areas–would be diverse, healthy, and multi-aged, and would provide proper conditions for seasonal needs within all use areas.

BLM would control noxious weeds to levels so as not to impair ungulate habitats. New fences would be built to BLM wildlife fencing specifications (i.e. bottom wire smooth and at least 16-18 inches from the ground). Let-down fences would be used and unused fences would be removed, where suitable.

4.2 Goal

Manage BLM lands to maintain, restore, and enhance populations and habitats of ungulate species.

4.3 Objectives

- Manage ungulate habitat to attain desired conditions as determined by the habitat's ecological condition and potential. Manage habitat in accord with BLM policy and the Standards and Guidelines for Rangeland Health in Northeastern California and Northwestern Nevada (Appendix B). Use Standard 5: Biodiversity "Viable, healthy, productive, and diverse populations of native and desired plant and animal species, including special status species, are maintained," which means that native and other desirable plant and animal populations are diverse and vigorous, able to reproduce, and support nutrient cycles and energy flows.
- Cooperate with state wildlife agencies (California Department of Fish and Game and Nevada Department of Wildlife) to amend and update herd management plans for deer, pronghorn, elk, and sheep as appropriate.
- Develop and maintain a current geographic information system (GIS) database that delineates important ungulate habitat and seasonal use areas.

Species addressed in this resource goal include mule deer and black-tailed deer (*Odocoileus hemionus*), pronghorn (*Antilocapra americana*), Rocky Mountain elk (*Cervus elaphus nelsoni*) and California bighorn sheep (*Ovis canadensis californiana*).

Mule deer, black-tailed deer, and pronghorn seasonal use habitats are found throughout the field office area (Maps WL-4 and WL-5). Mule deer spring, summer, and fall habitat requirements across a landscape consist of a ratio of 55% forage areas, 25% fawning and fawn rearing habitat, and 20% hiding/thermal cover. Winter habitat requirements across a landscape consist of a ratio of 55% forage areas, 25-30% thermal cover, and 15-20% hiding cover (Leckenby and others 1982). Bitterbrush habitats would be a priority for deer habitat restoration because of the relative effectiveness of treatment in improving seasonal deer ranges.

Rangelands most favored by pronghorn maintain a living vegetation composition of 40% or more and a high diversity of species in each forage class (forbs, grasses, and shrubs). Pronghorn prefer habitats with a variety of vegetation communities because such habitats tend to be rich in forage plants. Pronghorn also favor rangelands with plants averaging 15 inches (38.1 cm) high over communities with plants averaging more than 30 inches (76.2 cm) high (Yoakum 2004). Habitat improvement for pronghorn would focus on low-structured sagebrush sites because of the relative effectiveness of treatment in improving seasonal pronghorn ranges. Deer and pronghorn fawning areas would be included as high priority for habitat improvement projects.

Rocky Mountain elk occur sporadically within the Eagle Lake Field Office area. An increasing number of incidental reports reveal that occurrences of elk are becoming more common, but there are no established populations on BLM lands. The Eagle Lake Field Office would coordinate with state wildlife agencies and other cooperators, including livestock operators, as needed to develop a coordinated implementation plan.

A memo dated 16 April 1929 from C.O. Fisher to Dr. Joseph Grinnell of the University of California, Berkeley, Museum of Vertebrate Zoology, documents a die-off of approximately 40 California bighorn sheep on Observation Peak during the winter of 1922. Fisher also states in the memo that the last bighorn sheep in Lassen County were observed in 1927, near Al Shinn Canyon, which is about 7 miles south of Observation Peak (Fisher 1929). Photographs of bighorn sheep in the Eagle Lake Field Office area have been taken as recently as 2003 (Armentrout 2005). These sheep are thought to have strayed over from the Virginia Mountains in Nevada, west of Pyramid Lake.

Upon voluntary surrender of local domestic sheep grazing permits, the Eagle Lake Field Office would coordinate with state wildlife agencies and other cooperators in developing a reintroduction plan for California bighorn sheep prior to reintroduction efforts. Management would focus on producing grasses and forbs in early to mid-seral stage habitats.

4.4 Management Common to All Alternatives – Goal 3–Ungulates

- Use the following Criteria to Meet Standards for Rangeland Health Standard 5: Biodiversity (applicable to wildlife):
    - Wildlife habitats include seral stages, vegetation structure, and patch size to promote diverse and viable wildlife populations.
    - A variety of age classes is present for most species.
    - Vigor is adequate to maintain desirable levels of plant and animal species to ensure reproduction and recruitment of plants and animals when favorable events occur.
    - Non-native plant and animal species are present at acceptable levels.
    - Habitat areas are sufficient to support diverse, viable, and desired populations and are connected adequately with other similar habitat areas.
- Use plantings, seedings, or other vegetation management such as willow thinning or enhancement to maintain and improve terrestrial and aquatic habitats.
- Use local native plants and seeds in seeding, re-vegetation, and rehabilitation (including fire) projects, in accord with BLM California's Local Native Seed Policy.
- Manage priority habitats to maintain and improve ecological condition.
- Continue seedings and plantings of shrubs, forbs and grasses as part of fire rehabilitation, or other situations, where beneficial to maintain or enhance ungulate habitat. Between 2001 and 2003, a total of 87,000 acres of seedings and plantings occurred within the field office area.
- Emphasize reduction and control of cheatgrass and other annual grasses and noxious weeds, using integrated weed management to improve habitat conditions for ungulates and other native wildlife species.
- Reduce invasive juniper where encroachment has altered the ecological potential of ungulate habitat. Recovery efforts may require mechanical treatment such as reseeding.
- Use BLM wildlife fencing specifications when building new fences to facilitate movement of deer and pronghorn.
- Cooperate with state wildlife agencies in amending and updating their herd management plans for ungulates.
- Develop geographic information system (GIS) information for habitat use areas, herd management areas, and hunting zones.

- If Rocky Mountain elk populations become established within the field office area, coordinate with state wildlife agencies and other cooperators, including livestock operators, in developing and implementing management plans.
- Upon voluntary surrender of local domestic sheep grazing permits, coordinate with state wildlife agencies and other cooperators in developing a reintroduction plan for California bighorn sheep prior to reintroduction efforts.

2.25.5 GOAL 4–SAGEBRUSH ECOSYSTEMS AND SAGEBRUSH-OBLIGATE SPECIES

5.1 Desired Future Condition

Maintain sagebrush communities that are now in good to excellent condition. Rehabilitate habitats encroached upon by juniper to their ecological potential, where shrub stands are healthy, diverse, and reproductive, and contain a healthy understory. Sagebrush obligate species would likely increase accordingly to reflect the biological potential of the sagebrush habitat.

5.2 Goal

Maintain, restore, and enhance sagebrush ecosystems to support sagebrush obligate species so that forage, water, cover, structure, and security needed for wildlife are on BLM-administered lands.

5.3 Objectives

- Manage sagebrush ecosystems in accord with BLM policy and the Standards and Guidelines for Rangeland Health in Northeastern California and Northwestern Nevada (Appendix B). Use Standard 5: Biodiversity "Viable, healthy, productive, and diverse populations of native and desired plant and animal species, including special status species, are maintained," which means that native and other desirable plant and animal populations are diverse and vigorous and can reproduce and support nutrient cycles and energy flows.
- Manage sagebrush habitat so that shrub cover that can support the life history requirements of sage-grouse and other sagebrush-associated wildlife is present at multiple scales, over large areas, in a variety of spatial arrangements, and with connectivity present.
- Establish and maintain core areas of sagebrush habitat in large contiguous blocks and in other habitat arrangements such as islands, corridors, and mosaic patterns.
- Restore ecosystem processes in sagebrush habitat to provide mixes of healthy age classes, heights, and distribution.
- Implement focused conservation activities on key, potentially at-risk species (i.e. sage-grouse, pygmy rabbit, burrowing owl, and other plant and vertebrate species) recognized through national, regional, and local conservation planning.

In addition to the sagebrush ecosystem (habitat) itself, this goal specifically addresses sage-grouse, burrowing owl, pygmy rabbit, and in general other sagebrush-obligate species.

5.4 Management Common to All Alternatives – Goal 4–Sagebrush Ecosystems and Sagebrush-Obligate Species

- Use the following Criteria to Meet Standards for Rangeland Health Standard 5: Biodiversity (applicable to wildlife):
    - Wildlife habitats include seral stages, vegetation structure, and patch size to promote diverse and viable wildlife populations.
    - A variety of age classes is present for most species.
    - Vigor is adequate to maintain desirable levels of plant and animal species to ensure reproduction and recruitment of plants and animals when favorable events occur.
    - Non-native plant and animals are present at acceptable levels.
    - Habitat areas are sufficient to support diverse, viable, and desired populations and are connected adequately with other similar habitat areas.
- Implement the Conservation Strategy for Sage-Grouse (Centrocercus urophasianus) and Sagebrush Ecosystems Within the Buffalo-Skedaddle Population Management Unit (Northeast California Sage-Grouse Working Group, in press). Essential components of this document include protection, restoration, monitoring, research and ongoing adaptive management for sage-grouse and sagebrush ecosystems within the management unit.
- Use plantings, seedings, or other vegetation management such as willow thinning or enhancement to maintain and improve terrestrial and aquatic habitats.
- Use local native plants and seeds in seeding, re-vegetation, and rehabilitation (including fire) projects in accord with BLM California's Local Native Seed Policy.
- Identify and maintain sagebrush habitats that contain a thriving component of native understory vegetation.
- Implement juniper reduction to enhance sagebrush ecosystems.
- Focus on providing diverse composition and age classes of shrubs and healthy understory vegetation.
- Restore natural disturbance processes such as fire by implementing timber and fuels treatments, including thinning and prescribed burn projects. Do not exceed limitations as described in the Conservation Strategy for Sage-Grouse (Centrocercus urophasianus) and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit (Northeast California Sage-Grouse Working Group, in press).
- Implement seasonal protection measures and buffer zones, as suitable, for permitted activities when identified (see Table 2.25-1).
- Reduce or control invasive non-native plants using integrated weed management (IWM) to improve habitat conditions for sagebrush-obligate wildlife species.
- Avoid practices that permanently convert sagebrush habitat to non-native grassland or agricultural land.

2.25.6 GOAL 5–OTHER NATIVE WILDLIFE SPECIES

6.1 Desired Future Condition

Manage BLM-administered lands to provide and maintain diverse and healthy habitats for native wildlife species. Habitats would conform to land health standards, guidelines for livestock grazing, and other BLM policies and guidelines. Habitat conditions would promote reproduction and provide life requirements for native species.

6.2 Goal

Manage BLM-administered lands to restore, maintain, and enhance native wildlife species and their habitats in the Eagle Lake Field Office area.

6.3 Objectives

- Manage the field office area's habitat to provide forage, water, cover, structure, and security needed for native wildlife. Manage habitat in accord with BLM policy and the Standards and Guidelines for Rangeland Health in Northeastern California and Northwestern Nevada (Appendix B).
- Use Standard 5: Biodiversity "Viable, healthy, productive, and diverse populations of native and desired plant and animal species, including special status species, are maintained," which means that native and other desirable plant and animal populations are diverse, vigorous, and able to reproduce and support nutrient cycles and energy flows.
- Expand local knowledge of native species and their occurrences, abundances, and distributions throughout the field office area.
- Evaluate proposed reintroductions, augmentations, and translocations of native species in accord with BLM policy, habitat management objectives and goals, and BLM directives. Coordinate such activities with state agencies, using existing memorandums of understanding, which outline process and proper planning procedures.

According to previous land use plans, most of the species or species groups that are addressed in this goal and found in the field office area have little or no protective measures for them or their associated habitats. But several species known or suspected to occur in the field office area are now found on the BLM sensitive species list or are state-listed. (These species are addressed in a previous goal.) The major species groups include the following:

- terrestrial mammals,
- bats,
- migratory birds/neotropical migrants,
- waterfowl,
- shorebirds,
- upland game birds, and
- raptors.

Table 2.25-2 lists existing and potential waterfowl-related project areas.

6.4 Table 2.25-2 Existing and Potential Waterfowl Projects

Water Body	Existing Nest Islands	Islands Require Maintenance	Build New Islands	Existing Fences	Fences Needed/ Maintenance	Future Nesting Structures	OTHER Vegetation planting etc.
Eagle Lake				X			Eagle Lake Field Office[1/]
Susan River				X	X	X	Eagle Lake Field Office[1/]
Willow Creek				X	X		Eagle Lake Field Office[1/]
Pete's Valley Creek				X	X		Eagle Lake Field Office[1/]
Smoke Creek				X	X		Eagle Lake Field Office[1/]
Biscar Reservoir	X	X	X	X	X	X	X
Round Corral Reservoir	X	X	X	X	X	X	X
Buckhorn Reservoir				X	X		Eagle Lake Field Office[1/]
Pilgrim Lake	X	X	X	X	X	X	X
Snowstorm Wetlands	X	X		X	X		X

[1/] As determined by the Eagle Lake Field Office Interdisciplinary Team.

Management Common to All Alternatives – Goal 5–Other Native Wildlife Species

- Use the following Criteria to Meet Standards for Rangeland Health Standard 5: Biodiversity (applicable to wildlife):
    - Wildlife habitats include seral stages, vegetation structure, and patch size to promote diverse and viable wildlife populations.
    - A variety of age classes is present for most species.
    - Vigor is adequate to maintain desirable levels of plant and animal species to ensure reproduction and recruitment of plants and animals when favorable events occur.
    - Non-native plant and animal species are present at acceptable levels.
    - Habitat areas are sufficient to support diverse, viable, and desired populations and are connected adequately with other similar habitat areas.
- Use plantings, seedings, or other vegetation management such as willow thinning or enhancement to maintain and improve terrestrial and aquatic habitats.
- Use local native plants and seeds in seeding, re-vegetation, and rehabilitation (including fire) projects, in accord with BLM California's Local Native Seed Policy.

- Manage migratory birds in accord with the Migratory Bird Treaty Act and Migratory Bird Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds.
- Follow BLM policy, guidelines, current conservation plans, memorandums of understanding (MOUs), and best management practices (BMPs) in managing native wildlife species and their habitats. Such plans include Partners in Flight (PIF) Birds in a Sagebrush Sea (Paige and Ritter 1999) and BLM Nevada's "Migratory Bird Best Management Practices for the Sagebrush Biome" for managing sagebrush habitats for birds, and the Nevada Bat Conservation Plan (Bradley and others 2002).
- Manage specific habitats to maintain or enhance biodiversity and sustain healthy multi-aged stands of aspen, mountain mahogany, oak woodlands, bitterbrush, riparian and wetland areas, springs, and a variety of mountain shrub communities.
- Provide and maintain sufficient water distribution to meet the needs of upland game birds and other wildlife species. Exclosures, spring exclosures, and similar projects are primarily maintained by range allotment permittees. BLM is responsible for maintaining a selected number of such projects.
- Implement seasonal protection measures and buffer zones as appropriate for permitted activities when identified, as listed in Table 2.25-1.
- Coordinate reintroductions, augmentations, and translocations of native species with state wildlife agencies, and adhere to BLM Manual 1745—Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife, and Plants.

2.25.7 GOAL 6–NATIVE AND NON-NATIVE FISH AND OTHER AQUATIC SPECIES

7.1 Desired Future Condition

Manage BLM-administered lands to provide and maintain healthy streams, springs, and aquatic habitats to support native and non-native fish and other aquatic species. Aquatic habitats would conform to land health standards, Guidelines for Livestock Grazing, Riparian Proper Functioning Condition (PFC), and other BLM policies and guidelines.

Aquatic habitats would be protected from degradation and would give the public quality fishing opportunities and a diversity of fishing experiences in fishable streams.

7.2 Goal

Manage BLM-administered lands to maintain, restore, recover, and enhance habitat for native and non-native fish populations and other aquatic species. Manage in accord with BLM policy and the Standards and Guidelines for Rangeland Health in Northeastern California and Northwestern Nevada (Appendix B). Use Standard 5: Biodiversity *"Viable, healthy, productive, and diverse populations of native and desired plant and animal species, including special status species, are maintained,"* which means that native and other desirable plant and animal populations are diverse, vigorous, and able to reproduce and support nutrient cycles and energy flows.

7.3 Objectives

- Manage all streams and fish-bearing springs for proper habitat for native fish.
- Inventory and document aquatic life forms in streams and springs. Determine which species or species groups need special management.

- Increase the distribution and abundance of redband trout through maintenance and restoration of habitat quality and quantity.
- Coordinate with recreation staff and state wildlife agencies on recreation fishing issues.
- Manage for non-native fish where suitable for recreational fisheries.

Native fish species of the Lahontan basin include the following:

- Lahontan cutthroat trout,
- tui chub,
- Tahoe sucker,
- mountain sucker,
- Lahontan redside,
- speckled dace,
- Paiute sculpin, and
- mountain whitefish.

Introduced fish species include brown trout, rainbow trout, and brook trout.

Electrofishing surveys were conducted by Nevada on Buffalo Creek (main stem, West Fork and Middle Fork) in 1990 and by BLM on Willow Creek in 2003. Fish population surveys were conducted on Upper Smoke Creek in 1980 (California Department of Fish and Game)(CDFG) and in 2003 (BLM), in Lower Smoke Creek in 2003 (Nevada Department of Wildlife), and in the Susan River in 1992 and 1996 (CDFG).

In 2003 BLM conducted stream habitat condition surveys. Summaries have been compiled for Red Rock Creek, Cottonwood Canyon Creek; Shoals Creek; Pine Creek; Secret Creek; Stony Creek; Pete's Creek; Willow Creek; Buffalo Creek (Main Stem, Middle Fork, and West Fork), Smoke Creek (Upper and Lower); Rush Creek Tributary; Cheney Creek; and the Susan River.

7.4 Management Common to All Alternatives – Goal 6–Native and Non-Native Fish and Other Aquatic Species

The following are management actions common to all alternatives for fish and aquatic species. Table 2.25-3 summarizes proposed management actions for fisheries.

- Use the following Criteria to Meet Standards for Rangeland Health Standard 2: Streams (applicable to wildlife):
    - Gravel bars and other coarse-textured stream deposits are successfully colonized and stabilized by woody riparian species.
    - Stream bank vegetation is vigorous and diverse and mostly perennial, and holds and protects banks during high stream flow events.
    - The stream water surface has a high degree of shading, resulting in cooler water in summer and reduced icing in winter.

- Use the following Criteria to Meet Standards for Rangeland Health Standard 4: Riparian and Wetland Sites:
    - Riparian vegetation is vigorous and mostly perennial, and diverse in species composition, age class, and life form sufficient to stabilize stream banks and shorelines.
    - Riparian vegetation and large woody debris are well anchored and capable of withstanding high stream flow events.
    - Negligible accelerated erosion as a result of human related activities is evident.
    - Age class and structure of woody riparian and wetland vegetation are appropriate for the site.
- Use plantings, seedings, or other vegetation management, such as willow thinning or enhancement, to maintain and improve terrestrial and aquatic habitats. Use local native plants and seeds in seeding, re-vegetation, and rehabilitation (including fire) projects, in accord with BLM California's Local Native Seed Policy.
- Use existing stream inventory data as a baseline to develop stream-specific implementation plans.
- Continue and revise management to improve streams and springs not in proper functioning condition (PFC).
- Maintain native fish-bearing streams in proper water quality and riparian function and in accord with BLM Land Health Standards, Guidelines for Livestock Grazing, proper functioning condition (PFC), and best management practices (BMPs).
- Design and implement projects using BMPs for restoration and rehabilitation. Projects may include the following:
    - maintaining or improving minimum pool depths,
    - increasing clean spawning gravels, and
    - implementing bank stabilization measures where needed.
- Coordinate with state wildlife agencies (California Department of Fish and Game and Nevada Department of Wildlife) to implement management actions in accord with their plans, including planting of fish in suitable waters.
- Maintain currently established dams and reservoirs to provide a safe environment for public activities.
- Coordinate with local county fish and game commissions and sportsmen's groups to determine management priorities and enhancement opportunities.

Table 2.25-3 Proposed Management Actions for Fisheries

Water Body/ Resource Concern	Existing Fish Species	Alternative 1 and Preferred Alternative	Alternative 2 and Preferred Alternative	Alternative 3
Willow Creek *Marginal trout stream* *High temperatures*	Brown trout, Lahontan redside, tui chub, speckled dace	Improve habitat to emphasize brown trout fishery.	Improve habitat from current status of fair to good (increase woody shade); explore potential for Lahontan fishery.	Improve habitat as time and effort available; no introductions.
Lower Smoke Creek *No trout* *High temperatures*	Tahoe sucker, green sunfish	Develop as a warm water fishery.	Implement full-scale human-involved stream rehabilitation.	Continue improvements.
Upper Smoke Creek *Marginal for trout*	Tahoe sucker, Lahontan redside, speckled dace, small population rainbow trout	Emphasize growth in rainbow trout populations; discuss with CDFG possible planting of Eagle Lake trout.	Cooperate with USFWS to remove rainbow trout and prepare area to become a native Lahontan fishery.	Continue improvements as time allows.
Upper Buffalo Creek *Marginal for trout*	Tahoe sucker, Lahontan redside	No emphasis	No emphasis	No emphasis
N. Buffalo Creek *Marginal for trout*	Tahoe sucker, Lahontan redside	NV putting in redband trout (cooperation)	Improve habitat (increase clean spawning gravel).	Lahontan cutthroat trout habitat work
Middle Buffalo Creek *Marginal for trout*	Tahoe sucker, Lahontan redside	No emphasis	No emphasis	No emphasis
Pine Creek *Marginal for trout*	Eagle Lake rainbow trout, brook trout	No emphasis	Cooperate with CDFG regarding species and habitat	No emphasis
Susan River *Most suitable for cutthroat trout*	Rainbow trout, brown trout	Maintain access; improvements as needed.	Increase clean spawning gravel; revive Susan River Management Plan.	Continue present management; improvements as needed.
[1]/Dodge Reservoir/ Red Rock Creek	Eagle Lake rainbow trout, Lahontan cutthroat trout, brown trout	Maintain existing dams.	Maintain existing dams; maintain or improve minimum pool depths.	Maintain existing dams.
Biscar Reservoir	Large-mouth bass, perch, bluegill	Maintain existing dams.	Maintain existing dams; develop wildlife interpretive materials.	Maintain existing dams.

Table 2.25-3 Proposed Management Actions for Fisheries (continued)

Water Body/ Resource Concern	Existing Fish Species	Alternative 1 and Preferred Alternative	Alternative 2 and Preferred Alternative	Alternative 3
[1/]Round Corral Reservoir	Eagle Lake rainbow trout, Lahontan cutthroat trout	Maintain existing dams.	Maintain existing dams; maintain or improve minimum pool depths.	Maintain existing dams
[1/]Buckhorn Reservoir	Eagle Lake rainbow trout, Lahontan cutthroat trout	Maintain existing dams.	Maintain existing dams; maintain or improve minimum pool depths.	Maintain existing dams
Eagle Lake	Eagle Lake rainbow trout, Lahontan redside, Tahoe sucker, Tui chub, speckled dace	Develop interpretive material on bald eagles and fisheries issues.	Cooperate with CDFG regarding species and habitat	No emphasis

[1/] Hatchery fish planted annually by California Department of Fish and Game if hatchery stock and funding are available.

2.25.8 GOAL 7–NON-NATIVE SPECIES

8.1 Desired Future Condition

Maintain habitat on BLM-administered lands for desired non-native species within their current distributions. Reduce and control populations of undesirable non-native species.

8.2 Goal

Where and when suitable, manage BLM-administered lands for desired non-native species such as turkey, chukar, brown trout and brook trout, and reduce and control populations of non-native species.

8.3 Objectives

- Evaluate proposed introductions and translocations of non-native species in accord with BLM policy, habitat management objectives and goals, and BLM directives. Coordinate any such actions with state agencies.
- Coordinate non-native species issues with state wildlife agencies, including using existing memorandums of understanding. (This objective also applies to native species.)
- Manage habitats for naturalized desirable species within their current distribution.
- Where and when suitable, implement control measures to manage populations of undesirable non-native and invasive species.

8.4 Management Common to All Alternatives – Goal 7–Non-Native Species

- Per BLM Manual 1745—Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife, and Plants, Section .06(A), native species shall be used, unless through the National Environmental Policy Act (NEPA) process it is determined that:

  - Suitable native species are not available.
  - The natural biological diversity of the proposed management area would not be diminished.
  - Exotic and naturalized species can be confined within the proposed management area.
  - Analysis of ecological site inventory information indicates that a site would not support reestablishment of a species that historically was part of the natural environment.
  - Resource management objectives cannot be met with native species.

- Per BLM Manual 1745—Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife, and Plants, Section .06(F), exotic or domesticated species that have reverted to a feral state and (feral species) that are adversely impacting native species and/or habitats should be controlled and/or removed, unless permitted by State or Federal law, in a manner consistent with State and Federal policies, procedures, and regulations.
- Implement management measures from state plans or other conservation plans (such as those developed by Partners in Flight and Riparian Habitat Joint Venture, [RHJV 2004] among others) to manage, control, or eliminate non-native or invasive species.

Management Actions by Alternative For All Seven Goals Combined

The following narrative describes wildlife management actions under each alternative. Proposed management actions are combined from all seven goals to make up the five unique alternatives.

2.25.9 No Action Alternative – Goals 1 - 7

Under the No Action Alternative, current management would continue in cooperation with the state wildlife agencies. Surveys now conducted to determine presence or absence of species would continue, and surveys for other species would be conducted on a project-level basis as needed. No Action allows for maintaining existing habitat improvement projects and continued implementation of habitat improvement projects on a project-level basis or as time and funding allow. These projects are generally implemented on limited acres and are not always intended to directly benefit particular species.

Site-level prescriptions for wildlife habitat improvements would generally be implemented in conjunction with the range, vegetation, and fire management programs.

- Maintain 32 existing guzzlers and similar water developments.
- Maintain 12 large existing exclosures (about 2,200 acres).
- Maintain about 5 current meadow and riparian habitat enhancement projects.
- Maintain waterfowl nesting islands at Biscar Reservoir, Round Corral Reservoir, Pilgrim Lake, and Snowstorm wetlands.

2.25.10 Alternative 1. Economic Development – Goals 1 - 7

Alternative 1 focuses on managing wildlife and wildlife habitat for consumptive and non-consumptive uses to promote economic benefits. Such uses include the following:

- hunting,
- fishing,
- watchable wildlife opportunities such as photography and wildlife viewing,
- public education, and

- interpretive information or programs.

Species of emphasis under this alternative include the following:

- game species (deer, pronghorn, sage-grouse, chukar, quail, waterfowl, trout, or other fish),
- threatened or endangered species (bald eagle, Carson wandering skipper), and
- species of special interest to particular individuals (raptors, songbirds).

BLM would prioritize habitat improvements through cooperation with state wildlife agencies and development of Sikes Act implementation plans. This alternative would manage ungulate habitat to provide a quality hunting experience. Improvement of shrub habitats would be the emphasis for deer habitat. For pronghorn the focus would be on increasing native perennial grasses and forbs and controlling annual grasses and noxious weeds, mainly in low-structured sagebrush sites. Large-scale juniper reduction would be a primary method for enhancing rangelands.

Other management actions under Alternative 1 include the following:

- Develop interpretive information for the public on bald eagle occurrences in the Eagle Lake Basin. Place materials at campgrounds and public sites at Eagle Lake.
- Develop interpretive information on cooperative efforts between the California Department of Fish and Game (CDFG) and BLM on planting Lahontan cutthroat trout, Eagle Lake trout, and other fisheries issues.
- Develop general interpretive information for wildlife species, including pygmy rabbit, sage-grouse, burrowing owl, California spotted owl, northern sagebrush lizard, and bat species.
- Select waterways to emphasize fisheries. Base selection on biological potential and habitat capabilities (Susan River, Upper Smoke Creek, Lower Smoke Creek, Willow Creek, Red Rock Creek).
- Maintain 32 existing guzzlers and other water developments. Assign responsibility for monitoring and maintenance to responsible agencies and enlist the aid of volunteers. Build new projects where water is determined to be a limiting factor for wildlife. Include responsibility for maintenance in implementation plans.
- Provide maintenance for waterfowl nesting islands at Biscar Reservoir, Round Corral Reservoir, Pilgrim Lake, and Snowstorm wetlands. Evaluate these and other sites for new island construction and additional nesting structures.
- Build brush piles to enhance upland game bird nesting and cover habitat where cover is determined to be lacking.
- In cooperation with the vegetation management program, improve deer habitat by creating multi-aged stands in 25-50% (1,050-2,100 acres) of aspen, mountain mahogany, and oak woodland habitats in the field office area.
- Reduce invasive juniper on 10,000-15,000 acres where encroachment has altered the ecological potential of sites. Focus management on economic opportunities, such as woodcutting and chipping and using biomass to generate electricity.

2.25.11 Alternative 2. Ecosystem Restoration – Goals 1 - 7

The Ecosystem Restoration Alternative provides an organized interagency approach to address wildlife habitat needs, using the Standards for Rangeland Health in Northeastern California and Northwestern Nevada (Appendix B), Standard 5: Biodiversity-- *"Viable, healthy, productive, and diverse populations of native and desired plant and animal species, including special status species, are maintained,"* which means that native and other desirable plant and animal populations are diverse, vigorous, and able to reproduce, and they support nutrient cycles and energy flows.

Alternative 2 would implement landscape-level sagebrush management aimed at ecosystem restoration. This management would consider the regional context of Eagle Lake Field Office lands in managing the sagebrush biome as a whole. Projects would provide a diverse composition and age class structure of shrubs and understory vegetation. More intensive management practices would be used as needed to restore biodiversity to degraded areas.

Management would focus on maintaining, enhancing, or restoring habitats and populations of species without regard to economic or other conditions. Management would also focus on maintaining or creating diverse and healthy vegetation conditions and restoring habitats. Aquatic management would emphasize protecting and restoring riparian conditions and in stream processes that would provide habitat for natural assemblages of fish and other aquatic species.

Recognizing the extensive habitat degradation over the last century due to invasive juniper encroachment, invasive species (mainly cheatgrass and medusahead grass), and historic land uses, management would implement a three-tiered approach to ecosystem restoration:

1. Remaining intact habitats with viable populations would receive priority for maintenance that retains ecosystem function (e.g. managed disturbance regime).
2. Degraded habitats with highest restoration potential, and highest potential for maintaining populations, or for re-connecting habitats, are highest priority for active management.
3. Heavily degraded habitats would be the focus of long-term, interagency, community-based planning to reclaim sagebrush habitat over time.

Remnant populations and habitat features within heavily degraded sagebrush habitats may require emergency actions to retain biodiversity. Such actions could include the following:

- reintroducing native plant species,
- intermediate "transition" vegetation types to displace exotics, and
- habitat manipulations or plantings to stem further losses (to protect remnant habitat features from wildfire).

The following are other management actions under the Ecosystem Restoration Alternative.

- Manage to retain forest stand characteristics such as vertical canopy layering, tree height or diameter diversity, canopy closure, large snags and downed woody material across the landscape to provide suitable habitat for California spotted owls within its range.
- Maintain about 10 current meadow and riparian habitat enhancement projects.
- Select and develop other habitat improvement projects, such as increasing riparian deciduous shrubs and maintaining meadow vegetation.

- Maintain 32 existing guzzlers and other water developments.
    - Assign monitoring and maintenance to responsible agencies and enlist the aid of volunteers.
    - Build new projects where water is determined to be a limiting factor for wildlife.
    - Include responsibility for maintenance in implementation plans.
- Maintain 12 large existing exclosures (about 2,200 acres). Use let-down fences and remove unused fences where appropriate.
- Build brush piles to enhance upland game bird nesting and cover habitat where cover is determined to be lacking.
- Reduce invasive juniper on 15,000-20,000 acres where encroachment has altered the ecological potential of sites. Recovery of sites may require mechanical treatments, such as reseeding.
- In cooperation with the range and vegetation management programs, improve deer habitat by creating multi-aged stands in 50-75% (15,000-20,000 acres) of the aspen, mountain mahogany, and oak woodland habitats within the field office area.
- Maintain waterfowl nesting islands at Biscar Reservoir, Round Corral Reservoir, Pilgrim Lake, and Snowstorm wetlands. Evaluate these and other sites for new island construction and additional nesting structures. Include responsibility for maintenance in implementation plans.
- Select waterways to emphasize fisheries. Base selection on biological potential and habitat capabilities (Susan River, Upper Smoke Creek, Lower Smoke Creek, Willow Creek, Red Rock Creek).

2.25.12 Alternative 3. Traditional Uses – Goals 1 - 7

Under Alternative 3, improvement of wildlife habitat would be secondary to managing for traditional land uses such as grazing (range) and logging (forestry). BLM would manage habitat mainly through measures for developing and implementing other resource management actions.

- No landscape strategy would be developed for sagebrush ecosystems in the field office area.
- Small-habitat projects such as juniper cuts and prescribed fires would be used to improve conditions but on a limited scale.
- Some projects would be implemented to create healthy grass and shrub communities.
- Sagebrush habitat management would emphasize restoring understory grasses and forbs within varying sagebrush ages and densities as a means of benefiting livestock as well as more grassland-dependent wildlife species.
- Grazing strategies would be developed in coordination with the range management program to maintain or improve the vegetation composition, structure, and biological integrity of sagebrush communities while providing for forage.

The following are other management actions under the Traditional Uses Alternative.

- Maintain 32 existing guzzlers and similar water developments.
- Maintain 12 large existing exclosures (about 2,200 acres).
- Maintain about five current meadow and riparian habitat enhancement projects.

- Maintain waterfowl nesting islands at Biscar Reservoir, Round Corral Reservoir, Pilgrim Lake, and Snowstorm wetlands.

2.25.13 Preferred Alternative – Goals 1 - 7

The Preferred Alternative for wildlife mainly combines the management actions from Alternative 2 and Alternative 1. This alternative provides for maintaining, restoring, and enhancing wildlife habitats on BLM-administered lands and provides the management tools for implementing these activities, which would ultimately benefit wildlife populations.

Healthy and diverse habitats are needed to provide life requirements and promote stable wildlife populations. The Preferred Alternative focuses on the spectrum of native wildlife species, regardless of economic or Endangered Species Act listing status. This alternative would benefit a variety of habitats and species and allow for many types of habitat improvement projects to protect, maintain, enhance, and restore habitats.

The Preferred Alternative provides an organized interagency approach to address wildlife habitat needs, using the Rangeland Health Standards and Guidelines for Northeastern California and Northwestern Nevada (Appendix B). This alternative would implement landscape-level sagebrush management aimed at ecosystem restoration. Such management considers the regional context of the Eagle Lake Field Office lands in managing the sagebrush biome as a whole. Projects would be designed to provide a diverse composition and age class structure of shrubs and understory vegetation. More intensive management practices would be used as needed to restore biodiversity to degraded areas. Management would focus on maintaining, enhancing, or restoring habitats and populations of species without regard to economic or other status. Management would also focus on maintaining or creating diverse and healthy vegetation and would emphasize restoring habitats. Aquatic management would emphasize protecting and restoring riparian condition and in-stream processes that would provide habitat for natural assemblages of fish and other aquatic species.

Recognizing the extensive habitat degradation over the last century due to the combined effects of invasive juniper encroachment, invasive species (mainly cheatgrass and medusahead grass), and historic land use practices, management would implement a three-tiered approach to ecosystem restoration:

1. Remaining intact habitats with viable populations would receive priority for maintenance that retains ecosystem function (e.g. managed disturbance regime).
2. Highest priority for active management would be given to degraded habitats with the highest restoration potential and highest potential for maintaining populations or for re-connecting habitats.
3. Heavily degraded habitats would be the focus of long-term, interagency, community-based planning to reclaim sagebrush habitat over time.

Remnant populations and habitat features within heavily degraded sagebrush habitats may require emergency actions to retain biodiversity. Such actions could include the following:

- reintroducing native plant species,
- using intermediate "transition" vegetation types to displace exotics, and
- applying habitat manipulations or plantings to stem further losses (to protect remnant habitat features from wildfire).

Management actions for the Preferred Alternative would include actions listed as "Management Actions Common to All" under each of the seven individual wildlife goals, in addition to the following:

- Manage to retain forest stand characteristics such as vertical canopy layering, tree height or diameter diversity, canopy closure, large snags and downed woody material across the landscape to provide suitable habitat for California spotted owls within its range.
- Maintain about 10 current meadow and riparian habitat enhancement projects. Select and develop other habitat improvement projects, such as increasing riparian deciduous shrubs and maintaining meadow vegetation.
- Maintain 32 existing guzzlers and other water developments.
    - Assign monitoring and maintenance to responsible agencies and enlist the aid of volunteers.
    - Build new projects where water is determined to be a limiting factor for wildlife.
    - Include responsibility for maintenance in implementation plans.
- Maintain 12 large existing exclosures (about 2,200 acres). Use let-down fences and remove unused fences where suitable.
- Build brush piles to enhance upland game bird nesting and cover habitat where cover is determined to be lacking.
- Reduce invasive juniper on 15,000-20,000 acres where encroachment has altered the ecological potential of sites. Recovery of sites may require mechanical treatments, such as reseeding.
- In cooperation with the range and vegetation management programs, improve deer habitat by creating multi-aged stands in 50-75% (15,000-20,000 acres) of the aspen, mountain mahogany, and oak woodland habitats within the field office area.
- Maintain waterfowl nesting islands at Biscar Reservoir, Round Corral Reservoir, Pilgrim Lake, and Snowstorm wetlands. Evaluate these and other sites for new island construction and additional nesting structures. Include responsibility for maintenance in implementation plans.
- Select waterways to emphasize fisheries. Base selection on biological potential and habitat capabilities (Susan River, Upper Smoke Creek, Lower Smoke Creek, Willow Creek, Red Rock Creek).
- Develop interpretive information for the public on bald eagles occurrences in the Eagle Lake Basin. Place materials at campgrounds and public sites at Eagle Lake.
- Develop interpretive information on cooperative efforts between the California Department of Fish and Game and BLM on planting Lahontan cutthroat trout, Eagle Lake trout, and other fisheries issues.
- Develop general interpretive information for wildlife species, including pygmy rabbit, sage-grouse, burrowing owl, California spotted owl, northern sagebrush lizard, and bat species.

Alternatives Summary Table

AIR QUALITY

Management Common to All Alternatives:

- All prescribed fire projects to be completed in accordance with the Clean Air Act (CAA) in compliance with all Federal, State, and local air pollution requirements.
- An approved prescribed fire burn plan to be in place prior to the ignition of any prescribed fire, and adhered to throughout the project.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Modify prescribed fire / wildland fire use to improve air quality (acres/year)	0–100	0–1,500	0–4,500	0–500	0–4,500

CULTURAL & PALEONTOLOGICAL RESOURCES

Management Common to All Alternatives:

- Continue to conduct Native American consultation, implement cooperative agreements, and protect four Native American special interest areas from adverse impacts.
- Monitor 30 cultural sites on a yearly basis as a part of the Section 110 program.
- Annually inventory 640 acres as part of the Section 110 program.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Manage and develop cultural resource management areas (number)	15	10	19	15	19
(acres)	9,084	1,146	56,782	9,084	56,782
Designate archeological areas of critical environmental concern (number)	0	0	2	0	2
Implement management plans for historic trails (number)	0	4	1	0	1

ENERGY AND MINERALS

Leasable Minerals

Management Common to All Alternatives:

- All wilderness study areas are closed to leasable mineral activities (380,359 acres).

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Open to leasing under standard terms and conditions (acres)	642,408	602,427	391,339	591,377	388,594
Open with seasonal and other restrictions (acres)	0	160	137,071	11,210	139,816
Open with permanent no surface occupancy (NSO) requirements (acres)	0	5,501	76,922	5,501	79,678
Closed to mineral leasing (acres)	380,359	414,679	417,435	414,679	414,679

Locatable Minerals

Management Common to All Alternatives:

- All WSAs are open to development of and exploration for locatable minerals, limited to activities that do not require reclamation unless the operation had established grandfathered uses or valid existing rights on October 21, 1976.
- Locatable mineral development and exploration within ACECs typically to require preparation and approval of a plan of operations prior to development.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Open to locatable minerals (acres)	1,022,767	1,020,272	969,885	1,022,767	1,014,361
Closed to locatable minerals (acres)	0	2,495	52,882	0	8,406

Saleable Minerals

Management Common to All Alternatives:

- All WSAs (380,359 acres) are closed to saleable mineral activities.
- Saleable mineral development within ACECs to require preparation and approval of a plan of operations prior to development.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Open to saleable minerals (acres)	639,753	637,008	553,011	637,008	634,002
Closed to saleable minerals (acres)	383,014	385,759	469,756	385,759	388,765
Open to decorative stone and flat rock collection (acres)	1,022,767	1,022,767	0	1,022,767	1,022,767
Closed to decorative stone and flat rock collection (acres)	0	0	1,022,767	0	0

FIRE MANAGEMENT

Management Actions Appropriate Management Response:	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Full suppression only (acres)	1,022,767	1,022,767	282,304	1,022,767	282,304
Wildland fire use (acres)	0	0	10,339	0	10,339
Use full range of AMR suppression options (acres)	0	0	730,124	0	730,124

FORESTRY

Management Common to All Alternatives:

- Manage 11,020 acres as commercial forest, using a mix of silvicultural methods that includes commercial thinning, even-age management (clearcut and shelterwood), uneven-age management (group selections, individual tree selection, and sanitation/salvage) and pre-commercial thinning.
- Continue to meet the maximum sustained yield defined in the *Timber Management Environmental Assessment: Sustained Yield Unit 15* (BLM 1981).
- Rehabilitate forested areas burned in the Willow and Devil fires (773 aces).
- Leave dead woody material, including snags, downed logs, and litter, after management activities.
- Treat aspen stands that are being invaded by competing species to remove competition and expand stands to their full potential.
- Use commercial and pre-commercial thinning and hazard reduction to manage for recreation and community wildfire defense on 1,332 acres along the Bizz Johnson Trail SMRA.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Harvest trees and biomass from forested areas (acres/year)	400	670	1,100	300	1,100
Implement fuels reduction treatments within Tunnison WSA – using primarily prescribed fire and manual treatments (acres)	0	1,734	1,734	0	1,734
Prioritize management objectives for commercial forests in Upper Murrer meadows	Commercial timber	Commercial timber; wildlife habitat	Commercial timber; wildlife habitat; late seral stages	Commercial timber	Commercial timber; wildlife habitat; late seral stages

FUELS MANAGEMENT

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Implement hazardous fuels reduction treatments using various methods:					
Prescribed fire (acres/year)	0–100	0–1,500	0–4,500	0–500	0–4,500
Mechanical treatment (acres/year)	0–500	500–2,500	500–3,500	500–2,500	500–3,500
Biological treatments (acres/year)	0	50–500	50–1,500	50–500	50–1,500
Chemical treatments (acres/year)	0	50–500	50–500	50–1,500	50–500

LANDS AND REALTY

Lands for Potential Acquisition

Management Action	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Prioritize lands for acquisition based on the following objectives:					
• Parcels in existing management framework plans	Yes	No	No	Yes	No
• Lands with important resource values	Yes	No	No	No	Yes
• Improved public access	Yes	Yes		Yes	Yes
• Lands within or adjacent to special area designations	No	Yes	Yes	No	No
• Production of commodity resources	No	Yes	No	Yes	No

Lands for Potential Disposal

Management Action	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Prioritize lands for potential disposal	Specific parcels identified in Management Framework Plans	Lands requested for commodity uses	Lands difficult to manage with no significant resources	Specific parcels identified in Management Framework Plans	Lands difficult to manage with no significant resources

Rights-of-Way

Management Common to All Alternatives:

- Coordinate granting actions with Land Health Standards and Guidelines for California and Northwestern Nevada.
- Consider new major communications sites on an as-needed basis.
- Grant wind energy authorizations on a case-by-case basis, avoiding exclusion areas or other conflicts with important resources.
- Alturas Transmission Line route (Western Regional Corridor Study) be designated and prioritized as a right of way corridor.

Management Action	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Authorization of rights-of-way	Lands generally open to new rights of way	Prioritized for commodity uses	Avoided or excluded in all special area designations	Lands generally open to new rights of way	Avoided or excluded in all special area designations

LIVESTOCK GRAZING

Management Common to All Alternatives:

- Continue to authorize livestock grazing on 54 grazing allotments.
- Implement grazing management strategies to meet and make progress toward land health standards, including riparian goals.
- Use and adjust selective management categories (Improve, Maintain, and Custodial) as needed to refine management.

Management Action	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Maintain lands as open to grazing (acres)	987,779	997,858 to 1,007,938	Up to 977,700	987,779	987,779
Maintain lands as closed to grazing (acres)	20,160	up to 10,080	30,238	up to 20,160	20,160
Lands rested from grazing annually (% of all lands open to grazing)	75-85%	40-60%	100%	30-40%	80-90%
Allotments rested from grazing annually (% of total grazing allotments)	48%	25-40%	100%	20-30%	60-80%
Maintain and construct livestock exclosures for protection of sensitive resources (acres)	2,200	0	2,000- 3,000	0	2,000-2,500
Authorize total permitted Animal Unit Months (AUMs)	52,250	52,250- 60,000	15,675-52,250	52,250	52,250
Construct new livestock fences to improve grazing management (miles)	20-30	60-90	60	60	60-80
Manage and rehabilitate existing seedings for livestock forage (acres)	3,000–4,000	3,000–4,000	No; allow to return to native shrub-steppe communities	3,000–4,000	3,000–4,000
Prioritize new seedings for livestock forage	Allowed on case by case basis	Yes, up to 8,000 acres	No; except in burned areas or to restore wildlife habitat	Allowed on case by case basis	Allowed on case by case basis

RECREATION and VISITOR SERVICES

Management Common to All Alternatives:

- Provide accessible camping opportunities for disabled visitors at all developed campgrounds in compliance with federal accessibility laws.
- Camping limited to 14 consecutive days and 28 total days in 1 year unless waived by the authorized officer.
- Camping prohibited within 200 feet of creeks, rivers, lakes, and reservoirs unless posted otherwise; within 600 feet of guzzlers; and within 0.25-mile of the following five Lassen County wells: Butte Well, Shaffer Well, Tableland Well, Table Mountain Well, and Belfast Well.
- Designate byways to promote recreational driving and sightseeing on the following roads:
  - Clark's Valley Road to Buckhorn Road via Tuledad Road and via Duck Flat and Highway 447
  - Buckhorn Road to Smoke Creek Road via North Fork of Buffalo Creek and via Highway 447 and Sand Pass Road
  - Smoke Creek Road to Wendel Road via Sand Pass Road
  - Eagle Lake Loop using Highways 139, A-1, and Highway 36
  - Fredonyer Peak Scenic Loop Road from Highway 139 using the fire lookout access road and the logging road around the east and north sides of the mountain connecting with the Grasshopper Road and Highway 139
  - Highway 139
  - Highway 395
- Manage the three existing Special Recreation Management Areas (SRMAs) - Eagle Lake Basin, 34,320 acres, Bizz Johnson Trail, 2,756 acres, and Fort Sage, 28,494 acres, primarily under the provisions of their existing activity plans.

Management Action	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Designate new Special Recreation Management Areas: (acres)					
Antelope/Shaffer/Bald Mountain	0	61,764	0	0	61,764
South Dry Valley	0	46,813	0	0	46,813
Manage areas outside of SRMAs as the Extensive Recreation Management Area (acres)	957,197	848,620	957,197	957,197	848,620
Apply restrictions to leasable, locatable, and saleable energy and mineral development: Open, Closed, or No Surface Occupancy (NSO) • **Bizz Johnson Trail SRMA**	Leasable-open Locatable-open Saleable-closed	Leasable-NSO Locatable-closed Saleable- closed	Leasable-closed Locatable-closed Saleable- closed	Leasable-NSO Locatable-open Saleable-open	Leasable-NSO Locatable-closed Saleable-closed

RECREATION and VISITOR SERVICES (continued)

• Eagle Lake Basin SRMA	Leasable-open Locatable-open Saleable-open	Leasable-closed Locatable-closed Saleable-closed	Leasable-closed Locatable-closed Saleable-closed	Leasable-closed Locatable-open Saleable-open	Leasable-closed Locatable-open with stipulations Saleable-open with stipulations
• Fort Sage SRMA	Open	Open	Open with stipulations	Open	Open with stipulations
• Antelope/Shaffer/Bald Mt SRMA	Open	Open	Open with stipulations	Open	Open with stipulations
• South Dry Valley SRMA	Open	Open	Open with stipulations	Open	Open with stipulations
Enforce restrictions to snowmobile use on Bizz Johnson trail	None	None	Closed except for emergency or administrative purposes	None	Closed except for emergency or administrative purposes
Acquire Modoc Line railroad corridor for recreational use	No	Yes	No	No	Yes
Develop management plan for Honey Lake Valley Rim Trail	No	Yes	No	No	Yes
Provide public access to Honey Lake shoreline for recreation	No	Yes	No	No	Yes
Develop hang glider launch areas in hills north of Wendel	No	Yes	No	No	Yes

RECREATION OPPORTUNITY SPECTRUM

Management Common to All Alternatives:

- Establish corridors along designated travel routes wide enough to allow for road maintenance, vehicle pullouts, camping, signing and visitor information, and visitor service facilities.
- If portions of or all of a WSA are released from WSA status by act of Congress, the ROS classification established when this RMP is adopted to apply to the lands where the WSA had been designated.

Management Actions Designate ROS classes to all lands:	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Primitive (acres)	0	0	300,382	0	237,953
Semi-primitive Non-motorized (acres)	717,688	0	0	0	0
Semi-primitive Motorized (acres)	195,600	0	0	0	0
Backcountry (acres)	0	913,288	612,906	913,288	675,335
Roaded Natural (acres)	109,479	109,479	109,479	109,479	109,479

SOILS

Management Common to All Alternatives:

- Promote stabilization of 113,236 acres of upland soils known not to be meeting land health standards.
- Manage all resource activities to ensure no net loss of soil productivity or productive potential.
- Use soils with the most suitable characteristics for roads and trails, stock ponds and reservoirs, and other developments.
- Minimize management activities within perennial and intermittent drainages where these activities adversely affect watershed function or processes.
- Develop vegetation treatment plans to specify proper levels of woody residue for soil benefits, where appropriate.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Implement management practices for soil protection	Emphasize improved grazing strategies	Restore degraded soil resources to benefit commodity production	Emphasize natural recovery by limiting or excluding activities that damage soils	Emphasize improved grazing strategies	Emphasize mitigation, natural recovery, and bio-engineering
Implement soil restoration practices: • **livestock exclosures** • **planting of woody riparian vegetation** • **installing instream structures** • **prescribed burning** • **post-fire re-seeding** • **erosion-control structures**	No emphasis	Implement to improve commodity resources	Implement to restore soil health where natural recovery efforts are not sufficient	No emphasis	Implement to restore soil health where natural recovery efforts are not sufficient
Employ active bioengineering methods (i.e. juniper scattering) in upland areas to protect soils from erosion	No	Yes	Yes	No	Yes
Restrict heavy machinery to roads near perennial and intermittent drainages or where soils are not meeting land health standards	No	Yes	Yes	No	Yes
Implement soil protection measures for new and/or existing roads to avoid soil impacts	Mitigate soil disturbances at the project level	Mitigate soil disturbances at the project level	Close, rehabilitate, and relocate specific roads	Mitigate soil disturbances at the project level	Close, rehabilitate, and relocate specific roads

SOILS (continued)					
Apply restrictions to construction activities (e.g. roads, water developments, facilities)	No restrictions	Restrict to locations having least soil impacts and least cost for construction and maintenance	Restrict to locations having the most suitable characteristics for development	No restrictions	Restrict to locations having the most suitable characteristics for development
Apply sediment intrusion buffer zones around sensitive resources (radius)	Determined on a case-by-case basis	≤ 50 feet	100 feet	Determined on a case-by-case basis	> 50 feet, determined on a case-by-case basis
Implement mitigation actions to offset soil and productivity losses within required distances of the original disturbance	Within Field Office area boundary	Within the same fifth-level watershed (conceptually 40,000 to 250,000 acres)	Within the same sixth-level watershed (conceptually 10,000 to 40,000 acres)	Within Field Office area boundary	Within the same sixth-level watershed area (conceptually 10,000 to 40,000 acres)
SPECIAL DESIGNATIONS					
Areas of Critical Environmental Concern					
Management Actions	**No Action Alternative**	**Alternative 1 Economic**	**Alternative 2 Ecosystem**	**Alternative 3 Traditional**	**Preferred Alternative**
Designate Areas of Critical Environmental Concern (acres)					
Pine Dunes Research Natural Area	160	160	2,887	160	2,887
Eagle Lake Basin Concern	0	0	34,320	0	34,320
Susan River	0	0	2,495	0	2,495
Willow Creek	0	0	2,130	0	2,130
Lower Smoke Creek	0	0	894	0	894
Buffalo Creek Canyons	0	0	36,515	0	36,515
North Dry Valley	0	0	10,156	0	10,156
Aspen Groves	0	2,745	0	2,745	0

HISTORIC TRAILS

Management Common to All Alternatives:

- Inventory and protect 38 miles of the Nobles Emigrant Trail, a branch of the California National Historic Trail.
- Develop a management and interpretive plan for the Nobles Emigrant Trail.
- Initiate inventory and interpretation of the following trails: Merrillville-Bieber Wagon Road-Willow Creek and Eagle Lake segments, Fort Churchill to Fort Bidwell Military Road and Stage Route, Buffalo Hills Toll Road, Military Patrol Road, Fernley-Lassen Branch line, Modoc Line.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Secure public title or access to abandoned railroad grades	Yes	Yes	No	No	Yes
Designate North Fork of Buffalo Creek as a scenic and historic area of critical environmental concern (ACEC)	No	No	Yes	No	Yes
Designate Lower Smoke Creek Canyon as a scenic and historic (ACEC)	No	No	Yes	No	Yes

WILD AND SCENIC RIVERS

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Recommend portions of the Susan River as suitable for designation as a *recreational* river (miles)	0	6	8	0	0
Recommend portions of Willow Creek as suitable for designation as a *wild* river (miles)	0	4.75	8	0	0
Recommend portions of Upper Smoke Creek as suitable for designation as a *wild* river (miles)	0	10.6	10.6	0	10.6
Recommend portions of Lower Smoke Creek as suitable for designation as a *recreational* river (miles)	0	3.2	3.2	0	0

WILDERNESS STUDY AREAS

Management Common to All Alternatives:

- Lands acquired within WSAs are not subject to the IMP but to be managed to protect their wilderness characteristics.
- Lands that are adjacent to WSAs and are acquired for their wilderness characteristics to be managed to protect these characteristics.
- All WSAs to be managed to meet BLM visual resource management (VRM) Class I objectives.
- Unauthorized routes in WSAs to be closed as required under the IMP.
- If Congress releases any WSAs from wilderness consideration and is silent on the managing of these lands, then RMP direction for these lands, specifically Recreation Opportunity Spectrum (ROS) and travel management direction, to govern future management.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Prioritize land acquisitions within wilderness study areas	Twin Peaks, Dry Valley Rim Tunnison, and Skedaddle WSAs	All WSAs	All WSAs	No acquisitions	All WSAs
Establish ROS primitive areas within all WSAs	No	No	Yes	No	Yes
Close selected routes within ROS core primitive areas: (miles)					
• **Tunnison**	0	0	1.0	0	1.0
• **Skedaddle**	0	0	19.3	0	19.3
• **Five Springs**	0	0	3.2	0	3.2
• **Dry Valley Rim**	0	0	4.7	0	4.7
• **Twin Peaks**	0	0	7.8	0	7.8
• **Buffalo Hills**	0	0	8	0	8
• **Poodle Mountain**	0	0	1.0	0	1.0
Construct Non-motorized/non-mechanized trails within selected WSAs: (miles)					
• **Tunnison**	0	0	6	0	6
• **Skedaddle**	0	0	19	0	19
• **Dry Valley Rim**	0	0	37	0	37
• **Twin Peaks**	0	0	6	0	6

TRAVEL MANAGEMENT

Management Common to All Alternatives:

- Manage 1700 miles of GPS-inventoried routes in the field office.
- Routes closed or not designated for use through this RMP or subsequent amendments to be closed and rehabilitated. Signing of closed routes prioritized to areas with the most need.
- Implement the designated route network modification criteria for the following activities: changes in land use designations, new route construction or designation, route realignments, temporary and permanent route closures, and route obliteration and rehabilitation.
- Authorized motorized vehicles are exempt from all restrictions and requirements detailed for all alternatives.

Off - Highway Vehicle Area and Route Designations

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Assign off-highway vehicle use designations: (acres)					
• **Open**	578,708	419	0	578,708	419
• **Limited to existing routes**	412,966	412,966	0	412,966	0
• **Limited to designated routes**	22,210	588,724	721,123	22,210	760,837
• **Closed**	8,883	20,658	301,644	8,883	261,511
Construct new routes (miles)	0	Up to 15	0	0	Up to 15
Implement permanent route closures (miles)	0	0	59	0	59
Manage routes designated for use (miles)	1,700	1,715	1641	1,700	1,656
Close routes to snowmobile use (miles)	0	35	0	0	35
Implement seasonal route closures at Cleghorn Access Road, Tablelands, and Horse Lake areas	No	No	Yes	No	Yes

Non-motorized Travel

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Construct Non-motorized routes within special management areas (miles)					
• **Eagle Lake Basin SRMA**	22.5	31	7.5	2	31
• **Bizz Johnson Trail SRMA**	2	2.5	2	2	2.5
• **Fort Sage SRMA**	0	2.5	0	0	2.5
• **Antelope/Shaffer/Bald Mountain SRMA**	0	56	0	0	56
• **Wilderness study areas**	6	81	10	0	81
• **Extensive recreation management area**	50	104	3	14	104

Boating

Management Common to All Alternatives:

- Manage Upper Biscar Reservoir for human-powered watercraft only.
- No boating restrictions for Dodge Reservoir, but boating to continue to be limited by the undeveloped shoreline used for boat launching. If a boat launch were developed in the future, management to continue to emphasize low-speed fishing boats.
- Manage Round Corral and Buckhorn Reservoirs for human-powered watercraft and low-speed trolling motors.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Enforce boating restrictions on the Susan River	No restrictions	Human-powered watercraft	Human-powered watercraft	No restrictions	Human-powered watercraft
Enforce boating restrictions on Lower Biscar Reservoir	Human-powered watercraft	Low-speed trolling motors	Human-powered watercraft	Human-powered watercraft	Human-powered watercraft

UTILITIES, TRANSPORTATION, and COMMUNICATIONS

Management Common to All Alternatives:

- Manage wilderness study areas as rights of-way avoidance or exclusion zones.
- All utility corridors identified by the Western Regional Corridor Study to be reviewed and used unless environmental analysis indicates potential negative impacts to resources.
- Corridor widths to be a minimum of 2000 feet unless adjacent to exclusion areas.

VEGETATION

Management Common to All Alternatives:

- Maintain vegetation alliances, associations, and ecological sites rated as “healthy”. Restore vegetation alliances, associations, and ecological sites rated as “healthy/lacking key attributes” and “at-risk”.
- Complete wildland fire emergency stabilization and rehabilitation projects a manner that ensures ecosystem health.
- Close areas to grazing by livestock and wild horses after stabilization of prescribed disturbances and wildland fire, until the area has sufficiently recovered or is making significant progress toward recovery.
- Complete seedings using locally gathered native seed.

Management Action	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Implement management actions to maintain vegetation alliances, associations, and ecological sites rated as “healthy”	Implement improved grazing strategies	Prioritize treatments on commodity resources: forest products, livestock forage, game habitat	Maintain 306,579 acres through improved grazing strategies and vegetation treatments	Prioritize treatments on commodity resources: forest products, livestock forage, game habitat	Maintain 306,579 acres through improved grazing strategies and vegetation treatments

VEGETATION (continued)					
Focus on conserving vegetative functional/ structural groups (native perennial grasses and shrubs)	No	No	Yes	No	Yes
Manage to preserve biological crusts	Manage within exiting grazing strategies	Manage only to promote commodity resources	Actively manage for and use as indicators of ecological site health	No emphasis	Actively manage for and use as indicators of ecological site health
Implement management actions to restore vegetation alliances, associations, and ecological sites rated as "healthy/lacking key attributes" and "at-risk"	Use prescribed fire, appropriate wildland fire response, limited herbicide application and improved grazing strategies	Use prescribed fire, appropriate wildland fire response, limited herbicide application	Use prescribed fire, appropriate wildland fire response, herbicides, and brush-beating	Use prescribed fire, appropriate wildland fire response, limited herbicide application	Use prescribed fire, appropriate wildland fire response, herbicides, and brush-beating
Require two years rest from livestock grazing on selected shrub sites (bitterbrush, serviceberry, mountain mahogany) to promote viable seed production	No	No	Yes	No	Yes
Implement management actions to restore vegetation alliances, associations, and ecological sites rated as "unhealthy"	Use prescribed fire, appropriate wildland fire response, limited herbicide application, and improved grazing strategies	Use prescribed fire, appropriate wildland fire response, limited herbicide application, and reseeding native vegetation	Use prescribed fire, appropriate wildland fire response, herbicides, brush-beating, and reseeding of native species	Use prescribed fire, appropriate wildland fire response, limited herbicide application	Use prescribed fire, appropriate wildland fire response, herbicides, brush-beating, and reseeding of native species
Implement grazing restrictions to restore vegetation alliances, associations, and ecological sites rated as "unhealthy"	Determined on a case by case basis	Require two growing seasons rest from grazing in priority mule deer habitat	Close areas to grazing until restoration is complete	Require rest in selected areas (<2 years)	Close areas to grazing until restoration is complete
Manage all quaking aspen, California black oak and buffalo berry sites as areas of critical environmental concern	No	Yes	No	Yes	No

VEGETATION (continued)					
Manage livestock grazing in quaking aspen, California black oak and buffalo berry sites	Develop implementation plans; construct exclosures at selected sites	Develop implementation plans; construct exclosures at selected sites	Provide rest from grazing to allow tree saplings to grow above the reach of livestock; Construct exclosures at selected sites	Develop implementation plans; construct exclosures at selected sites	Provide rest from grazing to allow tree saplings to grow above the reach of livestock; Construct exclosures at selected sites
Manage to conserve western juniper on sites comprised of woodland soils (19,552 acres)	Limited	No	Yes	Selectively retain to support wildlife and to provide livestock forage	Yes
Treat 6,907 acres of western juniper woodland with canopy cover > 35% to restore land health	Yes	No	Yes	No	Yes
Treat invasive western juniper	Treat 11,510 acres; reconvert to historic rangeland	Emphasize removal through firewood cutting and mechanical treatments for biomass on all juniper sites	Treat sites where juniper is invasive into rangeland ecological sites	Treat sites to produce livestock forage	Treat sites where juniper is invasive into rangeland ecological sites
Restore Wyoming and mountain big sagebrush ecosystems within sage-grouse habitat	Treat ≤ 20% of the habitat acres	Restore only if sage-grouse can be shown to be a valuable economic resource	Treat ≤ 20% of the habitat acres	Restore only to produce livestock forage	Treat ≤ 20% of the habitat acres

NOXIOUS WEEDS

Management Common to All Alternatives:

- Review all project proposals prior to implementation to determine integrated weed management needs.
- Determine the distribution of noxious weed species through systematic inventory on all BLM lands.
- Develop a training program for field office employees. Develop and implement outreach plans to improve public understanding of the need to control the spread of noxious weeds and manage existing populations.
- Conduct integrated weed management (IWM) on BLM lands, including authorized land uses; e.g. rights-of-ways and timber sales.
- Coordinate treatment of local noxious weeds with all local agencies by establishing weed management areas.
- Collect monitoring information on treatment sites to determine effectiveness, effects on non-target species, and subsequent species that invade the treated site.

RIPARIAN / WETLAND ASSOCIATIONS

Management Common to All Alternatives:

- Manage all riparian and wetland habitats to progress toward Land Health Standards, Proper Functioning Condition (PFC) and Desired Future Condition (DFC), including regional and local objectives.
- Refine and adjust livestock grazing strategies to make progress toward riparian goals and objectives.
- Monitor riparian/wetland sites based on *Assessing Proper Functioning Condition* (BLM Technical References 1737-9 and 1737-11).
- Continue riparian photo studies of range improvements and grazing strategies to document changes in riparian vigor and function.

Management Action	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Implement management actions to improve or maintain riparian sites in properly functioning condition	Intensive grazing strategies, season of use adjustments, new fencing and off-site water developments	Expand use of riparian areas for livestock, wildlife, and wild horse forage	New fencing, off-site water developments and exclosures; reduce season of use and/or AUMs	Expand use of riparian areas for livestock, wildlife, and wild horse forage.	Intensive grazing strategies, season of use adjustments, new fencing and off-site water developments
Utilize grazing exclosures to protect riparian/wetland sites	Maintain existing exclosures	Maintain some exclosures; allow grazing in others	Construct new exclosures; expand size of existing ones	Do not maintain exclosures	Construct new exclosures; expand size of existing ones

RIPARIAN / WETLAND ASSOCIATIONS (continued)

Improve condition of riparian (lotic) sites:					
• **Sites rated as "Proper Functioning Condition"**	Increase 21%	Increase 13%	Increase 25%	Increase 13%	Increase 21%
• **Sites rated as "Functioning at Risk, Upward Trend"**	Decrease 10%	Decrease 6%	Decrease 13%	Decrease 6%	Decrease 10%
• **Sites rated as "Functioning at Risk, Trend Not Apparent"**	Decrease 9%	Decrease 4%	Decrease 9%	Decrease 4%	Decrease 9%
Improve condition of wetland (lentic) sites:					
• **Sites rated as "Proper Functioning Condition"**	Increase 20%	Increase 6%	Increase 22%	Increase 6%	Increase 20%
• **Sites rated as "Functioning at Risk, Upward Trend"**	No change	Decrease 7%	Increase 3%	Decrease 7%	No change
• **Sites rated as "Functioning at Risk, Trend Not Apparent"**	Decrease 10%	Decrease 8%	Decrease 15%	Decrease 8%	Decrease 10%
• **Sites rated as "Functioning at Risk, Downward Trend"**	Decrease 10%	Decrease 5%	Decrease 10%	Decrease 5%	Decrease 10%

SPECIAL STATUS PLANTS

Management Common to All Alternatives:

- Develop strategies to restore, conserve and recover all populations of sensitive plants.
- Review all project proposals prior to implementation to determine if they would affect BLM Special Status Species, and incorporate project recommendations in accordance with the California Special Status Plant Policy (CA BLM Manual Supplement H-6840-1, Special Status Plant Management). Prevent any actions that would contribute to the listing of these species under the Endangered Species Act.
- Maintain reproductive viability of all special status plant species--ensure that management actions do not contribute to the decline of a special status species.
- Monitor existing populations/occurrences to maintain desired plant community health.
- Survey for unknown and suspected special status plant occurrences.

Management Action	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Prioritize acquisition of land to protect special status plant species	No	No	Yes	No	Yes
Extend protection measures to include plants categorized as "Special Interest"	Yes	No	Yes	No	Yes
Collect seeds of special status plants	No	Yes	Yes	No	Yes

VISUAL RESOURCES

Management Common to All Alternatives:

- Manage wilderness study areas (WSAs) to meet VRM Class I objectives. (These acres not listed below, to avoid duplication of acres.)
- Should a WSA not be designated as wilderness by Congress and be released to multiple use management, the area within the WSA would return to the VRM class or classes that apply to the area as adopted in the final RMP.
- If portions of a WSA that are released contain special management area designations such as areas of critical environmental concern (ACECs), recommended wild and scenic river segments, or historic trails, the VRM class for that designation to apply, generally VRM Class II.
- Conduct visual contrast ratings for all surface-disturbing activities on BLM land in highly sensitive areas.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
VRM Inventory Classes: (acres)					
VRM Class II	403,437	374,616	405,943	403,437	507,843
VRM Class III	365,743	432,847	534,159	365,743	442,028
VRM Class IV	253,587	215,304	82,665	253,587	72,896

WATER RESOURCES

Hydrologic Function and Water Quality

Management Common to All Alternatives:

- Implement management practices to improve 37 miles of stream and 59 acres of riparian/wetland areas known not to be in proper functioning condition (PFC) or desired future condition (DFC).
- Implement best management practices to improve water quality and progress toward meeting state standards on 34 miles of streams.
- Prioritize restoration efforts on Smoke Creek, Shoals Creek, Cottonwood Creek, and Red Rock Creek.
- Amend the CA and NV basin plans to reflect appropriate and attainable water quality standards.

Management Actions	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Implement management practices to minimize impacts on water quality and riparian function	Emphasize improved grazing strategies, grazing exclosures adjusting AUMs or season of use, restricting and recreational activities	Emphasize bioengineering projects	Emphasize natural recovery processes, grazing exclosures, planting of woody riparian vegetation, and instream structures	Emphasize improved grazing strategies, grazing exclosures adjusting AUMs or season of use, restricting and recreational activities	Emphasize natural recovery processes, grazing exclosures, planting of woody riparian vegetation, and instream structures

Hydrologic Function and Water Quality (continued)

Restrict uses and activities in riparian areas, streams, and contributing upland watersheds	Uses allowed as long as there is progress toward attaining water quality and riparian objectives	Uses allowed as long as there is progress toward attaining water quality and riparian objectives	Uses allowed as long as there is *unimpeded* progress toward attaining water quality, hydrologic function, and riparian objectives	Uses allowed as long as there is progress toward attaining the water quality and riparian objectives	Uses allowed as long as there is progress toward attaining water quality, hydrologic function, and riparian objectives
Restrict uses and activities on streams and lakes that have water quality-limited segments	Uses allowed only if they do not impede restoring state water quality standards	Uses allowed only if they do not impede restoring state water quality standards	Uses allowed only if they permit unimpeded progress toward attaining state water quality standards	Uses allowed only if they do not impede restoring state water quality standards	Uses allowed only if they do not impede restoring state water quality standards

Water Supply

Management Common to All Alternatives:

- Manage water sources to ensure adequate water supply for livestock, wildlife, wild horses, and recreational activities.
- Selectively develop springs and construct grazing exclosures in riparian ecosystems.
- Assert water rights needed to protect federal investments and resources.
- Projects that involve inter-basin transfer of water would be coordinated with local and regional governments.

Prioritize construction of new water developments	Livestock, wild horses and wildlife	Recreation, livestock, energy developments	Wildlife; only if they benefit desired ecosystems	Livestock	Wildlife; only if they benefit desired ecosystems
Withdraw state-appropriated water rights on waters that are not 'waters of the state'	No; continue to file on all except public water reserves	Yes	Yes	Yes; only stock pond permits	Yes
Assert in-stream flow rights in Nevada and riparian rights in California on all perennial and important intermittent streams	No	No	Yes	No	Yes

WILD HORSES AND BURROS

Management Common to All Alternatives:

- Conduct regular gathers to maintain populations within appropriate management levels.
- Conduct fertility control research in some or all herd management areas.
- Conduct censuses on at least one of three herd management areas (HMAs) annually.
- Collect genetic data for each of the herds during gathers to establish baseline information for each herd.

Management Action	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Manage wild horses within established herd management areas (number) (acres)	3 828,569	3 828,569	2 813,686	3 828,569	3 828,569
Maintain populations within appropriate management levels (AML range)	513-848	513-848	503-823	513-848	513-848
Prioritize selection of animals returned after gathers based on specific traits	Historical traits (type, size, color, conformation)	Select traits most desirable to public for adoption	No selection by traits	Historical traits (type, size, color, conformation)	Historical traits (type, size, color, conformation)
Develop seasonal facilities for public viewing of wild horses	No	Yes	No	Yes	Yes
Develop facilities at Litchfield Corral for public education and adoptions	No	Yes	No	Yes	Yes

WILDLIFE & FISHERIES

Federally Listed Species

Management Common to All Alternatives:

Carson Wandering Skipper

- Cooperate as a partner on recovery plan where Carson wandering skipper populations are found on BLM-administered lands.
- Conduct surveys to determine habitat suitability.

Bald Eagle

- Conduct annual surveys to monitor bald eagle nest sites, verify presence or absence of individuals, and monitor reproductive success.
- Conduct annual mid-winter surveys with cooperators (surveys cover entire perimeter of Eagle Lake).
- Implement seasonal protection measures and buffer zones as appropriate for permitted activities when identified (See Table 2.25-1.)
- Install lockable vehicle barriers on roads providing access to the Cleghorn nest vicinity. Use barriers to minimize disturbance to nesting bald eagles from January 1 to August 31
- Manage forest habitat within suitable habitat (generally within 1mile of large water bodies) to retain potential nest trees (24 inches dbh).
- Develop geographic information system (GIS) information for nesting, roosting, and foraging areas.

Lahontan Cutthroat Trout

- Cooperate with California Department of Fish and Game (CDFG) on local planting of hatchery stock and related habitat issues.

Yellow-billed Cuckoo

- Develop action plan if populations are found to occur on BLM-administered lands.
- Contribute to survey efforts as appropriate.

Oregon Spotted Frog

- Develop action plan if populations are found on BLM-administered lands.
- Contribute to survey efforts as appropriate.

State and BLM Listed Sensitive Species

Management Common to All Alternatives:

- Cooperate with partners to obtain information on state-listed and BLM sensitive species occurrence, abundance, and distribution within the field office area. Develop a GIS database to document and track information on these species.
- Implement seasonal protection measures and buffer zones as appropriate for permitted activities when identified (See Table 2.25-1.)

Ungulates

Management Common to All Alternatives:

- Use plantings, seedings, or other vegetation management such as willow thinning or enhancement to maintain and improve terrestrial and aquatic habitats.
- Control cheatgrass and other annual grasses and noxious weeds using integrated weed management (IWM) to improve habitat conditions for ungulates and other native wildlife species.
- Reduce invasive juniper where encroachment has adversely impacted ungulate habitat. Recovery efforts may require mechanical treatments, including reseeding.
- Cooperate with state wildlife agencies to amend and update their herd management plans for ungulates.
- Develop geographic information system (GIS) information for habitat use areas, herd management areas, and hunting zones.
- If Rocky Mountain elk populations become established within the field office area, coordinate with state wildlife agencies and other cooperators, including livestock operators, to develop and implement management plans.
- Upon voluntary surrender of local domestic sheep grazing permits, coordinate with state wildlife agencies and other cooperators to develop a reintroduction plan for California bighorn sheep prior to reintroduction efforts.

Sagebrush Ecosystems and Sagebrush Obligate Species

Management Common to All Alternatives:

- Implement the *Conservation Strategy for Sage-Grouse and Sagebrush Ecosystems Within the Buffalo-Skedaddle Population Management Unit* (Northeast California Sage-Grouse Working Group, in press).
- Use plantings, seedings, or other vegetation management to maintain and improve terrestrial and aquatic habitats.
- Manage sagebrush habitats to maintain diversity of native understory vegetation.
- Reduce invasive juniper to enhance sagebrush ecosystems.
- Implement timber and fuels treatments to restore natural disturbance processes.
- Implement seasonal protection measures and buffer zones as appropriate for permitted activities when identified (see Table 2.25-1).
- Reduce or control invasive non-native plants using integrated weed management (IWM) to improve habitat conditions for sagebrush obligate wildlife species.
- Avoid practices that permanently convert sagebrush habitat to non-native grassland or agricultural land.

Other Native Wildlife Species

Management Common to All Alternatives:

- Use plantings, seedings, or other vegetation management to maintain and improve terrestrial and aquatic habitats.
- Manage migratory birds in accord with the Migratory Bird Treaty Act and Migratory Bird Executive Order 13186, Responsibilities of Federal Agencies To Protect Migratory Birds.
- Follow BLM policy, guidelines, current conservation plans, memorandums of understanding (MOUs), and "best management practices" (BMPs) in the management of native wildlife species and their habitats. Such plans include Partners in Flight (PIF) *"Birds in a Sagebrush Sea"* and BLM Nevada's *"Migratory Birds Best Management Practices for the Sagebrush Biome"* for managing sagebrush habitats for birds, and the Nevada Bat Conservation Plan (2002).
- Maintain or enhance biodiversity to sustain healthy multi-aged stands of aspen, mountain mahogany, oak woodlands, riparian and wetland areas, springs, and a variety of mountain shrub communities.
- Provide and maintain sufficient water distribution to meet the needs of upland game birds and other wildlife species.
- Implement seasonal protection measures and buffer zones as appropriate for permitted activities when identified (see Table 2.25-1)
- Coordinate reintroductions, augmentations, and translocations of native species with state wildlife agencies, and adhere to BLM Manual 1745-Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife and Plants.

Native and Non-Native Fish and Other Aquatic Species

Management Common to All Alternatives:

- Use plantings, seedings, or other vegetation management to maintain and improve terrestrial and aquatic habitats.
- Use existing stream inventory data as a baseline to develop stream-specific implementation plans.
- Improve streams and springs not in proper functioning condition (PFC).
- Maintain native fish-bearing streams in proper water quality and riparian function and in accord with BLM land health standards, Guidelines for Livestock Grazing, proper functioning condition (PFC), and best management practices (BMPs).
- Design and implement projects using BMPs for restoration and rehabilitation of streams, including maintaining or improving minimum pool depths, increasing clean spawning gravels, and implementing bank stabilization measures where needed.
- Coordinate with state wildlife agencies to implement management actions in accord with their plans, including planting of fish in suitable waters.
- Coordinate with local county fish and game commissions and local sportsmen's groups to determine management priorities and enhancement opportunities.

Non-Native Species

Management Common to All Alternatives:

- Manage for exotic or domesticated species according to BLM Manual 1745—Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife, and Plants.
- Implement management measures from state plans or other conservation plans (such as those developed by Partners in Flight and Riparian Habitat Joint Venture, among others) to manage, control, or eliminate non-native or invasive species.

Wildlife and Fisheries Management Actions for Goals 1 - 7

Management Action	No Action Alternative	Alternative 1 Economic	Alternative 2 Ecosystem	Alternative 3 Traditional	Preferred Alternative
Implement treatments to remove invasive juniper from important wildlife habitats (acres)	0	10,000-15,000	15,000-20,000	0	15,000-20,000
Create multi-age stands of quaking aspen, mountain mahogany, and oak woodland habitats (acres)	0	1,050-2,100	2,100-3,150	0	2,100-3,150
Maintain existing livestock exclosures (greater than 40 acres in size) (number)	12	0	12	12	12
Construct new livestock exclosures (greater than 40 acres in size) (number)	0	0	5	0	5
Maintain guzzlers and similar water developments (1 to 5 acre-feet)	Maintain 32 existing guzzlers	Maintain and monitor 32 existing guzzlers; assign responsibility for maintenance	Maintain and monitor 32 existing guzzlers; assign responsibility for maintenance	Maintain 32 existing guzzlers	Maintain and monitor 32 existing guzzlers; assign responsibility for maintenance
Construct new guzzlers or similar water developments where water is determined to be a limiting factor for wildlife	No	Yes	Yes	No	Yes
Build brush piles for upland game birds where cover is insufficient	No	Yes	Yes	No	Yes
Promote 'watchable wildlife' opportunities and develop interpretive guides/programs/sites	No	Yes	No	Yes	No
Manage suitable habitat to retain forest characteristics for California spotted owls	Not emphasized	Not emphasized	Manage forest stand characteristics to provide suitable habitat within its range	Not emphasized	Manage forest stand characteristics to provide suitable habitat within its range

Impacts Summary Table

Air Resources				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Smoke from prescribed burning would result in negligible short-term adverse affects to air quality. Relatively low annual amounts of prescribed fire treatments (maximum of 100 acres) would result in negligible to minor long-term beneficial effects from reduced wildland fire potential.	Smoke from annual prescribed burning (maximum of 1500 acres) would result in negligible to minor short-term adverse affects. A moderate long-term beneficial effect would result from actions implemented to reduce wildland fire potential.	Smoke from annual prescribed burning and wildland fire use (maximum of 15,000 acres) would result in negligible to minor short-term adverse affects. A moderate long-term beneficial effect would result from actions implemented to reduce wildland fire potential.	Same as Alternative 1, except a maximum of 500 acres would be treated annually with prescribed fire.	Same as Alternative 2.

Cultural and Paleontological Resources				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in moderate to major adverse effects to individual cultural resource sites. Adverse impacts would result from continued current livestock management, wild horse grazing, and unrestricted off-highway vehicle travel. No designations of archaeological areas of critical environmental concern (ACECs) would occur, but 15 sites (9,084 acres) would be managed as cultural resource management areas (CRMAs) to protect sensitive and unique cultural areas. Long term minor to moderate benefits would result as CRMA objectives and land health standards are gradually implemented. Additional benefits would result as wild horses become managed within desired Appropriate Management Levels (AMLs).	Moderate to major adverse impacts would result from the expansion of livestock grazing and removal of some protective fencing. The number of CRMAs would be reduced to 10, and only 1,146 acres would be managed under these guidelines. Minor adverse impacts would also occur from increased recreation, resulting in higher traffic to cultural resource sites. This would be mitigated somewhat by a new emphasis on ecotourism which would have minor to moderate beneficial effects. Moderate to major benefits would occur to individual cultural sites by restricting OHV travel to existing or designated routes on 99% of the field office area. This would greatly reduce disturbance to surface sites and soil erosion caused by cross-country travel.	Alternative 2 would result in negligible to minor adverse impacts, and provides moderate to major beneficial effects to cultural resources. CRMAs would be designated on 19 sites, and two cultural ACECs would be designated providing increased protection and management of cultural resources. Livestock grazing areas would be rested 2 out of every 3 years, reducing damage to individual sites. Cultural sites would be protected from OHV traffic and livestock damage. Buffer zones would be established and management would emphasize land health. Additional benefits would result as wild horses become managed within desired Appropriate Management Levels (AMLs).	Impacts resulting from Alternative 3 are similar to the No Action Alternative, with the following exceptions: livestock grazing would result in higher adverse impacts, as the number of grazing allotments that receive grazing rest annually would be reduced, and new exclosures would not be used to protect sensitive resources. Moderate to major benefits would occur to individual cultural sites by restricting OHV travel to existing or designated routes on 99% of the field office area. This would greatly reduce disturbance to surface sites and soil erosion caused by cross-country travel.	The Preferred Alternative would result in similar impacts to Alternative 2, except that negligible to moderate adverse impacts would result from livestock and wild horse grazing from trampling damage to individual sites. Moderate to major beneficial effects to cultural resources would result from the designation of 19 CRMAs, and two cultural ACECs, providing increased protection and management of cultural resources. Cultural sites would be protected from cross-country OHV traffic. Buffer zones would be established and management would emphasize land health. Additional benefits would result as wild horses become managed within desired Appropriate Management Levels (AMLs).

Energy and Minerals				
Energy and Minerals / Leasable				
No Action Alternative	Alternative 1	Alternative 2	Alternative 3	Preferred Alternative
Under the No Action Alternative the combined impact to leasable energy and mineral activities is expected to be minor due to the relatively low number of acres that are closed, fall under permanent no surface occupancy rules, or require restrictive stipulations. A total of 642,408 acres (63%) of BLM-administered lands would be open to mineral leasing under standard lease terms. The existing wilderness study areas (WSAs)–380,359 acres (37%)–would remain closed to leasable minerals, as required from the BLM Interim Management Policy for Lands under Wilderness Review, (BLM 1995). .	Under Alternative 1 the combined impact to leasable energy and mineral activities is expected to be negligible to minor due to the relatively low number of acres that are closed, fall under permanent no surface occupancy rules, or require restrictive stipulations. A total of 602,427 acres (59%) of lands would be open to mineral leasing under standard lease terms. A minor beneficial effect would potentially occur due to realty actions, new road construction, and additional lands open to leasable minerals if wilderness study area designations are released from Congress.	Leasable energy and mineral development under Alternative 2 would have minor to moderate adverse impacts because of increased restrictions. The total amount of lands open to mineral leasing under standard lease terms would be reduced from 63% of BLM-administered lands to 38%. 417,435 acres would be closed to mineral leasing including the Eagle Lake Basin ACEC, Bizz Johnson SRMA, and existing WSAs. Permanent no surface occupancy (NSO) restrictions would apply to 76,922 acres to protect unique resources. Seasonal and other restrictions would apply to 137,071 acres. Other restrictive stipulations would apply to lands within 0.60 to 2.0 miles of greater sage-grouse leks. All of these actions would reduce the amount of land available for development, and/or increase associated costs.	Under Alternative 3 the combined impact to leasable energy and mineral activities is expected to be negligible to minor due to the relatively low number of acres that are closed, fall under permanent no surface occupancy rules, or require restrictive stipulations. Under this alternative, 591,337 acres (59%) of BLM-administered lands would be open to mineral leasing under standard lease terms. A minor beneficial effect would potentially occur due to realty actions, new road construction, and additional lands open to leasable minerals if wilderness study area designations are released from Congress.	The Preferred Alternative would have minor to moderate adverse impacts because of increased restrictions. 417,435 acres would be closed to mineral leasing including Eagle Lake Basin ACEC, and existing WSAs. 388,594 (38%) of BLM-administered lands would be open to mineral leasing under standard lease terms. Permanent NSO restrictions would apply to 76,922 acres to protect unique resources. Other NSO restrictions would apply to the following: lands 0.25 to 0.60 miles from sage-grouse leks, lands 0.25 to 0.50 miles from known raptor nests, and lands within 0.25 miles of pronghorn kidding grounds. A minor benefit would result from realty actions, new road construction, and additional lands open to leasable minerals if wilderness study area designations are released by Congress.

Energy and Minerals / Locatable				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The combined impact to locatable mineral activities is expected to be negligible, as 1,022,767 acres (100%) of BLM-administered lands would be open to locatable mineral activities. Existing wilderness study areas (WSAs)– 380,359 acres (37%)–would continue to be regulated by the Wilderness Interim Management Policy: All WSAs are open to exploration for and development of locatable minerals but would be limited to activities that do not require reclamation, unless the operation had established grandfathered uses or valid existing rights on October 21, 1976. Locatable mineral development and exploration within areas of critical environmental concern (ACEC) would require preparation and approval of a plan of operations before their development.	Under the Economic Development Alternative, the combined impact to locatable mineral activities is expected to be negligible to minor. 1,020,272 acres would be open to locatable mineral exploration and development. The management approach would be the same as under the No Action Alternative. The Susan River ACEC–2,495 acres–would be closed to mineral entry, and BLM would seek a withdrawal to protect its unique resources. A minor beneficial effect would occur from realty actions, new road construction, and reduced restrictions if wilderness study areas are released by Congress.	Alternative 2 would result in minor adverse impacts to locatable minerals due to an increase in acres closed and additional restrictions and stipulations. This alternative reduces total lands available to locatable minerals to 969,885 acres (95%) of lands. 52,822 acres would be withdrawn from locatable minerals within six ACECs. However, most lands within these ACECs have low potential for locatable mineral extraction.	Same as No Action Alternative.	The Preferred Alternative would have negligible adverse effects on locatable mineral exploration, development, and extraction because only 8,406 acres would be closed within four ACECs, and restrictive mitigation would be limited. Conflicts with other resources would be resolved through mitigation measures. A minor benefit would result from realty actions, new road construction, and less restrictions if wilderness study area designations are released by Congress.

Energy and Minerals / Saleable				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would have minor adverse impacts to saleable mineral activities. A total of 639,753 acres (63%) of BLM-administered lands would be open to saleable mineral activities. Areas closed to saleable minerals include all existing wilderness study areas (WSAs), Bizz Johnson Special Recreation Management Area, and the Pine Dunes RNA. The existing WSAs–380,359 acres (37%)–would continue to be regulated by the Wilderness Interim Management Policy (IMP). Mineral materials would continue to be provided for BLM, state, county, and city uses from existing pits or previously closed pits. The entire field office area would remain open to collection of decorative stone and flat rock, according to BLM policies.	Alternative 1 would have minor adverse effects to saleable mineral activities, and minor benefits. A total of 637,008 acres (62%) of BLM-administered lands would be open to saleable mineral activities. WSAs and three ACECs would be closed to saleable mineral disposal. Emphasis would be to expand local and commercial uses. Existing pits would be expanded as needed to meet increases in local demand. New community pits would be opened in other areas as needed. The entire field office area would remain open to collection of decorative stone and flat rock, according to BLM policies, and commercial uses would be emphasized.	Alternative 2 would have minor to moderate adverse effects on saleable mineral exploration, and extraction because of increased acreage closed and additional restrictions and stipulations. The total lands open to saleable minerals would be reduced to 553,011 acres (54%). 385,759 acres within WSAs and seven ACECs would be closed to saleable minerals. Existing community sand and gravel pits would remain open, but would not be expanded as material becomes exhausted. In addition, the entire field office area would be closed to all collection of decorative stone and flat rock.	Same as Alternative 1.	The Preferred Alternative would have minor adverse effects and minor benefits to saleable mineral exploration, development, and extraction. Under this alternative 634,002 acres (62%) of BLM-administered lands would be open to saleable minerals activities. Closed areas include existing WSAs and four ACECs. Sand and gravel would be provided for the local community within existing pits, and expansion would be allowed as needed to respond to local demand. Conflicts with other resources would be resolved through mitigation measures. The entire field office area would remain open to collection of decorative stone and flat rock, according to BLM policies. Commercial operations would be allowed in designated areas. A minor benefit would result from new road construction, and if Congress releases WSAs from wilderness study.

Environmental Justice				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Impacts on environmental justice communities from the proposed management actions are not expected to be significant and would not differ among alternatives.	Same as No Action Alternative.	Same as No Action Alternative.	Same as No Action Alternative.	Same as No Action Alternative.

Forestry				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Moderate adverse impacts would result to forestland health from accumulation of fuels throughout non-commercial forests, increasing the probability of large wildfires. Negligible benefits would result from hazardous fuels reduction treatments on <500 acres per year. Moderate beneficial impacts would result from forest management activities that would extend to 8,000 (43%) of the 18,500 acres of commercial and low-site forests. Mechanical treatments would be allowed on 400 acres annually, thereby removing saleable logs and canopy fuels. Effects of fuels reduction in these stands as a component of forestry practices would be improved forest health and decreased risk of a stand-replacing fire.	Minor to moderate adverse impacts would result to forestland health from accumulation of fuels throughout non-commercial forests, increasing the probability of large wildfires. Minor beneficial impacts would result to low-site forests, woodlands, and other juniper encroached lands from fuels reduction treatments up to 1,500 acres annually. Moderate to major beneficial impacts would result from forest management activities that would extend to 72% of the 18,500 acres of commercial and low-site forest. Mechanical treatments would be allowed on the 670 acres treated annually, thereby removing saleable logs and canopy fuels. Fuel reduction in these stands as a forestry practice would improve forest health and decrease the risk of a stand-replacing fire.	Minor adverse impacts would result to forestland health from accumulation of fuels throughout non-commercial forests, increasing the probability of large wildfires. Moderate benefits would result from hazardous fuels reduction treatments on up to 10,000 acres per year. Major beneficial impacts would result from forest management activities that would extend to nearly all of the 18,500 acres of commercial and low-site forest. (The remainder of the forest wouldn't be harvested because it would be needed to protect other resources.) Mechanical treatments would be allowed on 1,100 acres annually, thereby removing saleable logs and canopy fuels. Fuel reduction in these stands as part of forestry would improve forest health and decrease the risk of a stand-replacing fire.	Same as Alternative 1.	Same as Alternative 2.

Fire and Fuels				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would have negligible to minor adverse impacts to the fire and fuels program, due to continuation of a full suppression appropriate management response (AMR), low amounts of fuels reduction treatments, and 57% of all acres 'open' to off-highway vehicle (OHV) use. Full suppression fire management would continue on 100% of lands, resulting in continued buildup of fuels, and increased probability of large wildfires. Routes 'open' for OHV use would pose an increased risk of human-induced wildfire. The No action Alternative would also result in negligible beneficial impacts. Fuels reduction treatments would occur at a rate of less than 500 acres annually. Livestock grazing would occur at present levels, resulting in negligible beneficial effects of restoring natural fire regimes.	This alternative would result in negligible to minor adverse impacts to the fire and fuels program, and minor benefits. 100% of the field office area would continue to use full suppression management, resulting in the buildup of fuels, increasing the probability of large wildfires. However, minor benefits would accrue as hazardous fuels reduction treatments would occur on up to 5,000 acres per year, restoring up to 10,000 acres of native plant communities over the life of the plan. Livestock grazing would occur at present levels, or slightly higher, resulting in negligible beneficial effects of restoring natural fire regimes. Almost the entire field office area would implement OHV restrictions to existing or designated routes, substantially reducing the risk of human-induced wildfires.	Alternative 2 would result in negligible adverse effects and moderate beneficial impacts, as the use of appropriate management response for wildland fire suppression is emphasized, livestock grazing is reduced, and OHV use is restricted. The use of AMR and wildland fire use would result in a greater degree of restoration of native plant communities and their associated fire regimes. Fuels treatments would result in additional restoration benefits on up to 200,000 acres over the life of the plan. Reduction of livestock grazing would contribute to the restoration of natural fire regimes and favorable Condition Class, resulting in greater benefits to the fire and fuels program than under other alternatives. With no designation of 'open' areas for OHV use, the risk of human-induced ignitions would be substantially reduced.	Alternative 3 would result in minor adverse impacts to the fire and fuels program. Impacts are the same as Alternative 1, except additional adverse impacts would result from routes within 578,708 acres being 'open' for OHV use, which would pose an increased risk of human-induced wildfire.	This alternative would provide negligible adverse effects, and moderate beneficial impacts to fire and fuels management, similar to Alternative 2. All actions are the same as described under Alternative 2, except that livestock grazing would occur at present levels, with an increased emphasis on improving land health. Major improvements to livestock grazing strategies and land health would result in restoration of native plant communities, causing minor beneficial effects by restoring natural fire regimes. A very limited area (419 acres) would be designated 'open' for OHV use, substantially reducing the risk of human-induced ignitions.

Lands and Realty				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would negligibly affect lands and realty. Priority of lands for potential acquisition would be inholdings within three wilderness study areas (WSAs), and small parcels which have known cultural resource values.	Alternative 1 would result in minor adverse effects to lands and realty. Disposal of lands for local economic purposes would be prioritized. Priority of lands for potential acquisition would include inholdings in all WSAs, and other parcels which would provide access for recreational activities.	Alternative 2 would result in negligible adverse and minor benefits to lands and realty. This alternative emphasizes acquisition of lands adjacent to special area designations, such as WSAs, areas of critical environmental concern (ACECs), and wild and scenic river segments. Lands purchased would be managed to improve the unique resources associated with specific designations. Potential disposal of parcels would be limited to lands with no significant resources or values.	Impacts are similar to Alternative 1, except that acquisition of WSA inholdings would not be a priority. Disposal of parcels would be prioritized to enhance local community economic growth.	The Preferred Alternative would result in negligible adverse and minor benefits to lands and realty. This alternative emphasizes acquisition of lands with high resource values, and improved public access to recreational activities. Potential disposal of parcels would be limited to lands with no significant resources or values.

Livestock Grazing				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in minor to moderate adverse effects on livestock grazing because of the acreage that is closed or limited to livestock use. Areas burned by wildfire or prescribed fire would be rested from livestock grazing at least two growing seasons following fire, resulting in minor short term adverse effects. Minor to moderate long term benefits would result, however, as fuels treatments are expected to benefit rangelands by making them more productive and slightly increasing forage (AUMs) for livestock in the long term. Minor to moderate benefits would also result from actions to reduce wild horse use to meet appropriate management levels (AMLs). This would help restore a proper balance in forage use among wildlife, wild horses, and livestock, and would allow grazing permittees to graze at current permitted levels.	Alternative 1 is expected to have negligible adverse effects, and minor benefits to grazing. Available grazing lands would slightly increase with the opportunity for an increase of animal unit months (AUMs) of forage where land health standards are being met. Additional forage would result from new seedings planted on up to 8,000 acres. Requiring only 40% of allotments to have rest or deferred grazing would be less restrictive and would need less labor from permittees. Increasing the season of use and opening more grazing areas would benefit operations. Increasing juniper and other fuels reduction would benefit livestock grazing because of increased understory vegetation and forage production.	Major adverse impacts would occur to livestock grazing operations due to increased restrictions and associated costs. All grazing areas would be rested two out of every three years, thereby directly reducing the grazing capacity by 67%. Existing seedings would not be restored, and would be allowed to return to native stands. The reduction in available forage and loss of flexibility would cause a large portion of the smaller livestock operations to become economically unfeasible. Beneficial effects of other management actions, including vegetation and fuels management that would enhance forage, would result in limited and minor benefits for livestock grazing by increasing forage availability. But these improvements would provide only a modest offset to the proposed reductions in AUMs.	Alternative 3 would result in effects similar to those under Alternative 1, with negligible adverse effects, and minor benefits to grazing. By requiring less fence maintenance, de-emphasizing grazing strategies, and permitting more AUMs of forage for livestock grazing, this alternative would benefit grazing by requiring less labor and allowing more grazing. However, long-term adverse effects to rangeland health goals would be expected as a result of a decrease of grazing management and an absence of fence maintenance in riparian areas. This would result in a long term adverse impacts to grazing lands and the forage base.	The Preferred Alternative would result in overall minor impacts to grazing, with some moderate adverse impacts occurring in specific areas. Major improvements to livestock grazing strategies would increase labor for livestock handling, herding, repairing fences, and maintaining other range improvements. Up to 90,000 acres would be managed under new ACEC guidelines, potentially adding new grazing restrictions. Wild horse management would reduce herds to AMLs, as described for the No Action Alternative, and would restore a balance of forage use among livestock, horses, and wildlife. Beneficial effects from vegetation and fuels management would enhance forage availability in the long term.

Recreation and Visitor Services				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in minor to moderate adverse effects and minor beneficial impacts to recreation. There is a risk of potential degradation of the natural character of the landscape from cross-country OHV use in about 57% of the field office area. Management for fire, wildlife, soils, vegetation, and forestry generally would result in localized and temporary adverse impacts that would disrupt activities or access. Most activities associated with these programs would enhance recreation experiences in the long term by retaining or improving the natural character and settings where recreation occurs. Restrictions to mineral development are the lowest of any alternative, and minor to moderate impacts would occur from mineral development in special recreation management areas (SRMAs).	Alternative 1 would result in minor adverse effects and moderate to major beneficial impacts to recreation. Adverse effects from fire, soils, wildlife, and forestry would be similar to those described for the No Action Alternative. Additional areas open to livestock grazing, and reduced emphasis on exclosures would cause minor adverse impacts to specific recreation areas. Restrictions to mineral development would be higher than the No Action Alternative, resulting in less adverse impacts to SRMAs. The natural setting for many recreational activities would be better protected because of a decrease in VRM Class IV designations. The designation of 25 miles of Wild and Scenic River segments would protect the natural setting of these areas.	Alternative 2 would result in negligible to minor adverse effects and moderate to major beneficial impacts to recreation. Alternative 2 would increase protection of the natural landscape setting for recreation activities by increasing VRM Class II areas, designating a substantial amount of area to the primitive ROS class, and designating 89,000 acres as ACECs. Restrictions to mineral development would be the highest of any alternative. While increased recreation opportunities would be associated with cultural resources and historic trails, new non-motorized opportunities would be reduced significantly because only 22 miles of new trails are proposed. Closing 29% of the field office area to OHV use would not significantly affect motorized opportunities because the areas do not contain a large number of routes.	Most effects under Alternative 3 would be similar to those under the No Action Alternative. There are fewer restrictions on mineral development than Alternatives 1 and 2, and impacts such as degrading natural settings and user conflicts would be higher than under those alternatives. The fewest miles of non-motorized trails would be developed under Alternative 3; and the benefits of new opportunities, dispersal of activities, and community connection would not be realized.	The Preferred Alternative would result in negligible to minor adverse effects and moderate to major beneficial impacts to recreation, and is most similar to Alternative 2. The Preferred Alternative would develop the highest number of miles of non-motorized trails, with 277 miles proposed, and would close about 25% of the field office area to OHV use. The non-motorized trails would provide extensive new recreation opportunities, promote dispersal of activities to minimize crowding, and provide strong community connection to area resources for local residents. OHV use would be limited to designated routes throughout most of the field office area, except for 374 acres designated as 'open'. This would protect resources and reduce conflicts similar to management actions under Alternative 2.

Recreation and Visitor Services (continued)				
Continued livestock grazing and wild horse use is expected to negligibly affect most recreation experiences and activities. Minor benefits would result from excluding grazing to improve riparian conditions along streams, along lake shores, and around springs. These actions would benefit the recreational use of those areas by improving the natural appearance of the landscape, improving wildlife habitat, and eliminating visitor/livestock interactions. Development of 80.5 miles of non-motorized trails along with enhancements to historic trails would result in minor beneficial effects by providing new recreation opportunities, increasing history-related recreational activities, educating visitors about resources, and increasing community connections and activities for local residents.	Designation of two new special recreation management areas (SRMAs) would improve recreation experiences by focusing management to meet specific needs in each area. This would reduce use conflicts and limit activities that detract from the recreation experience or reduce public safety. Cross-country OHV use would be limited to 419 acres. This substantial reduction in area open to cross-country OHV travel would help reduce conflicts and maintain the natural setting for recreation activities. Non-motorized trail development would increase to 277 miles and would provide more new recreation opportunities and disperse visitors over a larger area to reduce overcrowding.	However, this restriction would enhance non-motorized experiences and reduce the potential for use conflicts. Restrictions to livestock grazing and a strong emphasis on land health would improve the natural setting for many recreation activities.		Restrictions on mineral development activities in ACECs, Wild and Scenic Rivers, WSAs, and SRMAs are proposed under the Preferred Alternative, similar to Alternative 2, in order to protect the natural resources and recreation settings in these unique areas. Management actions implemented to improve livestock grazing and reduce wild horses to AMLs is expected to negligibly affect most recreation experiences and activities. Minor benefits would result from excluding grazing to improve riparian conditions along streams, along lake shores, and around springs. These actions would benefit the recreational use of those areas by improving the natural appearance of the landscape, improving wildlife habitat, and eliminating visitor/livestock interactions.

Social and Economic Conditions				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Combined management actions from the No Action Alternative would be expected to generate approximately nine jobs and $300,000 in annual personal income. Total employment in the three-county study area would increase by approximately 0.004%, and total personal income would increase by 0.002%. The increase in economic activity in the three-county study area attributable to management actions under the No Action Alternative would be very small, and is considered a negligible impact.	Alternative 1 would be expected to generate approximately 38 jobs and $1,200,000 in annual personal income. Total employment in the three-county study area would increase by approximately 0.001% and total personal income would increase by 0.01%. Impacts are similar to No Action, except that additional proposed recreation designations in this alternative are expected to increase the visitor use of public lands and the associated economic benefit of rural tourism.	Alternative 2 would result minor to moderate adverse impacts to local industries due to a net loss of approximately 97 jobs and a reduction of $760,000 million in annual personal income. All of the loss in employment and personal income is attributable to the reduction in commercial livestock grazing. Although serious impact would result to individual operators, total employment in the three-county study area would be reduced by approximately 0.03%. Total personal income would be reduced by approximately 0.01%. Employment and income would increase slightly as a result proposed treatment of fuels, vegetation management, and timber harvesting.	Impacts are similar to No Action. Alternative 3 would generate approximately 37 jobs and $1,200,000 in annual personal income. Total employment in the three-county study area would increase by approximately 0.001% and total personal income would increase by 0.01%. Although not quantified, other management actions also would slightly increase regional economic activity.	The Preferred Alternative would generate the most employment, 55 jobs, and the most annual personal income, $1,700,000, of any alternative. Total employment in the three-county study area would increase by approximately 0.02% and total personal income would increase by 0.01%. The increase in economic activity in the three-county study area would be a negligible to minor positive impact. Employment and income would increase slightly as a result proposed treatment of fuels, vegetation management, and timber harvesting. Additional recreation designations proposed in the Preferred Alternative are expected to increase visitor use of public lands and the associated economic benefit of rural tourism.

Soils				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
This alternative would result in minor to moderate adverse impacts, resulting from extensive public access, off-highway vehicle (OHV) use, livestock and wild horse grazing, and potential minerals development that would affect soil resources through increased exposure to ground-disturbing activities. However, no net loss of soil productivity would be allowed, hence impacts are not expected to be significant. OHV travel would be unrestricted on the majority of acres, contributing adverse impacts in the form of soil disturbance, compaction, and erosion. Use of buffers would result in beneficial effects, but less so than Alternative 1 and 2 because they would be applied only on a case-by-case basis. The potential for soil degradation would remain where threats to soil resources exist but have not yet been identified.	Moderate to major adverse impacts would result from increased development that would affect soil resources through increased exposure to ground-disturbing activity. These include: the development of two special recreation management areas (SRMAs); increased livestock grazing; and the expansion of recreation sites and trails. A slight increase in restrictions on mineral development in the form of closures or NSO stipulations would reduce potential impacts on soils in these areas. Moderate beneficial effects would result from the implementation of 50-foot buffers around all sensitive sites, and restoration of existing seedings. OHV use within 99% of the field office area would be limited to existing or designated routes, limiting adverse impacts to soils from cross-country travel.	Minor adverse impacts would result from ground disturbing activities as enhanced protection measures would be put into place. Moderate beneficial effects would result from the implementation of 100-foot buffers around all sensitive sites. The area open to mineral extraction would be the smallest among all of the alternatives. Lands would be rested from livestock grazing two out of three years, and riparian areas and aspen stands would be fenced, providing more protection than any other alternative. Beneficial impacts would result from closing approximately 300,000 acres to motorized travel, and designating these as Recreation Opportunity Spectrum (ROS) class 'primitive'. OHV use would be largely limited to designated routes, which would eliminate effects on soils in areas suitable for cross-country travel.	Alternative 3 would result in moderate to major adverse impacts to soil resources, from 'open' OHV use and additional livestock grazing. OHV use is likely to result in continued degradation of soil resources due to compaction and erosion associated with OHV travel—both on roads and trails and in cross-country areas. Grazing actions would be difficult to mitigate without some rest periods required, and intense management actions–increased herding, fencing, vegetation treatment, and water development–would be required to maintain land health standards. Unless livestock grazing practices are intensely managed, Alternative 3 would result in moderate short and long term adverse effects on soil resources, particularly in sensitive areas such as riparian areas.	The Preferred Alternative would result in minor adverse impacts to soils, and moderate beneficial effects. The effects on soil resources are most similar to those described for Alternative 2. Minor adverse impacts would result from ground disturbing activities, such as increased public access, livestock and wild horse grazing, and potential minerals development. No net loss of soil productivity would be allowed, hence impacts are not expected to be significant. Prescribed fire and vegetation treatments would adversely affect soils in the short term but would lead to improved long term ecosystem health. Moderate beneficial impacts would be realized as several enhanced protection measures are put into place.

Soils (continued)				
	Actions associated with the designation of two areas of critical environmental concern (ACECs) would reduce soil disturbance associated with development of rights-of way (ROWs), cross-country travel, and surface disturbance associated with mining.	Soil protection measures would be incorporated in the development of seven ACECS, on 89,000 acres.		OHV use within 99% of the field office area would be limited to designated routes, limiting adverse impacts to soils from cross-country travel. This alternative has the second highest restrictions to mineral development. Leasable minerals development would be closed within WSAs and the Eagle Lake ACEC. Actions associated with the designation of seven ACECs would reduce soil disturbance associated with ROW development, cross-country travel, and surface disturbance associated with mining.

Special Area Designations				
Areas of Critical Environmental Concern				
Pine Dunes RNA/ ACEC				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in negligible adverse impacts, and minor benefits to the existing Pine Dunes Research Natural Area (RNA) (160 acres). The RNA would be designated as an ACEC to continue protection of the ponderosa pines and adjacent ecosystem. There would be no impacts from livestock or wild horse grazing, timber harvesting or woodcutting as these uses would remain closed. The area would also remain closed to locatable and saleable mineral development. No surface occupancy restrictions would apply to leasable minerals. The area's scenic qualities would be managed under VRM Class III criteria. Minor benefits would result from efforts to acquire (from willing sellers) adjoining private lands, and extend the current exclosure fencing around the new parcels.	Same as No Action Alternative.	Alternative 2 would result in negligible adverse impacts, and moderate benefits to the existing Pine Dunes Research Natural Area. Use restrictions would remain in place as described in No Action. Moderate benefits would result from efforts to acquire (from willing sellers) an additional 2,127 acres of adjoining sand dune habitat. Beneficial effects from a greatly enlarged RNA/ACEC (2,287 acres) would include protecting the majority of the soil/vegetation associations that form this unique dune habitat. The expanded RNA/ACEC would be managed under VRM class II criteria to retain the existing character of the landscape.	Same as No Action Alternative.	Same as Alternative 2.

Eagle Lake Basin ACEC				
The No Action Alternative would result in minor adverse and beneficial impacts to the existing Eagle Lake Basin Special Recreation Management Area. The area would not be designated as an ACEC and would continue to be managed under the provisions of the (current) Eagle Lake Basin Plan. Management of the SRMA emphasizes primitive, self-contained camping (on portions of the Eagle Lake shoreline), protecting water quality, and the preservation of scenic resources (VRM class II). Bald eagle habitat would be protected under the requirements of the Endangered Species Act. Off-highway vehicles would be limited to existing roads and trails, thus eliminating impacts from cross-country travel. Undeveloped shorelines would remain closed to OHVs.	Alternative 1 would result in minor adverse and beneficial impacts to the existing Eagle Lake Basin Special Recreation Management Area, and is similar to No Action, except for the following. The entire area would be closed to leasable mineral development. Trail construction would be increased to 31 miles of new trails. The Merrillville-Bieber Wagon Road would be cleared of brush and rock-fall, thereby opening the trail adjacent to Eagle Lake (where wildlife-viewing opportunities are good and historic trail interpretation would take place). There would also be increased emphasis on juniper removal to create natural-appearing openings and irregular edges.	Alternative 2 would result in negligible adverse and moderate beneficial impacts to the existing Eagle Lake Basin. 34,320 acres of public land would be designated as the Eagle Lake Basin ACEC. ACEC designation would include prioritization for the acquisition of private in-holdings and adjacent lands. Additional funding would be sought to prevent development of shoreline areas, provide public access for fishing and wildlife-viewing, protect cultural resources and wildlife habitat, and develop literature and interpretive sites for visitors. OHVs would be limited to designated roads and trails throughout the area and undeveloped shorelines will be closed to motor vehicles, thereby limiting impacts to well-establish routes.	Same as No Action Alternative.	The Preferred Alternative would result in negligible adverse and moderate beneficial impacts to the existing Eagle Lake Basin. Impacts are the same as Alternative 2, except that saleable mineral development would be permitted on a limited basis, providing ACEC values are sufficiently protected by restrictive stipulations. 31 miles of non-motorized trails would be built, similar to Alternative 1.

Eagle Lake Basin ACEC (continued)				
Woodcutting would be authorized under permit in areas where its visual effects would not be seen from the lake or its shoreline. Timber harvesting would continue with stipulations to improve land health and protect natural, cultural, and wildlife resources. The entire area would be open to all energy and mineral activities. 22.5 miles of non-motorized trails would be built, improving recreation experiences for hikers, horseback riders, and mountain-bikers.		The entire Eagle Lake Basin would be closed to all energy and mineral development in order to permanently protect its outstanding scenic qualities, fish and wildlife, and cultural resources. Recreational mining would be permitted, but would be limited to hand panning of tributary streams. Fuel-reduction, timber harvesting and woodcutting would continue in a manner that would protect or enhance relevant and important ACEC criteria. Of special concern is the quality and quantity of groundwater, crucial to preserving the basins closed hydrology and Eagle Lake trout fishery. Only 7.5 miles of non-motorized trails would be built.		

North Dry Valley ACEC				
The No Action Alternative would result in minor adverse and beneficial impacts to the North Dry Valley area. The area would not be designated as an ACEC and would continue to be managed under general BLM policies. Livestock grazing would continue, however there is currently little use within most of the area due to limited water and forage. Wild horse management would achieve appropriate management levels (AMLs) by 2008. Herd reduction is necessary to protect native vegetation and achieve numbers that can be sustained by available forage. The area would remain 'open' to cross-country OHV travel. This would result in moderate adverse impacts to cultural sites and wildlife habitats (especially pronghorn kidding grounds and raptor nesting sites).	Alternative 1 would result in minor adverse and moderate beneficial impacts to the North Dry Valley area. Uses and impacts are the same as No Action, except OHVs would be limited to designated roads and trails, limiting adverse impacts from cross-country travel.	Alternative 2 would result in negligible adverse and moderate beneficial impacts to the North Dry Valley area. 10,156 acres would be designated as the North Dry Valley ACEC. ACEC designation would focus management on protecting the relevant and important ACEC criteria; and a management plan would be developed to achieve this. Livestock grazing would continue, but would be managed to achieve land health standards, and would be allowed only one year out of every three. Use by wild horses and burros would also continue, and management would achieve appropriate management levels (AMLs) by 2008. OHVs would be limited to designated roads and trails, thereby limiting impacts to well-traveled routes.	Same as No Action Alternative.	The Preferred Alternative would result in negligible adverse and moderate beneficial impacts to the North Dry Valley area. 10,156 acres would be designated as the North Dry Valley ACEC, and impacts are similar to Alternative 2, except for the following. Livestock grazing would be permitted annually—subject to the availability of natural forage and water. Compliance with land health standards would be mandatory. This would preclude grazing in dry years.

The area would remain open to mineral development, however, future mineral activity is unlikely due to the volcanic basalt geology that dominates much of the area. If mineral development is proposed, the BLM would impose stipulations to protect or mitigate impacts on natural and cultural resources.		The area would be closed to locatable and saleable mineral development. NSO stipulations would be required for mineral leasing, to protect surface resources.		
Buffalo Creek Canyons ACEC				
The No Action Alternative would result in minor adverse and beneficial impacts to the Buffalo Creek Canyons area. The area would not be designated as an ACEC and would continue to be managed for the most part according to the wilderness IMP because most of the area falls within the Buffalo Hills and Poodle Mountain WSAs. Riparian and upland areas would be managed to meet land health standards. Scenic qualities would be preserved under VRM class I and II objectives.	Same as No Action Alternative.	Alternative 2 would result in negligible adverse and moderate beneficial impacts to the Buffalo Creek Canyons area. 36,515 acres would be designated as the Buffalo Creek Canyons ACEC in order to protect the imposing scenic character of this canyon complex, and retain the natural setting of the historic Buffalo Hills Toll Road. ACEC designation would include prioritization for the acquisition and management of numerous springs and riparian areas currently under private ownership.	Same as No Action Alternative.	The Preferred Alternative would result in negligible adverse and moderate beneficial impacts to the Buffalo Creek Canyons area. 36,515 acres would be designated as the Buffalo Creek Canyons ACEC in order to protect the imposing, scenic character of this canyon complex and retain the natural setting of the historic Buffalo Hills Toll Road. Impacts are similar to Alternative 2, except for the following. Livestock grazing would be permitted annually—subject to the availability of natural forage and water. Grazing would be subject to compliance with land health standards.

Buffalo Creek Canyons ACEC (continued)				
Following the wilderness IMP, the area is currently closed to leasable and saleable mineral development, and restricted to actions that do not require restoration for development of locatables. OHVs would be limited to existing roads and trails, thereby restricting impacts to establish travel routes. Current management aims to achieve appropriate management levels (AMLs) for wild horses by 2008. Herd reduction is necessary to protect native vegetation and achieve numbers that can be sustained by available forage.		The ability to manage these critical water sources would accelerate efforts to achieve land health standards through an improved ability to control grazing by wild horses and burros, as well as by domestic stock. Recreational use of the area (primarily hunting and historical sight-seeing) would be promoted. Lands within the Buffalo Hills and Poodle Mountain WSAs would receive recreation opportunity spectrum (ROS) 'primitive' classification. This would provide long term protection and preservation of the area's primitive and undeveloped scenic character—with or without wilderness designation. Livestock grazing would be allowed only one year out of three, in order to rapidly and easily achieve land health standards.		

Aspen Groves ACEC				
Quaking aspen (Populus tremuloides), California black oak (Quercus kelloggii) and silver buffaloberry (Sheperdia argentea) are relatively rare and unique plants that tend to occur in isolated stands within sagebrush-steppe ecosystems. The No Action Alternative would result in minor adverse and beneficial impacts to these special plant communities. These areas would be managed primarily to meet land health standards, and to promote wildlife habitat.	Alternative 1 would result in negligible adverse and moderate beneficial impacts to quaking aspen, California black oak, and silver buffaloberry stands. 2,745 acres would be designated as an ACEC to protect and improve management of aspen stands (1,407 acres), black oak (1,298 acres), and buffaloberry (40 acres). This would focus management attention on these uncommon but important plants in order to develop healthy stands in a diversity of seral stages, thereby increasing habitat diversity for a variety of wildlife for which these plants are crucial. An ACEC management plan would be developed following approval of this RMP. The ACEC is judged necessary for these alternatives because of their emphasis on forage production and livestock grazing--especially when the effects of past grazing practices are considered.	Alternative 2 would result in negligible adverse and moderate beneficial impacts to quaking aspen, California black oak, and silver buffaloberry stands. An ACEC would not be designated. However, several management actions are proposed to protect these unique vegetation resources without the ACEC designation. These include: continued monitoring and treatment of aspen stands; fencing the remaining buffaloberry stands; and developing an implementation plan for management and monitoring of California Black Oak. In addition a strong emphasis on improving land health within these communities would be emphasized. Wildlife actions would aim to create multi-age stands of quaking aspen, and oak woodland habitats on up to 3,150 acres.	Same as Alternative 1.	Same as Alternative 2.

Aspen Groves ACEC (continued)				
	The ACEC management plan would include restrictions on livestock numbers, plus season-of-use restrictions. Other interventions may include livestock herding, exclosure fencing, prescribed fire (to stimulate aspen growth), and timber-harvesting stipulations for black oak stands. All buffaloberry stands would be fenced to exclude livestock as well as wild horses and burros.	Rest from livestock grazing would be implemented would allow tree saplings to grow above the reach of livestock, and grazing exclosures would be constructed at select sites.		
Susan River ACEC				
The No Action Alternative would result in negligible adverse and moderate beneficial impacts to the Susan River area. Recreation would continue to be guided by the Bizz Johnson Trail SRMA Management Plan. Lands would be managed in compliance with land health standards and 'proper functioning condition' for riparian areas. Public lands within this area are closed to livestock grazing; so negligible grazing impacts would occur.	Alternative 1 would result in negligible adverse and moderate beneficial impacts to the Susan River area. An ACEC would not be designated under Alternative 1, and impacts from land uses would be similar to the No Action Alternative. Six miles of the Susan River is recommended as suitable for Wild and Scenic River (WSR) status (with a 'recreational' designation) under this alternative.	Alternative 2 would result in negligible adverse and major beneficial impacts to the Susan River area. 2,495 acres would be designated as the Susan River ACEC, adjacent to eight miles of the Susan River. WSR designation is also recommended for the same eight-mile stretch under Alternative 2. This would preserve the free-flowing character of this river segment and preclude construction of a dam or water diversion, adding additional protection to the area's relevant and important ACEC criteria.	Alternative 3 would result in negligible adverse and moderate beneficial impacts to the Susan River area, and impacts are the same as described under the No Action Alternative, except that mineral leasing would require NSO stipulations to prevent surface disturbance.	The Preferred Alternative would result in negligible adverse and moderate beneficial impacts to the Susan River area. 2,495 acres would be designated as the Susan River ACEC, similar to Alternative 2. However, no WSR designation would be recommended under this alternative. ACEC designation would direct management efforts towards protecting the free-flowing character of the entire eight-mile segment, along with other relevant and important ACEC criteria.

Susan River ACEC (continued)				
Recreation activities would continue to be non-motorized. The scenic quality of the eligible area would be protected under VRM class II requirements. The area would remain open to leasable and locatable mineral development, and closed to saleable minerals. This area has low mineral potential and impacts from mineral development are not expected to be significant. Rights-of-way would not be issued within the Susan River Canyon—except to benefit the Bizz Johnson Trail. However, 'grandfathered' right-of-ways acquired with canyon lands would continue to be used. Timber harvesting would be limited to actions which improve forest health and reduce the potential for catastrophic wildfire. Full suppression would be used to fight wildfires because of proximity to Susanville and homes on the north rim of the Susan River Canyon.	WSR designation would preserve the free-flowing character of this river segment and preclude construction of a dam or water diversion, adding additional protection to the area's relevant and important ACEC criteria. The area would be closed to locatable and saleable minerals to protect the Bizz Johnson Trail SRMA. Mineral leasing would require NSO stipulations to prevent surface disturbance (diagonal drilling would be permitted beyond the canyon rim).	With ACEC designation, the area would be closed to leasable minerals, and withdrawn from mineral entry to prevent damage to the relevant and important ACEC values of the Susan River and adjacent canyonlands. However, it would remain open for recreational mining (hand panning). Impacts from livestock grazing, timber harvesting, recreation, rights-of-way, and fire management would be the same as under the No action Alternative.		With ACEC designation, the area would be closed to locatable and saleable mineral development to reduce impacts to the relevant and important ACEC values of the Susan River and adjacent canyonlands. However, it would remain open for recreational mining (hand panning) and for mineral leasing, with NSO stipulations to prevent surface disturbance (diagonal drilling would be permitted beyond the canyon rim). Impacts from livestock grazing, timber harvesting, recreation, rights-of-way, and fire management would be the same as under the No action Alternative.

Lower Smoke Creek ACEC				
The No Action Alternative would result in negligible adverse and moderate beneficial impacts to the Lower Smoke Creek area. The area would not be designated as an ACEC and would continue to be managed according to the wilderness IMP because most of the area falls within the Dry Valley Rim WSA. Impacts from livestock grazing and wild horses would be negligible to minor. Livestock are kept out of the creek in most areas by fencing. When livestock are permitted alongside the creek, guidelines for land health will be rigidly enforced, in order to ensure the continued recovery of riparian areas. Wild horses do not significantly affect Lower Smoke Creek because they are excluded by fencing and natural barriers. Adverse impacts to scenic quality would be negligible as VRM class I criteria would apply within the Dry Valley Rim WSA.	Alternative 1 would result in negligible adverse and major beneficial impacts to the Lower Smoke Creek area. An ACEC would not be designated, and impacts from land uses would be similar to the No Action Alternative. Three miles of Lower Smoke Creek are recommended as suitable for Wild and Scenic River (WSR) status (with a *recreational* designation). WSR designation would preserve the free-flowing character of this creek segment and preclude construction of a dam or water diversion, adding additional protection to the area's relevant and important ACEC criteria. Impacts from livestock, wild horses, mineral development, and OHV use are the same as described under No Action. Benefits would result from VRM Class I and II designation, acquisition of adjacent parcels, and improved riparian function, as described under No Action.	Alternative 2 would result in negligible adverse and major beneficial impacts to the Lower Smoke Creek area. 894 acres would be designated as the Lower Smoke Creek ACEC, adjacent to three miles of the creek. WSR designation is also recommended for the same three-mile stretch under Alternative 2. WSR designation would preserve the free-flowing character of this river segment and preclude construction of a dam or water diversion, adding additional protection to the area's relevant and important ACEC criteria. Off-highway vehicles would be 'limited to designated routes' (primarily short pull-offs from the Smoke Creek Road used for parking or camping. This would limit adverse impacts to areas of established use, and prevent proliferation of new routes.	Same as No Action Alternative, except that no benefits would result from proposed acquisition of additional segments of Lower Smoke Creek, as this would not be a priority.	The Preferred Alternative would result in negligible adverse and moderate beneficial impacts to the Lower Smoke Creek area. 894 acres would be designated as the Lower Smoke Creek ACEC, similar to Alternative 2. However, no WSR designation would be recommended under this alternative. ACEC designation would direct management efforts towards protecting the free-flowing character of the entire three-mile segment, along with other relevant and important ACEC criteria. Off-highway vehicles would be limited to designated roads and trails (primarily short pull-offs from the Smoke Creek Road used for parking or camping. This would limit adverse impacts to areas of established use, and prevent proliferation of new routes.

Lower Smoke Creek ACEC (continued)				
VRM class II criteria would apply for the rest of the area. If the Dry Valley Rim WSA is denied wilderness status, the area would be managed under VRM class II criteria. Moderate benefits would result from continued improvement of the riparian area as a result of a guaranteed minimum flow from a BLM water right. Minor to moderate benefits would result from proposed acquisition (from willing sellers) of additional segments of Lower Smoke Creek. These actions would aid riparian recovery, provide additional public access, and protect sites associated with the Nobles Emigrant Trail. Impacts from OHV use are negligible, as the WSA is 'limited to existing routes'. Negligible adverse impacts would result from mineral development, as the WSA is closed to leasable and saleable minerals, and locatable mineral development would be restricted.		Negligible adverse impacts would result from energy and mineral development, as the WSA is closed to leasable and saleable minerals, and locatable mineral development would be restricted to actions not requiring reclamation. However, if WSA status is removed, the ACEC would be closed to locatable and saleable minerals, and fall under NSO requirements for leasables. Impacts from livestock grazing and wild horse use would be negligible, as described under No Action. Minor to moderate benefits would result from VRM Class I and II designation, acquisition of adjacent parcels, and riparian improvements, as described under the No action Alternative.		With ACEC designation, the area would be closed to locatable and saleable mineral development to reduce impacts to the relevant and important ACEC values of the area. However, it would remain open for recreational mining (hand panning) and for mineral leasing, with NSO stipulations to prevent surface disturbance (diagonal drilling would be permitted beyond the canyon rim). Impacts from livestock grazing and wild horse use would be negligible, as described under No Action. Minor to moderate benefits would result from VRM Class I and II designation, acquisition of adjacent parcels, and riparian improvements, as described under the No action Alternative.

Willow Creek ACEC				
The No Action Alternative would result in negligible adverse and moderate beneficial impacts to the Willow Creek area. The area would not be designated as an ACEC and would continue to be managed according to the wilderness IMP because most of the area falls within the Tunnison WSA. Impacts from livestock grazing and wild horses would be negligible to minor, as livestock would be excluded from riparian areas. Livestock will continue to have access to water by water-gap fencing, but these areas would be carefully monitored. Timber harvesting and wood cutting would not be permitted; except under conditions that would preserve wilderness values, and improve the natural setting. Impacts from OHV use are negligible, as the WSA area is designated as 'limited to existing routes'. Full suppression would be mandatory for wildfires;	Alternative 1 would result in negligible adverse and major beneficial impacts to the Willow Creek area. An ACEC would not be designated under Alternative 1, and impacts from land uses would be similar to the No Action Alternative. 4.75 miles of Willow Creek are recommended as suitable for Wild and Scenic River (WSR) status (with a 'wild' designation) under this alternative. WSR designation would preserve the free-flowing character of this creek segment and preclude construction of a dam or water diversion, adding additional protection to the area's relevant and important ACEC criteria. Impacts from livestock, wild horses, mineral development, timber harvesting, fire management, and OHV use are the same as described under No Action.	Alternative 2 would result in negligible adverse and major beneficial impacts to the Willow Creek area. 894 acres would be designated as the Willow Creek ACEC, adjacent to 4.75 miles of the creek. WSR designation is also recommended for the same 4.75-mile stretch under Alternative 2. WSR designation would preserve the free-flowing character of this river segment and preclude construction of a dam or water diversion, adding additional protection to the area's relevant and important ACEC criteria. Off-highway vehicles would be limited to designated roads and trails. This would limit adverse impacts to areas of established use, and prevent proliferation of new routes. Negligible adverse impacts would result from energy and mineral development, as the WSA is closed to leasable and saleable minerals.	Same as No Action Alternative, except that no benefits would result from proposed acquisition of additional segments of Willow Creek, as this would not be a priority.	The Preferred Alternative would result in negligible adverse and moderate beneficial impacts to the Willow Creek area. 894 acres would be designated as the Willow Creek ACEC, similar to Alternative 2. However, no WSR designation would be recommended under this alternative. ACEC designation would direct management efforts towards protecting the free-flowing character of the entire 4.75-mile segment, along with other relevant and important ACEC criteria. Off-highway vehicles would be limited to designated roads and trails. This would limit adverse impacts to areas of established use, and prevent proliferation of new routes. With ACEC designation, the area would be closed to locatable and saleable mineral development to reduce impacts to the relevant and important ACEC values of the area.

Willow Creek ACEC (continued)				
therefore, a natural fire régime could not be reestablished and fuels must be reduced by other means. Wilderness characteristics will be protected under the wilderness IMP. Adverse impacts to scenic quality would be negligible as VRM class I criteria would apply within the Tunnison WSA and VRM Class II criteria would apply for the rest of the area. If WSA status is denied, the entire area would be managed under VRM Class II. Minor to moderate benefits would result from proposed acquisition of additional segments of Willow Creek in order to enlarge public ownership of the riparian area and aid its recovery, and provide additional public access. Negligible adverse impacts would result from energy and mineral development, as the WSA is closed to leasable and saleable minerals, and locatable mineral development would be restricted.	Benefits would result from VRM Class I and II designation, and acquisition of adjacent parcels, as described under No Action.	Locatable mineral development would be restricted to actions not requiring reclamation. However, if WSA status is removed, the ACEC would be closed to locatable and saleable minerals, and fall under NSO requirements for leasables. Impacts from livestock, wild horses, mineral development, timber harvesting, fire management, and OHV use are the same as described under No Action. Minor to moderate benefits would result from VRM Class I and II designation, and acquisition of adjacent parcels as described under the No action Alternative.		However, it would remain open for recreational mining (hand panning) and for mineral leasing, with NSO stipulations to prevent surface disturbance (diagonal drilling would be permitted beyond the canyon rim). Impacts from livestock, wild horses, mineral development, timber harvesting, fire management, and OHV use are the same as described under No Action. Minor to moderate benefits would result from VRM Class I and II designation, and acquisition of adjacent parcels as described under the No action Alternative.

Historic Trails

No Action Alternative	Alternative 1	Alternative 2	Alternative 3	Preferred Alternative
Minor to moderate benefits would result from acquisition of portions of historic trails, securing public access, and establishing protection. Portions of the Nobles Emigrant Trail would be protected under VRM Class II.	Minor adverse effects would result as no additional trail portions would be acquired. Portions of the Nobles Emigrant Trail would gain some protection under VRM Class II.	Same as the Preferred Alternative.	Same as Alternative 1.	This alternative provides the greatest benefit to the protection of historic trails. Minor to moderate benefits would result from acquisition of portions of historic trails, including railroad grades, securing public access, and establishing protection. All of the Nobles Emigrant Trail would gain some protection under VRM Class II.

Wild and Scenic Rivers

No Action Alternative	Alternative 1	Alternative 2	Alternative 3	Preferred Alternative
Lower Smoke Creek – 3.2 mile segment No designation would occur and the river would remain vulnerable to major adverse, long term, permanent impacts. The waterway would remain available for future construction of dams. A dam would permanently eliminate unique, high scenic quality, free-flowing values, and severely degrade rare, irreplaceable natural and cultural resources.	This alternative would result in major beneficial long term effects as the waterway would remain free flowing in perpetuity. Lower Smoke Creek would be designated as a Wild and Scenic River and classified as *recreational*. Rare, irreplaceable natural and cultural resources would remain intact. Designation would prevent the possibility of dam construction in the future.	Same as Alternative 1.	Same as No Action Alternative.	Same as No Action Alternative.

Lower Smoke Creek (continued) Portions of eligible sections would continue to receive limited protection under the management of Dry Valley Rim Wilderness Study Area (WSA), the National Historic Preservation Act (NHPA) and actions supporting achievement of land health standards.				
Upper Smoke Creek – 10.6 mile segment No designation. Same impacts and limited protection as Lower Smoke Creek, detailed above. Twin Peaks is the applicable WSA.	This alternative would result in major beneficial long term effects as the waterway would remain free flowing in perpetuity. Upper Smoke creek would be designated as a Wild and Scenic River and classified as *wild*. Rare, irreplaceable natural and cultural resources would remain intact. Designation would prevent the possibility of dam construction in the future.	Same as Alternative 1.	Same as No Action Alternative.	Same as Alternative 1.
Susan River – 6 - 8 mile segment No designation would occur and the river would remain vulnerable to major adverse, long term, permanent impacts. The waterway would remain available for future dam construction.	This alternative offers less protection than Alternative 2, but substantially more benefit than No Action, Alternative 3 and the Preferred Alternative. Six out of eight eligible miles would be designated, classified as *recreational*, and would remain free flowing in perpetuity.	This alternative would result in the highest beneficial long term effects as all eight eligible miles of waterway would be designated and classified as *recreational*. The waterway would remain free flowing in perpetuity.	Same as No Action Alternative.	Same as No Action Alternative.

Susan River (cont'd) A dam would permanently eliminate unique, high scenic qualities, free-flowing values, and would severely degrade rare, irreplaceable natural and cultural resources. Portions of eligible sections would continue to receive limited protection under the provisions of the Bizz Johnson Trail Special Recreation Management Area, the National Historic preservation Act and actions supporting achievement of land health standards.	This segment of the river would be protected from any future dam construction. The remaining 2 miles of river above the free flowing segment would remain available for future dam construction.	Rare, irreplaceable natural and cultural resources would remain intact. Designation would prevent the possibility of dam construction in the future.		
Willow Creek – 4.75 - 8 mile segment No designation. Same impacts and limited protection as Smoke Creek waterways detailed above. Tunnison is the applicable WSA.	This alternative offers less protection than Alternative 2, but substantially more benefit than No Action, Alternative 3 and the Preferred Alternative. 4.75 out of 8 total eligible miles would be designated with the classification of *wild*. This section would be protected from inundation from any future dam construction. The remaining 3.2 miles of Willow Creek canyon would not be protected and would be flooded by a reservoir if a dam is constructed.	This would result in the highest beneficial long term effects as all 8 miles of eligible waterway would be designated and classified as *wild*. It would remain free flowing in perpetuity. Rare, irreplaceable natural and cultural resources would remain intact. Designation would prevent the possibility of dam construction in the future.	Same as No Action Alternative.	Same as No Action Alternative.

Wilderness Study Areas				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
Under the No Action Alternative all resource actions would be guided by the Wilderness Interim Management Plan (IMP), which insures the preservation of wilderness characteristics that each wilderness study area (WSA) contains. Negligible adverse impacts are anticipated under this alternative. Off-highway vehicle (OHV) use in all WSAs is 'limited to existing routes'. No additional route closures would be implemented, and no new non-motorized trails would be constructed. Acquisition of land parcels within and adjacent to wilderness study areas would be limited to three WSAs, resulting in minor benefits.	Negligible adverse impacts are anticipated under this alternative, similar to No Action. Minor benefits would result in that acquiring lands within all WSAs would be prioritized. These lands would then be managed according to the wilderness IMP, benefiting wilderness characteristics of the area. Fuel reduction treatments would occur on the 1,734 forested acres of the Tunnison WSA to improve vegetation resources and reduce fire hazards.	Negligible adverse impacts are anticipated under this alternative. Moderate to major benefits would be realized through the designation of ACECs within four WSAs which would result in enhanced protection of the wilderness values within. Additional benefits would result from the closure of 45 miles of routes within the WSAs. Core primitive areas would be established within all WSAs. Closure would eliminate adverse effects to visual resources from roads, and the land would return to a more natural ecological condition as the native vegetation recovers. Acquiring lands within and adjacent to WSAs would be prioritized, benefiting wilderness characteristics of the area. OHV use within all WSAs would be 'limited to designated routes', reducing damage to resources from proliferation of new routes within the WSAs.	Impacts from Alternative 3 are similar to the No Action Alternative, except that less benefits would be realized in that no acquisition of land parcels within and adjacent to wilderness study areas would be prioritized.	Same as Alternative 2, except that only Upper Smoke Creek would be recommended as suitable for Wild and Scenic River designation, within the Twin Peaks WSA.

Wilderness Study Areas (continued)				
		Fuel reduction treatments would occur on the 1,734 forested acres of the Tunnison WSA to improve vegetation resources and reduce fire hazards. Willow Creek, Upper Smoke Creek, and Lower Smoke Creek would be recommended as suitable for Wild and Scenic river designation, and these actions would better protect Tunnison, Twin Peaks, and Dry Valley Rim WSAs, from water impoundments along these streams.		

Travel Management				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in negligible to minor adverse effects and moderate beneficial impacts to travel management and off-highway vehicle (OHV) use. All routes would be 'open' to motorized travel, and 57% of the field office area would be 'open' to cross-country travel. Wilderness study areas and the Eagle Lake Basin would be 'limited to existing routes'. Less than 1% of the field office area would be 'closed' to motorized use, and 1.5% of the field office area would remain undesignated. Sixteen miles of non-motorized trails would be maintained and 80.5 miles of new non-motorized trails would be built, resulting in a minor to moderate benefits. New trails create additional non-motorized access for people who prefer to travel on trails rather than cross-country.	Motorized travel in 97% of the field office area would be limited to established travel routes. 419 acres would be 'open' to cross-country travel, and 2% of the field office would be 'closed' to all motor vehicle use. Restricting OHVs to designated routes would result in beneficial effects by protecting the natural environment, enhancing existing non-motorized recreational experiences and reducing use conflicts. 15 miles of new routes would be built for motorized use. This would have a minor benefit to motorized travel. A total of 277 miles of new non-motorized trails would be built and maintained. Building new trails would have a minor to major benefit, depending on the trail location. Impacts from developing the Modoc Line are the same as described under No Action.	Alternative 2 would result in moderate to major adverse effects and minor beneficial impacts to travel. Motor vehicle use would be limited to established travel routes. No acres would be designated as 'open' or 'limited to existing routes'. About 70% of the field office area would be 'limited to designated routes'. About 29% would be 'closed' to motorized vehicle use, and 35 miles would be seasonally closed. 58 miles of roads and trails would be permanently closed within the ROS 'Primitive' areas designated under Alternative 2. This would have a moderately adverse effect on motorized travel. The closures proposed are dead-end roads extending into WSAs. Only 22 miles of new non-motorized trails would be built or maintained, resulting in a minor to moderate benefits, depending on the trail location.	Impacts from Alternative 3 on motorized travel management are the same as the No Action Alternative. Impacts to non-motorized travel are similar to Alternative 2, except a lower amount of new trails, 18 miles, would be constructed.	The Preferred Alternative would result in moderate adverse impacts and moderate to major beneficial impacts to travel management. 419 acres would be designated as 'open' to motorized travel, and 72% of the field office area would be 'limited to designated routes'; 24% would be 'closed' to motorized vehicle use, and all of the field office area would be designated. The Preferred Alternative would seasonally close 35 miles of roads, and permanently close 58 miles within the ROS 'Primitive' areas. The closures proposed are dead-end roads extending into WSAs. Restricting OHVs to designated routes would result in beneficial effects by protecting the natural environment, enhancing existing non-motorized recreational experiences and reducing use conflicts. About 15 of miles of new routes would be built, resulting in minor benefits to motorized travel.

Travel Management (continued)				
Developing the Modoc Line as a trail would result in moderate to major benefits as it would create non-motorized travel access between significant population centers in Lassen and Modoc Counties.				A total of 277 miles of new non-motorized trails would be built, resulting in a minor to major benefits, depending on the trail location. Developing the Modoc Line as a trail would result in moderate to major benefits as it would create non-motorized travel access between significant population centers in Lassen and Modoc Counties.

Vegetation				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
This alternative would result in minor to moderate adverse impacts to vegetation from disturbances caused by livestock grazing, wild horse grazing, unrestricted cross-county off-highway vehicle (OHV) use and potential energy and mineral extraction. The No Action Alternative would result in minor to moderate short term and long term beneficial effects on riparian and wetland communities that have been classified 'At Risk'. Management actions that would benefit riparian and wetland communities include maintaining current fencing, assessing riparian areas, and managing wild horses at the low end of the appropriate management level (AML) and considering fencing in areas of year-round use. The Pine Dunes area would continue to be managed as a research natural area, and would not be expanded.	Moderate to major adverse impacts would occur to vegetation from disturbances caused by increased livestock grazing, wild horse grazing, OHV activities, and potential energy and mineral extraction. Livestock grazing would be allowed on additional acres, and rest periods reduced in some allotments. Although Alternative 1 includes managing wild horses at the lowest AML and adjusting as needed in areas of year-round use, riparian communities would still sustain effects from livestock use (especially during summer months when livestock would gather along stream and riparian corridors). Potential effects include a direct loss of riparian and wetland vegetation from potential overgrazing (particularly in areas of year-round use) and potential indirect effects on vegetation from stream degradation.	This alternative would result in the least adverse impacts and the most benefits to vegetation. Minor adverse effects would occur from disturbances caused by OHV use, potential energy and mineral extraction, and wild horse grazing. Vegetation would be allowed to recover from livestock grazing impacts for two out of every three years. Generally, resting of allotments is considered to result in beneficial impacts on native vegetation communities by accelerating progress toward meeting land health standards and proper functioning condition. The largest amount of fuels and juniper treatment is proposed using prescribed fire. A large amount of wildland fire use and appropriate management response for fire suppression is proposed under this alternative.	Similar to Alternative 1, Alternative 3 emphasizes utilization of all resources to the maximum extent possible while still meeting land health standards. Alternative 1 is expected to result in moderate adverse impacts to vegetation. Livestock grazing would be allowed on additional acres, rest periods reduced in some allotments, and no exclosures would protect sensitive resources. Alternative 1 would also result in minor beneficial impacts to vegetation communities from the reduction of hazardous fuels on 5,000 acres per year. Designating the Pine Dunes and Aspen Groves ACECs would assure that a management plan is implemented to protect vegetation in these areas. OHV travel would be limited to driving on routes, which would reduce the impacts to vegetation from cross-country use.	The Preferred Alternative is expected to have minor to moderate adverse impacts to vegetation, and moderate beneficial effects. Similar to Alternative 2, this is the second least adverse and most beneficial alternative for managing the vegetation resource. Minor adverse impacts to vegetation would result from disturbances caused by livestock grazing, wild horse grazing, and potential energy and mineral extraction. The Preferred Alternative requires rest periods from livestock grazing on 80 to 90% of all grazed lands annually. Generally, resting of allotments is considered to result in beneficial impacts on vegetation communities by accelerating progress toward meeting land health standards and proper functioning condition.

Vegetation (continued)				
	Alternative 1 would also result in minor beneficial impacts to vegetation communities from the reduction of hazardous fuels on 5,000 acres per year. Designating the Pine Dunes (160 acres) and Aspen Groves (2745 acres) ACECs would assure that a management plan is implemented to protect vegetation in these areas. OHV travel would be limited to driving on routes, which would reduce the impacts to vegetation from cross-country use.	Reintroduction of fire to the landscape on a large scale is considered a beneficial effect under this alternative. The Pine Dunes ACEC would be expanded to cover 2,887 acres to protect the unique plant community therein.		Management actions that would benefit riparian and wetland communities include maintaining current fencing, constructing new exclosures, assessing riparian areas, and managing wild horses at the low end of the appropriate management level (AML). The reduction of hazardous fuels at a rate of 10,000 acres per year, and the reintroduction of fire to the landscape on a large scale, is considered a major beneficial effect under this alternative. The designation of seven ACECs would benefit vegetation in the long run, as management plans are implemented to improve vegetation resources. The Pine Dunes ACEC would be expanded to cover 2,887 acres to protect the unique plant community therein. OHV use would be restricted to designated routes, with several closures to protect vegetation and other resources.

Noxious Weeds				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No action Alternative would result in negligible to minor adverse and beneficial effects to the control of noxious weeds. Although many actions under the No Action Alternative would benefit native vegetation, this alternative is largely reactive. The other alternatives would provide a more proactive approach to vegetation management. Full suppression fire management over the entire field office area would directly affect noxious weeds in the short term. The long term effects of this management action on native vegetation would be adverse, by creating an increase in noxious weeds. Energy and mineral development would disturb more land under this alternative than under No Action because more lands would be open to mineral extraction.	Minor to moderate adverse effects would result from substantial increases in ground disturbing practices. Commodity production of resources would be prioritized. More areas would be opened to livestock grazing, resulting in the introduction of noxious weed species into areas that were not previously infested. A total of 277 miles of new trails and 15 miles of new roads would be built, having the highest potential under all the alternatives for introducing noxious weeds into the area. More lands would be closed to energy and mineral development than the No action alternative. Wildlife management actions would help control noxious weeds and benefit native vegetation. The Eagle Lake Field Office would continue to implement integrated weed management (IWM).	Alternative 2 would result in negligible to minor adverse impacts, and minor to moderate beneficial impacts to the control of noxious weeds. This alternative is designed to benefit vegetation communities by allowing livestock grazing only once every three years. While this action would benefit native plant communities, resting annual grasslands from grazing would increase the cover of exotic annuals, increasing the potential for fire and the fire return interval. An increase in fire frequency would harm healthy communities next to those dominated by annual grasslands by converting them to annual grass-dominated communities. Trail construction and the amount of land open to mineral development are greatly reduced under this alternative, reducing ground disturbances that encourage weed infestations.	Same as Alternative 1, except that livestock grazing effects would be slightly more adverse due to reduction in grazing rest and exclosures. Only 18 miles of non-motorized trails would be constructed, reducing ground disturbance, and the potential for introducing noxious weeds into the area. OHV use and impacts would be the same as under No Action.	The Preferred Alternative would result in negligible to minor adverse impacts, and moderate to major long-term beneficial impacts. Under the Preferred Alternative, vegetation resources would continue to be managed to achieve land health standards using site-specific management techniques. Livestock grazing would be managed to improve land health in upland and riparian sites. The Eagle Lake Field Office would aim to reduce or eliminate the introduction and spread of noxious weeds using integrated weed management (IWM). The management of noxious weeds using an IWM approach has been shown to provide beneficial effects. Fire suppression actions include both wildland fire use, and appropriate management response, which would result in a decrease of weeds in the future.

Noxious Weeds (continued)				
OHV use on 57% of the field office area would be 'open' to cross-country travel. Results would be damage to vegetation communities by creating direct disturbance to vegetation and soils, and indirect disturbance caused by increased human presence, creating a large potential for introducing or spreading noxious weeds. Benefits to native vegetation are expected to result from integrated weed management (IWM) and site-specific management measures of various resource programs.	OHV use on 99% of the field office area would be 'limited to designated routes', and several areas 'closed' . Limits on OHV use would benefit vegetation communities by limiting direct disturbance to vegetation, soil disturbance (thereby decreasing erosion), and indirect disturbance caused by increased human presence, limiting the potential for introducing or spreading noxious weeds.	Fire suppression actions include both wildland fire use, and appropriate management response, which would result in a decrease of weeds in the future. OHV use on 99% of the field office area would be 'limited to designated routes', and several areas 'closed'. Limits on OHV use would benefit vegetation communities by limiting direct disturbance to vegetation, soil disturbance (thereby decreasing erosion), and indirect disturbance caused by increased human presence, limiting the potential for introducing or spreading noxious weeds.		OHV use on 99% of the field office area would be 'limited to designated routes', and several areas 'closed' . Limits on OHV use would benefit vegetation communities by limiting direct disturbance to vegetation, soil disturbance (thereby decreasing erosion), and indirect disturbance caused by increased human presence, limiting the potential for introducing or spreading noxious weeds.

Special Status Plants				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in negligible adverse effects and moderate benefits to special status plants. All project proposals would be reviewed to determine their impacts on special status plant species. Recommendations would be incorporated when necessary to avoid or minimize impacts.	Same as No Action Alternative.	Alternative 2 would result in negligible adverse effects and moderate benefits to special status plants. By emphasizing overall ecosystem health, this alternative would result in the most benefit for special status plants. Required rest for grazing allotments would accelerate progress toward meeting land health standards and proper functioning condition. Continued monitoring of special status plants would provide indirect benefits. Added knowledge on the status, distribution, and ecology of special status plants would also be useful for guiding future management.	Same as No Action Alternative.	Same as Alternative 2.

Visual Resource Management				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in moderate overall adverse effects, primarily as this alternative contains the most lands designated as VRM Class IV, and from unrestricted off-highway vehicle (OHV) use. Under current management, 25% of the field office area is managed as VRM Class IV. Activities that begin to dominate the visual landscape are allowed in these areas. 36% of BLM-administered lands are VRM Class III and also would be affected by activities that cause adverse impacts on visual resources. 'Open' OHV use in most of the field office area would have moderate to major long-term adverse effects, resulting from degradation of natural areas through creation of new trails, as well as widening and expansion of existing trails --particularly on highly visible ridgelines and steep slopes.	Alternative 1 would result in moderate adverse affects to scenic quality from increased development and land use. Increased livestock grazing, the expansion of recreation sites and trails, and continued management of lands as VRM Class IV would result in adverse impacts. Effects from VRM Class designations, and those from prescribed fire and fuel treatments would be the same as the No Action Alternative, except that more acres of fuels treatments would be applied each year. Fuels treatments would be applied at a rate of 5,000 acres each year, which would result in long term benefits to visual resources by improving native plant communities. Alternative 1 would also result in moderate beneficial impacts to scenic quality, from reduced OHV use, and increased restrictions to energy and minerals development.	Alternative 2 would result in negligible adverse and moderate beneficial impacts to scenic quality. Only 8% of the field office area would be managed as VRM Class IV. 52% would be designated as VRM Class III. Activities in these areas, comprising about 60% of the field office, would adversely affect visual resources; however, the area subject to the highest degree of impacts would be significantly lower than under the No Action Alternative. Energy and minerals management actions under Alternative 2 would close approximately 417,400 acres to leasable minerals, approximately 50,000 acres to locatable minerals, and approximately 470,000 acres to saleable minerals. The closures would result in a beneficial effect on visual resources by substantially increasing the area protected from surface-disturbing activities.	Alternative 3 would result in moderate adverse effects, and is similar to the No Action Alternative, with the following exceptions: The Pine Dunes and the Aspen Groves ACECs would be designated. This would result in minor benefits to the visual resources of these areas by maintaining the natural character of the landscape and the scenic values that led to their designation. Fuels treatments would be applied at a rate of 5,000 acres each year, which would result in long term benefits to visual resources by improving native plant communities.	The Preferred Alternative would result in minor adverse and moderate to major beneficial impacts to scenic quality, and is similar to Alternative 2. 7% of the field office area would be assigned VRM Class IV, and Class II would be increased to 50%. This represents the least amount of area where adverse impacts on visual resources would occur. OHV use within most of the field office area would be 'limited to designated routes', reducing visual impacts from cross-country travel. Continued livestock grazing under this alternative would result in some adverse impacts on riparian areas, soils, and vegetation, creating site-specific visual intrusions. However, major improvements to livestock grazing strategies and land health would be made, resulting in the restoration of native plant communities, and the natural setting.

Visual Resource Management (continued)				
Prescribed fire and fuel reduction projects would have short-term adverse effects resulting in long-term benefits. Effects would not be significant because the area affected would be limited in size and activities would be planned to meet visual resource management (VRM) class objectives. Most areas of the field office, except for wilderness study areas (WSAs), would remain open to mineral development. Despite this, potential for large-scale mineral development is generally low. Project planning must meet VRM objectives which would minimize visual impacts. The Pine Dunes area would continue to be managed as a research natural area; no ACECs would be designated.	OHV use in most of the area would be 'limited to existing or designated routes'. These management activities would be of benefit to visual resources by reducing impacts from cross-country travel. Designation of two ACECs would provide protection to visual resources in these areas. Additional benefits would result from restoration of seedings and potential acquisition of WSA inholdings.	Reduction of livestock grazing to once every three years would result in minor beneficial impacts to visual resources. Native plant communities would improve in vigor, creating a higher quality visual setting. Visual disruptions, such as trampling of vegetation, bare areas, and disturbances to riparian areas would be reduced. OHV use in most of the area would be 'limited to designated routes'. 59 miles of routes would be permanently closed. This would benefit visual resources by reducing impacts from cross-country travel, and decreasing the proliferation of new routes. Designating seven ACECs would benefit visual resources by maintaining the natural character of the landscape. Fuels treatments would be applied at a rate of 10,000 acres each year, which would result in long term benefits to visual resources by improving native plant communities.		Impacts from energy and minerals development are similar to those listed under Alternative 2 for leasable and saleable minerals. The closures would result in a beneficial effect on visual resources by substantially increasing the area protected from surface-disturbing activities. Much Less area would be closed to locatable minerals in ACECs (8,406 acres), however protection would be provided by site-specific planning to adhere to VRM class objectives. Benefits would also result from restrictions to OHV use, designation of seven ACECs, and fuels reduction treatments, as described under Alternative 2.

Water Resources				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in water quality trends continuing along their current trajectory and are not anticipated to result in either adverse or beneficial effects relative to baseline conditions. Impacts to water resources would be temporary and limited to specific local areas. The greatest potential to adversely affect water resources would be actions from fire and fuels management, recreation, and livestock and wild horse grazing. Small areas of fuels treatment (<600 acres) and large areas of full suppression (1,022,767 acres), would result in minor short-term adverse effects, but substantial long-term adverse effects from catastrophic fires and an unnatural fire regime. Adverse effects of catastrophic fires are widespread increases in erosion rates and sedimentation rates within water bodies.	Alternative 1 would foster the greatest degree of active use and development, resulting in minor to moderate adverse affects overall on water resources. Many of these uses would slow progress toward achieving land health standards. Livestock grazing would be increased, and required rest periods would be reduced. No exclosures would be constructed to protect sensitive riparian areas, or other water bodies. Increased recreational use would result from the designation of two new SRMAs, and 277 miles of new non-motorized routes. Effects would increase near water sources from human use, including trampling, erosion, and release of human-related contaminants, such as bacteria and trash. However, management attention would focus on the natural resources of that area and this would mitigate impacts.	Alternative 2 would result in a major beneficial effect on water resources overall, resulting from management actions that would specifically protect water resources. Land uses would be allowed only where they would result in unimpeded progress toward standards. In streams with water-quality-limited segments, uses would be allowed only if they promote recovery. In some cases, however, the focus on natural processes would preclude the use of needed management action, resulting in the unintended consequence of impairing progress of water bodies toward meeting land health standards. Allowing grazing in only one of three years would greatly benefit water resources through increased vegetative cover, improved channel condition, improved hydrologic function, and reduced water quality contaminants originating from livestock.	Alternative 3 would result in moderate adverse impacts to water resources, and is similar to Alternative 1, except for the following actions. OHV use is likely to result in continued degradation of water resources due to compaction and erosion associated with OHV travel—both on roads and trails and in cross-country areas. Livestock grazing would be allowed without required rest periods and without exclosures to protect sensitive resources. Grazing actions would be difficult to mitigate without some rest periods required, and intense management actions–increased herding, fencing, vegetation treatment, and water development–would be required to maintain land health standards.	The Preferred Alternative provides many measures to improve land health—similar to Alternative 2, and would result in minor adverse effects and moderate to major beneficial impacts to water resources. Additional focus on a variety of management practices to achieve proper functioning condition would result in increased progress toward meeting land health standards. Exclosures around springs, riparian areas, and contributing uplands would result in additional beneficial effects. Assertion of instream flow and riparian rights would result in benefits to water resources overall. A larger variety of management practices would be used to manage fisheries, including removal of cattle from areas where they are affecting water quality and stream channel condition.

Water Resources (continued)				
Closure of 20,160 acres to grazing would result in beneficial impacts on water quality in closed areas and downstream by reducing trampling, erosion, compaction, and release of other water quality contaminants from livestock. Fence construction, and rest or deferment would result in similar beneficial effects. Increased recreational use at existing and new sites would increase the effects from human use, including trampling, erosion, and release of human-related contaminants, such as bacteria and trash. This alternative allows the greatest use for energy and mineral development. The potential for large-scale mineral development is generally low; however, resulting in minor impacts. Wild horse use would be managed to meet appropriate management levels, which would reduce impacts to water sources over the long term.	Minor benefits would also result from this alternative. (OHV) use would largely be limited to existing roads and trails, which would reduce the degrading of water resources where OHVs engaged in cross-country travel. Banning camping within 200 feet of water sources, sensitive plant locations, and cultural sites would benefit water resources in those areas by reducing trampling and related erosion and soil compaction. Fuels treatment plans would be similar to—but cover larger areas than—the No Action Alternative and are anticipated to result in generally beneficial effects by reducing the potential for catastrophic fires. Impacts from energy and mineral development, and wild horse use are similar to No Action.	Wild horse use would be managed to meet appropriate management levels, which would reduce impacts to water sources over the long term. Significant restrictions on OHV use and closure of routes would reduce potential impacts on water resources from cross-country travel, and route proliferation. Restrictions on mineral development would also reduce potential impacts on water quality. Beneficial effects would result from implementing 100-foot buffers zones and restricting new construction to locations with the least impact on water resources. Fire and fuels actions would result in much greater beneficial effects than those in No Action and Alternative 1, due to increased use of appropriate management response, prescribed fire, and fuels treatments. These actions would reduce the potential for catastrophic fires, which would degrade water resources.		This approach is expected to result in substantial short-term and long-term beneficial effects on water resources in these areas. Major improvements to livestock grazing strategies and land health would be made, resulting in the restoration of riparian areas and springs. Significant restrictions on OHV use and closure of routes would reduce potential impacts on water resources from cross-country travel, and route proliferation. Beneficial effects would also result from implementing >50-foot buffers zones and restricting new construction to locations with the least impact on water resources.

Wild Horses and Burros				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in negligible to minor adverse effects on wild horses. The No Action Alternative places few restrictions on wild horses and burros. Herd management areas (HMAs) would continue to be managed with regular gathers to maintain herd numbers within appropriate management levels and, when necessary, for rehabilitation after wildfire. Livestock grazing would continue with intensive management on portions of some allotments, including building new fences and water developments. Livestock and horses would continue to compete for forage and water. Where land health standards are not being met, wild horse and burro management would address issues when recognized. Recreation activities would result in limited human-horse encounters in remote areas.	Alternative 1 would result in moderate adverse effects and minor beneficial impacts to wild horses. Adverse impacts would result from expanded recreation opportunities, and increased livestock grazing. Livestock grazing would increase above current use levels, having the potential to moderately decrease the amount of forage available for wild horses and burros. Building 60 to 90 miles of new fences would impede the ability of wild horses to move unimpaired throughout their areas. Prescribed fire would have short term adverse impacts, most likely affecting Fort Sage or New Ravendale HMAs because of their relatively small size. If large treatment areas (1,500-2,500 acres) overlap either of these HMAs, available forage and movement within the HMA would be limited until vegetation objectives are achieved.	Alternative 2 would result in moderate to major adverse effects, and moderate beneficial impacts to wild horses. BLM would manage wild horses and burros to best improve overall ecosystem health. Eliminating the New Ravendale HMA would remove at most 25 head of wild horses from management, but this HMA has the potential to promote an understanding of wild horse management to the public because of the closeness to a well-traveled state highway. Alternative 2 would not promote BLM's wild horse and burro program, and in the long term, result in less public understanding and support of wild horse and burro management. Increased emphasis on restoring ecosystems would both adversely effect and benefit wild horses.	Alternative 3 is expected to result in minor to moderate adverse effects and minor benefits to wild horses. Impacts from wild horse management would be the same as No Action. Impacts from fuels treatments, increased recreation activities and livestock grazing would be similar to those listed under Alternative 1. Competition from livestock would increase, and fencing would restrict movement resulting in moderate adverse impacts.	The Preferred Alternative would result in minor adverse effects and moderate beneficial impacts to wild horses. BLM would maintain three HMAs at appropriate management levels, emphasizing the historical traits of each herd. Emphasis would be given to promoting public education and interpretation of the wild horse and burro program. Facilities would be developed for the adoption program and for public viewing of wild horses and burros in their natural habitat. Livestock grazing would continue with intensive management on portions of some allotments, including building of new fences and water developments. Livestock-horse competition for forage and water would continue. Rest and deferment from livestock grazing would improve overall forage conditions, benefiting wild horses and burros.

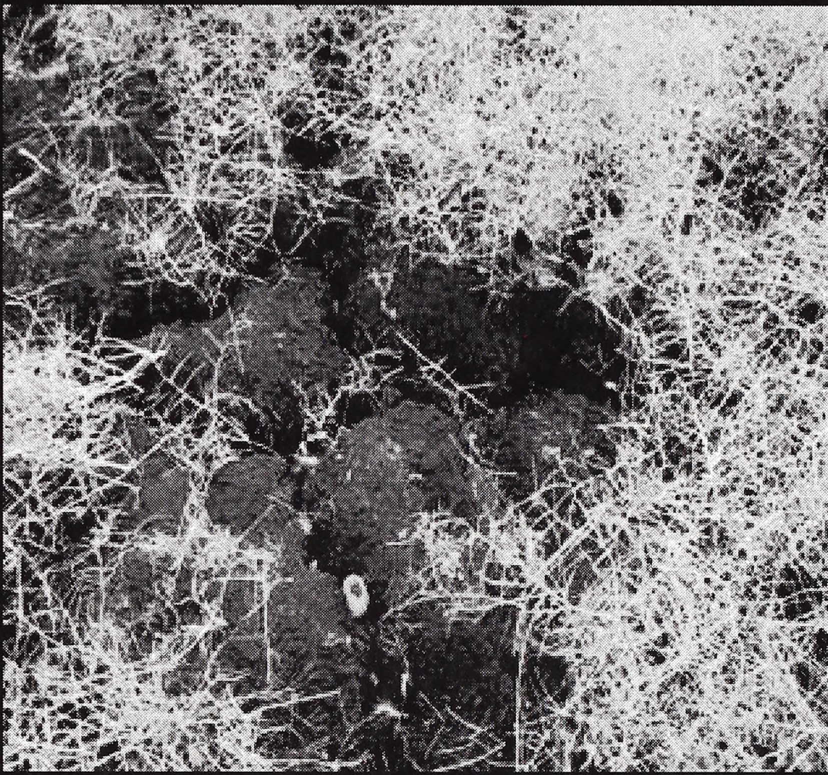
Wild Horses and Burros (continued)				
Opportunities for encounters in accessible areas would be slightly greater in the Fort Sage SRMA. Current management actions negligibly disturb wild horses, mainly due to the intermittent, dispersed nature of the uses within the SRMA and the ability of the horses to move away from temporary concentrated uses such as special events. The proposed amounts of prescribed fire and vegetation treatments in this alternative are relatively low, and would have greater effects in those herd management areas (HMAs) likely to be encroached by juniper. Other minor adverse impacts would continue from fencing requirements associated with vegetation treatments.	Designating the Aspen Groves ACEC would require fencing and restrict movement within herd areas on 2,719 acres of small scattered groves. Because aspen groves often grow in riparian areas, fencing would also limit wild horse access to some water sources. Management practices proposed to improve vegetation condition and productivity, restore unhealthy ecological sites, and treat juniper and unique vegetation associations would improve overall habitat conditions for wild horses and burros. Managing special recreation management areas at Fort Sage and South Dry Valley would cause a minor disturbance to wild horses and burros in those areas. Restricting motorized use to designated routes would keep disturbance negligible by providing areas of limited use where horses and burros would remain mostly undisturbed.	The potential for large acreages to be treated with prescribed fire or other treatments in any one year would moderately disturb wild horses and burros for the short term immediately following treatment. If the same area is treated during later years, or multiple treatments occur in the same vicinity, the impacts would become greater and extended over a longer timeframe. Beneficial impacts would include long term improvement of wild horse habitat due to reduced livestock grazing and vegetation treatments. Reducing livestock grazing by 1/3 would increase forage and water for wild horses, therefore improving the overall health of the herds. Minor to moderate beneficial impacts would result from increased restrictions on energy and minerals development and OHV travel. Additional benefits would result from development of water sources for wildlife.		Impacts from fuels treatments would be similar to Alternative 2. Over time, the general health of the herds is expected to improve. Developing new special recreation management areas at Fort Sage and in South Dry Valley would have minor adverse impacts on the wild horses in those areas. Increased use by OHVs, hikers, equestrians, and sightseers would increase human-horse encounters and disturbance in areas previously less used by the public. But restricting motorized use to designated routes would keep impacts negligible by providing areas of limited use where horses and burros would remain mostly undisturbed. Management practices proposed to improve vegetation condition and productivity, restore unhealthy ecological sites, and treat juniper and unique vegetation associations would improve overall habitat conditions for wild horses and burros.

Wildlife and Fisheries				
No Action Alternative	**Alternative 1**	**Alternative 2**	**Alternative 3**	**Preferred Alternative**
The No Action Alternative would result in major adverse effects to wildlife habitat from a combination of hazardous fuels buildup, livestock and wild horse grazing, 'open' cross-country off-highway vehicle use, and the lack of proactive progressive measures to protect sensitive habitats. The amount of acres treated for vegetation improvements through fuels reduction and other treatments would be relatively low. Moderate adverse impacts to ungulates, sagebrush obligate and other species would continue, as current livestock grazing acres and management would remain unchanged. Adverse impacts from motorized recreation would be high, as 562,197 acres would be open, and the fewest acres would be closed. 80.5 miles of new non-motorized routes would be constructed, increasing minor adverse effects from disturbance and habitat modification.	Alternative 1 would result in major adverse effects to wildlife habitat from a combination of livestock and wild horse grazing, and lack of protection of sensitive habitats. This alternative contains the highest number of acres open to grazing, and considers opening presently unallocated lands, which would increase adverse effects to wildlife. Minimal rest or deferment would increase damage to habitat and competition for forage, resulting in increased adverse effects to ungulates, sage-grouse and other sagebrush obligate species. Vegetation would be managed as a commodity, providing relatively minor beneficial impacts to wildlife. Only areas of priority to mule deer would receive rest from grazing. Juniper would be removed regardless of site, adversely affecting birds and other species.	Alternative 2 would result in minor to moderate adverse effects to wildlife habitat from a combination of wild horse grazing, potential energy development, and recreation activities. This alternative would result in moderate to major beneficial impacts to wildlife, and provides the highest level of protection for sensitive habitats. Livestock grazing in each allotment or pasture would be completely rested for 2 out of 3 years. This would provide moderate benefits to ungulates, sage-grouse and other sagebrush obligate species by reducing damage to habitat and competition for forage. Restrictions to energy and mineral development would be implemented to protect sage-grouse leks, known raptor nests, and pronghorn kidding grounds, in addition to other sensitive wildlife habitats.	Same as Alternative 1.	The Preferred Alternative would result in moderate adverse effects to wildlife habitat from a combination of livestock and wild horse grazing, potential energy development, and recreational activities. This alternative would result in moderate to major beneficial impacts to wildlife, and provides the second highest level of protection for sensitive habitats. Impacts from livestock and wild horse grazing would be similar to the No Action Alternative; however adverse impacts should be lessened as changes are implemented to meet or make progress toward land health standards. Two new SRMAs would increase adverse effects from increased disturbance and habitat fragmentation. OHV use allows only 419 acres 'open', with 261,511 acres closed, and the remainder limited to designated routes.

Wildlife and Fisheries (continued)				
No seasonal route closures would be designated to protect wildlife habitat or reproductive efforts, possibly causing adverse effects to bald eagles, sage-grouse and other species. Adverse impacts from wild horses include competition for forage, soil compaction, erosion, sedimentation and degradation of accessible stream channels. This alternative would result in minor to moderate beneficial impacts to wildlife and habitats from maintenance of existing structures and projects (guzzlers, exclosures, riparian and meadow projects, and waterfowl nesting islands).	Exclosures and riparian/meadow projects would not be maintained, resulting in minor adverse impacts. Two new SRMAs would increase adverse effects from increased disturbance and habitat fragmentation. No seasonal route closures would be designated to protect wildlife habitat or reproductive efforts, possibly causing adverse effects to bald eagles, sage-grouse and other species. This alternative would result in moderate beneficial impacts to wildlife and habitats from reducing juniper on 10,000-15,000 acres. Restoration of sites to their ecological potential would result in long term benefits to ungulates, sage-grouse and sagebrush obligate species. Improvements on 1,050-2,100 acres (25%-50%) of special habitats would provide minor to moderate benefits to a variety of species.	Reducing juniper on 15,000-20,000 acres may increase the short-term adverse impacts to birds or other species, but restoration of sites to their ecological potential would result in additional long-term benefits to ungulates, sage-grouse and sagebrush obligate species. Improvements on 2,100-3,150 acres (50%-75%) of special habitats would provide additional minor to moderate benefits to a variety of species. Minor beneficial impacts to upland game birds would occur by constructing brush piles in areas where cover is lacking. California spotted owls would experience minor to moderate beneficial impacts from retaining large-diameter trees and snags, high canopy closure and downed woody material in suitable forest habitat. Management of commercial timber would emphasize wildlife and old growth.		This would minimize and concentrate long-term adverse impacts to wildlife species and habitat, as would closing 58.5 miles of motorized routes. Seasonal route closures would be designated to protect wildlife habitat and reproductive efforts, providing benefits to bald eagles, sage-grouse and other species by minimizing disturbance and damage to habitat. Seven ACECs would be designated, providing moderate beneficial effects to wildlife and habitat within these areas. Restrictions to energy and mineral development are similar to Alternative 2, except that they apply within .25 to .60 miles of sage-grouse leks, .25 to .50 miles from known raptor nests, and .25 miles from pronghorn kidding grounds, in addition to other sensitive wildlife habitats Vegetation, fuels, forestry, and wildlife actions would result in major beneficial impacts, as described in Alternative 2.

Wildlife and Fisheries (continued)				
	Fuels treatments and habitat restoration projects would provide long term beneficial impacts to wildlife and habitat. Minor beneficial impacts to upland game birds would occur by constructing brush piles in areas where cover is lacking. Maintenance of existing guzzlers and waterfowl nesting islands would continue to provide minor to moderate benefits to species utilizing them. Additional beneficial impacts would be realized if new structures or projects were developed.	Fuels buildup would be reduced over the greatest number of acres, reducing the risk of catastrophic wildfires in these areas.		

Chapter 3: AFFECTED ENVIRONMENT



Chapter 3. Affected Environment

Introduction

This chapter describes the existing physical, biological, cultural, social, and economic characteristics of the Eagle Lake Field Office planning area, representing 1,022,767 acres in four counties in northeastern California and northwestern Nevada. The affected environment defines the baseline of existing conditions from which possible impacts of the plan alternatives may be analyzed. The majority of the data was provided by the BLM Eagle Lake Field Office; federal, state, county, and local agencies; various organizations; and other public and private sources. Data includes published and unpublished reports, maps, and geographic information system (GIS) information.

The majority of the Eagle Lake Field Office area falls within the Modoc Plateau of the Great Basin Division Province, as described in The Jepson Manual (Hickman 1993). The Modoc Plateau region excludes the Warner Mountains and terminates along the eastern boundary of the Eagle Lake Field Office area in the unvegetated playa of the Smoke Creek Desert. The remainder of the Eagle Lake Field Office area, along the western and southwestern boundary, is situated within the Cascade Range and Sierra Nevada regions of the California Floristic Province. The Diamond Mountains are the northernmost extension of the Sierra Nevada region in the western and southern areas of the Eagle Lake Field Office area.

Susanville, with a population of approximately 17,400, is the only incorporated city in Lassen County. The largest unincorporated community in Lassen County is Westwood. Other community centers in the Eagle Lake Field Office planning area include Clear Creek, Johnstonville, Standish, Litchfield, Wendel, Janesville, Milford, Herlong, Doyle, Spaulding, and Ravendale.

Dominant vegetation types include grasslands, Great Basin shrubs, sagebrush, mixed sage–western juniper, western juniper, conifer, and riparian formations. Large animal species that characterize the area include deer, pronghorn antelope, mountain lion, coyote, and black bear; wild horses and burros are also present. Principal uses of the lands include livestock grazing, developed agriculture, forestry, mineral extraction, and recreation.

3.1 Air Resources

The Eagle Lake Field Office area is located in Lassen County and lies in the Northeast Plateau Air Basin (NPAB). The NPAB includes Siskiyou, Modoc, and Lassen Counties. The Lassen County Air Pollution Control District has jurisdiction over air quality issues throughout Lassen County. It administers air quality regulations developed at federal, state, and local levels.

3.1.1 Current Conditions

Climate and Topography

Weather in northern California is dominated by the position of the Eastern Pacific high pressure cell that is normally located off the coast of North America. Due to the positioning of this cell, an almost unbroken chain of winter storms occurs in the study area, and a bulk of the precipitation in the study area occurs during this winter storm period. Weather systems in the region usually result in strong winds and unstable air masses, providing for good dispersion conditions. During fair weather periods, stable air conditions prevail throughout the region.

During spring, the movement of the Pacific high pressure cell results in a decline of precipitation in the project vicinity. Spring conditions are rarely warm and dry, due to unstable conditions that result in rain and snow. Dry, warm conditions are characteristic of the summer months, although thunderstorms are not uncommon. The transitional period between summer and winter/spring is generally characterized by cool, clear days and evening temperatures that drop below freezing.

The existing air quality conditions in the proposed project area can be characterized by monitoring data collected in the region. Air Quality monitoring data for 1999 through 2001 (the most recent years available) are presented in Table 3.1-1. The closest monitoring station is located at the Russel Monitoring Station in Susanville.

Table 3.1-1 Ambient Air Quality Monitoring Data at the Susanville Russel Monitoring Station (1999–2001)

Pollutant Standard	1999	2000	2001
Particulate Matter (PM10)			
Maximum 24-hour concentration (μg/m3)	100.0	80.0	105.0
Second highest 24-hour concentration (μg/m3)	96.0	65.0	105.0
Average geometric mean concentration (μg/m3)	29	29	29
Average arithmetic mean concentration (μg/m3)	32	27	25
Number of Days Standard Exceeded[a]			
CAAQS 24-hour (>50 μg/m3)[b]	54	48	36
NAAQS 24-hour (>150 μg/m3)[b]	0	0	0

Notes:

CAAQS = California ambient air quality standards.
μg/m3 = Micrograms per cubic meter.
NA = Not applicable.
NAAQS = National ambient air quality standards.

[a] The number of days above the standard is not necessarily the number of violations of the standard for the year.

[b] Calculated exceedances are based on measurements taken every 6 days.

Sources: California Air Resources Board 2003, U.S. Environmental Protection Agency 2003.

As shown in Table 3.1-1, the Eagle Lake Field Office area has experienced violations of the state PM10 standards during the last 3 years. The federal and state governments have established ambient air quality standards for six criteria pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns (PM10), and lead (Pb). The state and federal ambient air quality standards are summarized in Table 3.1-2 (at the end of this section). O_3 and PM10 are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as CO, NO_2, SO_2, and Pb are considered to be local pollutants because they tend to accumulate in the air locally. Particulate matter (PM10 and PM2.5) is also considered to be a localized pollutant. In the Eagle Lake Field Office area, particulate matter is the primary pollutant of concern. During the summer months, when wildfires and prescribed burns are a significant source of airborne particulate matter, frequent dry periods can result in infrequent instances of mixing and ventilation, resulting in higher levels of particulate matter. During the winter months, particulate matter from woodburning stoves and furnaces used for heating often results in increased levels of airborne particulate matter. During these times, air quality is less likely to meet state and federal attainment status. Table 3.1-3 summarizes the state and federal attainment designations for Lassen County.

Table 3.1-3 Attainment Status for Criteria Pollutants of Concern in the Lassen County Air Pollution Control District

Particular Matter Less than 10 Microns		Particulate Matter Less than 2.5 Microns		Carbon Monoxide		Ozone	
Federal	State	Federal	State	Federal	State	Federal	State
Unclassified	Non-attainment	Unclassified	NA	Unclassified/ attainment	Unclassified	Unclassified/ attainment	Attainment

Note: NA = Not applicable.

3.1.2 Air Quality Pollutants

Ozone

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections; ozone can cause substantial damage to vegetation and other materials. It is a severe eye, nose, and throat irritant. Ozone also attacks synthetic rubber, textiles, plants, and other materials—and can cause extensive cell damage and leaf discoloration in plants.

Ozone is not emitted directly into the air but is formed by a photochemical reaction in the atmosphere. Ozone precursors, which include reactive organic gases (ROG) and oxides of nitrogen (NOx), react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates increase when the intensity of ultraviolet light and air temperature increase, ozone is primarily a summer air pollution problem. The ozone precursors ROG and NOx are emitted by stationary combustion engines and mobile sources, such as construction equipment.

Carbon Monoxide

CO essentially has no effect on plants and materials but can significantly affect human health. It is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. Effects on humans range from slight headaches to nausea to death.

Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter, when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also emit more CO at low air temperatures.

Particulate Matter
Particulates can damage human health and retard plant growth. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Particulates also reduce visibility and corrode materials.

Emissions of particulate matter are generated by a wide variety of sources, including agricultural activities, industrial emissions, dust suspended by vehicle traffic and construction equipment, and secondary aerosols formed by reactions in the atmosphere.

3.1.3 Trends

Information provided by BLM staff indicates that the following activities contribute to emissions in the Eagle Lake Field Office area (Whitcome pers. comm.):

- Wildfires (beyond management control),
- Prescribed fires (piles and broadcast),
- Heavy equipment use,
- Road construction and maintenance,
- Reservoir construction and maintenance,
- Chainsaw use on fuels and fire projects,
- Field work by BLM employees (e.g., vehicles and all-terrain vehicles).

BLM activities would continue to generate emissions of criteria pollutants, particularly inhalable particulate matter. The substantial generation of particulate matter, particularly from wildfires and prescribed fires, is anticipated to result in a detrimental effect on air quality in the region.

Table 3.1-2 Ambient Air Quality Standards Applicable in California

Pollutant	Symbol	Average Time	Standard (parts per million) California	Standard (parts per million) National	Standard (micrograms per cubic meter) California	Standard (micrograms per cubic meter) National	Violation Criteria California	Violation Criteria National
Ozone	O_3	1 hour	0.09	0.12	180	235	If exceeded	If exceeded on more than 1 day per year
		8 hours	NA	0.08	NA	157	NA	If fourth highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor within an area
Carbon monoxide	CO	8 hours	9	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
(Lake Tahoe only)		8 hours	6	NA	7,000	NA	If equaled or exceeded	NA
Nitrogen dioxide	NO_2	Annual average	NA	0.053	NA	100	NA	If exceeded on more than 1 day per year
		1 hour	0.25	NA	470	NA	If exceeded	NA
Sulfur dioxide	SO_2	Annual average	NA	0.03	NA	80	NA	If exceeded
		24 hours	0.04	0.14	105	365	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	NA	655	NA	If exceeded	NA
Hydrogen sulfide	H_2S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA
Vinyl chloride	C_2H_3Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA

Table 3.1-2 Ambient Air Quality Standards Applicable in California (cont.)

			Standard (parts per million)		Standard (micrograms per cubic meter)		Violation Criteria	
Pollutant	**Symbol**	**Average Time**	**California**	**National**	**California**	**National**	**California**	**National**
Inhalable particulate matter	PM10	Annual geometric mean	NA	NA	20	NA	If exceeded	NA
		Annual arithmetic mean	NA	NA	NA	50	NA	If exceeded at each monitor within area
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than 1 day per year
	PM2.5	Annual geometric mean	NA	NA	12	NA	If exceeded	NA
		Annual arithmetic mean	NA	NA	NA	15	NA	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	NA	NA	NA	65	NA	If 3-year average of 98th percentile at each population-oriented monitor within an area is exceeded
Sulfate particles	SO_4	24 hours	NA	NA	25	NA	If equaled or exceeded	NA
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded no more than 1 day per year
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA

Notes: NA = Not applicable.
All standards are based on measurements at 25°C and 1 atmosphere pressure.
National standards shown are the primary (health effects) standards.

Source: California Air Resources Board, "Area Designations for State and National Ambient Air Quality Standards."

3.2 Cultural Resources

Bruff's Rock, Smoke Creek

The overall archaeological sensitivity of the Eagle Lake Eagle Lake Field Office area is generally considered high. Thus far, almost 10 % of the area has been inventoried for the presence of cultural resources and almost 1700 cultural sites have been identified; it is estimated that there are between 3000-5000 unrecorded sites within the ELFO area. Prehistoric site types found in the Eagle Lake Field Office area are lithic reduction stations, milling stations, midden sites, rock features, and rock art panels. The most prevalent types of historic sites in the Eagle Lake Field Office area are associated with ranching and farming activities, and transportation.

There are numerous National Register of Historic Places (NRHP) sites and districts in the Eagle Lake Field Office area; these include the famous Belfast NRHP Rock Art Complex and Heritage Education Area, and the Bruff's Rock and Upper Smoke Creek NR District, and the Eagle Lake Archaeological District NRHP Rock Art Site. The Horse Lake watershed has the highest concentration of prehistoric sites in the district, many of which are of NRHP quality. The most pristine segments of the Nobles Immigrant Trail and the Merrillville-Bieber Wagon Road are also located in the Eagle Lake Field Office area. It should be noted that all site data in now in GIS and is being used along with other data (e.g., soils, vegetation, Upland Health, fire history, etc.) to develop new cultural resource management planning options.

The major impacts to cultural resources are site deflation and disturbance due to grazing (both domestic and natural (including horses)), recreational vehicles and roads, poor vegetative, soils and stream management, wind and water erosion, vandalism in the form of surface collecting, pot hunting, site destruction (especially shooting at sites), and fire history (e.g., repeated natural burning of areas due to presence of non-native species). A Class I overview that synthesizes all available data is being compiled—in part to further identify data gaps and to develop new management strategies (Far Western 2004).

Generally speaking, the ELFO has used the ecosystem management approach as a basis for most management decisions, including those that deal with cultural resources. For example, sites tend to be managed as a part of an over all ecosystem or landscape (e.g., Upper Smoke Creek, Belfast, Eagle Lake) and not as individual sites unless it is the only option (e.g., Rice Canyon, Tupi t'waba). Knowledge of soil types, vegetation condition and the local fire history are essential in both understanding and managing the cultural ecology of cultural resources (e.g., Keter 1995; Hadley, et al 1993; Manuel 2002, 2004).

Cultural resources have been managed as individual sites, NRHP districts, or parts of a larger ecosystem. Sites in areas that have been managed as part of the larger ecosystem are more stable and protected than those managed individually. Educationally, cultural sites mean more to students and the public if represented and studied as a part of the overall environmental picture, such as a watershed or landscape, than as an individual site. Managers can also use a more holistic management approach when all resources are viewed as an ecosystem and not as an individual resource; additionally, funding by ecosystem or watersheds instead of by individual resources makes planning easier (Manuel 1999, 2002). In the future, all cultural resource management should be holistic and integrated with ecosystem management to insure that both known and as yet undiscovered resources will be protccted and properly managed in the long term.

Unless otherwise noted, the following cultural resources context is condensed from the Cal-Neva Grazing EIS (1981), Raven's Northeastern California chapter in California Archaeology (Moratto 1984), and a Class I overview currently being prepared for the Alturas, Eagle Lake, and Surprise Valley Field Offices (Far Western 2004).

3.2.1 Prehistoric Context

The Eagle Lake Field Office *includes lands from four distinct geographic and ecological regions, the Western Great Basin, the Sierra, the Modoc Plateau and the Cascade Range (Far Western 2004)*; these regions lands occupy the western margin of the Great Basin culture area (Kroeber 1939), *these regions are generally* characterized by prehistoric hunter-gatherer populations who moved seasonally in mobile bands. Sometime after the end of the Pleistocene climatic episode, human foragers entered the area. With some modifications, many scholars (Jennings 1964) consider the life way of the earliest inhabitants a stable pattern enduring until the onset of the historic period. Because water was scarce and plant and animal foods were available only seasonally in any given locale, human groups had to be mobile and shifted the locations of their settlements several times during the year. Their subsistence pattern was generalized and diversified to exploit a broad range of the arid land resources. Archaeological excavations (O'Connell 1975, O'Connell and Hayward 1972 Delacorte 1997, McGuire 2000) have established bighorn sheep, bison, deer, antelope, rabbits, rodents and waterfowl as principal components of the meat diet. Native grass seeds, roots, and autumn fruits supplied the chief plant foods.

(Abstracted from Far Western 2004) During the last 20 years, archaeological research has redefined much of the prehistoric, ethno historic graphic record of the area. For example, several major archaeological patterns have been recognized during the last 12,000 years of documented human occupation within the Eagle Lake Field Office area. These phases are organized into a series of named periods and recognized dates: Early Holocene (7000+ BP), Post-Manzama (7000-5000 BP), Early Archaic (5000-3500 BP), and Middle Archaic (3500-1300 BP), and Late Archaic (1300-600 BP). the Terminal Prehistoric (600 BP-Contact) and finally the Historic Period. These periods are each defined by specific Research Issues such as Chronology, Mobility and Land use, and Late Prehistoric Subsistence-Settlement Change; these issues can be identified by specific artifacts and spatial artifact patterns, certain geophysical and biological trends and environmental changes. Each of these data sets can be used to evaluate prehistoric site significance and sensitivity and for other management and resource purposes (See Far Western 2004, Final Report-in Press-for complete descriptions of these periods, how they relate to ecosystem and resource management, cultural resource issues, and Native American concerns).

3.2.2 Ethnography

When Anglo-Americans first entered the study area, the region was inhabited by Native Americans of the *Wadatkuht* and *Kamodokado* Paiute, the Pit River, and Maidu tribes. Occupancy in the area consisted primarily of Paiute groups who employed a characteristically broad-based Great Basin subsistence strategy (Riddell 1978). Modest-sized groups numbering from 100 to 200 individuals ranged through Honey Lake Valley, Secret Valley, and the eastern portion of the Madeline Plains; while smaller bands (less than 100 individuals) occupied Smoke Creek and the Smoke Creek Desert. occupied Smoke Creek and the Smoke Creek desert.

3.2.3 Northern Paiute

In the southernmost reach of their territory, along the base of the Diamond Mountains, the Paiute were able to intensively exploit acorns. Lacking a rich and centralized resource base, the Northern Paiute followed a seasonal round of extensive foraging in a territory of seasonally available food resources. Only along the base of the Diamond Mountains were the Northern Paiute able to intensively exploit acorns. Large, multi-family groups lived in winter villages, subsisting on stored foods and those local animals (such as rabbits) that could be taken year-round in valley floor settings.

During spring, summer, and fall, villages would split up into family groups that moved into higher country to collect roots (including camas), seeds (especially grass seeds such as Indian ricegrass and Great Basin wild rye), greens and berries. Most animals (except carnivores) were hunted for food; pronghorn and rabbit were hunted communally (Fowler and Liljeblad 1986). Village composition was fluid, consisting in any winter of an assemblage of those foraging groups who were in the vicinity in late fall (Kelly 1932). The result was that personal contacts and family ties were maintained over long distances. Although band leadership focused on a "headman," whose succession was often hereditary, political organization appears to have been generally loose. Various kinds of power and authority were vested in those who displayed the appropriate aptitudes. In winter, the Northern Paiute constructed single-family dwellings consisting of conical, mat-covered structures that were 3–5 feet in diameter, against which brush or grass was laid (Riddell 1960). Summer houses were casual, roofless, brush windscreens. Technology consisted largely of the basic tools and methods employed by other California and Great Basin groups, with little unique or specialized equipment."

3.2.4 Pit River

The Pit River peoples were divided into 11 bands with two major divisions: nine *Achumawi* bands occupying areas north of the Eagle Lake Field Office area and two *Atsugewi* bands who occupied the southern Pit River territory. The Atsugewi bands were the *Atsuge*, associated with Hat Creek Valley, and the *Apwaruge*, associated with the Dixie Valley. The Achumawi bands were the *Ihewisedawi*, associated with Goose Lake, the *Kosalektawi*, associated with Alturas area, the *Hammawi*, associated with the Likely area, the *Astariwawi*, associated with the Canby area, the *Atwansini*, associated with Big Valley, the *Ajumawi*, associated with the Fall River Mills area, the *Ilmawi*, associated with Goose Valley, the *Madesi*, associated with Montgomery Creek, the *Hewisedawi* by Goose Lake, and the *Itsatawi*, associated with Big Bend.

Within their territories, the various Pit River bands enjoyed a wide diversity of environmental zones; settlement patterns followed a yearly round that focused on the exploitation of seasonally abundant resources. Winter villages consisted of groupings of semi-subterranean structures of pole, bark, shrub, and brush. Summer structures consisted of more informally constructed willow framework covered with tule mats (Garth 1953). Villages functioned as multi-family bases both for staging hunting and gathering forays, and as social centers. Visiting between villages and bands were a favored event; in promising years a village might host a "big time" gathering. A village headman acted as an advisor to the group. Pit River procurement and processing technology consisted of the sinew-backed bow and arrow, the mortar and pestle, and the hand stone and milling stone. Obsidian, the preferred stone for flaking, was available to western groups at Glass Mountain and the Medicine Lake Highlands, and to eastern groups along the flanks of the Warner Mountains. Trade relations were maintained with non-Pit River groups to the west, involving wealth and certain subsistence items. The Paiute were disdained by most Pit bands and the Modoc (who in the nineteenth century had acquired horses and embarked on a campaign of slave raids) were generally feared. By the early decades of the 20th century, most Pit River bands were adopting the trappings of Euro-American material culture.

3.2.5 Maidu (Mountain Maidu)

The Mountain Maidu (one of three Maidu groups composed of the Mountain Maidu, the Konow, and the Nisenan) inhabited the Sierran meadows between Lassen Peak and the Sierra Buttes on the west, as well as east to Susanville. Maidu settlement concentrated in the series of large, flat-floored valleys occurring in the high (between 1,200 and 1,600 meters above sea level) mountain environment. These well-watered areas offered a rich diversity of flora and fauna (Dixon 1905, Riddell 1978). Village sites were chosen near a stream or spring, and generally located in sheltered, open coves, where an enemy could not easily approach unseen and a knoll afforded good drainage (Powers 1976). Maidu territory encompassed both arid Great Basin environments of sagebrush and alkali flats in the Honey Lake vicinity, as well as the more lush meadows, sloughs, and tributaries of the Susan River and Willow Creek (Riddell 1978).

Maidu subsistence activities focused on the rich fish and waterfowl resources in the marshes and the plentiful game, such as deer. Bears were hunted for meat and hides (Dixon 1905, Riddell 1978, Voegelin 1942). Women's activities focused on gathering and processing vegetal foods such as greens, tubers, seeds, berries, nuts, and acorns. They also produced their own tools—most significantly baskets, which were used for gathering, processing, and storing food. For this important functional and artistic ability, skill at basket making afforded a woman status and admiration.

Three types of structures served as homes for the Maidu. A semi-subterranean structure was used during winter months (Dixon 1905, Voegelin 1942, Riddell 1978). A major village also had a larger version of this lodge used as a ceremonial or assembly house and owned by the chief. In summer, the Maidu used simple shade pole shelters (Riddell 1978). Each village or community of villages had a chief—chosen with the aid of a shaman—whose role was essentially that of an advisor (Dixon 1905). He was therefore consulted in all matters by a council of the Secret Society, a select group of men who had been initiated into membership during youth and who provided essential ritual and political leadership to the tribe (Dixon 1905). The shaman, also an important figure in Maidu society, played an important role in festivals, ceremonies, dances, political relations with other tribes, and as a medical doctor who was capable of curing or causing sickness (Riddell 1978).

Seasonal celebrations were held in honor of the Maidu resources. Acorn, clover, and manzanita dances occurred during their respective harvest times to ensure a bountiful crop the following year (Powers 1976). Dances were held in the dance house, often followed by feasts, gambling games, or races. There was also an annual ceremony to honor the dead. The dance of the dead, or the mourning anniversary, took place each year for 5 consecutive years. The "deceased's family participated in the anniversary burning ceremony during which they displayed, exchanged, and burned material goods that were prepared during the year for the ceremonies" (Riddell 1978). Each village community had a designated burning ground that was ruled by a shaman (Riddell 1978).

Ethnohistoric and Historical Context

The Mountain Maidu were relatively unaffected by Euro-Americans until 1850 when Peter Lassen reached Honey Lake, which began the rapid encroachment of Indian lands by Euro-American settlers (Riddell 1978). William Noble's pioneering of a road that provided a shortcut to the arduous Lassen-Applegate Trail was a major artery to the west in the early 1850s; settlement of the Honey Lake Valley began within the same decade. Conflicts between the Maidu and Euro-Americans quickly escalated as settlers and their livestock overtook the meadows that sustained Maidu habitation and subsistence. Maidu native food resources became extinct, scarce, or unavailable, and some Indians resorted to killing and eating the ranchers' livestock. The response was often swift and excessive retaliation by the settlers. Many Indians were killed by vigilante "military" groups (Riddell 1978). Hostilities had diminished by the 1870s, and the surviving Maidu were able to reside on their traditional lands and avoid confrontations with Euro-Americans. As a result, the Maidu have been able to maintain traditional practices within their historical homelands. Today, many descendants of the Honey Lake Maidu live in and around the town of Susanville and on the Susanville Ranchería (also home to many Paiute people). A number of sites have been documented by Riddell (1968, 1978) and (Dixon 1902). These include village, habitation and non-habitation, gathering, and hunting sites; several named places; four mythological sites; and two roundhouses. The locations of ethnographic sites are not included in this document. Encroachment of Anglo culture followed quickly on Lassen's discovery of the area in 1850. Hostilities between Euro-Americans and Native Americans were common in the early decades of settlement, with cruelties perpetuated on both sides. Agreements with Chief Winnemucca (Pyramid Lake group) provided some stability, but it was not until the turn of the century that relationships settled into the uneasy coexistence that still prevails.

The economy of Euro-American settlement in the areas has always been dominated by the livestock industry (cattle and sheep), although agricultural enterprises were encouraged by the Desert Land Act (1879), as well as by the construction of the NC&O Railroad in 1890, which provided economic ties with the south and the east.

Establishment of the California-Nevada state line finally settled what occasionally had been a fiercely contested boundary dispute and gave administrative sanction to a division of the area's affiliations and economic dependencies. Nevertheless, as they do today, major livestock operations continued to use rangelands in both states. The physical evidence (i.e., the historical cultural resources) resulting from the early grazing and homesteading eras of ELFO are everywhere, although the preponderance of them (e.g., ranches, homesteads, and line cabins) lie on land that has been in private ownership since it was first patented.

3.3 Economic Conditions

The Eagle Lake Field Office area encompasses portions of Lassen, Plumas, Nevada, Sierra, and Shasta Counties in California and a portion of Washoe County in Nevada. The alternative management plans could result in changes in countywide socioeconomic conditions and in fiscal impacts on county governments. Socioeconomic and fiscal conditions within the counties could change in response to changes in management emphasis or activities within the field office, such as changes in timber harvest, grazing, mineral extraction, and recreation.

Socioeconomic variables that could be affected by alternative management plans include population, employment, and income. Fiscal conditions include changes in county revenues attributable to changes in payment of in-lieu of taxes and federal revenue sharing from sale of timber, grazing fees, and mineral extraction, and sales taxes associated with increased recreation.

3.3.1 Population

The 2000 population of Lassen, Plumas, Nevada, Sierra, and Shasta counties ranked 47th, 50th, 36th, 57th, and 29th, respectively, among the 58 California counties. Washoe County ranked second among the 17 Nevada counties. Between 1990 and 2000, population has increased in six counties (Table 3.3-1). Population growth in Lassen and Nevada Counties was higher than the California statewide average of 66%. Washoe County has the highest population of the six counties (339,500), followed by Shasta County (163,300).

In 2000, the population density of Lassen, Plumas, Nevada, Sierra, and Shasta Counties was 7.4, 8.2, 96.1, 3.7, and 43.1 persons per square mile, respectively. The population density of Washoe County was 53.5 persons per square mile. The population density of Lassen, Plumas, Nevada, Sierra, and Shasta Counties was below the California statewide average of 217.1. The population density of Washoe County was much greater than the Nevada statewide average of 18.2 persons per square mile. (U.S. Bureau of the Census 2004a, b)

Projections indicate that the populations of all Lassen, Nevada, Sierra, Shasta, and Washoe Counties are expected to grow through 2020 (Table 3.3-2). Growth in Shasta County and Washoe County is expected to be greater than their respective statewide averages. The population of Plumas County is expected to grow through 2010 and then slightly decline.

Table 3.3-1 Population of Lassen, Plumas, Nevada, Sierra, Shasta, and Washoe Counties; California; and Nevada (1970–2000)

County	1970	1980	Change (%)	1990	Change (%)	2000	Change (%)
Lassen	14,690	21,661	+46	27,598	+27	33,828	+23
Plumas	11,707	17,340	+48	19,739	+14	20,824	+5
Nevada	26,346	51,645	+96	78,510	+52	92,033	+17
Sierra	2,365	3,073	+30	3,318	+8	3,555	+7
Shasta	77,640	115,715	+49	147,036	+27	163,256	+11
Washoe	121,068	193,623	+60	254,667	+32	339,486	+33
California	19,953,134	23,667,902	+19	29,760,021	+26	33,871,648	+14
Nevada	488,738	800,493	+64	1,201,833	+50	1,998,257	+66

Sources: U.S. Bureau of the Census 1995a, b; U.S. Bureau of the Census 2004a, n.

Table 3.3-2 Population Projections for Lassen, Plumas, Nevada, Sierra, Shasta, and Washoe Counties; California; and Nevada (2000–2020)

County	2000	2010	Change (%)	2020	Change (%)
Lassen	33,828	36,954	+9	38,232	+4
Plumas	20,824	21,067	+4	20,983	-1
Nevada	92,033	106,910	+16	126,912	+19
Sierra	3,555	3,530	-1	3,654	+4
Shasta	163,256	196,464	+20	227,922	+16
Washoe	339,486	398,033	+17	439,284	+10
California	33,871,648	39,246,767	+16	43,851,741	+12
Nevada	1,998,257	2,690,078	+35	2,910,958	+8

Sources: California Department of Finance 2004; Nevada State Demographer's Office 2002.

3.3.2 Employment and Income

Total employment in the six counties ranged from a high of 171,700 in Washoe County to a low of 1,500 in Sierra County (Table 3.3-3). The disparity reflects employment provided in the Reno-Sparks area of Washoe County and the rural character of Sierra County. The public administration; retail trade; and education, health, and social services sectors represented were the largest employment sectors in each county. Government employment accounted for 43, 24, 15, 32, 18, and 13% of total employment within Lassen, Plumas, Nevada, Sierra, Shasta, and Washoe Counties, respectively.

Generally, the education, health and social services; arts, entertainment, and recreation; and public administration sectors experienced the greatest growth in employment. Conversely, employment in the agriculture, forestry, fishing, and mining; manufacturing; and transportation generally declined. Decreases in employment in these sectors most likely reflect declines in the forest products industry; and the increases in the other sectors reflect a shift to more service oriented employment, most evident the California counties.

Unemployment rates for the six counties ranged from a high of 5.5% in Sierra County to a low of 3.4% in Washoe County (U.S. Census 2004c, g, o,q, s, v, and w). The California statewide unemployment rate was approximately 4% in 2000.

Per capita income for the three counties ranged from a high of approximately $17,700 in Shasta County to $14,700 in Lassen County (Table 3.3-4). Income levels have increased in each county from 1990 levels. Increases have ranged from a low of 17% in Lassen County to a high of 52% in Nevada County. Although income levels have increased in all counties, only income levels in Washoe County are greater than the statewide average for Nevada of $22,000.

Table 3.3-3 Employment Sectors for Lassen, Plumas, Nevada, Sierra, Shasta, and Washoe Counties (1990 and 2000)

Employment Sector	Lassen		Plumas		Nevada		Sierra		Shasta		Washoe	
	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000
Agriculture, forestry, fishing, and mining	958	691	682	507	1,234	836	147	61	2,291	1,631	2,993	1,292
Construction	521	578	687	720	4,019	4,705	99	206	5,320	4,890	9,519	13,008
Manufacturing	726	342	1,062	853	4,017	3,898	181	132	6,438	4,199	10,438	12,903
Wholesale trade	207	129	150	145	836	1,093	13	32	1,907	1,984	6,110	7,361
Retail trade	1,423	1,117	1,331	1,006	5,951	5,166	227	67	11,835	9,309	23,254	20,332
Transportation and warehousing	519	326	607	484	1,931	1,553	147	68	4,513	3,730	11,995	10,344
Information	-	141	-	208	-	1,025	-	13	-	1,335	-	4,184
Finance, insurance, and real estate	246	303	357	546	2,397	2,572	24	39	3,398	3,408	8,993	10,584
Professional, scientific, management	456	431	668	394	3,090	4,442	37	70	4,243	5,055	21,190	15,966
Education, health, social services	1,352	2,329	1,162	1,794	5,043	7,812	305	445	10,250	16,291	18,479	27,041
Arts, entertainment, recreation, accommodation , food services	111	700	210	936	770	4,133	22	147	688	6,258	13,573	34,406
Other services	999	339	508	379	2,419	2,420	76	96	9,283	3,952	8,403	6,858
Public administration	1,710	2,735	359	548	1,503	1,898	55	139	2,655	3,786	5,787	7,447
Total	8,843	10,161	7,783	8,520	33,210	41,553	1,333	1,515	58,578	65,828	140,734	171,723

Sources: U.S Census 2004b, c, f, g, p–w.

Table 3.3-4 Per capita Income Levels for Lassen, Plumas, Nevada, Sierra, Shasta, and Washoe Counties; California; and Nevada (1990 and 2000)

County	1990	2000	Change (%)
Lassen	12,626	14,749	+17
Plumas	12,952	19,391	+50
Nevada	15,760	24,007	+52
Sierra	13,731	18,815	+37
Shasta	12,381	17,738	+43
Washoe	16,365	24,277	+48
California	16,409	22,711	+38
Nevada	15,214	21,989	+45

Source: U.S. Census 2004c, g, j, l, o, q, s, v–z, aa.

3.3.3 County Revenues

Lassen County

During fiscal year 2000–2001, Lassen County received approximately $43,434,000 in revenues and transfer payments (California State Controller 2003). Property taxes accounted for $2.9 million of the 2000–2001 revenues. Sales taxes totaled approximately $733,000, and lodging taxes totaled approximately $43,000. Payments from other governmental agencies accounted for the largest share of county revenues. Payments from other state agencies and the Federal Government totaled approximately $19.9 million and $8 million, respectively (California State Controller 2003).

Lassen County receives in-lieu of taxes payments from federal agencies that manage federal lands within the county. The payments are based on population and acreage of federal lands within the county. Approximately 1,640,000 acres of land in Lassen County are under federal ownership, of which 1,009,000 are managed by BLM (U.S. Bureau of Land Management 2004a). During fiscal year 2000–2001, Lassen County received a $996,000 in-lieu of taxes payment (U.S. Bureau of Land Management 2004b). In-lieu of taxes payments based on BLM lands was estimated to total approximately $608,000 in 2001. In-lieu of taxes payments accounted for 1.4% of the county's total 2001 revenues.

Lassen County also receives payments from the Federal Government in the form of revenue sharing. Revenues generated from grazing fees, proceeds from land sales, timber receipts, and mineral royalties generated from all BLM lands within California totaled $203,000 in 2002 (U.S. Bureau of Land Management 2002). The revenues paid to Lassen County are not a substantial portion of the total county revenues.

Plumas County

During fiscal year 2000–2001, Plumas County received approximately $37,882,000 in revenues and transfer payments (California State Controller 2003). Property taxes accounted for $4.9 million of the 2000–2001 revenues. Sales taxes totaled approximately $1.9 million, and transient lodging taxes totaled approximately $958,300. Payments from other governmental agencies accounted for the largest share of county revenues. Payments from other state agencies and the Federal Government totaled approximately $16.2 million and $5.8 million, respectively (California State Controller 2003).

Plumas County receives in-lieu of taxes payments from federal agencies that manage federal lands within the county. Approximately 1,169,600 acres of land in Plumas County are under federal ownership, of which 10,600 are managed by BLM (U.S. Bureau of Land Management 2004a).

During fiscal year 2000–2001, Plumas County received a $687,757 in-lieu of taxes payments (U.S. Bureau of Land Management 2004b). In-lieu of taxes payments based on BLM lands was estimated to total approximately $6,200 in 2001. In-lieu of taxes payments accounted for less than 1% of the county's total 2001 revenues.

Plumas County also receives payments from the Federal Government in the form of revenue sharing. Revenues generated from grazing fees, proceeds from land sales, timber receipts, and mineral royalties generated from all BLM lands within California totaled $203,000 in 2002 (U.S. Bureau of Land Management 2002). The revenues paid to Plumas County are not a substantial portion of the total county revenues.

Nevada County

During fiscal year 2000–2001, Nevada County received approximately $96,226,000 in revenues and transfer payments (California State Controller 2003). Property taxes accounted for $12.8 million of the 2000–2001 revenues. Sales taxes totaled approximately $3.5 million, and transient lodging taxes totaled approximately $255,800. Payments from other governmental agencies accounted for the largest share of county revenues. Payments from other state agencies and the Federal Government totaled approximately $33.1 million and $21 million, respectively (California State Controller 2003).

Nevada County receives in-lieu of taxes payments from federal agencies that manage federal lands within the county. Approximately 202,300 acres of land in Nevada County are under federal ownership, of which 19,000 are managed by BLM (U.S. Bureau of Land Management 2004a). During fiscal year 2000–2001, Nevada County received a $150,503 in-lieu of taxes payments (U.S. Bureau of Land Management 2004b). In-lieu of taxes payments based on BLM lands was estimated to total approximately $14,200 in 2001. In-lieu of taxes payments accounted for less than 1% of the county's total 2001 revenues.

Nevada County also receives payments from the Federal Government in the form of revenue sharing. Revenues generated from grazing fees, proceeds from land sales, timber receipts, and mineral royalties generated from all BLM lands within California totaled $203,000 in 2002 (U.S. Bureau of Land Management 2002). The revenues paid to Nevada County are not a substantial portion of the total county revenues.

Sierra County

During fiscal year 2000–2001, Sierra County received approximately $15,797,000 in revenues and transfer payments (California State Controller 2003). Property taxes accounted for $2.1 million of the 2000–2001 revenues. Sales taxes totaled approximately $120,000, and transient lodging taxes totaled approximately $231,200. Payments from other governmental agencies accounted for the largest share of county revenues. Payments from other state agencies and the Federal Government totaled approximately $8.7 million and $2.3 million, respectively (California State Controller 2003).

Sierra County receives in-lieu of taxes payments from federal agencies that manage federal lands within the county. Approximately 453,200 acres of land in Sierra County are under federal ownership, of which 1,921 are managed by BLM (U.S. Bureau of Land Management 2004a). During fiscal year 2000–2001, Sierra County received a $92,358 in-lieu of taxes payments (U.S. Bureau of Land Management 2004b). In-lieu of taxes payments based on BLM lands was estimated to total approximately $400 in 2001. In-lieu of taxes payments accounted for substantially less than 1% of the county's total 2001 revenues.

Sierra County also receives payments from the Federal Government in the form of revenue sharing. Revenues generated from grazing fees, proceeds from land sales, timber receipts, and mineral royalties generated from all BLM lands within California totaled $203,000 in 2002 (U.S. Bureau of Land

Management 2002). The revenues paid to Sierra County are not a substantial portion of the total county revenues.

Shasta County

During fiscal year 2000–2001, Shasta County received approximately $209,296,000 in revenues (California State Controller 2003). Property taxes accounted for $12.7 million of the 2000–2001 revenues. Sales taxes totaled approximately $6 million, and transient lodging taxes totaled approximately $594,000. Payments from other governmental agencies accounted for the largest share of county revenues. Payments from other state agencies and the Federal Government totaled approximately $104 million and $51.4 million, respectively (California State Controller 2003).

Shasta County receives in-lieu of taxes payments from federal agencies that manage federal lands within the county. The payments are based on population and acreage of federal lands within the county. Approximately 981,000 acres of land in Shasta County are under federal ownership, of which 126,600 are managed by BLM (U.S. Bureau of Land Management 2004a). During fiscal year 2000–2001, Shasta County received a $669,000 in-lieu of taxes payments (U.S. Bureau of Land Management 2004b). In-lieu of taxes payments from BLM lands was estimated to total approximately $86,300 in 2001. In-lieu of taxes payments accounted for less than 1% of the county's total 2001 revenues.

Shasta County also receives payments from the Federal Government in the form of revenue sharing. Revenues generated from grazing fees, proceeds from land sales, timber receipts, and mineral royalties generated from all BLM lands within California totaled $203,000 in 2002 (U.S. Bureau of Land Management 2002). The revenues paid to Shasta County are not a substantial portion of total county revenues.

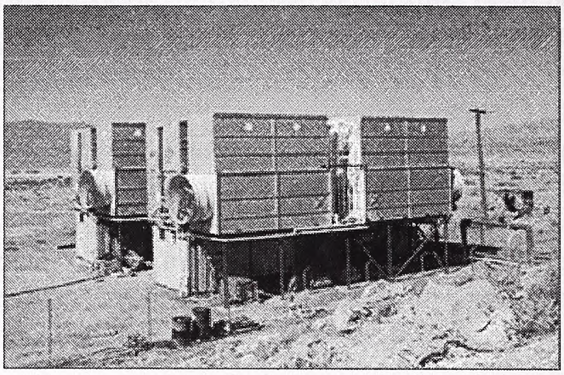
Washoe County

During fiscal year 2001-2002, Washoe County received approximately $329,674,000 in revenues (Washoe County 2003). Ad valorem taxes, including property taxes, accounted for $122 million of the 2001-2002 revenues. Consolidated taxes, including sales taxes, accounted for $76.6 million of the 2001-2002 revenues.

Washoe County receives in-lieu of taxes payments from federal agencies that manage federal lands within the county. Approximately 2,909,244 acres of land in Washoe County are under federal ownership, of which 2,638,342 are managed by BLM (U.S. Bureau of Land Management 2004a). During fiscal year 2000–2001, Washoe County received a $1,509,213 in-lieu of taxes payments (U.S. Bureau of Land Management 2004b). In-lieu of taxes payments from BLM lands was estimated to total approximately $1.4 million in 2001. In-lieu of taxes payments accounted for less than 1% of the county's total 2001 revenues.

Washoe County also receives payments from the Federal Government in the form of revenue sharing. Revenues generated from grazing fees, proceeds from land sales, timber receipts, and mineral royalties generated from all BLM lands within Nevada totaled approximately $14,074,700 in 2002 (U.S. Bureau of Land Management 2002). Approximately $13.7 million of the total for 2002 was generated from the sale of lands. The revenues paid to Washoe County are not a substantial portion of total county revenues.

3.4 Energy and Minerals



Wendel-Amadee Geothermal Plant

The Federal Government's policy for mineral resource management, as expressed in the Mining and Minerals Policy Act of 1970, reads: "Foster and encourage private enterprise in the development of economically sound and stable industries, and in the orderly and economic development of domestic resources to help assure satisfaction of industrial, security, and environmental needs." BLM has an essential role in contributing to an adequate and stable supply of mineral and energy resources, while continuing to sustain the land's productivity for other uses and its capability to support biodiversity goals.

The energy and minerals program on BLM-administered land in the Eagle Lake Field Office area includes three categories of minerals: leasable minerals, locatable minerals, and saleable minerals.

3.4.1 Leasable Minerals

Leasable mineral resources, including oil, gas, geothermal and some solid mineral resources such as coal and oil shale are obtained from the BLM-administered lands by leasing. The 1920 Mineral Leasing Act (as amended), the 1970 Geothermal Steam Act, and 43 CFR Parts 3100 and 3200 govern oil, gas, and geothermal leasing. These laws provide for the leasing of the public mineral estate by a prospector or a corporation, provided that the lands are open for mineral leasing and not reserved or withdrawn for other purposes. Site-specific stipulations are included in any oil and gas or geothermal environmental assessment prior to the issuance of any lease. Upon receipt of a plan of development, site-specific surveys must be completed to eliminate or mitigate any adverse impacts.

Existing oil and gas leases in the Honey Lake and Ravendale areas have not resulted in development or production. Oil and gas leasing is not expected to increase unless technological advances reduce the risk of exploring beneath the existing volcanic cover.

Existing geothermal sources in the Eagle Lake Field Office area have generated new interest at a preliminary discussion level. Geothermal energy production by Honey Lake Power continues in the Wendel-Amadee Known Geothermal Resource Area (KGRA). Under present and future energy needs and predicted government support, the known and potential geothermal resources are expected to spur future interest and activity in the Eagle Lake Field Office area. High-temperature geothermal sources for power generation and lower temperature sources for agricultural and recreation purposes will be tested for potential production. There is a high potential for at least one proposed geothermal production facility in the KGRA in the near future.

3.4.2 Locatable Minerals

Locatable minerals are minerals for which mining claims can be located, such as precious and base metals and some non-metallic minerals that are not classified "common variety." Locatable minerals include rare and uncommon mineral types, such as gold, silver, copper, lead, and zinc, and some varieties of stone, pumice, and cinder deposits with distinct and special properties making them commercially valuable for use in manufacturing, industrial, or processing operations.

In determining a deposit's commercial value, the following factors may be considered: quality and quantity of the deposit, geographic location, accessibility to transportation, and proximity to market or point of use. The General Mining Law of 1872 (as amended) provides the rights to prospect for valuable minerals, and to locate and develop mining claims on public domain lands open to mineral entry.

A mining claim is considered real property that is protected by constitutional rights. Active mining claims are limited to annual assessment and sporadic exploration activities, which are governed under the Mining Law of 1872. Notices and plans of operation for mining activities are processed according to regulations.

BLM administration of mining claims is covered under the 43 CFR 3809, Surface Management of Public Lands under U.S. Mining Laws. Prospectors can claim and develop locatable minerals on areas open to mineral location. BLM approval is not needed if proposed operations would disturb 5 acres or less per year, but notification is required. Operators proposing to disturb more than 5 acres per year are required to submit a plan of operation; BLM must then prepare an environmental analysis for the proposed action.

Present management direction with respect to locatable mineral development allows for exploration consistent with the protection of other resource values and encourages mineral exploration and development on all public lands, except those withdrawn through specific decisions for each sub-unit. Furthermore, where their development is consistent with other environmental and resource values, present management discourages closure of lands known or suspected to contain identified sub-economic minerals from exploration or location.

Potential locatable minerals in the Eagle Lake Field Office include mercury, gold, silver, and zeolites. Claims within the Hayden Hill are expected to be retained with minimal exploration activity occurring, dependent upon the price of gold. This vein and disseminated gold deposit has been mined historically and recently. The Hayden Hill District is expected to remain active, with sporadic exploration activity probable, depending on gold prices. This district is partially within the Alturas Field Office area. The Diamond Mountain District and Crescent Mills comprise two lode claims and two placer claims on minor vein gold mineralization. Although the claims will be retained, activity is expected to remain low to non-existent.

Other locatable mineral activity is expected to be sporadic and primarily focused on areas of known mineral occurrences (i.e., existing claims). Activity would be oriented toward exploration and would fluctuate with the price of gold and other commodities. Technological breakthroughs and uses for rare minerals may spur speculative mineral exploration activities. Technological advances (geochemistry and geophysics) pertaining to exploration may lead to high-risk exploration activity under the unmineralized volcanics and Quaternary basins in the Eagle Lake Field Office area. The probability of another major mine is considered minimal; however, the potential impact of a mine on the Eagle Lake Field Office area would be large in terms of workloads, areas withdrawn from multiple use, and access.

3.4.3 Saleable Minerals

Saleable minerals such as pumice, cinders, decorative stone, and sand and gravel may be purchased or acquired by use permits from the BLM. Sand, gravel, and flat rock are the primary saleable minerals in the Eagle Lake Field Office area. Present management encourages free use permits for materials and material sales for aggregates to meet public demand. Aggregate material is provided to support BLM, state, county, and city projects. The county and state road departments have been the principal users of sand and gravel, which is available to governmental agencies at no charge.

Saleable mineral production is expected to increase as sources close to areas of growth face a stricter state and local regulatory environment. Sand and gravel demand is expected to increase because of the lower permitting fees and costs of materials on BLM-administered land, despite the added transportation costs.

Demands for building stone are likely to increase dramatically as local sources are depleted because premium prices are paid in urban areas, and low fees are charged by BLM. Increased transportation costs likely would be offset by present and future demand and high profit margins.

3.4.4 Restrictions

BLM-administered lands are generally open to mineral exploration and development under 43 CFR 3000-3800. Lands that are closed or withdrawn from some or all mining uses are known as "exclusion" areas. There are two types of closures to mineral leasing and mineral material disposal: discretionary and nondiscretionary. Discretionary closures are management-level decisions to close lands to mineral leasing and disposal; nondiscretionary closures are formal withdrawals by Congress or the Secretary of the Interior. Withdrawals of land from locatable mineral entry can occur only through nondiscretionary actions by Congress or the Secretary of the Interior.

Discretionary closures may apply in ACECs, research natural areas (RNAs), WSAs, and where mining is incompatible with other management objectives or land uses. Nondiscretionary closures occur in wilderness areas or areas withdrawn for other purposes. WSAs are nondiscretionally withdrawn from mineral leasing (43 CFR Subparts 3100.0-3 and 3201.11) but are open to locatable mineral entry with restrictions to prevent impairment of the area's suitability for inclusion in the Wilderness System (43 CFR Subparts 3802.1-5).

The Eagle Lake Field Office manages seven WSAs and one instant study area (ISA) (for wilderness consideration). These WSAs and the ISA would be managed as wilderness until Congress determines their final designation. Accordingly, no new mineral or energy activities would be allowed until the wilderness decision is made. Except for pending decisions on the existing WSAs and potential conditions applied to future (ongoing) acquisitions, there are no indications that future mineral withdrawals would occur during the life of this RMP.

On lands open to mineral development and exploration, additional restrictions may apply to protect natural resources and mitigate conflicts with management objectives and other land uses. Such restrictions apply in "avoidance" areas, including ACECs, WSAs, and RNAs not listed as closed to mineral operations. Restrictions also may apply to protect visual resources, significant archeological sites, wildlife, and habitat components. All applicable restrictions would be attached to mining notices, plans of operations, leases, permits, and contracts.

Some areas are closed to surface occupancy (no surface occupancy [NSO]) for fluid mineral leasing operations. Under this type of restriction, drilling to explore, test, or produce fluid mineral resources may not occur from the surface. Mineral leasing may still occur, provided that the operator angle drills to the resource from an adjacent area where surface occupancy is allowed.

3.4.5 Factors Affecting Future Development

Energy and mineral resource use has been relatively stable during the implementation of the existing MFPs.

Key factors affecting future resource and use conditions include:

- Mineral and energy commodity prices.
- Technological advances in the use of common and rare elements.
- Technological advances in exploration techniques.
- Energy demands and changing dependencies on fossil fuels.
- Legislative and regulatory changes that support or oppose energy and minerals activities.
- Acceptance of existing or future WSAs as wilderness areas.
- Continued stringent regulations at the state and local levels, pushing mineral extraction activities into more remote (federal) locations in response to increased demand.
- Changes in the California Department of Transportation's budget that influence sand and gravel usage.

3.5 Environmental Justice

3.5.1 Introduction

The AELS resource management planning process incorporates environmental justice considerations. In doing so, the planning process addresses any adverse human health or environmental impacts affecting minority and low-income populations to a greater extent than the general population in these areas.

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from the execution of federal, state, local, or tribal programs and policies.

Meaningful involvement means that (1) potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health, (2) the public's contribution can influence the regulatory agency's decision, (3) concerns of all participants involved will be considered in the decision making process, and (4) decision makers must seek out and facilitate the involvement of those potentially affected.

3.5.2 Current Conditions

Minority Populations in the Eagle Lake Field Office Area

For environmental justice assessment purposes, key minority populations are those where either: (1) the minority population of the affected area exceeds 50%, or (2) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (Council on Environmental Quality 1997).

The Eagle Lake Field Office planning area is composed of Lassen, Modoc, Shasta and Siskiyou Counties in California. The minority population breakdown by county and state is contained in Table 3.5-1.

Two environmental justice minority groups have been identified in the Eagle Lake Field Office area: the American Indian and Alaska Native group, and the Native Hawaiian and other Pacific Islanders group. The American Indian and Alaska Native group comprises 2.8% of the Eagle Lake planning area compared to 1.3% and 1.0% of Nevada and California, respectively. The Native Hawaiian and other Pacific Islander group accounts for 0.6% of the Eagle Lake planning area; this percentage is higher than the 0.3% for all of California. Although the population of these two groups in terms of numbers appear minimal, the population percentage of each group is significantly greater than that of the general population of each California and Nevada.

Research indicates that the white population percentage in the field office area is meaningfully greater than the white population percentage in California or Nevada.

Table 3.5-1 Population Characteristics of Lassen, Plumas, Nevada, and Sierra, Counties in California and Washoe County in Nevada (2000)

Geographic Area (Total Population)	White	Hispanic or Latino (any race)	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some other Race
Nevada County, CA (92,033)	95.9% (88,228)	5.7% (5,201)	0.5% (459)	2.2% (2,057)	1.3% (1,189)	0.3% (253)	2.7% (2,462)
Lassen County, CA (33,828)	83.3% (28,169)	13.8% (4,681)	9.1% (3,081)	4.6% (1,572)	1.1% (382)	0.6% (194)	4.1% (1,402)
Plumas County, CA (20,824)	94.3% (19,630)	5.7% (1,177)	0.8% (171)	4.2% (866)	0.9% (190)	0.2% (40)	2.4% (498)
Sierra County, CA (3,555)	96.6% (3,433)	6.0% (213)	0.3% (12)	3.1% (111)	0.6% (22)	0.3% (9)	1.7% (59)
Washoe County, NV (339,486)	83.2% (282,610)	16.6% (56,301)	2.6% (8,810)	2.7% (9,070)	5.2% (17,660)	0.7% (2,525)	9.1% (30,747)
Eagle Lake Field Office area	86.1%	13.8%	2.6%	2.8%	4.0%	0.6%	7.2%
State of Nevada (1,998,257)	75.2%	19.7%	6.8%	1.3%	4.5%	4.0%	8.0%
State of California (33,871,648)	59.5%	32.4%	6.7%	1.0%	10.9%	0.3%	16.8%

Notes:
The Eagle Lake Field Office area numbers were extrapolated by combining the data available for all counties in the planning area. Race is typically broken out two ways. The Hispanic information is typically separate because Hispanics can be of any race. The Hispanic information is presented in combination with the other racial information in the above table.

Source: U.S. Census Bureau, Census 2000, DP-1 Profile of General Population Characteristics: 2000, (Washoe, Humboldt) Nevada. California information was from the same source and was accessed at: http://factfinder.census.gov/servlet/QTTable?_ts=88407310470.

Low-Income Populations in the Eagle Lake Field Office Area

To determine the location of low-income populations, economic characteristics of the counties in the field office area were analyzed (Table 3.5-2). The Census Bureau sets the income threshold to determine poverty level. If the total income for an individual falls below the relevant poverty threshold, that individual is classified as being “below the poverty level” (U.S. Census Bureau 2003b). Within the state of California, 10.6% of the total population was below the poverty level in 2000 (U.S. Census Bureau 2003c). Within the state of Nevada, 7.5% of the total population was below the poverty level in 2000. In California, the average number of families living below the poverty level in 2000 was 9.3% of the total population. While Lassen County had a higher than average percentage of families living below the poverty line, the average percentile in Nevada and Washoe Counties was significantly lower than the rest of California living below the poverty line. Compared to the Nevada County percentage of 7.5% of the population living below the poverty line in 2000, Lassen, Plumas, and Sierra Counties were far above that—with 11.1%, 9.0%, and 9.0%, respectively. County income levels fell above and below the statewide averages.

Table 3.5-2 Economic Characteristics of Nevada, Lassen, Plumas, and Sierra Counties in California and Washoe County in Nevada (2000)

County	Median Household Income	Median Family Income	Per Capita Income	% of Families below Poverty Level
Nevada, CA	$45,864	$52,697	$24,007	5.5
Lassen, CA	$36,310	$43,398	$14,749	11.1
Plumas, CA	$36,351	$46,119	$19,391	9.0
Sierra, CA	$35,827	$42,756	$18,815	9.0
Washoe, NV	$45,815	$54,283	$24,277	6.7
Statewide – Nevada	$44,581	$50,849	$21,989	7.5
Statewide – California	$47,493	$53,025	$22,711	10.6

Source: U.S. Census Bureau, DP-3, Profile of Selected Economic Characteristics: 2000 (for all California counties). California state information was also accessed from <http://factfinder.census.gov/servlet/QTTable?_ts=88407972930>. Nevada State information was found in the U.S. Census Bureau, DP-3, Profile of Selected Economic Characteristics: 2000 (Washoe County, NV).

Tribal Governments in the Eagle Lake Field Office Area

Four federally recognized tribal governments are located in the Eagle Lake Field office area: the Susanville Indian Ranchería (Susanville, Lassen County, CA), the Pyramid Lake Paiute Tribe (Nixon, Washoe County, NV), the Washoe Tribe of California and Nevada (Carson City, NV), and the Greenville Ranchería (Greenville, Plumas County, CA). The Eagle Lake Field Office also consults with a federally non-recognized tribe, the Honey Lake Maidu Tribe, which is an extension of the federally recognized Maude Tribe. Tribal land ownership accounts for less than 1% of the land in the Eagle Lake Field Office area (1,791 acres out of 4,858,251 total acres).

3.6 Fire and Fuels

Fire and fuels on lands administered by the Eagle Lake Field Office have been affected by active and passive management actions since prehistoric times. Vegetation and fuel type are two primary descriptors of fire and fuel resources. Fuel in the natural environment includes both live vegetation and materials such as dead branches, needles, seeds, and cones. These fuels provide the structure that, under appropriate conditions, supports fire across the landscape. The vegetation and fuel are affected by other elements of the environment, such as precipitation, temperature, soils, and seasonal fluctuations.

3.6.1 Fuels Buildup and Ecosystem Alteration

When trying to determine the effects of post-European human influence and management on the fire and fuels resource, the characterization of the fire regime condition class is an important index. A historical fire regime is defined by the natural patterns of frequency, predictability, seasonality, intensity, duration, and scale with which fire historically passed through the habitat.

Fire regimes have been classified into the five groups that are summarized in Table 3.6-1.

Table 3.6-1 Fire Regime Condition Classes

Classification	Fire Return Interval	Severity	Example Habitats
Group I	0–35 years	Low	Ponderosa pine, other long-needle pine species, and dry-site Douglas-fir
Group II	0–35 years	Stand replacement	Drier grasslands, tallgrass prairie, and some Pacific chaparral ecosystems
Group III	35–100+ years	Mixed	Interior dry-site shrub communities, such as sagebrush and chaparral ecosystems
Group IV	35–100+ years	Stand replacement	Lodgepole pine and jack pine
Group V	>200 years	Stand replacement	Temperate rain forest, boreal forest, and high-elevation conifer species

Sources: Hardy et al. 2001, Schmidt et al. 2002.

A corollary descriptor of fuel conditions addresses a fire regime's degree of deviation from historic conditions. The condition classes described below also measure general risks to the ecosystem from wildfire.

- **Condition Class 1**: Fire regimes in this condition class are mostly within historical ranges. Vegetation composition and structure are intact. The risk of losing key components of the ecosystem from fire is low.
- **Condition Class 2**: Fire regimes in this condition class have been moderately altered from their historical range, either by increasing or decreasing the fire frequency. The risk of losing key components of the ecosystem from fire is moderate.

- **Condition Class 3**: Fire regimes in this condition class have been significantly altered from their historical return intervals or an ecological threshold has already been crossed.

  Vegetation composition, structure, and diversity have been substantially modified. The risk of losing key components of the ecosystem from fire is high (Hardy et al. 2001, Schmidt et al. 2002).

The concepts of fire regime and condition class require an understanding of historical (pre-European) conditions to facilitate measurement of the departure from those conditions The conditions for the various vegetation communities listed below describe current vegetation conditions based on personal observation and historical photos. Fire Regime and Condition Class Ratings are estimated for each vegetation community.

An important means to describe conditions is the fuel loading and fuel model. This measurement takes into account the variety of available fuels within given fuel types. For example, forest stands may be very clean and open with little down material or may contain decades of dead branches and a thick understory of smaller trees. Such diverse conditions would indicate different fire behavior and characteristics.

3.6.2 Fire Ecology of Major Vegetation Types

Aspen/Riparian Communities

Fire is not usually considered a key ecosystem component in these areas, although many riparian and wetland plants are fire-adapted species. These communities are usually small (but vital) habitat components of the vegetation communities discussed below. Generally, vegetation response to the presence of water or increased soil moisture creates conditions that act to inhibit the spread or reduce the severity of fire. Across the landscape, riparian communities often create breaks in fire spread. In some riparian systems, fire suppression has created fuel loads that exceed the surrounding habitat and consequently put the riparian area at higher risk than the surrounding community. Some level of disturbance is an important component of aspen regeneration and thus provides for stand maintenance. The fire regime of aspen/riparian communities is considered to be Group III with regard to frequency and severity. Fire managers do not give these communities fire regime condition class ratings, but instead classify them within the larger vegetation type or hydrologic unit.

Herbaceous and Grassland Communities

Fire burns quickly in these communities and with low severity. The historical fire regime for these communities is Group II—frequent stand-replacing fires. The invasion of nonnative annual grasses e.g., cheatgrass, has accelerated this cycle, creating communities that could burn every season. Native species typically burn but then experience several years of fire resistance because of high live-fuel moisture, lack of fuel continuity, and very small amounts of dead material. As these components change over time, the community becomes more fire prone. A fire occurring too early in this cycle can be damaging to the native grasses.

Due to the extent of exotic annual grasses in the Eagle Lake Field Office area, native herbaceous and grassland communities are at great risk of conversion to these exotic annual grass species. These exotic species, also in fire regime Group II, have the ability to rapidly expand and colonize large areas through wind dissemination; consequently, areas that have undergone such conversion would be rated as Condition Class 3.

Low Sagebrush Communities

In low sagebrush communities, natural fire return intervals are historically 100 years or more, due to the shallow, rocky soils and sparse ground fuels. Because there is a lack of surface fuel continuity, fires tend to burn in a mosaic pattern with mixed severity, a fire regime characterized as Group III.

Exceptions are where exotic annuals have invaded or where an unusually wet spring provides an above normal crop of grasses and forbs sufficient to carry fire through the site.

Within the Eagle Lake Field Office area, a few low sagebrush communities would be considered to function within historical fire return intervals, and pose little risk of major disturbance or invasion by exotic grasses and weeds. These areas would be rated as Condition Class 1. (It should be noted that these types of low-risk areas are probably among the best locations for wildland fire use in future planning efforts).

Other low sagebrush communities have been, or are at risk of being, invaded by exotic grasses. Like Wyoming sagebrush sites, some of these sites have experienced dramatically altered (i.e., shortened) fire return intervals to the point that the low sage component of the community has been virtually eliminated. These sites are considered Condition Class 3.

Conifer/Juniper Woodlands

Within the Eagle Lake Field Office area, there are stands of pine, fir, and/or cedar. These stands most typically occur on the Lassen and Plumas National Forests; however, this type also occurs on BLM-administered lands, particularly in the Feather Headwaters/Eagle Lake watersheds. Many of these stands are located on boundaries between public lands and National Forest system or private timber lands. Historically, many of these conifer communities experienced frequent low-intensity fire (fire regime Group I) or less frequent stand-replacing fire (fire regime Group IV). Because these areas have generally missed several fire return intervals, and a wildfire probably would result in severe fire effects on major species, these areas would be rated as Condition Class 3.

Juniper is widely scattered throughout the field office area at unnaturally high stand densities sometimes encroaching into adjacent habitats. The historical coverage and conditions of juniper in the field office area are extrapolated from personal observations and historical photos.

Prior to fire suppression and grazing, juniper typically occurred in two main stand types. One was an *old-growth* small and isolated stand condition with very infrequent, stand-replacing fires (fire regime Group IV); these stands would have occurred on rocky, shallow soils with limited accumulation of fine fuels. Another stand type was *juniper savanna*, with younger trees at a low density (<30% crown closure) across the landscape and a more dominant shrub, herbaceous, and grass understory; these stands would have occurred on deeper soils and experienced more frequent mixed-severity fires (fire regime Group III). A continuum of stand types would have existed along with the various seral stages; however, these two stand conditions probably dominated. During the last 130 years, within the Intermountain West, both juniper and pinyon pines have increased their distribution and density (Miller and Tausch 2001).

On many sites that would have supported low-density juniper woodland, juniper has expanded to greater than 30% crown closure. This is considered a successional phase that, under presettlement conditions, would not have occurred or would occur very rarely. In these areas, understory vegetation declines to the point where little if any surface vegetation is left, and there are substantial areas of bare ground. These sites have missed several fire return intervals and have lost key ecosystem components. A wildland fire in these sites could result in further degradation of the system and negatively affect soils. Therefore, these sites would be rated as Condition Class 3.

Juniper with less than 30% crown closure is often found associated with other communities, such as mountain big sagebrush. Depending on influencing factors (especially soil characteristics); such sites might reflect historical conditions, in which case the community would be considered Condition Class 1. However, such sites can also reflect sagebrush vegetation into which juniper has encroached. In this situation, one or several fire return intervals have been missed.

Wildland fires in such areas can result in both positive and negative effects; such areas would be rated as Condition Class 2. These successional sites can also develop into Condition Class 3.

Basin/Wyoming Big Sagebrush Communities

BLM fire managers agree that Basin/Wyoming Big Sagebrush communities are probably the communities most at risk in lands in the eastern portion of the field office. This is also the vegetation type that has been, or is at risk of being, invaded by exotic annuals such as cheatgrass and medusahead. At some sites, sagebrush has been nearly eliminated and exotic grasses dominate.

Historically, fire return intervals for Wyoming Big Sagebrush communities were from 50 to 100 years, corresponding to fire regime Group IV (Miller et al. 2001); but there is still much debate over fire return intervals in the Basin big sagebrush types (Welch and Criddle 2003). Invasion by flammable exotics has dramatically shortened fire return intervals, in some cases to 1–2 years. This can lead to complete conversion of sites from Wyoming Big Sagebrush communities to annual grasslands. Consequently, these communities would be rated as Condition Class 3.

Mixed Desert and Basin Shrub Communities

Mixed Desert and Basin Shrub communities are in fire regime Group IV. In many areas within the Eagle Lake field office, these communities have missed one or more fire return intervals, and some are at risk of invasion of exotic weeds and grasses following a wildfire that could easily result in a type conversion to these annual exotics. Where one or more fire return intervals have been missed, the community is at greater risk of loss from invasion by annual exotic grass and weed species following a wildfire. Accordingly, such areas would be rated Condition Class 3 e.g., cheatgrass and medusahead.

In some areas, this community has not missed a fire return interval or been invaded by exotic grasses. These areas would be in good ecological condition and would be rated as Condition Class 1.

Mountain Big Sagebrush Communities

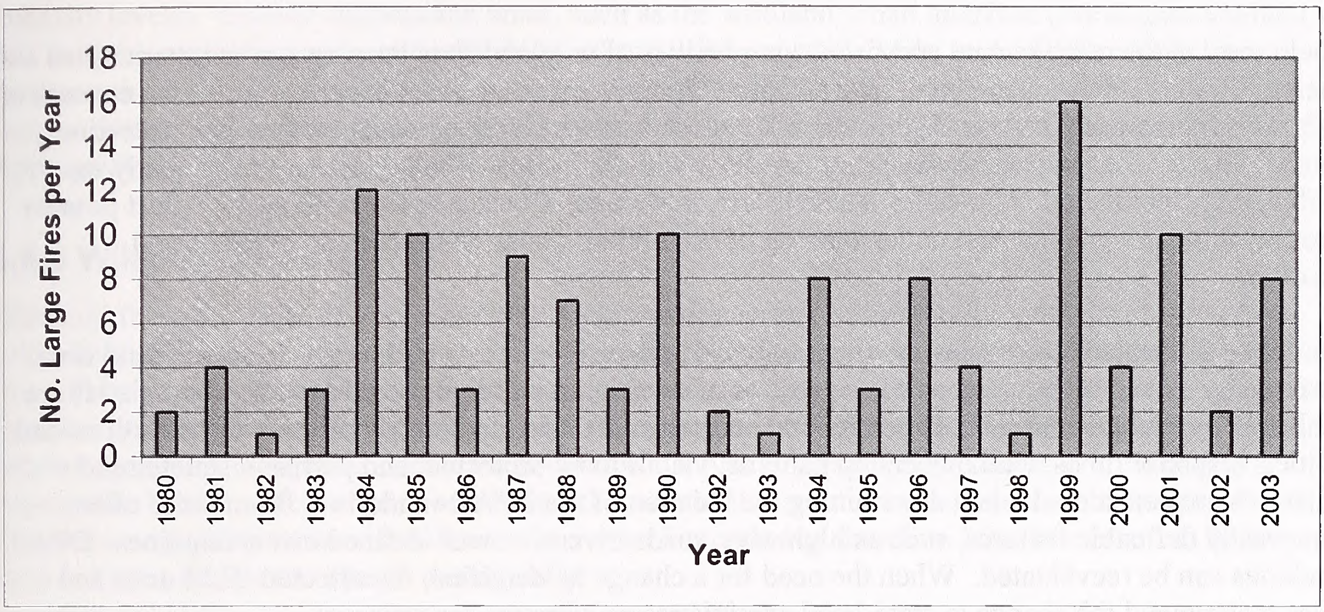
Historically, the Mountain Big Sagebrush community would have burned with moderate frequency and mixed severity (fire regime Group III). In most areas of the Eagle Lake field office; these communities have missed one or more fire return intervals. Some are at risk of invasion of exotic weeds and grasses following a wildfire, which could easily result in a type conversion to these annual exotics. Many of the current juniper stands may have become established recently in historical mountain big sagebrush communities. Due to the expanse of juniper and exotic grasses, this plant community is at great risk of loss and, consequently would be rated as Condition Class 3. Wildland fires can result in both positive and negative effects in terms of plant and wildlife species.

3.6.3 Fire History

Fire frequency and type (lightning or human caused), as well as past fire sizes and locations on the landscape, provide important information pertaining to past management and future planning efforts.

Over the last 23 years, the number of fires larger than 100 acres has varied substantially, from 1 to 16 per year (Table 3.6-2), depending on many weather-related variables and, to a lesser extent, the availability of fire suppression resources. An average of 12,000 acres per year, or 0.02% of the entire 4,858,350-acre field office area, burns annually as a result of larger fires. The fire history reflected here is only in relation to the BLM lands where BLM has the direct protection responsibility within the field office boundary and does not include fires where other agencies have the direct protection responsibility.

Figure 3.6-2 Numbers of Large Fires (>100 acres) by Year in the Eagle Lake Field Office Area (1980–2003)



Most of the fires that occur are small and are ignited by lightning. Of the 809 fires that have occurred on BLM-administered lands in the last 20 years in the Eagle Lake Field Office area, over 85% have been controlled at less than 10 acres. Over the last 20 years, an average of 40 fires per year has occurred on BLM-administered lands in the Eagle Lake field office area. Of these, 27 (67%) were caused by lightning, and 13 (33%) were human caused. This record has implications for both the timing and placement of fire occurrences. Lightning ignitions generally occur from June to early September and can occur in more remote locations where access is difficult. Lightning storms are often accompanied by little or no rainfall. In these events, wildland fires can spread quickly and cover substantial area, burning hundreds or thousands of acres in a single burning period. Wet lightning storms can produce several fires, but these are often much smaller. Human caused fires typically occur in areas that are accessible for fire suppression, however may occur during periods of extreme fire conditions consequently allowing wildfires to spread quickly and cover substantial areas before fire suppression resources are able to get to the scene.

3.6.4 Fire Management

Fire suppression involves using resources (e.g., aircraft, engines, and hand crews) to contain and control fires. The costs associated with suppression are determined by the combination of resources used and the length of time they are attached to a given incident.

Direct Protection Areas

The State of California and major federal land management agencies have in place a wildland fire protection agreement which allows all agencies involved to improve interagency cooperation, achieve objectives common to all agencies, provide a functionally integrated fire protection system, share fire resources, and make the best use of tax dollars.

In California, state responsibility areas (SRAs) are lands for which the State is responsible for wildland fire protection under California Public Resource Code (PRC) Sections 4125 to 4127. These lands are often referred to as state and private lands. National Forests for which USFS is responsible, National Parks for which the National Park Service is responsible, and public lands for which BLM is responsible, are referred to as federal responsibility areas (FRAs).

These SRA and FRA lands are often intermingled or adjacent, and wildland fires on one type present a threat to the lands on the other.

To help resolve the management and fiscal complexities of wildland fires burning across intermingled and adjacent SRA and FRA lands, the federal and state fire protection agencies have developed the concept of direct protection areas (DPAs). Within these DPAs, federal and state agencies assume fire protection responsibility for the lands of another agency, along with their own. The agencies also, as nearly as possible, represent the other agencies interests and objectives. Consequently, each agency must possess the recognition, knowledge, and understanding of each other's mission objectives, policies, and authorities.

DPAs have delineated boundaries, or dividing lines, between lands that will be provided wildland fire protection by state or federal agencies, regardless of ownership within those areas. DPA boundaries are established by mutual consent between federal and state agencies. Existing protection organizations and facilities, response times, land ownership patterns, values to be protected, and pertinent statutes and regulations are considered when determining the location of the DPA boundaries. Boundaries often follow easily definable features, such as highways, roads, rivers, or well-defined ownership lines. DPA boundaries can be reevaluated. When the need for a change is identified, the affected BLM units and offices recommend the change to state-level administrators/directors for approval.

In the planning area, wildland fire protection for most public land is provided by the BLM. For some scattered tracts of public lands, particularly on the west side of the Eagle Lake Field Office, wildland fire protection is provided by the California Department of Forestry and Fire Protection (CDF) under the afore mentioned wildland fire protection agreement. Fire fighting philosophies, legislative directives and strategies can sometimes vary between CDF and BLM on these scattered tracts of lands. These differences can lead to different levels of suppression intensity, suppression costs per acre, and fire suppression impacts on natural resources. General fire management priorities, such as firefighter and public safety, protection of private property and improvements are usually consistent between the agencies.

3.6.5 Suppression Strategies

Full Suppression

Full suppression is an appropriate management response, a response where wildland fire ignitions are aggressively fought using a full array of management actions available unless site-specific restrictions apply (e.g., WSAs and ACECs). Firefighter and public safety is the number one priority. Under this strategy, a fire that is achieving resource objectives (i.e., reducing fuels or restoring fire-dependent ecosystems) and is not causing resource damages or threatening public health or safety would still be required to be aggressively suppressed.

Appropriate Management Response

An appropriate management response (AMR) on wildland fires emphasizes firefighter and public safety; however, fires are prioritized based on values to be protected commensurate with cost.

Allocations designated for AMR are areas that will receive a suppression response in the event of a wildfire ignition, but "the response to a wildland fire is based on an evaluation of risks to firefighter and public safety, the circumstances under which the fire occurs, including weather and fuel conditions, natural and cultural resource management objectives, protection priorities, and values to be protected. The evaluation must also include an analysis of the context of the specific fire within the overall local, geographic area, or national wildland fire situation." (Review and Update of the 1995 Federal Wildland Fire Management policy, January 2001 Page 35).

AMR is formulated by risk assessment, objectives, environmental and fuel conditions, and other constraints. Suppression objectives are based on the maximum allowable acres per ignition (at various fire intensity levels). Critical suppression areas, such as the wildland urban interface (see discussion later in this section), recreation sites, critical habitat, cultural sites, unstable soils, and ACECs would be predetermined and full suppression constraints are used in these areas. An AMR could include aggressive suppression on one portion of a wildland fire while monitoring another portion of the same fire. Another Appropriate Management Response could simply be monitoring a wildland fire.

3.6.6 Wildland Fire Use

Wildland fire use (WFU) is not technically a suppression strategy; a naturally ignited fire is used to achieve specific resource goals for designated areas. WFU areas are pre-identified areas where wildland fire will be used to protect, maintain, and enhance resources, and—as nearly as possible—be allowed to function in its natural ecological role. Use of fire is based on the approved Fire Management Plan and follows specific prescriptions contained in operational plans. Areas designated as a WFU area are expected to have a wider range of conditions that would still result in a non-resource damaging fire. These areas typically have missed fewer fire return intervals and therefore have less of a fuel buildup and have not been substantial altered ecologically.

3.6.7 Post-Fire Restoration

The Emergency Fire Rehabilitation Handbook (H-1742-1) (U.S. Bureau of Land Management 1999) outlines the process for implementing emergency fire rehabilitation projects following wildland fires. Emergency fire rehabilitation funds may be used to:

- Protect life, property, soil, water, and vegetation resources;
- Prevent unacceptable onsite or offsite damage;
- Facilitate meeting land use plan objectives and other federal laws; and
- Reduce the invasion and establishment of undesirable or invasive vegetation species.

As a part of wildland fire incidents, the management team develops and implements burned area emergency stabilization and rehabilitation (BAER). The BLM BAER policy, found in the Supplemental Emergency Stabilization and Rehabilitation Guidance (Draft 11/02), the Interim Interagency BAER Handbook, and the Departmental Manual 620 DM3 (Draft 12/03), outlines procedures for writing and implementing Emergency Stabilization (ES) and Rehabilitation (R) Plans. The ES and R Plans are separate documents.

Emergency stabilization (such as seeding to prevent erosion or the establishment of invasive plants) are actions taken within 1 year of a wildland fire to stabilize the site, prevent unacceptable degradation to natural and cultural resources, and minimize threats to life or property resulting from wildland fire. Rehabilitation (tree planting, invasive plant treatments, fence replacement) includes actions taken within 3 years of a wildland fire to repair or improve lands unlikely to recover from wildland fire, or to repair or replace minor facilities damaged by fire.

3.6.8 Wildland Urban Interface

The Wildland Urban Interface (WFU) is defined in the Federal Wildland Fire Management Policy as: ‘the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetation fuels’. Most of the human development within the field office area consists of scattered homes, ranches, and their associated outbuildings.

None of these would be defined as a community or considered a WUI. Nevertheless, these areas may still be at risk during wildfire events, and also do influence fire and fuels management.

Many communities classified as WFU exist in the Susan River/Honey Lake watershed where development has increased over the last 20 years. The communities of Susanville, Janesville, Standish, Litchfield, Johnstonville, and Wendell are all at risk from catastrophic wildfire to varying degrees. Many scattered ranches and small urban areas associated with these communities also pose WUI issues in terms of defensible space, hazardous fuel buildup, hazardous materials, ignition risk, and public education.

In the Eagle Lake watershed, the communities of Spaulding and Stones-Bengard are both listed in the Lassen County Fire Plan as at risk to catastrophic wildfire.

3.7 Forestry

Susan River

Forest resources in the Eagle Lake Field Office area are comprised of forestlands and woodlands. Forestlands are areas dominated by commercial timber species. In the Eagle Lake Field Office area these species include Jeffrey pine, ponderosa pine, sugar pine, lodgepole pine, Washoe pine, Douglas-fir, white fir, Shasta red fir, and incense cedar. Woodlands are areas with at least 6% canopy cover and forested primarily with juniper, oak, aspen, mountain mahogany, and other non-commercial species. Forestland, characterized by at least 10% canopy cover, is subdivided into commercial forestland capable of producing ≥ 20 cubic feet per acre per year and low-site forestland producing < 20 cubic feet per acre per year. Low-site forests generally occur where commercial forestland grades into juniper woodland. These forests are composed of scattered ponderosa pine, Jeffrey pine, western juniper, and occasionally oak.

There are approximately 11,020 acres of forestland and 80,496 acres of woodland and low-site forestland in the Eagle Lake Field Office area. Acreage in each watershed in the field office area is shown in Table 3.7-1.

Table 3.7-1 Forestland and Woodland Areas by Watershed for the Eagle Lake Field Office (acres)

Watershed	Forestland	Woodland and Low-Site Forestland
Eagle Lake	2,166	10,055
Feather Headwaters	687	Probably present but no data
Horse Lake	1,620	26,837
Madeline Plains	2,429	34,735
Sierra Valley	693	Probably present but no data
Smoke Desert South	0	8,069
Susan River/Honey Lake	3,425	800
Total	11,020	80,496

Forestland owned and administered by BLM constitutes a small fraction of the Eagle Lake Field Office area. The majority of forested land (i.e., forestland and woodland) is on the Lassen and Plumas National Forests, with fewer acres on the Modoc and Tahoe National Forests. The timber harvest and value for the counties in the field office area (Lassen, Nevada, Plumas, Shasta, Sierra, and Tehama) ranged between 33.3 and 152.1 million board feet (MBF) and $6.6–39.3 million dollars in 2002 (California Board of Equalization 2002). By comparison, timber sales from the Alturas and Eagle Lake Field Offices combined averaged 1.9 MBF per year in the same time period (BLM file data).

Forestland in the Eagle Lake Field Office area consists of approximately two-thirds Jeffrey pine and ponderosa pine and approximately one-third white fir. Sugar pine, incense cedar, Douglas-fir, lodgepole pine, and Shasta red fir are also present. At higher elevations on Fredonyer Mountain, the timber stands are dominated by white fir and are somewhat denser than the lower-elevation pure pine stands. Stands are multi-aged, although there is a large component of even-aged trees in most stands. Many stands originated after logging and fires in the late 1800s and early 1900s. Areas that burned subsequently in the 1900s have been planted to ponderosa and Jeffrey pine; such areas now support even-aged stands.

From the origin of BLM in 1946 through the 1960s, logging activities were concentrated on selective removal of high-risk old-growth trees. High risk was defined as trees likely to die within 20 years. These old-growth trees were 200–400 years old and older. During the 1940s through the 1960s, approximately one-half of the old-growth trees were selectively harvested. From the late 1970s through 1993, timber operations entailed some old-growth harvest and a considerable amount of commercial thinning, which concentrated on harvesting trees that had reached economic maturity (trees approximately 120 years old and 21 inches diameter at breast height [dbh]). Since 1993,the driving force for timber removal in the field office area has been salvage logging following fire and in the presence of insect infestations (primarily white fir engraver and pine beetles) and disease (dwarf mistletoe).

Recent thinning and salvage operations have created stands that are relatively resistant to insect attacks; however, hazardous fuels in the form of overstocked stands, needles cast, slash from previous logging operations, and bitterbrush and other shrubs remain a concern. Stands in the field office area have not been surveyed and rated for hazardous fuels loads; this remains a gap in the field office database.

Forestlands and woodlands are used for log, pulpwood, and biomass chip production; recreation; hunting; fuelwood gathering; scientific research; and wildling collection (e.g., mushrooms, juniper berries, evergreen boughs, pinecones, lichen).

The productive timberland is part of the Sustained Yield Unit (SYU) 15 base and is managed for timber production with multiple use and threatened and endangered species constraints. SYU 15 includes BLM lands in the Redding, Alturas, Surprise, Eagle Lake, Folsom, Bishop, and Bakersfield Field Office areas. Timber management in SYU 15 promotes pre-commercial thinning, site preparation, and planting to maximize production on forestlands. The annual allowable cut for the unit is 11.9 MBF. Logs, pulpwood, and biomass are harvested. The woodlands and low-site forestlands are not part of the SYU 15 allowable cut and are managed for removal of fuel wood and log or biomass harvest.

Wildfire, blowdown, insects, and disease affect the condition of forestlands and woodlands. Commercial thinning and sanitation/salvage harvest to minimize impacts of insects and disease have been practiced throughout the field office area. In cases where substantial damage to the resource has occurred (e.g., due to outbreaks of fir engraver in the mid-1990s), salvage logging and woodcutting have been encouraged. Consequently, such stands are no longer overstocked and are more resistant to insect attack. Although stands in the field office area have not been assessed with respect to fuels loading, most stands—including plantations—present a hazardous fuels condition.

Almost one-half of the BLM forestland acres in the Eagle Lake Field Office area are within the Susan River/Honey Lake and Horse Lake watersheds. Most of the white fir in these two watersheds was infested with fir engraver in 1993–1995, and the stands were harvested for logs and biomass. Following harvest, some of the more open areas were planted to pine.

All watersheds in the Eagle Lake Field Office area contain productive plantations. Large-scale fuels treatments have been carried out in the Eagle Lake, Horse Lake, and Almanor watersheds. Approximately one-half of the productive forestland in the Feather Headwaters watershed is ponderosa pine plantations planted in the mid-1960s. These plantations have been thinned, and hazardous fuels treatments have been conducted. One stand of 240 acres suffered severe blowdown after thinning and is scheduled for additional treatment. Although the majority of remaining stands in the Feather Headwaters watershed have been subject to timber sales in the past, an 80-acre tract on Dyer Mountain—adjacent to a proposed ski development—has not been harvested.

3.8 Lands and Realty

3.8.1 Land Use Authorizations

Lands within BLM's Eagle Lake Field Office jurisdiction (Table 3.8-1) are generally in small parcels scattered throughout the area. But larger blocks of contiguous public land lie between State Highway 139 and U.S. Highway 395 and east into Washoe County, Nevada.

Table 3.8-1 Land Ownership in the Eagle Lake Field Office Area

Ownership	Acres
USDI Bureau of Land Management, Eagle Lake Field Office	1,022,767
USDA Forest Service	2,115,685
States of California and Nevada	68,739
Indian land	1,721
National Park Service	35,836
US Army, Sierra Army Depot	82,894
Private	1,530,539
Total	4,858,251

Land use authorizations include the following:

- authorizations and agreements to use BLM land as right-of-way grants, road use agreements and associated temporary use permits under several authorities; leases, permits, easements under Sec. 302 of the Federal Land Policy and Management Act of 1976 (FLPMA);
- airport leases under the Act of May 24, 1928; and
- Recreation and Public Purposes (R&PP) Act leases.

For this planning effort R&PP transfers, unlike R&PP leases, are considered land ownership adjustments and are covered under that heading.

Lands in the Eagle Lake Field Office area are also available for leases or other land use rights or authorizations. Issuing such authorizations is subject to restrictions based on conflicting land uses or other resources.

BLM-administered lands have long been a popular place for the motion picture industry. The western deserts, dry lake beds, and mountain terrain are strong attractions to national and international television and film production companies. Special permits are required to the use BLM-administered lands for commercial film production. If those activities are not specifically prohibited during the planning process, they would be considered an acceptable land use.

The Eagle Lake Field Office administers general land use authorizations under the Federal Land Policy and Management Act (FLPMA), as amended, on 1,022,767 acres within Lassen, Plumas, and Sierra counties in northern California and Washoe County in Nevada. The existing right-of-way grants are for a myriad of facilities and are held by private individuals and groups as well as business and government entities.

Power transmission and distribution lines, roads, and telephone lines are the most common types of right-of-way facilities, accounting for more than half of the grants. Examples of other types of right-of way facilities authorized include water pipelines, communication sites, ditches, railroads, materials sites, wind energy monitoring towers, and fiber optic lines. Eagle Lake Field Office manages from 20 to 30 right-of-way actions annually. These include right-of-way applications for new facilities as well as the amendment, assignment, renewal or relinquishment of existing right-of-way grants.

The field office manages three communications site rights-of-way authorized within its area of jurisdiction. The regulations, which were implemented in 1997, govern managing of communication sites to minimize the number of individual grants that BLM must issue and administer on public lands. Therefore, potential new users are encouraged to locate within existing communication site facilities.

Antelope Mountain has a communication site plan completed in 1993, but the Shaffer and Grasshopper Mountain site facilities don't have plans. During the life of this RMP, a plan is expected to be developed for Shaffer and Grasshopper Mountains. In 2003, BLM began an effort to locate communication sites on BLM-administered lands with a high potential for development and determine which sites need communication site management plans or updated plans. Each site will need a cadastral survey and a map showing the locations of all facilities on the site, potential future development areas, and legal access.

BLM has not formally designated any right-of-way utility corridors or use areas under any of its previous planning documents. But BLM has been directed to begin coordinated, intergovernmental, interagency, right-of-way corridor planning (including coordination with BLM land use planning for public lands) in partnership with industry and public groups.

In November 1995, the final environmental impact report/EIS for the Alturas Transmission Line project was published, amending previous planning documents. Later BLM granted a right-of-way for the project to Sierra Pacific Power Company.

During January 2003, to make the effort more manageable, the Western Utility Group (WUG) updated its 1992 Western Regional Corridor Study (WRCS), and gave BLM a more focused set of priority corridors in the western United States. The proposed corridors were found to have the highest potential of being developed with other electric transmission lines, oil and gas pipelines, and telecommunication facilities within the next 10 years. The Alturas Transmission Line route was described as having the highest potential of being developed within the Eagle Lake Field Office area. The field office area's only areas for avoidance or exclusion are within wilderness study areas (WSAs).

In May 2001, the President adopted a National Energy Policy, which assigned a major role to public lands and resources in meeting our Nation's increasing energy needs (WO IB 2001-138). A series of initial actions, schedules, and assignments were developed, outlining how to efficiently and effectively implement the President's Policy. The policy encourages developing renewable energy resources, including wind energy, as part of an overall strategy to create a diverse portfolio of domestic energy supplies for our future.

The current contribution of renewable energy to our renewable energy supply is small. But wind energy and other renewable energy-generating sectors of our economy are the fastest growing in the United States (BLM 2001e). Continued growth in wind energy will be extremely important in delivering larger domestic supplies of clean, domestic power for America's growing economy.

The policy has been established to encourage the development of wind energy in acceptable areas. Wind energy site testing and monitoring usually conform to and can be accommodated by existing land use plans without a need for a land use plan amendment. Previous planning documents did not prohibit wind energy development, which is an acceptable use of public land.

Currently, the Eagle Lake Field Office analyzes requests for land use authorizations on a case-by-case basis, and, as a stipulation to the authorization, applies mitigation measures addressed during NEPA compliance review.

3.8.2 Land Ownership Adjustment

In managing the public lands under its jurisdiction, BLM provides for disposal, acquisition, adjustment, and use of land resources. Through its management framework plans (MFPs) or land use plans (LUPs) BLM may list areas that may be suitable for land tenure adjustment. The field office administers land tenure adjustments on a case-by-case basis in response to public demand or at the initiative of BLM to meet its land management objectives. Before acting on a land tenure adjustment, BLM must do the following:

- determine whether the adjustment would comply with Federal Land Policy and Management Act (FLMPA) criteria,
- conduct an environmental analysis, and
- evaluate the consistency of the action with the suitable MFP or LUP.

During the life of the previous MFPs and LUPs exchanges have been used to improve public land ownership patterns by generally disposing of small, isolated tracts of public with limited resources and acquiring nonfederal land with higher resource values next to larger blocks of public lands.

BLM may select specific parcels or general areas as suitable for sale, exchange, acquisition, or retention in accord with FLPMA guidance—or in response to BLM's resource management objectives. The land that has been listed in previous MFPs and LUPs as potentially suitable for sale or exchange consists of scattered, isolated tracts with generally low or unknown resource values.

The Eagle Lake Field Office's current MFPs and LUPs in some cases list specific parcels for sale. But not all disposal parcels have undergone site-specific clearances. These clearances may reveal unique resources or other environmental conditions and require BLM to retain these lands in a custodial status. The criteria to determine whether tracts may be suitable for sale are in Section 203 of FLPMA.

The Beckwourth Land Tenure Amendment of 1982 listed 320 acres for disposal. About 160 acres have been disposed of through exchange or sale. Two 40-acre parcels (80 acres) are still available for disposal. Two 40-acre parcels have undergone site-specific clearances and would be retained as custodial parcels. Many requests for land sale, exchange, or acquisition may be initiated. BLM must consider each of these requests on a case-by-case basis. Each request is subject to a separate environmental clearance. All exchanges and sales are at the full discretion of the field manager. And exchanges or sales may be disapproved under the following circumstances:

- if important resources are found to be present,
- if such disposal would conflict with the field office's resource management goals and objectives, or

- if the proposed disposal does not meet the criteria of the Federal Land Policy and Management Act (FLPMA) and other laws.

In other areas, emphasis is placed on increasing public land holdings through donations, exchange, or sale. These lands possess significant visual, wildlife, watershed, special-status species, wilderness, recreation, vegetative, cultural, or other public values.

The field office selects broad areas of public land are for retention and intensive management in accord with the field office's resource management goals and objectives. These areas are referred to as retention/acquisition areas.

Within these areas, BLM will work with willing private landowners to complete land exchanges that will provide public land management benefits as well as management benefits for private landowners.

The retention/acquisition areas where BLM wishes to acquire private land by exchange are generally larger expanses of public lands with smaller private inholdings. These retention/acquisition areas are places where BLM intends to focus on long-term management of public lands in accord with the goals, values, and objectives identified in this RMP. They are often portions of and, in some cases, all of specific existing management areas. Special management areas where public lands will be retained include wilderness study areas (WSAs), areas of critical environmental concern (ACECs), resource natural areas (RNAs) and wild and scenic rivers.

The Recreation and Public Purposes (R&PP) Act authorizes the transfer of public lands in additional to leases when the transfer serves the public interest. BLM is in the process of patenting (transferring lands out of government ownership for the first time) lands for three dumps in Lassen County. These are the Herlong Transfer Station, Stones Transfer Station, and the Johnstonville (Bass Hill) Landfill. When the lands for the landfill and transfer stations are patented, Lassen County Regional Solid Waste Management would assume liability for these lands. In addition, two R&PP parcels are leased to Lassen County for a remote control airplane facility and a rifle range.

BLM would continue to retain and manage lands within WSAs as wilderness until Congress makes a final determination on wilderness designation.

The Bizz Johnson Trail corridor (Susanville-Westwood Trail Recreation Area Management Plan) (BLM 1983b) is of local and regional significance. The historical, scenic, and recreational values along the trail corridor combine to make the area unique among recreational trails throughout northern California. BLM will continue to retain the trail corridor to benefit use of these public lands. Acquiring private inholdings from willing sellers would continue to be of primary importance to BLM.

The Pine Dune Research Natural Area (RNA), 17 miles east of U.S. Highway 395 at Ravendale, is managed as RNA because of the presence of an isolated grove of pines and the extraordinary dune landscape. Because of the special values of the Pine Dunes, this area would be retained and administered in a manner similar to an area of critical environmental concern (ACEC). Research natural areas are portions of federally managed lands established and maintained for research and educational purposes because they have one or more of the following characteristics:

1) a typical representation of a common plant or animal association;
2) an unusual plant or animal association;
3) a threatened or endangered plant or animal species;
4) a typical representation of common geologic, soil, or water features; or

5) outstanding or unusual geologic, soil, or water features (43 CFR 8223, Research Natural Areas).

The Pine Dunes RNA fulfills criteria 2 and 5 because of its isolated grove of pines and its extraordinary dune landscape.

Other lands under the management of the Eagle Lake Field Office may be retained as custodial lands for resource values, including lands currently identified for disposal.

Environmental review before disposal may reveal significant values that would warrant retention. During development of the RMP, specialists would need to review lands that were previously selected for retention or acquisition; as well as determine what other lands meet the criteria for retention or acquisition, in accord with FLPMA.

Under current regulations and policies, the Eagle Lake Field Office would continue to accept qualified requests for parcels that are listed for disposal and that may benefit the community in the field office area. If those activities are not listed as prohibited during the planning process, they would be considered an acceptable use.

3.8.3 Access

For the purposes of this section, access refers to the physical ability and legal right of the public, agency workers, and authorized users to reach public lands. The lands and realty program mainly helps acquire easements to provide for legal access where other programs have recognized a need.

Access to public lands administered by the Eagle Lake Field Office is an issue of concern to both agency people and the public. The field office area's existing fragmented ownership pattern of BLM lands, intermingled with private, state, and other federal land, complicates the access situation. Under current planning documents, BLM has made progress in improving access to public lands. But some lands within the field office area still lack legal access. BLM will continue to focus its acquisition of access on the following:

- larger blocks of public land that are designated for retention in BLM ownership,
- areas with important resources,
- areas where public demand for access is high, and
- areas with substantial BLM investments.

Generally speaking, under the criteria and direction of BLM laws, regulations, and policy, access is acquired from willing landowners on a case-by-case basis as needs or opportunities arise. Road and trail easements are the main means of obtaining legal access where none exists. Consolidating BLM land ownership patterns by exchange has in some cases improved the access situation in the field office area.

3.8.4 Withdrawal

A withdrawal is a formal action that sets aside, withholds, or reserves federal lands for public purposes by administrative order or statute. The effect of a withdrawal is to accomplish one or more of the following:

- segregate (close) federal land to the operation of all or some of the public land or mineral laws;
- transfer total or partial jurisdiction of federal land between federal agencies, and
- dedicate federal land for a specific purpose.

Withdrawals can be categorized into three major types:

- **congressional** - legislative withdrawals made by Congress in the form of public laws. Examples include designating wilderness or wild and scenic rivers,
- **administrative** - withdrawals made by the President, Secretary of the Interior, or other officers of the Executive Branch of the Federal Government. Examples include stock driveways and public water reserves; and
- **Federal Power Act** - power project withdrawals established under the Federal Power Act of June 10, 1920. These withdrawals are automatically created upon the filing of an application for hydroelectric power development with the Federal Energy Regulatory Commission (FERC).

Public lands administered by BLM may be withdrawn for specific purposes by agencies other than BLM. As part of the management of lands in the Eagle Lake Field Office area, BLM may be required to review current withdrawals to determine the need for their continuation, modification, revocation, or termination. Future withdrawals would be considered on a case-by-case basis in accord with Section 204 of the Federal Land Policy and Management Act (FLPMA). The Secretary of the Interior may act to terminate withdrawals other than those made by an act of Congress.

Withdrawn lands in the Eagle Lake Field Office area include a portion of lands within the Sierra Army Depot. The withdrawn lands are shown on the master title plats maintained in the BLM's California State Office. The Sierra Army Depot is charged with receiving, issuing, and renovating munitions, and the efficient and safe demilitarizing of surplus ammunition. In 1990, a detonation occurred that extended beyond the existing demolition range boundary and onto BLM-administered land. In 1991, the Sierra Army Depot built a quality distance fence, which withdrew public access to another 1,328 acres of BLM-administered lands for public safety. In accord with 43 CFR 2300, the U.S. Army Corps of Engineers is working on the official withdrawal of this acreage.

3.8.5 Unauthorized Use

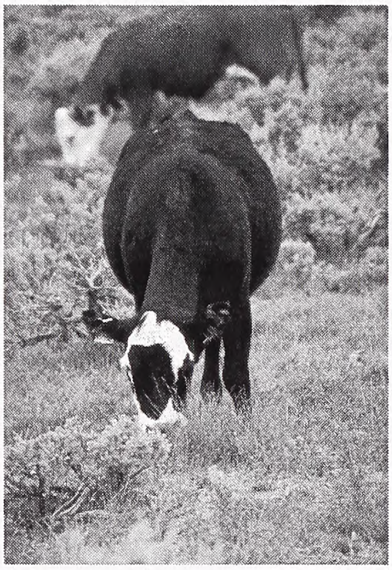
Trespass under the lands and realty program can be split into three categories.

- **Unauthorized use** refers to activities that do no appreciably alter the physical character of the public land or vegetation resources. Some examples of unauthorized use include the abandonment of property or trash, enclosures, and use of existing roads and trails for purposes that require a use fee or right-of-way.
- **Unauthorized occupancy** refers to activities that result in full- or part-time human occupancy or use. An example would be the construction, placement, occupancy, or assertion of ownership of a facility, structure, cabin, house, natural shelter, or trailer.
- **Unauthorized development** means an activity that physically alters the character of the public lands or vegetation resources. Examples include cultivation of public lands and roads or trail construction or realignment.

The Eagle Lake Field Office attempts to abate trespass through prevention, detection, and resolution. In the lands and realty program, priority for resolving trespass is accorded to newly discovered, ongoing uses, developments, or occupancies where resource damage is occurring and needs to be halted to prevent further environmental degradation. Lesser priority is accorded historic trespass cases where little or no damage is occurring. Realty trespass cases in this later category are resolved as time permits.

3.9 Livestock Grazing

3.9.1 Historical Setting



The Eagle Lake Field Office is located in an area that has been grazed by livestock for more than 100 years. Excessive livestock grazing from the late 1800s to the 1930s altered plant composition and productivity of the rangelands within the field office area. Many of today's problems, including soil losses and vegetation changes, are more a result of earlier grazing practices than current ones. Livestock were forced off adjacent National Forest lands onto public domain (now BLM-administered) lands and applicants' exaggerated claims of historical use on public domain land during the priority years (1929–1934) were used to establish grazing levels under the Taylor Grazing Act of 1934. Lands in the field office were substantially overstocked by 1938, when the last applications were accepted, and remained so until the adjudication period in the 1960s. Livestock numbers were reduced during this adjudication, and portions of the forage allocations were subsequently redistributed for wildlife use within the planning areas.

3.9.2 General Management Approach

Grazing resources and livestock use are characterized according to three broad categories of information: the grazing animals, the management that controls their movements, and the range resources supporting grazing activities. Animals are described by species, age, numbers, breeding arrangements, herd sizes, herd sex ratios, and food preferences. Management is described by how and when animals are brought to BLM-administered land, the numbers turned out, the methods for controlling their movements, and how and when the animals are removed. These descriptors are defined in the grazing permits held by permittees. BLM rangeland is divided into grazing allotments, which are further divided into pastures. Within the allotments, animal movements are controlled through the use of pasture fences, drift fences, and locations of water sources. Permits are valid for 1–10 years, but terms and conditions under the annual authorization can be changed on an annual basis in response to BLM monitoring of range condition. Grazing resources also are affected by management practices when grazing animals are not present.

Range resources that support grazing activities comprise vegetation as well as components such as water, minerals, and cover. The carrying capacity for grazing animals of a particular given area of rangeland, described in terms of animal unit months (AUMs), consists of the number of animals that can be supported by the range while meeting required standards. The relative composition and quality of forage species, in concert with animal food preferences, contributes to quantification of the carrying capacity (Heady 1975).

Rangeland and livestock are managed by establishing discrete allotments and issuing livestock permits for these allotments. Allotment management plans (AMPs) are developed based on the site conditions, including the availability of water and forage and other resource sensitivities within each allotment. AMPs are developed in a process that is compliant with NEPA and consistent with the broader governing RMP. Basic permit conditions are established based on the provisions of the AMPs and are adjusted annually, through a monitoring process, to reflect current rangeland conditions and sensitivities. Permits are generally issued for 10 years.

3.9.3 Current Livestock Grazing Conditions

Of the 1,022,767 acres of BLM-administered lands within the boundaries of the Eagle Lake Field Office, 987,779 (approximately 97%) are currently in grazing allotments. Within these allotments, 52,250 AUMs are available for permitted animals. Although permits currently allow for 10,460 cattle and 26,776 sheep AUMs; on average, only 5,000–7,000 sheep are being grazed. (See Appendix J. Livestock Grazing Allotments).

There are 49 existing grazing permit holders. Most of the permittees have been in the area for years, and many are second- and third-generation ranching families.

Rangeland Health Assessment Determinations

Rangeland health assessment (RHA) determinations rate grazing allotments according to the following four categories:

- Category 1 – Areas where one or more standards are not being met, or significant progress is not being made toward meeting the standard(s) and livestock grazing is a significant contributor to the problem.
- Category 2 – Areas where all standards are being met or significant progress is being made toward meeting the standard(s).
- Category 3 – Areas where the status for one or more standards is not known, or the cause of the failure to meet the standard(s) is not known.
- Category 4 – Allotments where one or more of the standards are not being met or significant progress is not being made toward meeting the standards due to causes other than (or in addition to) livestock grazing activities. (Those allotments where current livestock grazing is also a cause for not meeting the standards is included in Category 1, in addition to this category)

RHA information is currently available for all of the allotments in the Eagle Lake Field Office as result of recent land health assessments completed on all allotments. A formal determination health standard has not been completed for all allotments. Other factors affecting rangeland health include juniper encroachment, historical livestock grazing, noxious weed increase and encroachment.

The Eagle Lake Field Office characterizes the management approach for allotment lands according to three categories based primarily on current rangeland condition: improve (I), maintain (M), and custodial (C). Criteria used to assign each of these management approaches are:

- Improve – Allotments generally have the potential for increasing resource production or conditions, but are not producing at that potential. There may be conflicts or controversy involving resource conditions and uses, but there are realistic opportunities to enhance resource conditions.
- Maintain – Allotments are in satisfactory resource conditions and are producing near their potential under existing management strategies. There are little or no known resource use conflicts or controversies.
- Custodial – Allotments usually consist of relatively small acreage or parcels of public land. They are often, but not always, intermingled with larger amounts of non-federally owned lands. There should be no known resource conflicts involving use or resource conditions. Typically, opportunities for positive economic returns from public investments are limited on these lands.

BLM selectively directs funds, monitoring emphasis, and management efforts where they will be the most effective. The major emphasis for development is the "improve" category allotments. Presently, 23 allotments (comprising 937,416 acres, or 95% of the total area in allotments) meet "improve" criteria, 10 allotments (31,447 acres, 3%) meet "maintain" conditions, and 23 allotments (18,916 acres) meet "custodial" conditions in the Eagle Lake Field Office area. Table 3.9-1 shows the grazing allotments and permitted use in each management category.

Table 3.9-1 Grazing Allotment Specifications and Permitted Use in the Eagle Lake Field Office Area

Livestock Numbers				Permitted Animal Unit Months (AUMs)		
Management Category	Allotment Acres	Cattle	Sheep	Cattle	Sheep	AUM %
Custodial	18,916	1,972	0	1,713	9	
Improve	937,416	8,057	4,000	43,552	4,512	
Maintain	31,447	431	2,000	2,194	270	
		10,460	6,000	47,459	4,791	9.2% sheep
						90.8% cattle
Total	987,779	16,460		52,250		100%

* Total livestock use varies seasonally especially during drought conditions when use levels may range from 60 to 80% of total available AUMs.

3.9.4 Current Livestock Management

The primary management objective for livestock management has been to increase perennial grass composition. Management to meet this objective has been accomplished primarily through the use of pasture fences and development of strategically placed water sources. Other management actions include defining the season of use and voluntary reduction of use by permittees.

Management on BLM-Administered Land

Present management includes turning out the permitted number of livestock onto designated pastures within an allotment and removing them according to the annual permit conditions. Animal distribution and movements are controlled by fencing, water distribution, or active herding measures. "Rest-rotation" management is being applied, an approach in which pastures are grazed in one season and ungrazed in one or two subsequent seasons. Livestock are moved in and out of allotments and between pastures by trucks or overland "drives."

Management on Adjacent Land

Alternative (off-season) pastures are obtained from USFS allotments, leased private lands, home ranches, or out-of-area pastures or feedlots. Presently, approximately 50% of the stock permitted on BLM lands are pastured offsite in the general area; the rest are pastured in the Sacramento Valley. This proportion varies from year to year as a result of changing range and market conditions. The average herd size ranges from 2 to 600 head. Family and small business owners control approximately 95% of the herd using BLM-administered land; the remainder is under the control of corporate entities.

3.9.5 Observed Trends

Range Conditions

BLM is enhancing range conditions by controlling animal numbers, regulating season of use, and resting ecosystems subject to catastrophic damage (principally fire). Monitoring the activities applied according to procedures and criteria laid out in the Standards and Guidelines provides information on relative rangeland health and identifies animal management actions needed to protect the resource.

Forage production and availability naturally fluctuate annually in the Eagle Lake Field Office area. Drought conditions can trigger alteration of annual permit conditions. Natural or management-associated processes that are considered to move range health away from the desired conditions include:

- Encroachment of juniper into low and big sage and oak woodland communities;
- Sheet erosion and pedestalling (loss of soil except where held as "pedestals" by the roots of individual plants);
- Increasing competition from invasive weed species;
- Decline of watercourse health;
- Decline of riparian area health and functioning;
- Trampling of soils and streambanks by livestock, and impacts from trails or roads along the drainages and in the riparian areas;
- Decline in important forage shrub species as a result of drought; and
- Wildfire. Because invasive annual species are established in most pastures, implementing management practices would increase the extent of perennial species but likely would not restore historical levels of perennial dominance.

Grazing Use

The amount of grazing on BLM-administered lands in the field office area has declined during the last 20 years; the current average use is at 70 to 80% of the 52,250 available AUMs (10,460 cattle and 6,000 sheep). In years with "on-average" or "above-average" forage production, higher amounts of available AUMs may be used.

Ranching operations in the area have decreased slightly because ranchers wish to sell or do not have family members to continue the business. These ranches may have numerous grazing permits attached to the base property (usually the home ranch). Grazing permits can be transferred to new owners or can be kept with the ranch base property. Some of the permits held by area operations have been transferred to other operators and remain in production. In most cases, the local permits are transferred to other qualified permittees or transfer to the new owner of the ranch property.

As rural areas experience rapid growth, some of the base properties may be converted to residential developments. Although not a widespread activity to date, it has occurred in one area. A trend toward residential development could develop over the next 20 years. Ranchers continue to ranch because of their commitment to the ranching lifestyle, family values, and tradition. At the same time, local land use planning efforts, changes in federal land policy, and development of surrounding lands (which often increases taxes) contribute to maintaining livestock operation becoming more expensive and labor intensive.

Grazing Management

BLM and permittees have committed to improving public lands so that livestock forage and ranching can be sustained. Despite inherent difficulties, many local ranchers have changed grazing methods and have begun using new grazing strategies, which have shown dramatic improvement in maintaining the quality of rangeland. In addition, the quality and extent of riparian and sensitive upland vegetation types have increased because of these new and innovative grazing management techniques, which include shorter grazing seasons, modified spring grazing/summer grazing, and intensive management in riparian areas or pastures.

Enhancement management of streams and riparian areas through creation of livestock exclosures and riparian pastures, and intensive livestock management programs (e.g., redesigned fence configurations, frequent pasture moves, changes in season of use, and herding) have reduced effects of livestock concentration in sensitive areas—resulting in improved rangeland conditions.

Maintenance of greater amounts of residual plant material (vegetation that remains ungrazed at the end of the grazing season) in upland and riparian habitats has enhanced watersheds by improving water infiltration and reducing soil erosion, and allowing increased seedling establishment to increase ground cover.

Although these improvements have been positive, some areas continue to require management changes. The riparian and upland assessments have identified areas that need attention if rangeland health is to be sustained (see Chapter 3.16 "Vegetation").

3.10 Recreation Resources

3.10.1 General Recreation Management

In managing recreation, BLM identifies and manages areas that warrant special management attention as Special Recreation Management Areas (SRMAs). In these areas, the mixture of natural resources and recreation activities related to those resources require focused management efforts in order to protect unique resources, provide for visitor safety, and provide visitors with information about the area resources and regulations and to resolve conflicts among uses. Generally management of SRMAs also provides for some facilities and interpretive services in support of the type of visitor use occurring in the area to better meet visitor needs and enhance visitor understanding and enjoyment of an area. The remainder of the BLM-administered lands not designated as SRMAs is called the Extensive Recreation Management Area or Extensive Area.

There are three Special Recreation Management Areas (SRMAs) within the Eagle Lake Field Office jurisdiction, the Bizz Johnson Trail, Eagle Lake Basin, and the Fort Sage OHV Area. These areas total approximately 10 % of the area managed by the field office (65,570 acres). Table 3.10-1 shows the acreage of the three SRMAs and the Extensive Recreation Management Area (the rest of the Field Office land base) and shows the estimated visitor use within these areas for fiscal year 2004.

Detailed descriptions of each Special Recreation Management Area and current management are described in Special Recreation Management Areas.

Table 3.10-1 Recreation Management Areas in the Eagle Lake Field Office Area

Area	Acres	% of Field Office Area	Visitor Use Estimates for FY 04 10/1/03 - 9/30/04	% of Visitor Use in Field Office Area 10/1/03 - 9/30/04
Bizz Johnson Trail SRMA[a]	2,756	0.3	86,179	42.2
Eagle Lake Basin SRMA[b]	34,320	3.4	31,814	15.6
Fort Sage SRMA[c]	28,494	2.8	10,782	5.3
Extensive (ERMA)[d]	957,197	93.5	75,324	36.9
Total	**1,022,767**	**100.0**	**204,099**	**100.0**

FY = fiscal year

SRMA = Special Recreation Management Area

ERMA= Extensive Recreation Management Area (Dispersed Use Area) = all area not included in the SRMA'

[a] Use estimates based on data from trail and access road traffic counters and knowledge of use patterns

[b] Use estimates based on data from daily observed use at developed sites and estimates of use at undeveloped areas.

[c] Use estimates based on trail and access road traffic counters and interpretation of this data based on knowledge of use patterns.

[d] The large size of the Extensive Recreation Management Area, multiple access points and limited staff to collect visitor use data limit the precision of visitor use estimates. The visitor use estimate for the Extensive Recreation Management Area is BLM's best professional estimate based on limited traffic counter data on some of the dirt and gravel roads and general knowledge of visitor activities and use patterns in the area.

The rest of the Eagle Lake Field Office jurisdiction, 90% (957,197 acres), that is not included in the three Special Recreation Management Areas is managed as an Extensive Recreation Management Area. Lands in the Extensive Recreation Management Area are managed to retain their natural appearing, undeveloped character and to provide the opportunity for self sufficient exploration and discovery experiences. Self reliant experiences are what people seek when visiting these largely undeveloped open space lands, whether the activities people pursue are vehicle based, non-motorized or a combination of both. Self reliant activities that focus on exploration and discovery include hunting, vehicle based back country sightseeing, wild life viewing, hiking, horseback riding, mountain biking and OHV driving and riding. Some of these activities also include challenge and adventure as part of the experience sought by visitors and provided by these undeveloped lands.

There are many areas where recreation activities are concentrated within the Extensive Recreation Management Area. These recreation activity areas are generally associated with a physical landform, such as a mountain, canyon, lake, reservoir, or creek. Two developed campgrounds, Dodge Campground (10 sites) at Dodge Reservoir and Ramhorn Campground (12 sites) at Ramhorn Springs, are also in the Extensive Recreation Management Area. These two areas have been sites of long established public use associated with hunting and fishing. Beginning in the 1960's BLM has invested in developing and maintaining campground facilities at these areas. Improvements were made to both campgrounds in the 1990's. As a whole, however, the activity areas within the Extensive Recreation Management Area have not required sufficient management attention to elevate these areas to Special Recreation Management Area status.

The lack of a Special Recreation Management Area designation does not mean that a given activity area within the Extensive Recreation Management Area is without unique resources and associated recreation uses. Rather, the mix of these resources, levels of visitor use, visitor use issues requiring special management attention and agency funding to administer these areas has not yet justified the need for BLM to designate one or more of these areas as a Special Recreation Management Area. Changes in levels of use, types of use, and impacts from use, public interest, or management priorities could justify designation of new Special Recreation Management Areas in the Extensive Recreation Management Area in the future.

Other types of Special Management Areas (not Special Recreation Management Areas) are also located within the Extensive Recreation Management Area. These areas have been established to provide management focus for resources where recreation activities are not the primary emphasis but may be a beneficiary of the designation. These designations include the Pine Dunes Research Natural Area, the Nobles National Historic Trail and seven Wilderness Study Areas. See Chapter 3.13.1, 3.13.2, and 3.13.3 for descriptions of these areas.

3.10.2 Extensive Recreation Management Area

The major recreation activities that occur in the Extensive Recreation Management Area, 90 % of the of the Eagle Lake Field Office jurisdiction, are hunting and fishing, camping, vehicle based sightseeing, wildlife viewing, day hiking, horseback riding, photography, picnicking, driving and riding motorcycles, quads and other OHVs, recreational shooting and mountain biking. Other recreation activities that occur but to a limited extent due to the small numbers of participants in this area are backpacking, hang gliding and rock hounding (rock collecting).

The most popular times for recreational use of public lands in the Eagle Lake Field Office area are spring, early summer and fall. During the heat of the summer visitors generally avoid the high desert country in favor of cooler wooded mountain settings, lakes and rivers.

Self-contained camping in association with hiking, hunting, sightseeing and OHV riding occurs in areas popular for those activities (see Table 3.10-2 at the end of this section).

3.10.3 Special Recreation Management Areas

In the Eagle Lake Field Office there are three Special Recreation Management Areas (SRMAs), the Bizz Johnson Trail, Eagle Lake Basin, and Fort Sage OHV Area. Table 3.10-3 shows the acreage and visitor use figures for the three SRMAs in the Eagle Lake Field Office jurisdiction.

Table 3.10-3 Visitor Use of Special Recreation Management Areas in the Eagle Lake Field Office

Special Recreation Management Area	Acres	Fiscal Year '01 10/1/00 – 9/30/01	Fiscal Year '02 10/1/01 – 9/30/02	Fiscal Year '03 10/1/02 – 9/30/03	Fiscal Year '04 10/1/03 – 9/30/04
Bizz Johnson Trail [a]	2,756	66,939	78,365	81,894	86,179
Eagle Lake Basin [b]	34,320	39,219	31,279	34,169	31,814
Fort Sage OHV Area [c]	28,494	9,970	10,033	10,761	10,782
Total	65,570	116,128	119,677	126,824	128,775

[a] Use estimates based on data from trail and access road traffic counters and knowledge of use patterns.

[b] Use estimates based on data from daily observed use at developed sites and estimates of use at undeveloped areas.

[c] Use estimates based on trail and access road traffic counters and interpretation of this data based on knowledge of use patterns.

In managing recreation, BLM identifies and manages areas that warrant special management attention as Special Recreation Management Areas (SRMAs). In these areas, the mixture of natural resources and recreation activities related to those resources require focused management efforts in order to protect unique resources, provide for visitor safety, and provide visitors with information about the area resources and regulations and to resolve conflicts among uses. Generally management of SRMAs also provides for some facilities and interpretive services in support of the type of visitor use occurring in the area to better meet visitor needs and enhance visitor understanding and enjoyment of an area. The remainder of the BLM-administered lands not designated as SRMAs is called the Extensive Recreation Management Area or Dispersed Use Area.

The following sections describe the natural and historic resources, recreational activities and management emphasis of each of the three Special Recreation Management Areas within the Eagle Lake Field Office jurisdiction.

3.1 Bizz Johnson National Recreation Trail Special Recreation Management Area

Current Conditions

The Bizz Johnson National Recreation Trail (Bizz Johnson Trail) is a 25-mile-long non-motorized rail trail located on the former Fernley and Lassen Branch of the Southern Pacific Railroad. The railroad was built in 1913 and 1914 to serve the Red River Lumber Company's new Westwood mill. Management attention of the trail is focused on protecting natural resources within the Susan River canyon and forested areas along the trail west of the canyon, scenic quality, cultural heritage, and providing non-motorized recreational opportunities.

Jointly managed by BLM and Lassen National Forest, the trail is located on 11.3 miles of BLM administered public lands and on 13.7 miles of National Forest Land administered by Lassen National Forest. The trail extends from within Susanville to 5 miles north of Westwood, with connection to Westwood via County Road A-21. The trail's management plan includes provisions for extending the trail to Westwood on an alignment off of the county road.

BLM management is focused on the 9 miles of trail directly west of Susanville. There are also approximately 2.3 miles of public land (BLM fee owned) railroad right-of-way purchased from the railroad by BLM that are interspersed within the Lassen National Forest lands west of the main 9 mile BLM trail segment. Lassen National Forest maintains these segments of the trail for BLM.

Primary trail uses are walking, jogging, mountain biking, horseback riding, and cross country skiing. Snowmobiling is allowed on the segment of the trail west of the Susan River on the Lassen National Forest administered portion of the trail. The trail also provides convenient access to the Susan River for fishing; swimming and water play activities, tubing and kayaking. School groups use the trail for environmental education and heritage education field trips. Special events are held on the trail under authorization from BLM and Forest Service issued special use permits.

Other recreation activities that occur within the Bizz Johnson SRMA are rock climbing and rappelling on Pidgeon Cliffs, a vertical basalt face north of the Susan River near Hobo Camp, .5 miles west of Susanville. The cliff is a one pitch climbing area (under 100 vertical feet) that is often climbed with a top rope and is also used for rappelling practice.

The trail was named after former California Congressman Harold T. "Bizz" Johnson, by Act of Congress in 1983. Bizz Johnson was instrumental in the rails to trails conversion by supporting the project and introducing legislation that provided funds needed to acquire railroad lands and the Hobo Camp trailhead and picnic area.

The Bizz Johnson Trail Special Recreation Management Area is the most heavily used recreation area in the Eagle Lake Field Office jurisdiction. Receiving approximately 86,000 visitors in fiscal year 2004 (October 1, 2003 to September 30, 2004). The trail's popularity is based on its very scenic location adjacent to the Susan River within the Susan River Canyon, the convenient access to the river that the trail provides from Susanville for fishing and water play activities and the trail's railroad heritage, readily evident in 11 steel railroad bridges and two tunnels. The trail is a source of community pride, a quality of life amenity for area residents and a recreation destination for visitors to Lassen County.

The restored Susanville Railroad Depot serves as the main Susanville trailhead and visitor center, providing excellent customer service and interpretation of the trail, its railroad heritage. The Depot also serves as a regional visitor center for the Lassen County area. The depot is operated by Lassen Land and Trails Trust, a local nonprofit group that works in partnership with BLM and Lassen National Forest to provide the main trailhead and visitor center for the Bizz Johnson Trail and the only visitor center for Lassen County in Susanville.

In 2002, Lassen County constructed a replica of the Westwood Railroad Depot that now serves as a County Visitor Center in Westwood and a source of Bizz Johnson Trail information on the western end of the trail.

Mineral values are considered low within this SRMA, and no mineral development has occurred; however, past placer mining claims have been filed along the Susan River, at the Goumaz area in the Lassen National Forest. The claimants did not develop these claims and allowed them to expire.

Trends

BLM management of the Bizz Johnson Trail involves annual heavy equipment work along the former railroad grade to remove rockfalls, restore proper drainage, grade the trail where needed and maintain the railroad grade bridge abutments and tunnels as needed.

Weekly trailhead cleanup and trail patrol is completed by maintenance staff and volunteer hosts at the heavily used Hobo Camp Trailhead and Day Use Area (34,700 visitors in fiscal year 2004). Grading of two 0.5-mile-long access roads to the Hobo Camp and Devil's Corral trailheads is required three or more times per year and is done by BLM crews.

Law enforcement needs are mainly related to problems at the Hobo Camp trailhead. Patrols are carried out by Lassen County sheriff deputies under contract with BLM, subject to annual BLM funding, and by one BLM law enforcement officer who also patrols the trailheads and trails as needed.

Managing the trail to maintain the five BLM trailheads, one popular picnic area, nine miles of railroad grade, 12 bridges and two tunnels requires considerable staff time. Work involves seeking and administering special funding for project work, recruiting and supervising volunteers, facility maintenance and interpretation and public outreach to community groups and visitors who enjoy learning about the trail's heritage and natural history.

Management activities, visitor use, and natural processes affect trail conditions. Weathered concrete caps on bridges and bridge decking require annual maintenance. Streambank stabilization projects are continually needed to prevent erosion by the Susan River.

The Susanville Railroad Depot Trailhead and Visitor Center's building and grounds are subject to wear and tear caused by weather, weeds, and visitors. Annual funding from the Lassen Land and Trails Trust is needed to maintain the facility that serves Bizz Johnson Trail visitors and other Lassen County visitors. (The Trust is a local nonprofit group and depot owner that operates the depot in partnership with BLM, Lassen National Forest and the City of Susanville.)

Trailhead facilities are also subject to natural weathering and erosive forces. Five trailheads require ongoing maintenance. Numerous signs, 1 mile of access roads to the trailheads, 12 picnic tables, three toilets, four information kiosks, various trash cans, and a host site with full utilities require maintenance.

Trail use increases the potential for introduction of weed seeds into the area; weed seeds are carried in on the feet, wheels, and hooves of trail users and dispersed through horse manure. Weeds of particular concern are tall white top, Canadian thistle, and puncture vine. The use of weed eaters and other mechanical equipment to clear grass around signs and facilities may introduce weed seeds from weeds cut in other areas.

Equestrian traffic has a greater impact on trail conditions than other uses. Permits for large equestrian events occurring on the Bizz Johnson Trail stipulate that the event sponsor smooth and compact the trail surface after the event to BLM and Forest Service satisfaction.

If casual equestrian use increases to a level where trail tread loosening from horses' hooves becomes an ongoing problem that adversely affects other trails users, the management provision in the existing Bizz Johnson Trail Management Plan to direct equestrian use along the South Side Road trail between Susanville and Devil's Corral will need to be implemented. New trail construction will be needed along approximately 1.5 miles of the planned South Side Road Trail located south of the Susan River in the 7 mile segment of the Susan River Canyon between Susanville to Devil's Corral. Most of this trail is already in place and consists of old roads, most of which are closed to vehicle use.

Very low base funding is insufficient to operate and maintain the trail; therefore, outside funds and volunteers are used. Recreation staff time is continually needed to plan and prepare projects needed to operate and maintain the trail, seek funding sources, apply for funds, actively compete for funds, manage secured funds, and recruit, train, supervise, and recognize volunteers.

Additional management needs include seeking and securing special funding that is not included in annual BLM budgets for maintaining and repairing trail infrastructure. Maintenance priorities for this funding include:

- stabilizing railroad grade banks that are subject to washout by the erosive forces of the Susan River;
- realigning trail segments subject to high rock fall hazard from old railroad cuts to reduce potential hazards to trail uses and trail maintenance crews;
- repairing aging concrete on three tunnel portals (single-track tunnel bypass trails allow for pedestrian, horse, and bicycle traffic; however, tunnel access is required for road-sized maintenance equipment);
- replacing 90 feet of trestle at Devil's Corral that was destroyed in a wildfire in 2000;
- repainting 90-year-old steel bridges as needed, including one bridge where paint was damaged by wildfire;
- operating the Susanville Depot Trailhead and Visitor Center and the Hobo Camp Trailhead and Day Use Area; and
- implementing BLM's National Initiative, Priorities for Recreation and Visitor Services (May 2003) to provide quality interpretation of the trail's railroad heritage and natural resources as called for in the trail's management plan.
- constructing a sustainable trail alignment to the base of Pigeon Cliffs to provide for safer public access and a route for emergency evacuation of injured climbers.

Forecast

The Bizz Johnson Trail will continue to receive high amounts of use by local residents and visitors because of the scenic beauty along the trail, the ease of access to the Susan River Canyon, and the historic appeal of the old railroad grade trail, located on 25 of the western 30 miles of the Fernley and Lassen Railway. Local, regional, and national publicity beyond BLM control (e.g., guide books, articles, web sites) will also continue to promote the trail, increasing visitor use.

Non-motorized recreation activities will continue to comprise the primary type of use. Because of low base funding, outside funds and volunteers will be needed to continue management of the trail. Resolution of conflicts between equestrians and other users will be needed as use levels increase in the future along the Bizz Johnson Trail. Law enforcement patrols will continue to be needed at the Hobo Camp Trailhead adjacent to Susanville because of the high level of use.

Access roads, the Bizz Johnson Trail, and trailheads are subject to natural weathering and erosion and will continue to need repair. Trails will continue to require weed abatement. The concrete portals of the railroad tunnels on the Bizz Johnson Trail will continue to deteriorate if not repaired. Susan River will continue to wear away at fill areas along the old railroad grade of the Bizz Johnson Trail. Weather will continue to wear on concrete bridge abutments and tunnel portals and erode portions of the roadbed of the old railroad grade trail. Wooden decking and railing will be aged by natural weathering and will require periodic replacement.

Local community organizations and local governments have supported BLM efforts to secure funding. This support is expected to continue because of the benefits of the trail to local residents and the benefits of rural tourism to community businesses.

Unless restricted by special regulation, occasional shooting of various types of guns in the Susan River Canyon between Devil's Corral and Susanville will continue. Currently there has been no restriction of shooting within the canyon except at trailheads and on or across the Bizz Johnson Trail. Serious injury or death could occur if a trail user, angler, or other canyon visitor is accidentally shot.

Unless restricted by special regulation, paintball shooting will likely increase the growing popularity of the sport, the growing Lassen County population close to the Susan River Canyon and the good cover that the canyon setting provides for this sport. Paintball shooting in the Susan River Canyon can be expected to result in colorful graphitti like results on natural and human-made features along the Bizz Johnson Trail as shooters hit natural and man made targets, whether intentionally or unintentionally. Paintball shooting could also result in injury to trail users if someone is hit in the eye or ear by a high-speed paint ball.

Placer mining claims on the Susan River could be filed, and other mining claims and leases could be established under current mining laws unless a mineral withdrawal is established by BLM and on Lassen National Forest Lands within the Bizz Johnson Trail SRMA. There is a low likelihood that mineral development would occur within the Susan River Canyon; however, if development did occur, the sights and sounds of a placer operation along the river it would adversely affect the recreational experience currently enjoyed along the Bizz Johnson Trail and in the Susan River Canyon.

3.2 Eagle Lake Basin Special Recreation Management Area

Current Conditions

Eagle Lake is one of the major outdoor recreation attractions in Lassen County. The entire Eagle Lake watershed comprises the Eagle Lake Basin Special Recreation Management Area (SRMA), one of three BLM SRMAs within the Eagle Lake Field Office jurisdiction. The SRMA designation is given to areas where special resource values and recreational uses occurs that warrant special management attention. Eagle Lake is such a place because of the combination of high scenic quality, relatively undeveloped BLM lands, the large relatively undeveloped natural lake, and the endemic Eagle Lake trout.

Eagle Lake is the second largest natural lake entirely within California, and is biologically and geographically unlike any other lake in the state or in the region. The lake is located on the northwest side of the hydrologic Great Basin and, like other Great Basin Lakes, has no outlet. All waters that flow into the lake remain there. Despite Eagle Lake's closed-basin hydrology, the lake supports a unique species of trout, the Eagle Lake rainbow trout, which evolved in the lake. Anglers from throughout California, and beyond, travel to fish for the Eagle Lake rainbow trout because of the size, taste, and sport of catching these unique fish. Most fish caught weigh 2–5 pounds; however, some range from 6 to 10 pounds. Other popular attractions and activities at Eagle Lake are camping, bicycling, trail walking, wildlife viewing, swimming, sailing, windsurfing, power boating, water skiing, wake boarding, and jet skiing.

Approximately 80% of the lake's shoreline is federally managed. BLM and Lassen National Forest each manage approximately 40% of the shoreline. The remaining 20% of the shoreline is privately owned and is where summer cabins and homesites are located along the shore and on adjoining inland lands. With the large amount of mostly undeveloped federally owned shoreline and adjacent uplands, the lake basin is largely undeveloped.

BLM recreation management in the Eagle Lake Basin focuses on protecting the lake's water quality and scenic quality, and managing undeveloped shoreline areas to retain the natural setting of the lakeshore. Some areas with minimal facilities are provided for drive-in day use access for fishing, swimming and water sports.

Drive-in overnight vehicle access for primitive self-contained camping is also allowed near the lake. Approximately ten miles of undeveloped BLM shoreline are available for walk-in and boat-in use provided visitors follow self contained camping practices.

BLM operates one 20-unit campground and drive-in shoreline access areas along 5 miles of Highway 139 (adjacent to the lake and on the east and west sides of Rocky Point), where day use and self-contained camping occur. No developed boat launches are provided on the BLM-managed portion of the lake (two developed boat launches are available on county land in the vicinity). BLM also manages the Stone Trail, a 1.2-mile-long dirt hiking trail west of the Stone Subdivision at the north end of the lake and plans to connect this trail to the BLM campground.

The total estimated number of visitors to BLM lands in the Eagle Lake Basin increased from 25,938 in 1995 to 31,814 in 2004, with a high of 41,165 visitors in 2000. Visitor use figures are estimates based on observed use at BLM developed sites and estimated use at undeveloped use areas.

BLM also manages approximately 10 miles of undeveloped shoreline that includes Buck Point, Troxel Point, Little Troxel Point, Black Mountain, and public lands north and east of the Eagle Lake Youth Camp. BLM also holds the Stone Ranch Conservation Easement and a pedestrian access easement on Stone Ranch, a 1,600-acre ranch located on the northeast side of the lake. The Conservation Easement is a document held by BLM that limits subdivision of the Stone Ranch while allowing for continued agricultural use of the property by the private land owners. The pedestrian access easement allows for public pedestrian access across the Stone Ranch with restrictions around ranch buildings.

The Forest Service manages most of the developed recreation facilities on federal land in the Eagle Lake Basin and therefore manages most seasonal visitor use within the Eagle Lake Basin. In 2003, 83,656 visitors used the Forest Service campgrounds. The Forest Service facilities, located at the south end of the lake include five developed campgrounds, a marina and boat dock, a public beach, and 5 miles of a non-motorized bicycling and hiking trail that connects all Forest Service facilities. The Eagle Lake Trail is very popular, and there is interest from visitors and residents to see the trail is extended around the lake.

BLM is an active member of the Eagle Lake Interagency Board of Directors, a collaborative effort among the five primary management agencies that manage land use and wildlife at Eagle Lake. The function of the board is to work together to manage Eagle Lake to protect the qualities that make Eagle Lake a unique place for present and future generations to enjoy. Special qualities of Eagle Lake are its largely undeveloped character, scenic beauty, wildlife, and unique fishery. The Eagle Lake Interagency Board of Directors is made up of the BLM Eagle Lake Field Office Manager, Lassen National Forest Supervisor, and Lassen County Supervisor for Eagle Lake, DFG Regional Manger, and the Lands Division Manager for the California State Lands Commission, which manages the submerged lands beneath Eagle Lake. The board meets two to four times per year to coordinate their respective land management responsibilities in the Eagle Lake Basin.

Lake Levels

Naturally fluctuating lake levels associated with Eagle Lake's closed hydrologic basin have played a key role in the natural history of the Eagle Lake rainbow trout, the primary attraction to many Eagle Lake visitors. Maintaining a naturally fluctuating lake that allows the lake to fill during wet cycles so that it has natural water reserves during dry cycles is essential to the survival of the Eagle Lake rainbow trout. The Eagle Lake rainbow trout is one of the main recreational attractions for visitors to the lake.

Lake level fluctuations affect recreation use of the shoreline by reducing space for camping along the five miles of Highway 139 adjacent to BLM. When the lake reaches 5110, the 1.3 mile East Rocky Point access road is flooded and is limiting drive in access to a popular camping area on large gravel flat near the south end of the point. Also, during low water, exposed gravelly beaches become vehicle accessible, increasing the potential for vehicle entry into non-motorized use areas.

The highest recorded level of Eagle Lake was 5,125 feet above mean sea level, in 1915. The lowest recorded lake level was 5,090 feet, in 1935, after the lake was lowered 35 feet by the Bly Tunnel, an irrigation diversion. The irrigation company that developed the tunnel failed, and the tunnel entrance was dynamited by local citizens who wanted to block the tunnel and see the lake return to former levels. The lake gradually refilled, reaching 5,110 feet in 1986. Since 1986, the lake has not risen above 5,108 feet. In October 2003, the lake was at 5,100 feet.

In the 1950s, when Eagle Lake was below 5,100 feet, what is now Highway 139 was built along the shoreline of Eagle Lake, providing an improved route through this area. As Eagle Lake rose following tunnel closure, segments of the 1950s highway had to be realigned above the rising lake. Most recently (1986), three areas were raised from 5,110 to 5,112 feet.

In the early 1990s, Caltrans completed a study on the Eagle Lake flooding of Highway 139 (Cite study title and date). The Caltrans study concluded that, based on hydrologic projections of lake level fluctuation and low traffic volumes, the best action in the event of flooding would be to close the segment of Highway 139 subject to flooding until flood waters recede, then repair and reopen the road. If prolonged wet cycles kept the road flooded, Caltrans would seek funds to raise the road 2 feet during the next dry period. The 2-foot lift was determined sufficient based on the hydrologic analysis of past lake levels and anticipated hydrologic cycles. Road closure would limit drive-in public access on up to 5 miles of Highway 139 along the lake shore.

The Bly Tunnel

The Bly Tunnel, completed in 1923, drained water from Eagle Lake into Willow Creek through a 2-mile-long tunnel that began and ended on what is now BLM land. The drained water was used for irrigation in Honey Lake Valley. The tunnel lowered Eagle Lake 35 feet between 1923 and 1935. The tunnel and irrigation company failed because expenses to dig the tunnel exceed revenues from the sale of the water (The History of Eagle Lake, Tim Purdy, 2003 Check reference date, title and accuracy of this statement), draw down of the lake below the tunnel inlet and lack of funds to lower the inlet. Although the irrigation company failed, it did draw the lake down 35 feet between 1923 and 1935, drying up the shallow northern portions of the lake. Upon failure of the irrigation company, the tunnel was closed through various citizen and government efforts, culminating in BLM sealing the tunnel entrance in 1975 and contracting to have a concrete plug installed in the tunnel in 1985.

Maintaining Eagle Lake as a naturally fluctuating closed-lake basin is a critical aspect of maintaining the Eagle Lake fishery and associated recreational use. The tunnel's existence continues to be a source of debate among people who fear that the tunnel may be used to regulate the lake level rather than let the lake fluctuate naturally. However, current collaborative work among the Eagle Lake Interagency Board of Directors can be expected to provide unified support for letting Eagle Lake fluctuate naturally and for not using the Bly Tunnel to limit the height of Eagle Lake in wet years. In 1986, when the lake level rose to 5,110 feet, and water covered three low areas of Highway 139 and affected shoreline developments around the lake, Caltrans pressured BLM to use the tunnel to drain off water above 5,110 feet. However, BLM allowed the lake to recede naturally. Lake levels have reached 5,125 feet, as indicated by lake beach terraces, the location of the 1800s Merrillville Beiber Wagon Road, and by historic records from 1915.

Trends

A number of management actions called for in the 1983 Willow Creek MFP and 1991 Eagle Lake Basin Plan have not been completed. These actions include acquiring undeveloped private lands from willing sellers to keep theses areas open space; securing access to Buck Point to provide legal pedestrian access to an area that has historically been used for walk-in fishing; securing access through three private parcels along the Merrillville Beiber Wagon Road, parallel to Highway 139, to provide for trail use of the old road; and developing an Eagle Lake loop trail for non-motorized use except where the trail utilizes existing dirt roads that are needed for vehicle use.

Forecast

Expected tight budgets and low visitor use of BLM's North Eagle Lake Campground may force BLM to focus management efforts and facility investments at higher-use areas at Rocky Point and along Highway 139 where direct access to shoreline areas makes these areas more popular with visitors. North Eagle Lake Campground is located over .25 miles from the lake shore is not well suited for boat docking due to thick tule marshes and shallow water in that area. Charging fees for any new facilities developed would be necessary to pay for operating costs.

BLM will continue to focus on providing primitive self-contained camping opportunities so as to maintain public shoreline access and camping opportunities while protecting the water quality of Eagle Lake. Securing funds to protect open space in the Eagle Lake Basin will continue to be difficult if an additional special-status designation is not established for Eagle Lake (i.e., designation as either a National Recreation Area or Area of Critical Environmental Concern).

Implementing BLM's National Initiative, Priorities for Recreation and Visitor Services (May 2003) to provide quality interpretation of Eagle Lake's prehistoric and historic heritage and natural resources would help BLM educate visitors to the value of Eagle Lake's unique biological resources, enhance visitor enjoyment of the area through increase knowledge of the area and help support rural tourism initiatives by provide interpretive information to area visitors.

3.3 Fort Sage OHV Area

Current Conditions

The Fort Sage OHV Area is a BLM Special Recreation Management Area located northeast of Doyle, California, midway between Reno, Nevada and Susanville, CA. Riders travel from throughout northern California and northern Nevada to ride at Fort Sage. Motorcycle trail riding is the primary OHV activity at Fort Sage, with some quad riding and full sized vehicle four-wheeling also occurring. Other recreational uses of the area include horseback riding, hiking, mountain biking, and special events. Past events have included annual motorcycle races, bird dog trials, and fox hunts where a lead rider drags a scent rag and the riders and hounds chase the scent. The Fort Sage Special Recreation Management Area is estimated to have had 10,782 visitors in fiscal year 2004 (October 1, 2003 – September 30, 2004).

The Fort Sage OHV Area contains 90 miles of designated dirt roads and trails on approximately 23,000 acres of BLM land in the high desert of the Great Basin.

Off highway vehicle use in the entire Fort Sage OHV Area is 'limited to designated roads and trails' (there are no 'open' or 'closed' areas).

Facilities include a small trailhead with a vault toilet, bulletin board, and parking for 40 vehicles. A second trailhead at the base of the Widowmaker downhill comprises a large graveled parking area for staging special events. Portable toilet facilities are brought in during events.

The trails at Fort Sage traverse the decomposed granite and volcanic flanks of the western side of the Fort Sage Mountains and the sandy and alkaline soils of Honey Lake Valley. Most riding occurs in the cooler fall, winter, and early spring months. Well-drained, decomposed granite soils and the desert setting (with low snowfall and daytime temperatures often above freezing during winter) make Fort Sage a popular destination when riding areas in the Sierra Nevada are snowed in.

The Fort Sage Mountains are also enjoyed by equestrians and hikers. The many OHV trails, dirt roads, and open grassy slopes afford numerous options for equestrians. Hikers enjoy the higher slopes of the Fort Sage Mountains, where canyons, ridges, and decomposed granite boulders offer opportunities for exploration and challenge. All visitors enjoy the expansive views of the Honey Lake Valley to the north and west and the northern expanse of the Sierra Nevada to the west and northwest.

Both motorized and non-motorized activities occur at the Fort Sage OHV Area, with little conflict because the total numbers of users is relatively low. The most popular months for motorcycle riding are February and March, before the spring motorcycle race sponsored by Lassen Motorcycle Club. Motorcycle and quad riding occurs into late spring, but drops off in the summer as hot temperatures make the area less desirable. Riding picks up again in the fall, when cooler temperatures return. Most riding occurs on weekends and holidays. During weekdays and from late spring through early fall, there is little motorized use. Throughout the year, hikers, equestrians, and backcountry sightseers are attracted to the area for its open panoramic desert scenery, unusual decomposed granite boulders, and, when there is little OHV use, for its solitude.

OHV use at the Fort Sage area began with the use of surplus military jeeps after World War II. In the 1960s, motorcycle riding began at Fort Sage, and races sponsored by the Lassen Motorcycle Club began in the 1970s. BLM applied for and secured California OHV funds in 1983 to build a trailhead, improve an access road, and acquire easements and land where existing trail segments crossed private and state land.

Before BLM implemented the funded OHV grant, some residents in Doyle opposed to the motorcycle trails put pressure on the BLM District Manager to stop the project. The BLM Susanville District Manager assembled a citizen's advisory group called the Fort Sage Technical Review Team (TRT) to address the issued raised by opponents of the project and proponents of the project. The Fort Sage TRT was formed in 1984 and developed a consensus agreement that provided for managed motorcycle and other OHV use on a system of designated trails. BLM implemented the TRT plan in 1987. Subsequent meetings of the Fort Sage TRT through the late 1980s and into the 1990s provided BLM with additional direction on Fort Sage OHV management. The TRT also supported OHV grants from the State of California to operate and maintain the OHV Area and to acquire additional land for trail riding. The additional land also serves as a buffer between the riding area and private lands.

Trends

Operation and maintenance of Fort Sage OHV Area has been funded mainly by California OHV grant funds, beginning in 1988 after implementation of the first OHV development grant in 1987. The development grant funded construction of the Fort Sage Trailhead, improvement of the access road, and purchase of easements and land along the primary riding loop. Funding levels have varied between $25,000 and $98,000 annually, subject to the needs of OHV management at the Fort Sage area and the requirements of the OHV Division that administers the program.

Maintenance work involves trailhead cleanup and toilet cleaning, sign repair, and trail maintenance using hand labor. Once a year, a small trail tractor is used to smooth out the "whoops" (bumps) created by the motorcycles in the soft, sandy segments of the trail.

The frequency of maintenance depends on the levels of use and varies throughout the year. Non–law enforcement patrols occur on weekends during use periods, combining facility maintenance, visitor use counts, trail patrol, sign repair, and trail maintenance.

Law enforcement is partly funded by the California OHV grants; these fund patrols by a Lassen County Sheriff Deputy. BLM law enforcement ranger patrols occur during high-use periods.

Runoff from heavy rainfall causes erosion of steep trail segments on erosion-prone soils. Much of the Fort Sage Mountains area is not prone to erosion from snowmelt and moderate rainfall runoff due to the sandy soils that are well drained, however during cloudburst rainfall events, super saturation of these soils can occur with localized erosion areas. In some areas, trail realignment is needed and in other areas, regular trail maintenance can reduce the effects of storm event erosion.

Riders who do not observe the limitations regarding designated roads and trails have created some new illegal cross-country routes and hill climbs at the Fort Sage OHV area. Some of the illegal routes are expected to wash out due to their steep alignments.

Increasing workload associated with applying for and managing OHV funds may cause BLM managers to seek funding from other sources than the State of California OHV Division. BLM annual appropriate funds have not been sufficient to cover the routine work needed to maintain the trails and keep the trailheads neat and clean.

To compete for funding and properly maintain trails and trailhead facilities, user support is needed for BLM efforts to secure operation and maintenance funds. User participation in trail patrols, trail maintenance, and facility upkeep is also be needed in times of shrinking funding for the State of California and minimal recreation budgets from BLM. Installation of a host site with full utility hookups at the Fort Sage Trailhead would greatly improve BLM's ability to recruit and retain a host during the most popular use periods in late winter through spring and in the fall. Hosts can be very effective in providing on-the-ground presence and regular facility maintenance. Funding to support the host recruitment, training, supervision, and recognition, as well as a host stipend, is needed to make a host program successful.

Forecast

The trailhead toilet, parking area, information kiosk, and signs will deteriorate from natural weathering and vandalism if regular maintenance patrols are not funded or conducted by rider volunteers or volunteer hosts.

Law enforcement patrols by BLM law enforcement, and Lassen County Sheriff patrols, may help deter, but will not stop, off-trail riding. Illegal route proliferation will continue unless riders cooperate with BLM and use peer pressure to stop riding off designated roads and trails. If illegal route proliferation continues, OHV users will be giving their opponents ammunition to further regulate OHV use through legal challenges and court orders.

Table 3.10-2 Recreation Uses in the Extensive Recreation Management Area, Eagle Lake Field Office

	Principal Recreation Use(s)										
Location	**Fishing Type**	**Hunting Type**	**Camping**	**Hiking**	**Wildlife Viewing**	**Historic Site / Petroglyph Viewing**	**Motor-cycle/ ATV Riding**	**Horse-back Riding**	**Scenic Driving**	**Target Shooting**	**Other**
Campgrounds											
Dodge Campground	See Dodge Reservoir	Deer	X								
Ramhorn Campground		Pronghorn, deer, sage-grouse, chukar	X		X	X		X			
Lakes and Reservoirs											
Dodge Reservoir 1/	EL rainbow trout, Lahontan cutthroat trout, brown trout	Deer	X								
Round Corral Reservoir 1/	EL rainbow trout, Lahontan cutthroat trout, brown trout										
Buckhorn Reservoir 1/	EL rainbow trout, Lahontan cutthroat trout, brown trout										
Biscar Reservoir, Upper and Lower	Large-mouth bass, perch, bluegill	Waterfowl, quail, dove, sage-grouse			X						State Cooperative Wildlife Area
Honey Lake – 62,000 acres	Warm-water fish at mouths of Long Valley Creek & Susan River during wet years	Waterfowl			X						Shallow, periodically dry lake; limited public access. Small boat use (waterfowl hunting and paddle craft). Some use of dry lakebed.

Table 3.10-2 Recreation Uses in the Extensive Recreation Management Area, Eagle Lake Field Office (cont.)

Location	Principal Recreation Use(s)										
	Fishing Type	Hunting Type	Camping	Hiking	Wildlife Viewing	Historic Site / Petroglyph Viewing	Motor-cycle/ ATV Riding	Horse-back Riding	Scenic Driving	Target Shooting	Other
Numerous shallow seasonally dry lakes		Waterfowl									Little to no water-based recreation occurs except waterfowl hunting. Little use of dry lakebeds.
Creeks											
Willow Creek (through Tunnison WSA)	Brown trout, Lahontan redside	Quail, dove		X		Petroglyph viewing at Belfast site					Environmental education at Belfast petroglyphs and along creek
Upper Smoke Creek	Limited: Rainbow trout, Lahontan redside, Tahoe sucker	Quail, dove, sage-grouse	X			Petroglyph viewing					
Lower Smoke Creek	Limited: Tahoe sucker, green sunfish	Dove, chukar	X			Nobles Emigrant Trail					
High Desert Activity Areas											
Skedaddle and Amedee Mountains		Pronghorn, deer, quail, chukar, sage-grouse		X	X		X	X			Play riding in gravel pits, lower slopes of Amedee Mtn., and sand dunes
Five Springs, Rush Creek and Cherry Mountains		Pronghorn, quail, chukar, sage-grouse		X	X						
Dry Valley Rim		Pronghorn, chukar, sage-grouse		X	X			X			
Dry Valley OHV Area		Chukar					X	X			Horseback endurance events

Table 3.10-2 Recreation Uses in the Extensive Recreation Management Area, Eagle Lake Field Office (cont.)

Location	Principal Recreation Use(s)										
	Fishing Type	Hunting Type	Camping (self contained)	Hiking	Wildlife Viewing	Historic Site / Petroglyph Viewing	Motorcycle/ ATV Riding	Horse-back Riding	Scenic Driving	Target Shooting	Other
High Desert Activity Areas											
Twin Peaks Area		Chukar		X							
Buffalo Creek Canyons		Chukar		x							
Buffalo Hills		Pronghorn, deer, chukar		X	X						
Cottonwood Mountains		Deer		X							
Buckhorn Backcountry Byway				X	X				X		Backcountry exploring; Mountain Biking
Observation Peak		Deer		X					X		Scenic vistas via summit access road
Spanish Springs Peak		Deer						X			
Shinn Mountain		Deer		X				X			
Honey Lake Valley Perimeter Areas											
Bald Mountain		Deer		X				X		X	
Susanville Ranch				X				X			Dog walking, mountain biking, cross country skiing, nature study
Antelope Mountain		Deer							X	At Antelope Pit	Hang glider launch site;
Rice Canyon		Deer					Play riding in gravel pit & hill climb area at mouth of canyon			In gravel pit area. Controlled access rifle range.	Radio controlled model airplane runway (R+PP site)

Table 3.10-2 Recreation Uses in the Extensive Recreation Management Area, Eagle Lake Field Office (cont.)

	Principal Recreation Use(s)										
Location	Fishing Type	Hunting Type	Camping (self contained)	Hiking	Wildlife Viewing	Historic Site / Petroglyph Viewing	Motorcycle/ ATV Riding	Horse-back Riding	Scenic Driving	Target Shooting	Other
Willow Creek Canyon	Brown trout, Lahontan redside	Quail, dove		X		Petroglyph viewing at Belfast site					Environmental education at Belfast and along creek
Shaffer Mountain		Chukar							Scenic vistas via summit access road		Mountain biking
Wendel Hills								X			Hang glider launch site
Belfast Petroglyph Site						X					Interpretation and Environmental education site

[1/] Water rights are privately held and used for irrigation

3.11 Social Conditions

3.11.1 Introduction

This section describes the social conditions of counties that fall within the Eagle Lake Field Office area. As previously mentioned, the Eagle Lake Field Office encompasses Lassen County, California; Washoe County, Nevada; Plumas County, California; Sierra County, California; and Nevada County, California. A characterization of the communities and placed-based values in the Eagle Lake Field Office area is provided below.

3.11.2 Communities

The boundary and planning area of BLM's Eagle Lake Field Office encompasses approximately 4,858,251 acres and includes land in the five counties referenced above: four in California and one in Nevada. Within this planning area, the BLM field office manages 1,022,767 acres of public land.

The extent to which the management of BLM lands by the Eagle Lake Field Office benefits or otherwise affects communities varies substantially, depending on such factors as how close the communities are to BLM-managed lands; how much BLM land is in the vicinity of the community; and whether commercial operations in the community, including ranches, operate in association with BLM resources.

For example, there is no BLM-managed land in Nevada County. Therefore, little impact or benefit is expected for local communities in Nevada County from Eagle Lake Field Office management activities. Susanville, however, receives substantial benefits not only because BLM-managed lands and resources are nearby but also because the number of employees and the amount of spending in the community connected with BLM activities are significant. In other communities, such as Litchfield in Lassen County, some commercial enterprises (e.g., restaurants, grocery stores, and motels) may benefit to some extent from commercial activity related to the use of BLM land.

In some areas, communities with BLM land in their vicinity have benefited by being able to obtain land from BLM for public purposes such as new school facilities or, in the case of Susanville and Westwood in Lassen County, by the efforts and investment of BLM to develop a recreation resource and attraction such as the Bizz Johnson Trail.

3.11.3 Lassen County

The administrative offices of the Eagle Lake Field Office and approximately 699,564 acres of BLM land managed by this field office are located in Lassen County, California. The field office's planning area in Lassen County encompasses approximately 2,094,769 acres.

Susanville, with a population of approximately 17,400, is the only incorporated city in Lassen County. The largest unincorporated community in Lassen County is Westwood. Other community centers in the Eagle Lake Field Office planning area include Clear Creek, Johnstonville, Standish, Litchfield, Wendel, Janesville, Milford, Herlong, Doyle, Spaulding, and Ravendale.

There is also a considerable amount of rural residential development on small and moderate size parcels (i.e., 2.5 to 20 acres), and isolated commercial establishments, located between communities in such areas as the Honey Lake Valley southeast of Susanville. These developed areas are difficult to define as "communities" but represent an extended settlement pattern.

Because the Eagle Lake Field Office is located in the City of Susanville, Susanville and the immediate vicinity of Lassen County receive the benefits and effects of BLM employees working and living in the area. Most field office employees live in Susanville or the vicinity. Therefore, the local community receives the benefits of personal spending by these BLM employees. Additionally, the local community receives benefits from local operational expenditures by BLM.

3.11.4 Washoe County

Washoe County in Nevada contains approximately 309,698 acres of BLM land managed by the Eagle Lake Field Office and 336,050 acres of the planning area.

Most notably, Washoe County includes the cities of Reno and Sparks, and development in the vicinity of those cities. Smaller communities such as Verdi, Golden Valley, and Sun Valley have developed west and north of the Reno/Sparks area. Housing outside of distinct communities is sprawling in some areas, such as Spanish Springs Valley and the area of Red Rock Road. The Pyramid Lake Indian Reservation and its communities of Pyramid, Sutcliffe, and Nixon are located north of Sparks. Farther north are the small communities of Empire and Gerlach.

The Eagle Lake Field Office administration area in Washoe County is located northwest of Pyramid Lake and the Pyramid Lake Indian Reservation, which includes the closest Washoe County communities to the planning area. The Reservation of the Pyramid Lake Paiute Tribe, in addition to land around Pyramid Lake in Washoe County 35 miles northeast of Reno, includes land in Lyon and Storey Counties in Nevada. According to the 2000 Census, the population of the reservation was 1,734, of whom 1,221 were classified as "American Indian and Alaska Native" (Census 2000). Approximately 45% of the population lives in Wadsworth and 15% in Sutcliffe.

3.11.5 Plumas County

Along with Lassen and Washoe Counties, the administration boundary of the Eagle Lake Field Office includes areas of Plumas, Sierra, and Nevada Counties in California. Combined, these three counties contain almost 50% of the administration planning area—or as much area as in Lassen and Washoe Counties combined. However, Plumas, Sierra, and Nevada Counties contain a total of only 1.3% of BLM 39 land managed by the Eagle Lake Field Office.

The Eagle Lake Field Office administration boundary and planning area generally includes all of Plumas County's geographical area. The Plumas County portion of the planning area is approximately 1,671,618 acres, which is nearly 35% of the field office planning area; but the county contains only 10,088 acres of BLM-managed land (less than 1% of BLM land managed by the field office). Plumas County communities include the county seat of Quincy, Portola (the only incorporated city), Greenville, and Chester at Lake Almanor. Numerous smaller communities are in the mountain valleys and around Lake Almanor. Examples include, but are not limited to, Chilcoot, Vinton, and Beckworth in Sierra Valley; Blairsden, Mohawk, and Graeagle; Crescent Mills; communities around Lake Almanor, including Canyon Dam, Lake Almanor West, Peninsula Village, Plumas Pines, and Prattville; and farther west, small communities such as Belden, Bucks Lake, and La Porte. The BLM land actually managed by the Eagle Lake Field Office in Plumas County is widely scattered. This includes parcels north and south of Vinton near Sierra Valley in the southeast part of the county, a few parcels north of Lake Almanor, and several more parcels scattered about the county.

3.11.6 Sierra County

Sierra County contains approximately 615,586 acres of the Eagle Lake Field Office planning area but only 3,417 acres of actual BLM lands. As in the case of Plumas County, the planning area virtually encompasses the entire county.

Loyalton is the only incorporated city in Sierra County, with an estimated population of 850 in 2002. Community development is primarily focused in communities along or near State Highway 49, including Downieville (the county seat); Sierra City; the area of Verdi across the state line from Verdi, Nevada; the west county communities such as Indian Valley; and the area along the southern fringe of Sierra Valley, which includes the City of Loyalton and the communities of Calpine, Sattley, and Sierraville. Land managed by the Eagle Lake Field Office in Sierra County primarily consists of several parcels on the eastern side of the county in the vicinity of Loyalton.

3.11.7 Nevada County

The Eagle Lake Field Office reports that approximately 139,385 acres of Nevada County are within its administration boundary, but that no BLM land in Nevada County is actually managed by this field office. Three cities, Grass Valley, Nevada City, and Truckee, are located in the county. Unincorporated communities such as Alta Sierra and Penn Valley are located in the western portion of the county. A significant number of homes are located in subdivisions and rural residential parcels throughout the western portion of the county. Land development in the eastern portion of the county tends to be more consolidated than in the western portion. Residential land uses in eastern Nevada County are mostly concentrated around Donner Lake, in the large Tahoe-Donner development, and in other established residential areas.

3.11.8 Place-Based Values

The first "Fundamental Goal" of the Sierra County General Plan largely sums up the prevailing attitude of rural counties and communities concerning the relationship of land and resource uses with local lifestyles 1 and place-based values in northeastern California and northwestern Nevada (Sierra County 1996). That goal is, "It is the County's most fundamental goal to maintain its culture, heritage, and rural character and preserve its rural quality of life." (Sierra County General Plan, Page ii).

In this vein, the Lassen County General Plan notes that, like many rural communities in the West, Lassen County has an historic and strong cultural background, socially and economically, related to timber production, agriculture, and the livestock industry (Lassen County 2000). Many customs and general attitudes in the area, especially outside of the more urbanized areas, reflect that "western heritage." Many residents in rural counties to some degree embrace this heritage or theme whether or not they are personally involved in ranching or agriculture.

These attitudes or values are also subject to compromise and transition in times of shifting demographics and economic factors. As more people move into rural areas from urban areas to take government, service, and other non-agricultural jobs, they often bring different values and expectations about the use of open space lands and resources.

Many residents in rural areas have a deep respect for and appreciation of the scenic quality and the open space resources of the landscape, much of which is land managed by BLM. The availability of public land for recreation, wildlife viewing, hunting, or simply the pleasure and relaxation of being able to look out across undeveloped landscape, is an asset valued by a large part of the local population as well as by visitors from urban areas and other places in the world.

Place-based values are also influenced by economic concerns. The Natural Resources Element of the Lassen County General Plan notes that, because of the need for political responsiveness by county government to the people and communities within the boundaries of the county—Lassen County is the agency having the most immediate concern for the social and economic needs of the citizens of the county. The Natural Resources Element observes that the resource policies and management practices of federal and state agencies can have significant effects on private land and on the welfare of the people who live and work in Lassen County and that these agencies need to coordinate with the County and with each other to be responsive to the range of social, economic, environmental and other needs, impacts and ramifications relating to resource management issues which affect the economic and social well-being of the people of Lassen County and the long-term value of the county's natural resources (Lassen County 2000).

The issue of livestock grazing and the value to local ranchers of grazing permits on federal lands is often used by local communities to epitomize the relationship of public land use with the lifestyle and economics of these communities. Livestock grazing is permitted by BLM under terms and conditions set forth in grazing permits. A number of ranching operations in Lassen County and other counties in the area rely on such permits for grazing allotments on public lands. The Lassen County General Plan Agriculture Element states that the economic viability of these livestock operations is substantially dependent on the continued and productive use of these rangeland resources and that there is a direct relationship between federal grazing privileges on dependent ranches and the economic viability and market value of the private real estate of those operations.

The Lassen County General Plan maintains that, if grazing allotments were no longer available or rendered economically impractical due to increased grazing fees, extensive management requirements, or reduced capacity, the home ranches that depend on them may, in turn, be rendered economically unviable (Lassen County 2000). This may cause or contribute to the financial failure of small ranching operations which, in addition to being tragic at the personal level to the families involved, contributes to pressures for the conversion of land that is in agricultural production to other, more immediately profitable non-agricultural uses. It has been the attitude of the Board of Supervisors that such loss in the county's agricultural base contributes to the erosion of important foundations of the area's "western heritage".

Similar attitudes and supportive policy positions are prevalent with the boards of supervisors of other rural counties in the region—where there is similar concern and sympathy for the economic challenges faced by ranchers, farmers, and timber companies and the ramifications on local economic factors such as the loss of jobs, local spending and tax revenues. There is general concern for the protection and stewardship of natural resources, but much of the concern is often qualified in terms that economic considerations are also high priorities in the making of land use and resource management decisions (e.g., the need to supply mills with timber or to provide adequate grazing resources for livestock). With the increase of tourism as a significant component of local economic vitality, as well as with continued local appreciation for the scenic and recreation resources in the planning area, there is also general concern over the need to protect the natural resources and open space values that provide recreational opportunities and that attract visitors to the area.

Land and resource issues involving BLM and other public lands in Washoe County are often more intense in the urban interface areas of the Truckee Meadows. Nevada's urban areas view federal lands as an important open space resource for their cities and communities. The High Desert Planning Area of the Washoe County Comprehensive Plan recognizes many cultural and scenic resources and high desert characteristics that make the northern areas of the county an attractive and adventurous place to visit (Washoe County 2002). Access to public lands for recreation is one of the area's most attractive features. For many the love and enjoyment of the high desert and the time and effort taken to visit it are valuable elements of their personal lifestyles.

The Policies and Action Programs section of the High Desert Area Plan includes a policy (HD.1.1) to maintain the rural character of the planning area and protect scenic resources, designated wilderness areas and natural habitats and preserves. This is supported with a proposed action (HD.1.1.1) that "Washoe County should continue to work closely with agencies seeking to preserve and protect both the rural atmosphere and natural surroundings of the area" (Washoe County 2002).

In terms of place-based values, it must be noted that some sites and areas in the Eagle Lake Field Office area that are important to the cultural heritage and lifestyles of local Native Americans. Of particular concern are sacred or otherwise significant cultural sites.

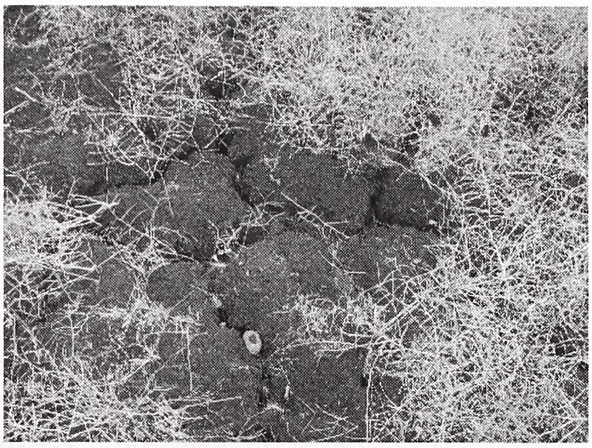
The Rangeland Reform '94 Draft EIS (U.S. Bureau of Land Management 1994) states that cultural resources can be divided into two broad categories: cultural properties and traditional lifeway values. A traditional lifeway value is important for maintaining a specific group's system of religious belief, cultural practice, or social interaction. Lifeway values may or may not be closely associated with definite locations.

In general terms and with broad geographic scope, the following excerpt from the Rangeland Reform '94 Draft EIS provides a concise statement concerning Native American place-based values. Some of these points may be applied to consideration of place-based values relating to BLM lands in the Eagle Lake Field Office planning area:

Native Americans use their local environment to gather native plants, animals, and minerals for use in religious ceremonies, rites of passage, folk medicine, subsistence, and crafts. In Native American religious practice, any environment can contain specific places that are significant for spiritual purposes. Those sacred places embodying spiritual values are often associated with indigenous rock art, medicine wheels; rock cairns and effigy figures, spirit trails and spirit gates, caves, and springs or lakes.

Contemporary use areas are associated with traditional plant and mineral collection locales, vision quest sites, sun dance grounds, shrines, and traditional trails. (Draft Rangeland Reform '94 EIS, Page 3-55) The "Cultural Resources" section of this chapter should be consulted for a more specific discussion of cultural resources in the planning area.

3.12 Soil Resources



Antelope Spring Black (Mollic) Vertisol Soil

The primary indicators for soil resources are Soil/Site Stability and Hydrologic Function. These indicators are part of BLM's Land Health Assessment (LHA), and are used to assess soil health in the context of BLM's Standards and Guidelines. The LHA provides 12 indicators that are used to rank Soil/Site Stability and Hydrologic Stability into five categories: (1) slight to no deviation from what would be expected on a reference site, (2) slight to moderate deviation, (3) moderate deviation, (4) moderate to extreme deviation, and (5) extreme deviation. For consistency with other assessments, ratings 1 and 2 are considered to be in *Properly Functioning Condition* (PFC), rating 3 is considered *Functioning-at-Risk*, and ratings 4 and 5 are considered *Non-Functional.*

Soil/Site Stability ratings reflect the capacity of a representative site to limit redistribution and loss of soil resources (including nutrients and organic matter) by wind and water. Hydrologic Function reflects the capacity of the site to capture, store, and safely release water from rainfall, runoff, and snowmelt (where relevant); to resist a reduction in this capacity; and to recover this capacity following degradation.

3.12.1 Geographic Relationships and Distribution of Soils in the Eagle Lake Field Office Area

Soil Survey of Sierra Valley Area, California, Parts of Sierra, Plumas and Lassen Counties

Soils in the Eagle Lake Field Office Area are mapped under four different soil surveys. The Soil Survey of Sierra Valley Area, California, Parts of Sierra, Plumas and Lassen Counties (1993) covers part of the southern portion of the Eagle Lake Field Office Area and identify four general kinds of landscapes for broad interpretive purposes. Each of the broad groups and a summary of soil associations in each group are described below.

Soils on Mountainous Uplands

The mountainous uplands that encircle the more extensive valley basins are the dominant feature outside of and adjacent to the survey area. The mountains rise abruptly from valley floors to elevations of 4,500 to 8,500 feet. Gradients range from 20 to 75%. Rock formations are predominantly volcanic, of andesitic origin, but in places are granitic and metamorphic. Annual precipitation ranges from 10 to 30 inches. The natural vegetation is chiefly pine-conifer forest in the western part of the area, and dominantly a mixture of sagebrush and grass in the more arid eastern part. The three soil associations described below make up about 32% of the mountainous uplands.

Trojan-Delleker-Portola Association – Well-drained, gently sloping to steep sandy loams, cobbly sandy loams, and stony sandy loams forming in materials weathered from volcanic rocks. The soils in this association are used mainly for timber production and grazing. Most areas capable of producing timber have been logged and present stands consist of regrowth. Growth rates of pine are moderate. Sagebrush land and open areas in woods are commonly grazed by livestock, deer, and other animals.

Toiyabe-Bonta-Haypress Association – Excessively drained to well-drained, gently sloping to very steep loamy coarse sands forming in materials weathered from acid igneous rocks. The soils in this association are used for timber. Most areas capable of producing timber have been logged at least once. Brush encroachment, particularly by manzanita, sagebrush, and ceonothus, is a concern.

Basic Rockland-Aldax-Millich Association – Rock land and well-drained and somewhat excessively drained, moderately sloping to very steep gravelly sandy loams and very stony loams forming in materials weathered from basic igneous rocks. The sparse vegetation on the Aldax and Millich soils is used by livestock and wildlife. Basic rock land and the included areas of Acidic rock land and Rough broken land have no value for farming. The shallow uplands have high runoff rates and make up a sizable part of the watersheds that contribute to the Last Chance Creek and Long Valley Creek drainages.

Soils on Terraces and Fans Bordering Sierra Valley

The terraces that rim Sierra Valley are mostly undulating and hilly. Elevations range from 4,500 to 5,500 feet. The soils are forming mostly in stratified alluvium that is generally gravelly. Annual precipitation ranges from 8 to 18 inches. The natural vegetation is chiefly a mixture of sagebrush and grass, except for some pine and juniper on part of the western and southern slopes of the Sierra Valley. Two soil associations making up about 13% of the area are associated with this group.

Mottsville-Quincy Association – Excessively drained, gently sloping to strongly sloping loamy sands and sands. The soils in this association are used mainly for unimproved range. These soils are droughty, moderately steep in places, and easily eroded. They are in areas where a system for providing irrigation water has not been developed. The Quincy soils are on an unstabilized landscape where dunes and drifting sand are common.

Dotta-Martineck-Bieber Association – Well-drained, nearly level to moderately steep sandy loams; gravelly sandy loams; cobbly sandy loams; and very stony sandy loams. About half of the soils in this association are too stony, too cobbly, or too shallow to be used for other than unimproved range. Some areas of the Dotta and Bieber soils are used for growing pasture plants, small grains, and some alfalfa.

Soils on Terraces Bordering Long Valley

The terraces surrounding Long Valley are characterized by tabular plateaus and faulted scarp blocks that are somewhat rounded by erosion and are blended together by alluvial fans and valley fill. Elevations range from 4,500 to 5,500 feet. Annual precipitation ranges from 6 to 12 inches. The natural vegetation is chiefly a mixture of sagebrush and grass, but junipers are located on the hillsides of the eastern slopes. Two soil associations, making up about 14% of the area are associated with this group.

Trosi-Saralegui Association – Well-drained, gently sloping to moderately steep loamy very stony sandy loams, and extremely stony sandy loams. The soils in this association are used mainly for range and as watershed.

Galeppi-Reno-Reba Association – Well drained, gently sloping to moderately steep loamy coarse sands, cobbly loamy coarse sands, and sandy loams. The soils in this association are used mainly for range. A few areas are used for irrigated truck crops or other crops.

Soils in the Valley Bottom

The valley basins are the most extensive physiographic features in the survey area. Elevations range from 4,000 to 5,500 feet. Characteristically the soils are nearly level or gently sloping. The soils are forming in valley-filling alluvium, mainly weathered from andesitic and granitic rock. Annual precipitation ranges from 8 to 20 inches. The natural vegetation is dominantly water-tolerant plants, including sedges, rushes, grasses, and forbs. Silver sagebrush is common on better drained sites. Three soil associations making up about 41% of the area are associated with this group.

Ramelli-Balman-Pasquetti Association – Very poorly drained to moderately well drained, nearly level to gently sloping clays, mucky silty clays, and loams. The soils in this association are used for native or meadow pasture, irrigated pasture, small grains, and hay.

Beckwourth-Loyalton-Ormsby Association – Poorly drained to moderately well drained, nearly level to gently sloping loamy coarse sands, coarse sandy loams, fine sandy loams, and silt loams. The soils in this association are used for cereal rye, alfalfa, irrigated pasture, small grains, annual pasture, and range.

Calpine-Lovejoy-Dotta Association – Well drained and moderately well drained, nearly level to moderately sloping coarse sandy loams, sandy loams, clay loams, and loams. The soils in this association are used for small grains, cheat grass, irrigated pasture, row crops, hay, annual pasture, and range.

Washoe County, Nevada, Central Part

The Soil Survey of Washoe County, Nevada, Central Part (Blake 1997) covers the eastern portion of the Eagle Lake Field Office Area and identifies four general kinds of landscapes for broad interpretive purposes. Each of the broad groups and a summary of general map units in each group are described below.

Areas Dominated by Soils and Plays on Aggraded Desert Plain Floors, Inset Fans, and Alluvial Fans

Six general map units, making up about 36% of the area, are associated with this group.

Playas – Very deep, nearly level, very poorly drained soils on the lowest part of lake plains. Elevations are 3,800 to 4,000 feet. Average annual precipitation is 5 to 7 inches. Playas are typically stratified and moderately fine textured. They are strongly sodic and saline. They are ponded after winter and spring rains or after summer convection storms. The playas are barren and are used mainly for recreation.

Mazuma-Ragtown-Trocken – Very deep, nearly level to moderately sloping, moderately well drained or well drained soils on lake plain terraces. Elevations are 3,800 to 4,400 feet. Average annual precipitation is 5 to 7 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat.

Trocken-Bluewig – Very deep, moderately sloping or strongly sloping, well drained or excessively drained soils on lake plain terraces and inset fans. Elevations are 3,800 to 4,400 feet. Average annual precipitation is 5 to 7 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat

Typic Torriorthents-Trocken-Smaug – Very deep, nearly level to moderately sloping, well drained soils on lake plain terraces. Elevations are 3,800 to 4,400 feet. Average annual precipitation is 5 to 7 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat.

Juva-Umberland-Mazuma – Very deep, nearly level and gently sloping somewhat poorly drained or well drained soils on alluvial fans and lake plain terraces. Elevations are 3,900 to 4,200 feet. Average annual precipitation is 5 to 7 inches. The soils in this general map unit are used mainly for rangeland, wildlife habitat, and cropland.

Gitakup-Chuckles-Ragtown – Very deep, nearly level, moderately well drained soils on lake plain terraces. Elevations are 3,900 to 4,000 feet. Average annual precipitation is 5 to 7 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat. Scattered small areas are used for urban development.

Areas Dominated by Soils on Fan Piedmonts, Alluvial Fans, and Lake Plains

Four general map units, making up about 7% of the area are associated with this group.

Jerval-Dorper – Very deep, gently sloping to strongly sloping, well drained soils on fan piedmonts.

Elevations are 4,400 to 4,900 feet. Average annual precipitation is 6 to 8 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat.

Buffaran-Fulstone-Phing – Shallow and very deep, gently sloping to strongly sloping, well drained soils on fan piedmonts. Elevations are 4,300 to 5,400 feet. Average annual precipitation is 8 to 10 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat.

Veta-Haybourne – Very deep, gently sloping and moderately sloping, well drained soils on alluvial fans and lake plain terraces. Elevations are 4,000 to 4,400 feet. Average annual precipitation is 8 to 10 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat.

Leviathan-Haybourne-Springmeyer – Very deep, nearly level to strongly sloping, well drained soils on alluvial fans and fan piedmonts. Elevations are 4,200 to 5,600 feet. Average annual precipitation is 9 to 11 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat.

Areas Dominated by Soils and Rock Outcrop on Hills and Low Plateaus

Three general map units, making up about 19% of the area, are associated with this group.

Slocave-Kaffur-Rock Outcrop – Very shallow, steep and very steep, well drained soils on hills. Elevations are 4,300 to 5,800 feet. Average annual precipitation is 6 to 10 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat.

Coppereid-Foxcan-Sojur – Very shallow, strongly slopes to very steep, well drained soils on hills. Elevations are 4,400 to 6,000 feet. Average annual precipitation is 8 to 10 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat.

Jaybee-Old Camp-Pickup – Very shallow to moderately deep, moderately sloping to steep, well drained soils on hills and low plateaus. Elevations are 4,300 to 6,000 feet. Average annual precipitation is 8 to 12 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat.

Areas Dominated by Soils and Rock Outcrop on Mountains and Plateaus

Six general map units, making up about 19% of the area, are associated with this group.

Devada-Tunnison-Softscrabble – Shallow to very deep, nearly level to steep, well drained soils on mountains and plateaus. Elevations are 5,000 to 6,200 feet. Average annual precipitation is 10 to 14 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat.

Reywat-Wylo-Old Camp – Shallow, moderately sloping to very steep, well drained soils on mountains and plateaus. Elevations are 4,300 to 8,000 feet. Average annual precipitation is 8 to 12 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat.

Softscrabble-Terca-Hutchley – Shallow or very deep, moderately sloping to very steep, well drained soils on mountains and plateaus. Elevations are 5,500 to 8,000 feet. Average annual precipitation is 10 to 16 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat.

Graufels-Glenbrook-Rock Outcrop – Shallow or moderately deep, moderately sloping to very steep, somewhat excessively drained soils on mountains. Elevations are 5,000 to 6,200 feet. Average annual precipitation is 10 to 14 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat.

Berit-Hastee-Rock Outcrop – Very shallow or deep, moderately steep to very steep, well drained or somewhat excessively drained soils on mountains. Elevations are 4,800 to 9,000 feet. Average annual precipitation is 12 to more than 16 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat.

Home Camp-Newlands-Ninemile – Shallow to deep, moderately sloping to moderately steep, well drained soils on mountains and plateaus. Elevations are 6,000 to 7,600 feet. Average annual precipitation is 14 to 16 inches. The soils in this general map unit are used mainly for rangeland and wildlife habitat.

Soil Survey of the Susanville Area, Parts of Lassen and Plumas Counties, California"

The Soil Survey of the Susanville Area, Parts of Lassen and Plumas Counties, California covers the northern portion of the Eagle Lake Field Office Area. It identifies five general kinds of landscapes for broad interpretive purposes. Each of the broad groups and a summary of general map units in each group are described below.

Areas Dominated by Soils on Aggraded Desert Plain Floors, Lake Terraces, and Floodplains in the Madeline Plains, Secret Valley, Mountain Meadows, and Honey Lake Valley

Four general map units, making up about 16% of the area, are associated with this group.

Ravendale-Dryvalley-Termo – Very deep silty clays and silty clay loams that are well drained or moderately well drained on aggraded desert plains and lake terraces. Soils are nearly level. Elevations are 4,400 to 5,500 feet. Average annual precipitation is 10 to 30 inches. The soils in this general map unit are used mainly for rangeland and, to a minor extent, homesite developments. The soils are limited for many uses by flooding, ponding, high clay content, and slow permeability.

Saddlerock-Smocreek-Lakeview – Very deep silty clays, silty clay loams, and loams that are somewhat poorly or moderately well drained on floodplains and stream terraces. Soils are nearly level. Elevations are 4,000 to 5,500 feet. Average annual precipitation is 10 to 30 inches. The soils in this general map unit are used mainly for meadow hay production and pasture. The soils are limited for many uses by flooding and depth to seasonal water table. The Saddlerock soil is also limited by a clayey surface and slow permeability.

Humboldt-Pit-Fortsage – Very deep silty clays, clays, and silt loams that are poorly drained, moderately well drained, or somewhat poorly drained on floodplains. Soils are nearly level. Elevations are 4,000 to 4,400 feet. Average annual precipitation is 10 to 30 inches. The soils in this general map unit are used mainly for meadow hay production, pasture, and small grain and hay crops.

The Humboldt soils are limited for many uses by poor drainage, flooding, and slow permeability. The Pit soils are limited by flooding and slow permeability. Fortsage soils are limited by flooding.

Mountmed-Keddie – Very deep peat and loam soils that are very poorly or poorly drained on fans and floodplains. Soils are nearly level. Elevations are 5,000 to 5,300 feet. Average annual precipitation is 10 to 30 inches. The soils in this general map unit are used mainly for pasture and wildlife habitat. The Mountmed soils are limited for many uses by flooding or ponding and slow permeability. The Keddie soils are limited by the seasonal high water table.

Areas Dominated by Soils on Lake Terraces in the Eastern Part of Honey Lake Valley

Three general map units, making up about 6% of the area, are associated with this group.

Ardep-Epot-Espac – Very deep silt loams and sandy loams that are well drained on lake terraces. Soils are nearly level gently sloping. Elevations are 3,995 to 4,200 feet. Average annual precipitation is 6 to 12 inches. The soils in this general map unit are used mainly for livestock grazing. The entire general map unit is limited by the hazard of soil blowing. The Ardep soils have few other limitations for many uses. The Epot and Wespac soils are limited for many uses by permeability and high salinity and sodicity.

Stiles-McDermott – Moderately deep and deep clay loams and silt loams that are well drained on lake terraces. Soils are nearly level to gently sloping. Elevations are 4,000 to 4,050 feet. Average annual precipitation is 8 to 10 inches. The soils in this general map unit are used mainly for livestock grazing. The major soils are limited for many uses by sodicity and clay pans. Stiles soils are also limited by soil depth.

Bobert-Blickenstaff-Yobe – Very deep sandy loams and silt loams that are moderately well or somewhat poorly drained on lake terraces and low stream terraces. Soils are nearly level. Elevations are 4,000 to 4,300 feet. Average annual precipitation is 8 to 10 inches. The soils in this general map unit are used mainly for livestock grazing and irrigated alfalfa and small grains. The major soils are limited for many uses by salinity, sodicity, and seasonal high water table.

Areas Dominated by Soils on Alluvial Fans and Terraces in the Madeline Plains, Secret Valley, Willow Creek Valley, and Honey Lake Valley

Two general map units, making up about 5% of the area, are associated with this group.

Mottsville-Springmeyer-Calpine – Very deep loamy coarse sands and sandy loams that are well drained on terraces and alluvial fans. Soils are nearly level to moderately sloping. Elevations are 4,050 to 4,400 feet. Average annual precipitation is 8 to 10 inches. The soils in this general map unit are used mainly for livestock grazing and for small grain and alfalfa hay crops. Soil blowing is a limitation for many uses. The Mottsville soils are limited for many uses by rapid permeability and low available water capacity. The Springmeyer and Calpine soils have few limitations for many uses.

Cleghorn-Chime-Fordney – Moderately deep and very deep sandy loams and loamy fine sands that are well or excessively drained on terraces and alluvial fans. Soils are nearly level to gently sloping. Elevations are 4,000 to 5,600 feet. Average annual precipitation is 8 to 10 inches. The soils in this general map unit are used mainly for livestock grazing and for small grain and alfalfa hay crops. The major soils in this general map unit have few limitations for many uses. Soil blowing and the water erosion hazard are the main limitations for growing small grains and hay crops. The short growing seasons in the Madeline Plains and Secret Valley reduce yields.

Areas Dominated by Soils on Mountains and Plateaus

Six general map units, making up about 57% of the area, are associated with this group.

Petescreek-Searles-Fredonyer – Moderately deep gravelly loams, very cobbly loams, and very stony loams that are well drained on mountains. Soils are gently sloping to steep. Elevations are 5,400 to 7,000 feet. Average annual precipitation is 9 to 16 inches. The soils in this general map unit are used mainly for livestock grazing. The major soils are limited for many uses by depth to bedrock, stones on the surface, and steepness of slope.

Ninemile-Hart Camp-Anawalt – Shallow, very stony loams and stony loams that are well drained on plateaus and mountains. Soils are gently sloping to moderately steep. Elevations are 5,500 to 7,000 feet. Average annual precipitation is 9 to 16 inches. The soils in this general map unit are used mainly for livestock grazing.
The major soils are limited for many uses by shallow depth, stones on the surface, and steepness of slope.

Brubeck-Devada-Horsecamp – Shallow, moderately deep and deep very cobbly clays, very cobbly loams, and very cobbly silty clays that are well drained soils on plateaus. Soils are gently sloping to moderately steep. Elevations are 4,300 to 5,600 feet. Average annual precipitation is 9 to 16 inches. The soils in this general map unit are used mainly for livestock grazing. The major soils are limited for many uses by depth to bedrock, stones on the surface, high clay content, and slope.

Devada-Fivesprings-Longcreek – Shallow and moderately deep, very cobbly loams and very stony loams that are well drained on plateaus and mountains. Soils are gently sloping to steep. Elevations are 5,000 to 6,000 feet. Average annual precipitation is 9 to 16 inches. The soils in this general map unit are used mainly for livestock grazing. The major soils are limited for many uses by depth to bedrock, stones on the surface, and slope.

Dunnlake-Fiddler-Petescreek – Shallow and moderately deep, very stony loams and gravelly loams that are well drained on plateaus and mountains. Soils are gently sloping to moderately steep. Elevations are 5,600 to 6,200 feet. Average annual precipitation is 9 to 16 inches. The soils in this general map unit are used mainly as juniper woodland. The major soils are limited for many uses by depth to bedrock, stones on the surface, and slope.

Glenbrook-Graufels-Galeppi – Shallow, moderately deep, and very deep gravelly loamy coarse sands, bouldery sands, and sandy loams that are somewhat excessively or well drained on mountains and terraces. Soils are gently sloping to steep. Elevations are 4,000 to 6,500 feet. Average annual precipitation is 9 to 16 inches. The soils in this general map unit are used mainly for livestock grazing. The major soils are limited for many uses by sandy textures. The Glenbrook and Graufels soils are also limited by shallow soil depth and steepness of slope. Soil blowing is a limitation for some uses.

Areas Dominated by Soils on Plateaus and Mountains North and West of Susanville

Five general map units, making up about 16% of the area, are associated with this group.

Lasco-Chimney-Toiyabe – Shallow, deep and very deep gravelly sandy loams and gravelly loamy coarse sands that are well to excessively drain on mountains. Soils are gently sloping to very steep. Elevations are 4,300 to 7,000 feet. Average annual precipitation is 9 to 16 inches. The soils in this general map unit are used for timber production and livestock grazing. The major soils are limited for many uses by slope, low available water capacity, and severe erosion hazard. The Toiyabe soils are also limited by the hazard of wind throw.

Said-Fravel-Ninemile – Shallow, moderately deep and deep gravelly loams and very stony loams that are well drained on mountains. Soils are gently sloping to moderately steep. Elevations are 5,600 to 6,800 feet. Average annual precipitation is 9 to 16 inches. The soils in this general map unit are used for timber production and livestock grazing. The major soils are limited for many uses by depth to bedrock and slope.

Eaglelake-Weste-Redriver – Moderately deep and deep very gravelly loams, stony fine sandy loams, and very gravelly sandy loams that are somewhat excessively drained or well drained on mountains and plateaus. Soils are gently sloping to steep. Elevations are 5,200 to 6,500 feet.

Average annual precipitation is 9 to 16 inches. The soils in this general map unit are used for timber production. The major soils are limited for many uses by the depth to bedrock, surface rock fragments, and slope.

Swainor-Almanor-Whorled – Moderately deep and deep very stony sandy loams and very gravelly sandy loams that are well drained on mountains and plateaus. Soils are gently sloping to moderately steep. Elevations are 5,100 to 6,300 feet. Average annual precipitation is 9 to 16 inches. The soils in this general map unit are used for timber production. The major soils are limited for some uses by low available water capacity.

Penstock-Scaribou-Hangtown – Deep and very deep stony loams, very gravelly loams, and very cobbly sandy loams that are well drained on mountains. Soils are moderately sloping to very steep. Elevations are 4,500 to 7,000 feet. Average annual precipitation is 9 to 16 inches. The soils in this general map unit are used for timber production. The major soils are limited for some uses by low available water capacity, slope, and stones on the surface.

Soil Survey of the Surprise Valley - Homecamp Area, California - Nevada (1974)
Soil Survey of the Surprise Valley - Homecamp Area, California - Nevada covers a very small area in the northeastern portion of the Eagle Lake Field Office area. Each of the broad groups of the soil associations are described in the Soil Survey of Washoe County, Central Part.

3.12.2 Assessment of Soil Condition and Present Management of Soil Resources

The LHA indicators were used to provide to evaluate how well the Soils standard in BLM's Standards and Guidelines is being met. The two summary ratings, Soil/Site Stability and Hydrologic Function, and the 12 indicators were reviewed for the following discussion. The 12 LHA indicators are listed below.

1. Rills
2. Water flow patterns
3. Pedestals and terracettes
4. Bare ground
5. Gullies
6. Wind scour, blowout/depositional
7. Litter movement
8. Resistance to erosion
9. Soil loss or degradation
10. Plant community composition/distribution relative to infiltration and runoff
11. Compaction
12. Litter Amount

Soils are in relatively good condition in the Eagle Lake Field Office area. Only 10 sites (about 4%) were determined to be Non-Functional for Soil/Site Stability and only five (about 2%) were Non-Functional for Hydrologic Function. Eighty-one percent of the sites were rated as in Properly Functioning Condition (PFC) for Soil/Site Stability and 80% for Hydrologic Function.

Horse Lake Watershed
Of the 92 sites evaluated in the Horse Lake watershed, 79% rated as having Soil/Site Stability in PFC, 15% Functioning-at-Risk, and 5% Non-Functional.

The summary Hydrologic Function rating had 75% of the sites in PFC, 22% Functioning-at-Risk, and 3% Non-Functional. In descending order, litter amount, resistance to erosion, and bare ground—along with an associated degraded plant community—were the primary indicators of reduced condition. Extreme pedestalling was found only on the high shrink-swell shallow soils such as the Devada series.

Degraded plant community composition was most commonly found on the medusahead-infested sites and on the Devada-like soils. Although proper livestock and recreation management would lead to improvement, much more information is needed to understand how BLM's management can best lead to the recovery of these sites. As a result of fire on Secret Creek, livestock use is automatically suspended for a period sufficient to ensure that livestock use will not prevent the site from achieving the site potential.

Currently no special management measures are implemented. Discussions of management actions for other resources in Chapter 3 contain additional information for fire and fuels.

Eagle Lake Watershed

Nine sites were assessed in the Eagle Lake watershed. Only one site was not in PFC for Soil/Site Stability and two sites for Hydrologic Function. The combination of bare ground condition due to lack of litter and altered plant community resulted in excessive pedestals or terracettes and flow patterns.

Currently no special management measures are implemented. Discussions of management actions for other resources in Chapter 3 contain additional information for fire and fuels.

Madeline Watershed

Thirty-eight sites were evaluated in the Madeline watershed. Only two rated as Functioning-At-Risk and one as Non-Functional for Soil/Site Stability. Thirty-four (87%) of the sites were in PFC for Hydrologic Function; none were rated as Non-Functional. Lack of ground cover resulted in more erosion than should occur on these sites.

A unique eolian soil occurs in the eastern portion of the Madeline Plains in a management area called the Pine Dunes. The soil is composed of nearly pure quartz sand that is well sorted and abraded on a sand sheet landform. The origin of the quartz sand is an unknown curiosity. The sand sheets are subject to wind erosion but are experiencing some degree of stabilization subsequent to closing the area to livestock and vehicles. Currently no special management measures are implemented. Discussions of management actions for other resources in Chapter 3 contain additional information for fire and fuels.

Sierra Valley Watershed

Fourteen sites were evaluated in the Sierra Valley watershed; eight had at least one indicator deviating from expectations into the Non-Functional category. Only three sites had all indicators in PFC. However, nine sites had a Soil/Site Stability rating of PFC; none were rated as Non-Functional. Of the Functioning-at-Risk sites, only two were rated as Functioning-at-Risk for Hydrologic Function.

The Sierra Valley watershed sites had the highest percentage of sites in Non-Functional indicator status of any watershed. This result was not unexpected, because all but one allotment in the watershed are under "Custodial" management. Because the Sierra Valley Soil Survey report is old and out of date and gave rather cursory detail in the uplands, there is limited confidence in the LHA ratings. Currently no special management measures are implemented. Discussions of management actions for other resources in Chapter 3 contain additional information for fire and fuels.

Smoke Creek Desert Watershed

Sixty-five LHAs were conducted in the Smoke Creek Desert watershed. Less than 11% of Soil/Site Stability and Hydrologic Function summary ratings were Functioning-at-Risk; the rest were PFC. No single indicator stands out as a problem in this watershed; however, the vertisol soils are not as heavily invaded with medusahead as those in the Horse Lake watershed. If medusahead invasion increased within the Smoke Creek Desert Watershed, the Hydrologic Function ratings would shift significantly. The shallow shrink-swell soils present in the watershed are pedestalled; however, in some areas the bunch grasses have sufficient residual organic matter to protect the ped from raindrop impact. The Fulstone series usually exhibited indicators of excessive surface erosion wherever it was encountered.

Currently no special management measures are implemented. Discussions of management actions for other resources in Chapter 3 contain additional information for fire and fuels.

Susan River/Honey Lake Watershed

Of the 41 sites assessed, only four deviated more than moderately from expectations; these were on sandy sites in the Fort Sage Mountains. The Fort Sage area has experienced several wildfires in the last two decades, with marginal success of recovery. Livestock are very limited and were not a contributor to this condition. Most of the Functioning at Risk sites are also on sandy soils. Once disturbed, these droughty soils can take a comparatively long time to recover.

The only special soil stabilization efforts are on sandy soils. A considerable effort has been focused on emergency stabilization and rehabilitation on these droughty soils following fires, with disappointing success. In the Wendel area, archeological sites were being exposed and experiencing collapse due to eroding sand; these have been fenced to restrict all livestock and off-road activities. Refer to activity management sections for related discussions. BLM developed a Trail Maintenance Plan that includes management measures to ensure zero discharge and protect soil resources.

Headwaters of the Feather River Watershed

No data are available to assess the soil condition in the headwaters of the Feather River Watershed. Currently no special management measures are implemented. Discussions of management actions for other resources in Chapter 3 contain additional information for fire and fuels.

3.12.3 Overall Trends in the Eagle Lake Field Office Area

The natural factors listed below affect soils in the Eagle Lake Field Office area:

- Wildfires,
- Wind events,
- Floods, and
- Noxious weeds.

The management-related factors listed below affect soils in the Eagle Lake Field Office area:

- Wildfire suppression activities,
- Livestock management,
- Wild horse management,
- Fuels management,
- Noxious weed management,
- Recreation/OHV management, and
- Mineral exploration/mining.

Western juniper encroachment is severely affecting the soils of the Eagle Lake Field Office area by replacing natural sagebrush steppe ecosystems and crowding out pine forests and aspen groves. Juniper encroachment stems from fire suppression over the last 150 years. Juniper encroachment affects soils in riparian areas by competing with woody species such as willow and elderberry. Increasing juniper canopy is affecting soils in the uplands by shading out grasses and sagebrush, thus decreasing the extent of forages as well as soil stability.

Susan River

3.13 Special Area Designations

BLM uses several designations to identify areas that require special management to protect resources or provide unique recreation opportunities. The designations include Special Recreation Management Areas, Areas of Critical Environmental Concern (ACECs), National Historic Trails, Wilderness Study Areas (WSAs) (prior to being declared Wilderness by Congress), Research Natural Areas (RNAs), and Wild and Scenic Rivers. See section 3.10.3 for Special Recreation Management Areas (Bizz Johnson Trail, Eagle Lake Basin and Fort Sage OHV Area).

3.13.1 Areas of Critical Environmental Concern

ACECs are areas designated by a federal land management agency in which special management attention is required to (1) protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources; or other natural systems or processes; or (2) to protect life and safety from natural hazards (BLM ACEC Manual 1613 .02). There are no designated ACEC's in the Eagle Lake Field office however one designated Research Natural Area (RNA), the Pine Dunes RNA, meets ACEC criteria and is expected to become designated as an ACEC following completion of this Resource Management Plan. With increased public interest in protection of special areas and more BLM mandates to protect special areas since past land use planning was completed in the early 1980's (including ACEC evaluations), additional areas within the Eagle Lake Field office not currently under special designations that meet ACEC criteria and will be recommended for ACEC designation in this RMP.

The Pine Dunes Research Natural Area (RNA) was designated to protect a unique stand of relic Ponderosa pine trees isolated in a small sand dune habitat. The Pine Dunes have long drawn the interest of people recognizing the uniqueness of this site. The Pine Dunes are located in Lassen County about 17 miles east of Ravendale, California in T35N, R16E, Section 25 MDM. The dune area, which derived from an ancient lake bed, is at the eastern edge of the Madeline Plains within the sagebrush community near the western edge of the Great Basin. The Pine Dunes were identified in the Cal-Neva Planning Unit's Management Framework Plan as an area needing special management, with the recommendation that the area be designated as a Research Natural Area. On April 24, 1986, BLM designated 160 acres of public lands as the Pine Dunes Research Natural Area to provide protection for this grove of pines. Some of the pine and dune community is located on adjacent private land. Since its designation as the Pine Dunes Research Natural Area, the Eagle Lake Field Office area has been working on acquiring the adjacent dune lands where pines grow.

Under ACEC designation, the Eagle Lake Field Office would continue to manage the Pine Dunes area based on the management objectives detailed in the 1987 management plan for the Research Natural Area. These objectives include (1) ensuring that the trees and their habitat are protected, (2) ensuring that the area is preserved in its natural state for research and education purposes, and (3) generating interest in scientific research of the area. The area is designated as closed to OHV use and will continue to be designated as closed to OHV use. BLM will continue to maintain the perimeter fence and monitor the area for illegal OHV use.

3.13.2 Historic National Trails

Numerous mid to late 1800's wagon roads and military roads cross through the Eagle Lake Field Office jurisdiction, including the Nobles Trail, which was designated as part of the California National Historic Trail by Act of Congress in the 1992 Pony Express and California National Historic Trails Act. The Nobles Trail is also part of BLM's National Landscape Conservation System, a designation that adds emphasis to management and protection of special areas such as historic trails. BLM is also required to protect the trail traces and associated historic setting along the trail by the National Historic Preservation Act.

Other historic trails of local and regional significance are:

Historic Railroad Grades

Fernley and Lassen Branch of the Central Pacific and later, Southern Pacific Railroad: a regionally significant mainline railroad built in 1913/1914, that opened up the Lassen and Plumas County areas to large industrial scale logging and greatly increased commerce in the region, created a new community, Westwood, and stimulated substantial growth in Susanville. This mainline railroad corridor has three segments currently being used or under consideration for trail use:

- The Bizz Johnson National Recreation Trail (25 miles with 11.3 miles on BLM land), is a very popular rails to trails project on BLM and Forest Service land in Lassen County California. The railroad grade trail extends westward from Susanville through the scenic Susan River Canyon and then traverses wooded uplands to Mason Station, five miles north of Westwood. This historic railroad grade is the primary recreational attraction of the Bizz Johnson Trail Special Recreation Management Area (see section 3 B. 14.4) and is the most heavily used Special Recreation Management Area in the Eagle Lake Field office jurisdiction.
- The Wendel to Susanville segment (23 miles) of the Fernley and Lassen Railroad. Rail traffic ended on this line in 2004 with closure of Sierra Pacific's Susanville lumber mill. If tracks are removed and a rails to trails conversion of this line occurs, this railroad grade could link the Bizz Johnson Trail with the abandoned and trackless Modoc Line (85 miles), a potential new rail trail that extends from near Wendel north to near Alturas.
- Legal abandonment of the Susanville to Wendel segment was authorized by the Interstate Commerce Commission (now the Surface Transportation Board) in 1985. Following legal abandonment, the Sierra Pacific lumber mill in Susanville used the line from 1985 to 2004 under a lease from Southern Pacific Railroad and then after 1996, from Union Pacific Railroad.
- This railroad corridor has excellent potential to serve local residents for close to home trail experiences, bicycle commuting, and trail based exercise activities and to also serve area residents and visitors by linking the nationally known Bizz Johnson Trail with a potential new rail trail on the Modoc Line, both having substantial segments on BLM land.
- Lassen County or other entities would likely initiate these rails to trails project because this segment of the old Fernley and Lassen Railroad does not cross BLM lands. This segment of the Fernley and Lassen Line however needs mention in this document because if converted to a trail, this rail corridor would provide a valuable connection between the established Bizz Johnson Trail rail trail on BLM to the west of Susanville with the potential new Modoc Line rail trail that crosses large blocks of public lands east and north of Susanville and north of Wendel, California.
- The Wendel to Flanigan segment (approximately 22 miles). In February 2005, Union Pacific Railroad began the formal process to abandon this line since the line became inactive with closure of the Sierra Pacific lumber mill in Susanville in 2004.

Legal abandonment has not yet been authorized by the federal Surface Transportation Board and even if authorized, Honey Lake Power, a wood chip fired power plant near Wendel may acquire the line and keep it operating as an active short line railroad. If efforts to acquire and operate the line fail, the line would become an abandoned and trackless railroad corridor suitable for various trail uses. Acquisition of this corridor could occur under the federal rail banking process,16 U.S. Code 1247(d), authorized by the federal Surface Transportation Board. Political and financial support for this acquisition would be essential from both Lassen and Washoe Counties.

Modoc Line: an historic narrow gage railroad grade built in the 1890's as the Nevada, California and Oregon Railroad (NCO), the railroad was acquired by Southern Pacific in 1925, renamed the Modoc Line and expanded to a standard gage line. There are 52 miles of this railroad grade within the Eagle Lake Field Office jurisdiction and 33 miles within the Alturas Field Office jurisdiction. Legal abandonment was authorized in 1996 by the Surface Transportation Board and included approval of BLM's request to negotiate a rail banking agreement with Union Pacific Railroad to preserve the railroad corridor.

Active negotiations with Union Pacific began in 2003 once Union Pacific took action to remove track from the line. BLM and Lassen and Modoc Counties are working together to negotiate acquisition of the entire line from Union Pacific Railroad under provisions of the rail banking law, section 8d of the National Trails System Act, 16 U.S. Code 1247(d). If rail banked, the entire corridor would be preserved for possible future rail use and would be available for trail use in the interim until such time as rail use was reestablished.

Historic Wagon Roads (segments of these routes within the Eagle Lake Field Office jurisdiction):

- Buffalo Hills Toll Road, along Buffalo Creek through the North Fork of Buffalo Creek Canyon
- Fort Churchill, Nevada to Fort Bidwell, California Military Road, a north south route through the eastern side of the Eagle Lake Field office jurisdiction
- Merrillville – Beiber Wagon Road:
    - Eagle Lake Segment –7 miles along Eagle Lake's northeast shoreline upslope of and adjacent to California Highway 139
    - Willow Creek Segment –between the Belfast area and Willow Creek Valley
- Military Patrol Road – trail along upper Smoke Creek and north to Surprise Valley
- Nobles Emigrant Trail – cut off route from Lassen Emigrant Trail, beginning at Rabbit Hole Spring, Nevada east of the Black Rock Desert and extending southwest along the Black Rock and Smoke Creek Deserts to Smoke Creek Canyon, then west to Susanville and Shasta City, west of Redding, California.

In many areas where these trails are located, the surrounding landscapes remain largely undeveloped or minimally developed providing settings reminiscent of the undeveloped landscapes that the original trail users experienced. The undeveloped setting along historic trails contributes to preserving the character of the trails as they appeared when used by pioneers, wagon road travelers and railroad travelers in the late 1890's and early 1900's.

The undeveloped character of public lands in northeastern California and northwestern Nevada is a characteristic sought by a majority of the visitors to these areas (North Eastern California Outdoor Recreation Market Analysis, Tierney and Rosegard, 2002). Trail preservation is strongly encouraged by the Oregon-California Trails Association and is called for in the Comprehensive Management Use Plan Final Environmental Impact Statement, prepared by the National Park Service.

3.13.3 Wilderness Study Areas

WSAs are designated by a federal land management agency as having wilderness characteristics. The Wilderness Act of 1964 defines a wilderness as an area where the earth and its community of life are untrammeled by people and where people are visitors who do not remain. The act further defines a wilderness as an:

"Area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed to preserve its natural conditions and that:

- generally appears to have been affected primarily by the forces of nature with the impact of people substantially unnoticeable;
- has outstanding opportunities for solitude or a primitive and unconfined type of recreation;
- has at least 5,000 acres of land or is of sufficient size to make practicable its preservation and use in unimpaired condition; and
- may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value."

Table 3.13-1 indicates the suitability of areas for designations as Wilderness in the Eagle Lake Field Office area, as determined in the 1990 California Statewide Wilderness Study Report (U.S. Bureau of Land Management 1990) and the 1991 Nevada BLM Statewide Wilderness Report (U.S. Bureau of Land Management 1991).

Table 3.13-1 Suitability of Areas for Designation as Wilderness in the Eagle Lake Field Office Area

Name of WSA	California		Nevada	
	Suitable (acres)	Non-Suitable (acres)	Suitable (acres)	Non-Suitable (acres)
Tunnison Mountain	7,889	11,995	0	0
Skeddadle	37,644	24,366	0	0
Five Springs	0	49,206	0	1,195
Dry Valley Rim	7,268	10,863	45,127	31,050
Twin Peaks	7,079	18,598	47,837	17,277
Buffalo Hills	0	856	0	45,287
Poodle Mountain	0	4,990	0	137, 160

WSA = Wilderness study area.

3.1 Tunnison Mountain WSA

The Tunnison Mountain WSA is located in Lassen County, California. The WSA contains 19,884 acres of BLM-administered land and 553 acres of private land that is located in 13 parcels, varying in size from 10 to 160 acres.

The WSA is located on the eastern edge of the transition area between the wooded slopes of the Cascade Range and the western edge of the more arid Great Basin. It is approximately 3.5 miles wide by 10 miles long. Elevations vary from 4,200 to 6,400 feet.

Three topographical features dominate the WSA: Horse Lake Mountain, a 5.5-mile-long north-south ridge in the northern half of the WSA; Tunnison Mountain, a 4.5-mile-long northwest-southeast ridge in the southern half of the WSA; and Willow Creek Canyon, a 50- to 200-foot-deep canyon that flows 6.5 miles west to east through the WSA. Ponderosa and Jeffery pines grow in the southern end of the WSA south of Willow Creek, while the majority of the WSA is dominated by shrubs, grasses, and scattered juniper. Vegetation also includes isolated patches of mountain mahogany at the higher elevations. The riparian vegetation along Willow Creek includes sedges, grasses, and occasional willows.

Human imprints within the WSA are small in scale. They are mainly related to livestock grazing and include 5.5 miles of fence, nine stock ponds, two developed springs, and 4.5 miles of access ways leading to ridge crests and Willow Creek. Three dead end roads are “cherry-stemmed” into the WSA. This type of vehicle route, located within a WSA but technically excluded from it because the WSA boundary follows the edge of the road, is called a “cherry stemmed” route because the appearance of that route on a map resembles a cherry stem. Add preceding highlighted sentence as the definition to “cherrystem route” in the glossary of this RMP.

Human activity in the WSA occurs mainly during hunting season - primarily in the fall and during the first few weeks of fishing season in late April and early May. Fishermen drive to the three vehicle accessible areas of Willow Creek Canyon and then hike in along the creek. There is drive in access available on two rough dirt roads (technically classified as ways) at the upper and middle segments of Willow Creek within the WSA and on an improved gravel road to the lower southeast side of the WSA near Willow Creek. Human activity is greatest on the southeast side of the WSA on the improved gravel road that provides access to the Belfast Petroglyphs and lower Willow Creek Canyon. Wood cutters often drive the southern boundary road of the WSA looking for firewood on adjacent BLM and private lands open for wood cutting authorized by a use permit. Ranchers who have permits to graze livestock in the WSA also drive the access roads and horseback ride in the WSA.

In 1987, visitor use within the Tunnison WSA was estimated to be 2,400 visitor days annually (Wilderness Recommendations, Eagle Lake - Cedarville Study Areas, Final Environmental Impact Statement, 1987, page 195). The 1987 visitor use estimates were developed by BLM staff and California Department of Fish and Game biologists. No recent visitor use estimates have been made however, field observations by BLM staff indicate that there is increased visitor use to the Belfast Petroglyphs, an historic site on the National Register of Historic Places, located on the south east side of the Tunnison WSA. Lower Willow Creek Canyon adjacent to the petroglyphs also is receiving more use for hiking and sightseeing. Increased use is related to BLM improvement of the access road in 2003 (realigned and graveled). The road improvement was done to improve access for school groups who visit the site as part of environmental education trips each spring and fall. Casual public use has also increased with the improved road access.

Other increases in visitor use since 1987 are likely and related to increased interest in upland game bird hunting and fishing by the growing number of Lassen County residents who hunt and fish. Upland game bird hunting is not regulated by tags and hunter activity varies by bird population fluctuations.

Big game hunting (deer and antelope) is limited by the number of deer and antelope tags issued by the California Department of Fish and Game. Large increases in the number of big game hunters have not occurred because there have not been substantial increases in deer and antelope populations and associated tag increases. In some years, tag numbers have declined with fluctuating herd numbers.

BLM is pursuing acquisition of private parcels along Willow Creek and within the WSA to provide legal access along the creek. Acquisitions are on a willing seller basis. Acquisition success is subject to negotiations with owners and funding availability.

3.2 Skedaddle WSA

The Skedaddle WSA is located in Lassen County, California (99.5%) and in Washoe County, Nevada (0.5%). The WSA contains 62,010 acres of BLM-administered land and 1,179 acres of private land that is located in seven parcels, varying in size from 40 to 640 acres.

The WSA is located on the northwestern edge of the arid Great Basin, characterized by eroded volcanic mountains and expansive desert valleys (the remains of ancient lake beds). The WSA comprises an area approximately 10 by 12 miles. The Skedaddle and Amedee Mountains located in the central and southern parts of the WSA are its dominant physical features. These peaks rise from adjacent seasonally dry lake beds and low, sloping hills from elevations of 4,200 feet to the 7,680-foot summit of Skedaddle Mountain, called Hot Springs Peak.

The core area of the WSA, an eroded volcanic caldera, is dominated by rugged vertical cliffs, canyons, peaks and upland basins of the Skedaddle Mountains and Amedee Mountains. The higher Skedaddle elevations support scattered small aspen groves and patches of large berry shrubs, primarily on the northern slopes. The deep canyons support riparian vegetation (willows, wild rose, and berry shrubs) and the upland basins, small grass meadows. Sagebrush and bunch grass vegetation dominate the majority of the WSA.

The northern and eastern edges of the WSA are open, sagebrush-covered flats that develop into long toe slopes, leading into Skedaddle Mountain. The southern and western toe slopes are shrub- and grass covered alluvial slopes and gravel benches, the remnants of pliestocene Lake Lahontan shorelines. These toe slopes rise into the steep, rocky slopes of the Amedee Mountains—dissected by numerous canyons and ridges on the south and very steep, nearly vertical, cliffs of crumbly volcanic rock on the west (called Wendell Cliffs).

Human imprints in the WSA consist of 15 developed springs, 31 small (1 acre or less) stock ponds, 6 miles of fence, three wildlife guzzlers, and 47 miles of access ways (vehicle routes established by the repeat passage of motor vehicles, rather than by road construction equipment) . In addition, there are eighteen miles of dead end roads that extend well into the WSA, mainly up drainages, but are officially outside the WSA because the WSA boundary follows along the edge of the road – up one side, around the far end and back down the other side. These roads are called "cherry stem" roads because their appearance on a map resembles a cherry stem. The "cherry stemmed" roads extend into the WSA but are officially outside the WSA.

Human activity in the WSA occurs mainly during the fall hunting season starting in late summer and extending through the fall and into early January. Precise numbers of visitors are not known. In 1987, visitor use within the Skedaddle WSA was estimated to be 4,500 visitor days annually (Wilderness Recommendations, Eagle Lake - Cedarville Study Areas, Final Environmental Impact Statement, 1987, page 208). The 1987 visitor use estimates were based largely on hunting use estimates using deer and antelope tag numbers, associated average hunter days per tag issued and estimates of other hunting activity, primarily for chukar. Visitor estimates were made by BLM staff and California Department of Fish and Game biologists. No recent visitor use estimates have been made. Deer and antelope hunting has not increased substantially since the 1987 visitor use estimate because, since 1979 deer and antelope hunting has been limited by quotas set for the X5b zone in which Skedaddle WSA is located. Quotas are based on herd size and herd size has fluctuated in the Skedaddle WSA but with no appreciable increases that have significantly increased deer and antelope hunter days. The higher elevation core area of the Skedaddle Mountains is the best deer habitat and is where the majority of the deer hunting activity occurs.

Hunting for chukar (Hungarian partridge, a naturalized upland game bird) is also very popular in the Skedaddle WSA, with most hunting occurring on the lower to mid-elevation slopes.
Upland game bird hunting is not regulated by tags and hunter activity varies by annual bird population fluctuations. There is very likely to have been an increase in visitor use since 1987 from increased interest in upland game bird hunting by the growing number of Lassen County residents who hunt. Hunters represent a higher percent of Lassen County residents than are represented in the population statewide.

In addition to general increases in upland game bird hunting, there has been more public interest in the Skedaddle WSA based on newspaper articles, hiking guide book references, website information and word of mouth among the growing number of hikers, horseback riders, and wildlife viewers. These visitors enjoy the Skedaddle Mountains year round when conditions are conducive to hiking and horseback riding. The many canyons and ridges afford varied hiking and riding opportunities and spectacular vistas across the Honey Lake Valley.

Off highway vehicle use within the WSA consists of four wheel drives and ATV's (quads) used mainly in support of hunter access. The many miles of roads and ways within the WSA provide many access routes within the WSA, particularly on the north slope. ATV use by hunters has increased significantly since 1987 when the Wilderness Environmental Impact Statement was completed. With continually improving technology, there is more pressure to extend travel routes further into areas previously in accessible to vehicle travel altering the types of hunting experiences enjoyed by the walk in hunters and other non-motorized users.

One valid private mining claim (undeveloped in 2005) is located in the North Fork of Wendel Canyon. The western portion of the WSA is also within the Wendel Known Geothermal Resource Area (KGRA). The area was put up for lease in the mid 1980s. Some areas adjacent to the WSA were leased but not developed, and the leases have been allowed to expire. Geothermal development on valley bottomland to the west of the WSA has occurred to a limited extent during the past 25 years.

3.3 Five Springs WSA

The Five Springs WSA is located primarily in Lassen County, California (97%), with a small portion (3%) in Washoe County, Nevada. The WSA contains 49, 206 acres of BLM-administered land and 1,195 acres of private land that is located in eight parcels, ranging in size from 40 to 640 acres. Surface owners own all subsurface mineral rights beneath their holdings.

The WSA is located on the western edge of the arid Great Basin and is characterized by eroded volcanic mountains. Five Springs Mountain, Cherry Mountain, and Rush Creek Mountain are, ridge like mountains with multiple high points. Numerous broad, open canyons are cut into the three prominent ridges that make up the core of the relief in the WSA. Elevations range from 4,500 to 6,300 feet. Stony and Rush Creeks are mostly perennial creeks originating in the unit. Riparian vegetation is dense in parts of Rush Creek and slight to moderately dense in Stony Creek. Other than willows in the two creek bottoms and at springs, vegetation throughout the WSA is limited to sagebrush and associated shrubs and grasses.

Human imprints in the WSA include 14 stock ponds, nine developed springs, 7.5 miles of fence, and 15 miles of access ways (vehicle travel routes established by the repeat passage of vehicles). Six miles of roads are cherry-stemmed (see glossary definition) within the WSA.

Human activity in the WSA, other than grazing permittees, occurs mainly during hunting season, and primarily in fall. Precise numbers of visitor use are not known.

In 1987, visitor use within the Five Springs WSA was estimated to be 5,700 visitor days annually (Wilderness Recommendations, Eagle Lake—Cedarville Study Areas, Final Environmental Impact Statement, 1987, page 200).

The 1987 visitor use estimates were based largely on hunting use estimates using deer and antelope tag numbers, associated average hunter days per tag issued and estimates of other hunting activity, primarily for chukar. Most hunting in Five Springs WSA is for chukar. Visitor estimates were made by BLM staff and California Department of Fish and Game biologists. No recent visitor use estimates have been made.

Deer and antelope hunting has not increased substantially since the 1987 visitor use estimate because, since 1979 deer and antelope hunting has been limited by quotas set for the X5b zone in which Five Springs WSA is located. Quotas are based on herd size and herd size has fluctuated in the WSA but with no appreciable increases that have significantly increased deer and antelope hunter days. Since 1979, deer hunting has been limited by quotas set for the X5b zone in which Five Springs WSA is located.

Chukar hunting is the most popular activity that occurs in the Five Springs WSA. Most chukar hunting occurs from beginning the southwest and southeast slopes of the WSA because of the convenient access available off the Smoke Creek Road. More lengthy and rougher access is available to the west and north slopes, where use also occurs but in lower numbers.

3.4 Dry Valley Rim WSA

The Dry Valley Rim WSA is located in Washoe County, Nevada (76,177 acres) and Lassen County, California (18,131 acres). The WSA contains 94,308 acres of BLM-administered land and surrounds 338 acres of private land that is located in eight parcels, varying in size from 40 to 160 acres.

The Dry Valley Rim WSA, approximately 20 miles north to south, is predominantly natural with minor human imprints that have a negligible overall effect on naturalness in the area. The area is a north- to south-trending fault-block that rises gradually from the western side of the WSA to the abrupt 500 to 1,500 foot face of Dry Valley Rim, which is located along the east side of the WSA. Sagebrush and grass are the predominant vegetation throughout the WSA.

Human imprints in the WSA are 21 stock ponds, three developed springs, and 12 miles of vehicle access ways (see glossary for definition). Four miles of cherry stem roads (see glossary definition) extend into the WSA but are officially outside the WSA.

Human activity in the WSA, other than grazing permittees, occurs mainly during hunting season and primarily in the fall. Precise numbers of visitor use are not known. Since 1979, deer hunting has been limited by quotas set for the California X5b zone and the Nevada 015 zone in which Dry Valley Rim WSA is located. In 1987, visitor use within the Dry Valley Rim WSA was estimated to be 3,600 visitor days annually (Wilderness Recommendations, Eagle Lake - Cedarville Study Areas, Final Environmental Impact Statement, 1987, page 215). The 1987 visitor use estimates were based largely on hunting use estimates using deer and antelope tag numbers, associated average hunter days per tag issued and estimates of other hunting activity, primarily for chukar. Most hunting in Dry Valley Rim WSA is for chukar. Visitor estimates were made by BLM staff and California Department of Fish and Game and Nevada Department of Wildlife biologists. No recent visitor use estimates have been made.

Chukar hunting is the most popular use of this WSA. Most chukar hunting occurs on the Nevada side of the WSA where the steeper slopes are favored by chukar and chukar hunters. Most chukar hunting occurs on the Dry Valley Rim escarpment and associated canyons located on the east and north sides of the WSA.

Hunters access the WSA via the Pipe Springs Road on the east and the Smoke Creek Road on the north.

The Nobles Emigrant Trail, a national historic trail, passes through Smoke Creek Canyon inside the northern edge of the WSA and wagon rut traces are still evident in this area.
A plaque placed by Trails West along the Smoke Creek Road marks the location of well preserved wagon ruts within the WSA. The landscape adjacent to the trail is also much as it was when the trail was active.

3.5 Twin Peaks WSA

The Twin Peaks WSA is located in Lassen County, California (7,079 acres) and in Washoe County, Nevada (83,712 acres). The WSA contains 90,791 acres of BLM-administered land and surrounds 1,257 acres of private land that is located in 12 parcels, varying in size from 40 to 320 acres.

The WSA contains steep canyons, numerous peaks and ridges, many small springs, and two perennial streams. Plant life is a mixture of big and low sage, grasses, and sparsely scattered junipers. Elevations range from 3,900 feet on the eastern side of the WSA, along the edge of the Smoke Creek Desert, to 6,572 feet atop Twin Peaks, which is located in the south central portion of the WSA.

The Smoke Creek Archaeological District is located along the northwestern side of the WSA on both sides of Smoke Creek in California. This area has been declared eligible for National Register of Historic Places status by the California State Historic Preservation Officer. The district extends 0.5 to 1 mile wide along Smoke Creek, as well as 1 to 2 miles up major tributaries of Smoke Creek. Archaeological resources in the district include high-quality petroglyph panels, habitation caves, and hunting blinds. The district lies within the WSA, and 50% of the district is included in the area recommended for Wilderness designation.

Human imprints are two stock ponds, eight developed springs, 9 miles of fence, one pipeline, one exclosure, one well with windmill, and 38 miles of vehicle access ways. One 0.5-mile-long abandoned dirt airstrip located on the southwestern edge of the WSA was not identified during the initial inventory. It is low profile and is no longer used.

Human activity in the WSA, other than grazing permittees, occurs mainly during hunting season, and primarily in the fall. Precise numbers of visitor use are not known. Since 1979, deer hunting has been limited by quotas set for the California X5b zone and the Nevada 015 zone in which Twin Peaks WSA is located. In 1987, visitor use within the Twin Peaks WSA was estimated to be 7,200 visitor days annually (Wilderness Recommendations, Eagle Lake - Cedarville Study Areas, Final Environmental Impact Statement, 1987, page 229). The 1987 visitor use estimates were based largely on hunting use estimates using deer and antelope tag numbers, associated average hunter days per tag issued and estimates of other hunting activity, primarily for chukar. Visitor estimates were made by BLM staff and California Department of Fish and Game and Nevada Department of Wildlife biologists. No recent visitor use estimates have been made. Total deer and antelope hunting continue to be limited by hunting tag quotas set by California and Nevada game agencies. Total chukar hunting use varies with seasonal hatches.

Most hunting in Twin Peaks WSA is for chukar. Hunting pressure in Twin Peaks WSA is heaviest in the Nevada side of the WSA along the east and south sides, where access from Buffalo Meadows Road and the Sand Pass Road is available. Many hunters also access the WSA from the south off Burro Mountain Road and from the north off the Parsnip Wash Road. Past public access from the west was cut off in the late 1990s with sale of the former Casey lands along Smoke Creek and subsequent gating of these lands that used to provide access.

3.6 Buffalo Hills WSA

The Buffalo Hills WSA is located primarily in Washoe County, Nevada (45,287 acres), with a small portion in Lassen County, California (856 acres). The WSA contains 46,143 acres of BLM-administered land and 1,293 acres of private land that is located in 10 parcels, ranging in size from 40 to 800 acres. The Eagle Lake Field Office administers 38,187 acres of this WSA and the remaining 7,956 acres to the north are administered by the Surprise Field Office.

Most of this WSA is large and relatively flat, with small rims and shallow canyons however, the south and west sides are defined by deep canyons and steep rocky slopes. The dominant vegetation is sagebrush, with associated shrubs and grasses and juniper scattered throughout the northern half of the WSA. Features of topographic interest are Hole-in-the-Ground, a shallow 200-foot-deep, 1-mile-wide eroded caldera like geographic feature; and the canyons of the West, Middle, and North Forks of Buffalo Creek. The West and North Forks are particularly interesting because of their steep walls and depth that create dramatic scenery.

The North Fork of Buffalo Creek is the route of the historic Military Patrol Route and Wagon Road between Fort Churchill east of Carson City, Nevada and Fort Bidwell north of Cedarville, California. This route was used by the military for patrols during the mid 1800's. The route was also operated as toll road for private use.

Human imprints consist of 10 stock ponds, five developed springs, 9 miles of fence, and 26 miles of access ways. Nine miles of roads are cherry-stemmed (see glossary definition) within the WSA.

Human activity in the WSA, other than grazing permittees, occurs mainly during hunting season, and primarily in fall. Precise numbers of visitor use are not known. In 1987, visitor use within the Buffalo Hills WSA was estimated to be 3,500 visitor days annually (Wilderness Recommendations, Eagle Lake - Cedarville Study Areas, Final Environmental Impact Statement, 1987, page 222). The 1987 visitor use estimates were based largely on hunting use estimates using deer and antelope tag numbers, associated average hunter days per tag issued and estimates of other hunting activity, primarily for chukar. Visitor estimates were made by BLM staff and California Department of Fish and Game and Nevada Department of Wildlife biologists. No recent visitor use estimates have been made. Total deer and antelope hunting continues to be limited by hunting tag quotas set by California for zone X5b (very small part of this WSA is in California) and Nevada for zone 015. Total chukar hunting use varies with seasonal hatches.

3.7 Poodle Mountain WSA

The Poodle Mountain WSA is located in central Washoe County, approximately 15 miles northwest of Gerlach, Nevada. The WSA includes 142,050 acres of BLM-administered lands and surrounds 3,226 acres of private land and 480 acres of split estate (private surface-public minerals). The western 4,990 acres of the WSA are located in the Eagle Lake Field Office administrative boundary; the majority of the WSA (137,160 acres) are located in the Winnemucca Field Office jurisdiction.

The Poodle Mountain WSA is generally circular, measuring between 4 and 21 miles north to south, and between 3 and 18 miles east to west. It encompasses most of the Buffalo Hills, a circular-shaped basaltic plateau that is dominated by large canyons, generally radiating from the center. The elevations for the WSA range from 3,850 to 6,832 feet. There are three distinct landforms to be found: basalt plateau highlands, basalt plateau canyon country, and fringing desert piedmont. The basalt plateau highlands are in the north-central and northwest part, and are flat to rolling with a small area of alluvium. This section includes Poodle Mountain, the volcanic vent from which the Buffalo Hills basalt issued. The plateau highlands are only moderately eroded compared to the canyon country around them.

The basalt plateau canyon country has numerous deeply cut canyons and gorges. This section of the WSA includes fingerlike, flat-topped ridges and remnant plateaus between the canyons. The landscape is extremely rugged and rocky and has high-relief as compared to the low-relief highland plateau from which it radiates. The portion of Poodle Mountain WSA in the Eagle Lake Field Office area is almost entirely composed of the rugged, deeply eroded canyons and ridges that extend from the higher uplands westward into the North and Main Forks of Buffalo Creek.

The fringing desert piedmont is along the south and southwestern boundary, and is the transition between the Buffalo Hills and the Smoke Creek Desert to the south. The landscape is low-relief alluvium, with low parallel ridges and drainages lying perpendicular to the basalt plateau.

Human imprints throughout the WSA consist of 23 stock ponds, 14 developed springs, 27.1 miles of fence, a 0.5-mile-long pipeline, one water trough, two corrals, one study plot, and 76.9 miles of access ways (see glossary definition). There are 1,400 acres of mining claims in the WSA; 65 of these acres are projected for development. Access to the 1,400 acres of mining claims would need to be guaranteed. Most of these imprints are not located within the Eagle Lake Field Office area portion of the WSA. Within the Eagle Lake Field Office portion of the WSA there are four miles of vehicle ways and no constructed roads.

Human activity in the WSA, other than grazing permittees, occurs mainly during hunting season, and primarily in fall. Precise numbers of visitor use are not known. No estimates of visitor use numbers were made when the Statewide Nevada Wilderness Report was completed in 1991. Total deer and antelope hunting continues to be limited by hunting tag quotas set by the Nevada Department of Wildlife however, little deer and antelope hunting occurs in the Eagle Lake Field Office portion of the WSA because of the steep, rocky terrain. Deer and antelope hunting activity are focused throughout the high uplands of the WSA east of the Eagle Lake Field Office portion of the WSA. Total chukar hunting use varies with seasonal hatches. Most chukar hunting occurs from the road through the North Fork of Buffalo Creek. The very steep slopes and deep canyons are challenging areas to hunt chukar. Chukar hunting is mainly focused along the slopes of the North Fork of Buffalo Creek.

The North Fork of Buffalo Creek is the route of the historic Military Patrol Route and Wagon Road between Fort Churchill (east of Carson City, Nevada) and Fort Bidwell (north of Cedarville, California). This route was used in the mid 1800's for military patrols and as a private toll road.

3.8 Current WSA Management

Current management of the all the WSAs in the Eagle Lake Field Office jurisdiction consists of intermittent ranger patrols of boundary roads; installation of signage at the WSA boundaries where needed; refuse cleanup as needed; intermittent inspections and assessments of perimeter roads by engineers; resource condition evaluation by resource staff; and field checks of use areas by recreation planners. Management-related factors that affect resources and use conditions include such activities as past establishment of access routes to livestock and wildlife water developments that have resulted in regular vehicle use but the public, primarily hunters during the fall of each year.

.

Livestock grazing practices and facilities have affected historic trails, as have all types of vehicular traffic. Vandalism of road directional signs and WSA boundary signs is an ongoing problem. Natural factors also affect resources and use conditions in the WSAs. Weather and age affect the few route and WSA boundary signs; erosion affects the Nobles Emigrant Trail and access roads leading up to within the WSAs.

3.13.4 Wild and Scenic Rivers

The Wild and Scenic Rivers Act of 1968 (Public Law 90-542, as amended) provides that Wild and Scenic River considerations be made during federal agency planning. To comply with the act, an eligibility determination for rivers and streams within the Eagle Lake Field Office area was completed. Rivers and streams were evaluated with respect to the eligibility requirements for inclusion in the National Wild and Scenic Rivers System (NWSRS). (See Appendix L.)

To be eligible, a river or stream segment must be free-flowing and must have an outstandingly remarkable value in at least one of the following areas: scenic, recreational, geological, fish, wildlife, historic, cultural, ecological, riparian, botanical, hydrological, or scientific study.

Staff members from the Eagle Lake Field Office have identified the Susan River, Willow Creek, Upper Smoke Creek and Lower Smoke Creek as potentially eligible for Wild and Scenic River status. The land management planning process will be used to determine the suitability of the streams identified as eligible for selection into NWSR System.

4.1 Susan River

The Susan River is the largest river on the east side of the Sierra Nevada north of the Truckee River. It is also the largest east side river in those portions of the Modoc Plateau Region that drain into the Great Basin. The Susan is one of only 4 east side rivers in the northern Sierra Nevada that produce significant and sustained flows; the other three are the Truckee, Carson, and Walker Rivers.

The Susan River begins in the Caribou Wilderness, in the Lassen National Forest, directly east of Lassen National Park. From there, it flows into McCoy Reservoir, a broad, shallow meadow reservoir, and then descends through the Susan River Canyon and into the town of Susanville. In Susanville, the river channel has been modified for flood control and for past uses by lumber mills in Susanville. From Susanville, the river flows across the Honey Lake Valley, where much of the water is diverted for agricultural uses, and eventually into Honey Lake, a Great Basin lake with no outlet.

The segment of the Susan River evaluated for Wild and Scenic River designation includes that portion from the Lassen National Forest boundary to the town of Susanville. This segment is perennial and free flowing and extends approximately 17 miles between McCoy Flat Reservoir, a broad shallow meadow reservoir above the Susan River Canyon, and Susanville. Of this segment, 7 miles flow across Lassen National Forest lands; 8 miles flow across BLM-administered lands; and 2 miles flow across private land within Lassen National Forest and BLM lands. The river has no impoundments or diversions between McCoy Flat Reservoir and the west side of Susanville near Hobo Camp. The Lassen Irrigation Company regulates flows from McCoy Flat Reservoir and from Hog Flat Reservoir, a second broad shallow meadow reservoir that flows into the Susan River three miles downstream from McCoy Reservoir.

Within the lower Susan River Canyon between Devil's Corral and Susanville, the river channel was realigned in numerous locations in 1913 during construction of the Fernley and Lassen Branch of the Central Pacific Railroad which later became Southern Pacific Railroad. The railroad was constructed directly adjacent to the Susan River for 7 of its 16-mile route through the Susan River Canyon. Most realignments of the river occurred in conjunction with construction of 11 railroad bridges and railroad grade construction in some areas. In some areas, earth and rock fill used to construct the railroad grade also constricted the river.

Stream Flows

River flows through the Susan River Canyon generally range from 100 to 400 cubic feet per second (cfs) during average spring runoff years, with sustained spring flows of more than 700 cfs during El Niño years, such as 1993. Flood flows have exceeded 5,000 cubic feet per second (cfs). Summer flows in the range of 50 to 100 cfs are sustained by Lassen Irrigation Company releases from Hog Flat and McCoy Reservoirs. Low flows during late summer drop below 10 cfs and sometimes below 5 cfs. Flow data, including monthly stream flow statistics, were obtained from the U.S. Geological Survey (USGS) (U.S. Geological Survey 2004) and from phone conversations with a representative of the California Department of Water Resources (11/21/03, Kevin Dossey, former Susan River water master).

Scenic Values

The Susan River Canyon is a highly scenic area characterized by a diversity of vegetation, geology, and habitats. Diversity is due primarily to the canyon's location at the junction of three major geomorphic/ecological provinces: the Sierra Nevada, the Cascades, and the Great Basin. This segment of the river flows through several upland habitat types, including pine and fir woodlands and more arid Great Basin habitats. Riparian habitats include mature cottonwood groves and willow thickets that provide excellent scenery along the river and outstanding colors in fall. Dramatic volcanic features punctuate the landscape and include columnar basalt bluffs, agglomerate cliffs, and basalt flows on top of ash beds. The riverbed contains polished basalt boulders, rounded river gravels, meanders, pools, and drops that all add high scenic interest to the canyon.

Geology

The Susan River cuts through the transition between the Sierra Nevada Geomorphic Province and the Cascade Range Geomorphic Province, exposing Cretaceous granitic basement and Miocene to Pleistocene basaltic substrates, andesitic flows, and pyroclastics rocks. The Susan River Canyon contains a diversity of formations associated with volcanic environments, including the base of the volcanics on streambed cobbles, ash pinnacles, flow feeder dikes, and columnar basalt.

Recreation

The Susan River provides outstanding recreational opportunities for a relatively small river, including fishing, swimming, tubing, and kayaking, picnicking, camping and environmental education. Fishing is a major use of the river in spring, when the river is planted with rainbow trout. Public access to the river is enhanced by the convenient location of the Bizz Johnson Trail that follows the river for 16 miles.

The Bizz Johnson Trail is a non-motorized rails-to-trails conversion of the 1913/1914 Fernley and Lassen Branch of the Central Pacific and later Southern Pacific Railroad. The eastern two-thirds of the trail passes through 16 miles of the Susan River Canyon, beginning 1.5 miles downstream of McCoy Flat Reservoir and extending along the river to Susanville. The trail has been featured repeatedly in guidebooks and outdoor magazines as one of the nation's most scenic rail trails.

The Bizz Johnson Trail's railroad heritage is an integral part of its physical structure and appeal. Construction of the railroad grade through the tight and narrow Susan River Canyon required building one wooden trestle and 10 steel railroad bridges and two massive tunnels. These same railroad structures now enable trail users to easily travel through the rugged Susan River Canyon. The bridges are popular places to pause and enjoy the river. The two tunnels are very popular because of the unique experience they provide – opportunities to ride through parts of a mountain. All of these historical railroad structures are evident from the Susan River. On the edge of Susanville, Hobo Camp, so named for its heritage, is now a BLM day-use area where most of the use is river-related and includes fishing, swimming, tubing, and picnicking.

In fiscal year 2004 (10/1/03–9/30/04), BLM estimated that approximately 51,000 people used the Bizz Johnson Trail and associated trailhead facilities and an additional 33,000 used the Hobo Camp day-use area. Total use of approximately 86,000 visitors in fiscal year 2004, represented the highest use of any BLM-managed area in northeastern California.

The Susan River and the Bizz Johnson Trail are popular throughout the year. Most river use occurs in spring when fishing is best and in summer when warmer water temperatures make the river ideal for swimming and tubing. Opening weekend of stream-fishing season in late April and throughout May are the most popular fishing times during the regular fishing season that runs from the last Saturday in April through November 15.

Recreational use of the river declines during very low flows; however, there are still many pools 2 to 3 feet deep and a few pools 4 to 6 feet deep that are used for swimming and water play, even during the lowest flow periods.

The Susan River also affords opportunities for tubing, rafting in small craft, and kayaking, beginning 7 miles west of Susanville at Devil's Corral and extending through Susanville to the Woodstock Dam in the eastern part of Susanville. Floaters running the segment of the river between Devil's Corral and Susanville begin below the Highway 36 Bridge at Devil's Corral, just above the confluence of the upper Susan River with Willard and Williams Creeks. The combined flows of these three streams during spring runoff provide sufficient volume for tubing and kayaking. Reservoir releases from McCoy and Hog Flat Reservoirs also provide sufficient flows for floating the river in late spring and into summer. The river provides an excellent whitewater run for skilled kayakers because of the appealing mix of varied Class I through Class V whitewater and beautiful scenery. The narrow river channel has numerous natural hazards, including rocks, woody debris in the channel, low limbs and exposed bank roots that can cause entrapment. Knowledge of whitewater safety techniques, paddling skills and proper safety gear are all necessary for boating on this river. Many people without proper knowledge and skill also float the river in inner tubes and take considerable risks during higher flows.

Biology

The riparian habitats along the Susan River contain a high concentration of diverse plant and animal species, including non-game aquatic species and terrestrial species. The area supports a diversity of mammals, reptiles, amphibians, and birds—in part because of the mixture of diverse upland habitats adjacent to the well-developed riparian habitats. The location of the Susan River Canyon at the junction of the Sierra Nevada, Cascades, and Great Basin geomorphic/ecological provinces adds to the diversity of species found within the river segment. However, the river does not support a native assemblage of Lahontan fish species. Game fish in the Susan River are mainly rainbow trout, most of which are planted annually.

Rare plants occurring within this segment of the Susan River include Susanville penstemon (also referred to as Susanville beardtongue) (*Penstemon sudans*) and Susanville milkvetch (*Astragalus inversus*). Susanville penstemon occurs only on the eastern Modoc Plateau near Susanville and is listed on the California Native Plant Society's List 1b (rare, endangered, and threatened plants in California and elsewhere). Susanville milkvetch is another plant endemic to the Modoc Plateau, although it has a wider distribution than Susanville penstemon.

Water Quality

Water quality is impaired according to the California state list, and sediment loads are high. Sediment problems are due primarily to activities in the upper watershed off BLM-administered lands.

Cultural Resources

The Fernley and Lassen Branch of the Central Pacific and later Southern Pacific Railroad, built in 1913 and 1914 and operated through 1956, was a regionally significant mainline railroad that supported three logging company railroads and associated lumber mills – one in Westwood and two in Susanville, California. The 11 remaining railroad bridges, two tunnels and railroad grade are likely to be eligible for listing in the National Register of Historic Places (both tunnels have been evaluated and are eligible). Other historic features within the Susan River Canyon are the site of an 1890's sawmill (which burned down and its earthen dam later dynamited and then totally obliterated by floods), a basalt quarry, historic roads at Devil's Corral and a 1923 concrete arch highway bridge.

4.2 Willow Creek

Willow Creek's headwaters begin in Upper Murrer's Meadow and flow southeast through Willow Creek Valley, Willow Creek Canyon, and the Honey Lake Valley before emptying into the Susan River. Approximately 7 miles of Willow Creek flows almost entirely through BLM-administered land in the Tunnison Mountain WSA. This segment, referred to as Upper and Lower Willow Creek Canyon, is under consideration for National Wild and Scenic River System suitability.

Upper Willow Creek Canyon is approximately 3.5 miles long and is a small, narrow canyon with steep walls - ranging from 100 to 200 feet deep. Within the canyon, pine, juniper, and riparian vegetation and flowing water combine with blocky volcanic rocks and vertical canyon walls to provide high scenic quality. Outside Upper Willow Creek Canyon, the north slopes rise over 600 feet to the summit of Tunnison Mountain, a ridge covered with grass and shrubs typical of volcanic ridges in the Modoc Plateau region. On the south slopes, the area opens up in a series of low volcanic rims, rising another 100 feet before grading into a gently rolling landscape. Scattered Ponderosa and Jeffery pine and western juniper cover the area south of the canyon and are the easternmost reaches of coniferous growth in this part of the southern Cascades.

Lower Willow Creek Canyon, approximately 3.5 miles long between Pete's Creek and Honey Lake Valley, is very different from the upper canyon and consists of a more open "U"-shaped canyon cut through a horizontal volcanic tableland. It is located on the western edge of a broad, horizontal volcanic tableland defined by Tunnison Mountain on the west, Shaffer Mountain on the east, and Snowstorm Mountain to the north. The canyon provides a dramatic contrast to the surrounding landscape.

Since the mid-1980s, BLM has fenced livestock out of most of Willow Creek to protect riparian areas. As a result, riparian growth now dominates most of the creek.

Two 40-acre parcels and one 80-acre parcel of undeveloped private land is located along the creek. Although private land owners could block off public use of the creek and block foot traffic through the canyon, this has not yet occurred.

The Willow Creek area is used for recreational activities, such as sightseeing, hiking, fishing, and hunting. No river running occurs on Willow Creek because of insufficient flows for tubing and kayaking except during high flow run off events when debris hazards are extreme and vehicle access to the creeks is precluded due to muddy soils that trap vehicles. The Belfast petroglyphs, listed on the National Register of Historic Places are located on the east rim of lower Willow Creek Canyon and are a main attraction for visitors including annual field trips by local school groups.

Stream Flows

Mean monthly stream flows in Willow Creek range from a high of 70 cfs in February to 20 cfs in May. Reduced flows occur during drought years and in late summer.

The highest recorded flow of 1,210 cfs was recorded on February 18, 1986 (U.S. Geological Survey 2004, and 11/21/03 phone conversation with Kevin Dossey, former Water Master, and California Department of Water Resources).

Scenic Values
Willow Creek has high scenic quality due in part to the variety of vegetation types and geologic structures. In the upper canyon, coniferous trees and thick riparian vegetation dominate. In the lower canyon, a thick cover of grasses and sedges combine with scattered junipers to fill the flat-bottomed canyon.

Willow Creek cuts through the southern edge of Tunnison Mountain before entering a broad, open tableland plateau through which the creek has carved a deep, broad trough. Steep rock cliffs and blocky basalt boulders dominate the upper canyon's narrow walls. Vertical basalt cliffs, blocky basalt talus slopes, and a broader open canyon bottom provide an entirely different visual experience in the lower canyon. The sights and sounds of free-flowing Willow Creek add scenic appeal throughout the year.

Geology
Willow Creek Canyon is typical of volcanic canyons throughout the region.

Recreation
BLM-administered lands along Willow Creek are used for a variety of recreational activities, including fishing for wild brown trout, hiking, wildlife watching, hunting, viewing petroglyphs, and environmental education by school groups at the Belfast petroglyph site and along lower Willow Creek. BLM staff members work with local schools to provide interpretation and environmental education at the Belfast petroglyphs and along lower Willow Creek. Visitor use is mainly concentrated at the lower Willow Creek Canyon area because of the attraction of the Belfast petroglyphs, the scenic canyon, and the easy access afforded by the gravel road and parking area.

Most of Willow Creek Canyon is physically inaccessible to OHVs. A four-wheel drive road runs south of Upper Willow Creek Canyon from Rice Canyon Road to just below the confluence of Pete's Creek and Willow Creek. The route is very rough and receives little use. The eastern part of this route is considered a "way," not a road under WSA management guidelines.

No river running occurs through the BLM-administered segment of Willow Creek. The Upper Willow Creek Canyon is too steep, narrow, and choked with debris to allow for such activity. Lower Willow Creek Canyon below the confluence with Pete's Creek could be run during high flows by skilled kayakers. However, normal flows in Willow Creek are inadequate for kayaks or even inner tubers.

Biology
Willow Creek contains a mixture of mostly nonnative fish species. There are no outstanding botanical or ecological features along the creek. Persistent and skilled anglers have caught wild brown trout in Willow Creek that weigh more than 2 pounds.

Cultural Resources
The Belfast petroglyphs and portions of lower Willow Creek are a designated site on the NRHP because of the rock art and other prehistoric features in these areas. Some scholars of Native American rock art sites postulate that this site may have been used in conjunction with solstice events. The site has been shown on USGS quad maps for decades.

Water Quality
Water quality in Willow Creek is considered marginal due to high temperatures and other factors related to upstream uses of the creek.

4.3 Upper Smoke Creek

Upper Smoke Creek is a small desert stream typical of the Modoc Plateau region. What makes Smoke Creek unique is its origin. The creek begins at Big Spring, where clear, cool water bubbles out of the ground in a series of springs that create an immediate flow of approximately 2 to 4 cfs. Many other creeks in the area begin from side hill springs, but few begin by bubbling up out of nearly flat ground.

Big Springs is at the head of a broad, open volcanic tableland comprised of Pleistocene basalt flows near the southeast slopes of Observation Peak, a symmetrical Pleistocene volcano. The area traversed by Upper Smoke Creek is a sagebrush steppe ecosystem. Low shrubs and grasses dominate the uplands, and wetland grasses and sedges predominate along the creek. In this area, the creek is 3 to 6 feet wide and 4 to 6 inches deep, with occasional pools 1 to 2 feet deep.

From Big Springs, Smoke Creek flows south approximately 1.2 miles through private land in an open shallow drainage, and then continues south approximately 3 miles through BLM land. In this area, the creek flows through a gradually deepening but still shallow drainage with small basalt rims 10 to 30 feet high. Near the south end of BLM land, the drainage opens up and the rims end as the creek flows into an open area with low rocky ledges beside the shallow creek.

The creek then flows approximately 1.2 miles through state of California Fish and Game land north of the Shinn Ranch (an 1800s era ranch that now consists of three abandoned buildings and an impressively large grove of old cottonwood trees along a small tributary creek). In this area, the creek turns east then southeast, where it begins a gradual descent through a horizontal volcanic plateau.

After leaving the Shinn Ranch property, the creek flows approximately 6.4 miles through BLM land before entering private land above Smoke Creek Reservoir. In the first 4 miles below Shinn Ranch property, the creek carves a gradually deepening canyon with low, dark volcanic rims 10 30 feet high and short, steep talus slopes beneath. Upland grasses and shrubs cover the slopes between the rims, and a small area of streamside grasses and sedges occurs along the creek in the narrow canyon bottom. There are no trees along the creek. The canyon gradually deepens to 40 to 80 feet deep, with vertical basalt rims and steep rocky slopes beneath the rims, forming a narrow canyon in the shape of the letter "V." In the lower 2 miles, the creek widens and deepens to 200 to 400 feet deep. Upon re-entering private land, the creek flows approximately 1.2 miles through the now 400-foot-deep canyon to Smoke Creek Reservoir, a private water storage reservoir for agricultural lands below Rock Spring Ranch (formerly Smoke Creek Ranch). The reservoir extends approximately 0.6 mile behind a 1,500-foot-wide earthen dam.

Throughout the 13 miles along which Upper Smoke Creek is free-flowing, it remains a small, shallow stream but is deep enough to support a diverse fishery that is home to a variety of Lahontan species as well as rainbow trout.

Stream Flows
There is no stream flow data for Upper Smoke Creek. It is estimated that Big Springs emits up to 5 cfs in normal years. Big Springs does not dry up even during drought years. Other springs add to the flow along Smoke Creek's 13-mile route between Big Springs and Smoke Creek Reservoir.

Scenic Values
The 4 miles of Smoke Creek upstream of Smoke Creek Reservoir is outstandingly remarkable. In this area, the canyon creates a sharp visual contrast through the horizontal landscape of the volcanic tablelands. Dark vertical walls of black basalt, twisting bends of the canyon, and the rich green ribbon of aquatic plants along the creek provide visual appeal. In this area, Smoke Creek has cut a canyon 200 to 400 feet deep through the horizontal tableland with vertical cliff faces, steep blocky talus slopes, and a sinuous creek channel.

Geology
The relatively recent lava flows that Smoke Creek cuts through Quaternary basalt in the area above Smoke Creek Reservoir are relatively common throughout the region. For this reason, the area is geologically unremarkable.

Recreation
Smoke Creek provides visitors with the opportunity to view Native American rock art in a concentrated area. The many low rock rims along the first 5 miles below Big Spring contain numerous petroglyphs. This area is considered outstandingly remarkable because of the density and diversity of petroglyphs that can be viewed as compared to other petroglyph areas throughout the region.

The number of people utilizing the area along Smoke Creek is unknown. However, overall use is considered light based on the limited detectable impacts of foot traffic through the canyon.

Biology
No outstandingly remarkable plant species occur in the area. Uplands in the area are occupied by sage-grouse, a species recently considered for listing under the federal Endangered Species Act. Ultimately, the petition to list the species was denied in 2005. In addition, sage-grouse habitat in the Smoke Creek area is not so unique as to be an outstandingly remarkable value compared to other areas in the region. However, a portion of the native assemblage of Lahontan fish species is present in the creek, and this factor is considered an outstandingly remarkable value for this region. The creek also contains rainbow trout.

Cultural Resources
Upper Smoke Creek is part of Bruff's Rock Historic and Prehistory National Register District. Bruff's Rock contains the first recorded rock art site in the western United States. The area contains a high density of rock art on its many low, vertical, natural rock faces. BLM California and the California State Historic Preservation Officer have determined this area eligible for listing as a historic district. Certification of National Register of Historic Places listing by National Register Office of U.S. Department of the Interior, National Park Service, is pending in 2005.

Water Quality
No outstandingly remarkable water quality values occur in Upper Smoke Creek.

4.4 Lower Smoke Creek

The free-flowing segment of Lower Smoke Creek evaluated for Wild and Scenic River eligibility is a 3.2-mile segment of Smoke Creek in lower Smoke Creek Canyon that flows through public lands.

Above the evaluated segment, Smoke Creek flows from Smoke Creek Reservoir through approximately 6.3 miles of private irrigated pasture and meadows above and below the old Smoke Creek Ranch, now called Rock Spring Ranch. The meadows end just above the historic site of Smoke Creek Station, a military post on the Nobles Emigrant Trail and Humbolt Wagon Road. Approximately 2.2 miles below the site of Smoke Creek Station, the creek enters public land.

In the 3.2-mile segment of Lower Smoke Creek on public land, the creek flows through the steep walls of Lower Smoke Creek Canyon. The canyon is a mixture of dark reddish to reddish-brown horizontally layered basalt flows. Near the creek, thick whitish tuffa deposits coat the rocks. The tuffa, a calcium carbonate deposit, formed when this part of the canyon was underwater during the Lake Lahontan period of the Pleistocene. To the eastern end of the canyon are gravel terraces that formed during the Lake Lahontan period. Within the canyon and its short, steep tributary canyons are many overhangs and alcove-like caves.

On the north side of the canyon, steep cliffs rise 200 to 500 feet above the creek before opening and rising 2,000 feet to the summit of Burro Mountain, 1.5 miles north of the creek. On the south side of the canyon, smaller cliffs rise 100 to 200 feet above the creek. Above the rock walls of the inner canyon, the canyon opens into more gradually sloped hills that become steeper 1 mile south of the creek.
The upper southern slopes of the canyon form the stair-stepped escarpment of Dry Valley Rim's northern and highest end. Dry Valley Rim, is a 17-mile-long, north- to south-trending fault-block escarpment, and drops steeply to the east from its crest 2,000 feet above the Smoke Creek Desert.

The Smoke Creek Road, Washoe County Road #8, is located directly north of and adjacent to Smoke Creek and runs through all of Lower Smoke Creek Canyon. The gravel road connects with Lassen County's Smoke Creek Road. The two county roads connect Highway 395 in Lassen County, California, with Sand Pass Road in Washoe County, Nevada, that runs along the west side of the Smoke Creek Desert.

Traffic on this road is estimated by Washoe County Road Department maintenance crews to average 20 vehicles per day. This number is much smaller during winter months and greater during the popular fall chukar-hunting season. The Smoke Creek Road follows the north side of the creek through the canyon.

Downstream of the BLM segment of Lower Smoke Creek is mostly private land where the creek exits the Lower Smoke Creek Canyon and enters the western edge of the Smoke Creek Desert. In this area, the creek flows through three areas of BLM land in segments 500 to 1,500 feet long that are interspersed with the private lands near the mouth of the canyon. The creek then flows approximately 4.7 miles through private lands that once supported small ranches. East of the private lands, Smoke Creek flows in a braided route across 1.8 miles of BLM-administered land and onto the playa of the Smoke Creek Desert. This broad, open area is dominated by arid, salty soils and associated salt grass and greasewood plant communities along the western edge of the Smoke Creek Desert.

Stream Flow

Near the mouth of lower Smoke Creek Canyon, data from the USGS gage, located in T30N R19E section 5, show consistent flows (post irrigation flows from releases from Smoke Creek Reservoir) in the range of 10 cfs and less. In the last 12 years, flows have exceeded 50 cfs on 11 occasions; in the big storms of 1995, 1996, and 1997, flows exceeded 500 cfs, with the highest storm flow of more than 1,700 cfs in 1995 (U.S. Geological Survey 2004).

Scenic Values

Lower Smoke Creek Canyon contains outstandingly remarkable scenery attributable to the relatively unique combination of features within a single canyon. These features include multiple volcanic layers rising 100 to 500 feet above the creek in the inner canyon, with surrounding slopes rising up to 2,000 feet above the creek; the presence of tuffa deposits, a whitish calcium carbonate material formed from Pleistocene lake water that covered some of the lower rocks in the canyon during the Lake Lahontan era; and the presence of flowing water and beaver ponds with lush, green willows and other riparian vegetation that provide appealing visual contrast to adjacent dark reddish-brown rocks and light-brown adjacent slopes of the arid desert canyon setting.

Geology

Lower Smoke Creek Canyon combines multiple volcanic layers, intrusive dikes, lacustine deposits, and fluvial formations that make this an outstandingly remarkable geologic area. Lower Smoke Creek Canyon is dominated by upper Miocene to Pliocene basaltic flows, andesitic flows, and pyroclastics. The area also includes Pliocene pre-Lake Lahontan terraces, alluvial fans, and pediment gravels. Within the inner canyon, dispersed, thick tuffa layers are encrusted on rocks that were once underwater during the Pleistocene. Pleistocene lakeshore terraces, caves, and dramatic basaltic precipices are also evident.

Recreation

Primary recreational activities occurring along Lower Smoke Creek include camping under cottonwood trees along Smoke Creek Road; hunting game birds, including chukar, dove, and quail; and viewing dramatic scenery along Smoke Creek Road. While this segment of Lower Smoke Creek provides good opportunities for these activities, they are not so distinctive as to be outstandingly remarkable in this region.

Biology

A thick riparian area of willows, wetland grasses, sedges, and occasional cottonwoods occurs along Lower Smoke Creek. Small beaver dams hold water in numerous ponds within the canyon. In the late 1980s, BLM secured water rights for a minimum flow of 5 cfs below Smoke Creek Ranch, now Rock Spring Ranch. If the natural flow is less than 5 cfs, BLM has water rights to the entire flow. This water right has provided stream flow sufficient to enable riparian growth to become reestablished in Lower Smoke Creek. Prior to establishment of BLM's water right, decades of grazing had severely affected the riparian area. During drought cycles, the creek dried up, further decimating the limited riparian growth. Grazing is now limited to short periods, with the focus on improving riparian area health. The rich greens of the thick riparian area along this segment of the creek are evidence that riparian area health is improving in this segment of the creek.

Lower Smoke Creek is home to an active beaver population (native species). This is one of the few streams in the arid portions of this region with beaver activity benefiting riparian habitat. Beaver in this arid setting near the edge of the Smoke Creek Desert is considered an outstandingly remarkable value.

Lower Smoke Creek has good potential for maintaining a Lahontan assemblage of native species. A portion of the native assemblage of Lahontan species is present in the creek. This is considered an outstandingly remarkable value for this region.

Cultural Resources

Nobles Emigrant Trail, a historic trail that is part of the congressionally designated California National Historic Trail, passes through Lower Smoke Creek Canyon. This trail was also later used as the Humboldt Wagon Road where freight was hauled from west to east, to mines in the Humboldt region of Nevada. A 1.5-mile segment of the trail passes over a ridge south of Smoke Creek to avoid an area of the creek that was too rough for wagons. The east and west ends of this trail remnant are visible from Smoke Creek Road on the north side of the creek. A historic plaque marks the west end of this trail segment.

Protection of the Nobles Emigrant Trail, part of the California National Historic Trail that passes through Lower Smoke Creek Canyon, is provided through BLM compliance with Section 106 of the National Historic Preservation Act. Section 106 requires that any actions on BLM land must not adversely affect historic resources. Under Section 106, BLM management of lands along historic trails also emphasizes protection of the setting through which the trail passes. The trail is also inside the Dry Valley Rim WSA, where no actions are allowed that would impair the area's suitability for Wilderness designation. This is an interim management designation until Congress decides whether to designate any or all of the area as Wilderness.

The National Park Service, office of Historic Trails, in Salt Lake City, Utah, has overall responsibility for developing and coordinating a management plan for the California Trail including Nobles Trail. BLM has on-the-ground management responsibility for protecting and interpreting the trail remnants where they cross BLM land. The Nobles Trail is also part of BLM's National Landscape Conservation System, where public lands with special values are given special management emphasis to protect those values.

In the National Park Service's Comprehensive Management and Use Plan for the California Trail (1998), which includes Noble's Trail, trail segments that have good to excellent trail traces, such as the segment of Noble's Trail across public land through Lower Smoke Creek Canyon, are recognized as having special significance because of the well-preserved condition of the wagon ruts and the relatively undisturbed landscape where the ruts are located (no adjacent power lines, railroads, freeways, or developments along the trail).

Smoke Creek Station (on private land 2.2 miles upstream of the BLM land) was a military station on the Noble's Trail during the Civil War. The station was used to check travelers entering California during the Civil War and as a stop on the military supply route between Fort Churchill, Nevada, and Fort Bidwell, California. The station is of historic significance and adds to the outstandingly remarkable value of the historic trail and associated historic site.

Water Quality
No outstandingly remarkable hydrologic or water quality values occur on Lower Smoke Creek.

Trends
BLM management activities will continue to improve the riparian habitat condition of lower Smoke Creek through management of grazing permits to insure grazing practices meet land health standards.
(U.S. Geological Survey 2004) Online streamflow data. Accessed at <http://water.usgs.gov>.
Wilderness EIS. 1987. [Wilderness Recommendations, Eagle Lake - Cedarville Study Areas, Final Environmental Impact Statement, 1987].

3.14 Travel Management

3.14.1 Motorized Activities

Off-highway vehicle (OHV) use within the field office includes motorcycles, all-terrain vehicles (ATVs), four-wheel drive vehicles and snowmobiles.

OHV activity is allowed and encouraged on BLM-administered lands designated for the use and where the OHV use does not hamper attainment of land health standards.

The current designations for OHV use areas on BLM-administered lands are as follows.

- *Open areas* allow for all types of vehicle use, at all times, anywhere in the area.
- *Limited areas* are restricted at certain times, in certain areas, or to certain vehicle use. Examples include seasonal limitations, requirements to use only existing roads and trails, and requirements to use only designated roads and trails.
- *Closed areas* are areas where OHV use is prohibited.

Table 3.14-1 Off-highway Vehicle (OHV) Designations in the Eagle Lake Field Office Area, 2004

OHV Designation	Acres	% of Eagle Lake Field Office Area
Open	562,197	54.9%
Limited to Existing Roads and Trails	412,966	40.4%
Limited to Designated Roads and Trails	22,210	2.3%
Closed	8,883	.8%
Undesignated	16,511	1.6%
Total	1,022,767	100.0%

Monitoring the effects of OHV use on heritage or cultural resources, soil loss on trail systems, and impacts on fish and wildlife are used to assess impacts of OHV use.

A complete route inventory was performed for the Eagle Lake Field Office in 2002. This on-the-ground inventory carried out by BLM staff riding or driving motorcycles, quads and four wheel drives and using global positioning systems identified approximately 1,700 miles of routes including gravel roads, dirt roads, rough two-track four wheel drive roads, ATV trails, and single track motorcycle trails, used for various motorized activities.

The majority of OHV use within the Eagle Lake Field Office jurisdiction occurs in conjunction with hunting. ATV's (four wheel all terrain vehicles) are now commonly used by many hunters to access hunting areas. Four wheel drive pick-up trucks and jeep type vehicles were the primary means of access into a hunting area from the 1950's to the 1990's however, hunters now commonly park their trucks on the primary access routes into an area, then unload their ATV, and use that to travel further into a hunting area before beginning their hunting on foot. This reduces the wear and tear on their pickup and improves their ability to travel along the rough rocky roads far into the hunting areas.

Off-route OHV free play, mainly by motorcycle and ATV riders, occurs at relatively small gravel pit areas located along the northern edge of the Honey Lake Valley where material has been removed by past gravel mining operations and the county road department. The open pits offer riders various slopes that provide up and down riding opportunities popular with motorcyclists and ATV riders.

The most popular free play riding area, in close proximity to Susanville, is at the mouth of Rice Canyon. This play area, originally an old borrow pit, has been used for nearly 40 years by local motorcyclists and four wheel drive enthusiasts and since the 1980's, by ATV riders. The play area, approximately 100 acres, has many rider-built trails that offer a variety of riding opportunities such as side-slopes, jumps, and hill climbs. Beyond the small riding area, soils change and become very rocky which has limited the growth of free play riding to the less rocky areas. The Rice Canyon riding area is popular with local residents because it's proximity to Susanville facilitates its use during short time frames and its physical layout allows adults to supervise less experienced riders while they ride.

Other free play riding areas include a partially vegetated low sand dune area north of Wendel and south of the Brubeck Springs Road and Joey's Pit, an old borrow pit on the lower slopes of the Amedee Mountains. These riding areas are further from the Honey Lake Valley population centers but still receive casual day use.

Motorcycle trail riding on dirt roads and single track trails occurs on the hills and mountains surrounding the Dry Valley Area located north of Flanigan, Nevada on the far eastern end of Honey Lake Valley. Enduro and Hare Scrambles motorcycle events have been held on these trails for over 30 years.

The Fort Sage Off-Highway Vehicle Area northeast of Doyle, California is a Special Recreation Management Area managed for a variety of OHV opportunities. The OHV area provides 90 miles of roads and trails designated for use by all types of OHVs. Casual riding has occurred in the area for over 40 years and annual competitive motorcycle events have occurred on the trails for over 30 years.

Other vehicle-based recreation activities include driving for pleasure and back road exploring in high clearance vehicles and on motorcycles and ATV's on the 1700 miles of dirt road and trail network throughout the Eagle Lake Field Office area.

Snowmobile travel occurs very little in the field office due to the general lack of snow, however, some use occurs primarily on BLM lands at higher elevations close to populated areas such as Fredonyer Peak and around the Eagle Lake Basin.

Motorized boating activities occur primarily on Dodge Reservoir and Eagle Lake because these water bodies are large enough to accommodate and justify motorized boats. Most of this activity is associated with fishing.

3.14.2 Non-Motorized Activities

Non-motorized activities within the Eagle Lake Field Office include hiking, mountain bike riding, and horse back riding.

Hiking

The primary non-motorized use within the field office is hiking, or foot travel. Hiking is usually associated with hunting the various game animals found throughout the field office. This activity is strictly tied to the hunting seasons during the fall and winter months. Some hiking is also inherent to fishing but due to the lack of fish sustaining waters in the field office this is not common.

Hiking for the joy of hiking also occurs throughout the field office. The vast majority of this recreational pursuit occurs on the Bizz Johnson Trail adjacent to Susanville. This 26-mile National Recreation Trail, of which 9 miles are under BLM management, is a 'Rails to Trails' conversion which extends from Westwood, California to Susanville. The majority of use on the trail occurs on the BLM administered section adjacent to Susanville.

Other more developed hiking opportunities in the field office are:

- the Stones Trail at the North end of Eagle Lake,
- the Wild Horse Trail in the Fort Sage Mountains east of Doyle, and
- the Coyote Bluff Trail in the Susanville Ranch Park.

For a different experience, Wilderness Study Areas managed by the Eagle Lake Field Office afford hikers a wide variety of high desert primitive hikes in a landscape dominated by volcanic peaks, rims and ridges. The mountain peaks and ridges afford expansive and spectacular vistas across the Great Basin Desert and west to the Sierra Crest and Cascade Mountains. There are numerous canyons to explore including some with perennial streams with established fisheries.

Some key hiking locations within the WSAs:

- The Skedaddle Mountains WSA is popular for hiking because of the rugged and dramatic canyons and ridges and scenic vistas across Honey Lake Valley to the Sierra crest to the southwest.
- The Dry Valley Rim WSA offers hikers spectacular vistas from atop its 20 mile long fault block escarpment looking east across the vast expanse of the Smoke Creek Desert and surrounding mountains.
- The Twin Peaks WSA offers commanding 360 degree views of surrounding mountains, canyons and the Smoke Creek Desert from atop Twin Peaks and other unnamed peaks. Twin Peaks WSA also affords hiking opportunities along Smoke Creek and Buffalo Creek (perennial streams) as well as in many unnamed canyons that drain off the mountains of the WSA.
- The Buffalo Hills WSA affords excellent cross country hiking through gently sloping terrain broken up by numerous low volcanic rims that afford broad vistas across the open landscapes.
- The western portion of Poodle Mountain WSA located within the Eagle Lake Field Office jurisdiction presents challenging canyon hiking where a dozen steep rocky canyons, three to six miles long and over 1000 feet deep in their lower reaches, dissect the west slope of this WSA.
- Five Springs WSA includes three distinct broad open ridges with expansive vistas.
- Tunnison WSA, located on the far western edge of the Great Basin, adjoins the southern end the Cascades, includes a small mountain ridge and the distinctive Willow Creek Canyon, unique because of its perennial flow of water that supports a trout fishery and the scenic variety from its wooded upper slopes to its arid lower reaches.

Other key hiking locations:

- Many other mountains outside the WSAs provide hiking opportunities through canyons, along ridges and cross country. The upper slopes of the Fort Sage Mountains east of Doyle provide a special hiking opportunity where decomposed granite boulders and bedrock fins and ridges are unique in a region dominated largely by volcanic rock. The lower rim and upper ridges of Fredonyer Peak northeast of Eagle Lake afford outstanding views of California's second largest natural lake and two of the high peaks of the Cascade range – Mount Lassen and Mount Shasta.

- The abandoned Modoc Line railroad grade, with 85 miles of track removed in 2003 and 2004, is now a packed gravel roadbed that extends from 1.5 miles north of Wendel to 12 miles south of Alturas. This railroad grade has excellent potential for conversion to a rail trail with three segments of particular interest for hiking – near Wendel to Viewland by Highway 395, Karlo to Crest south of Ravendale and Madeline to McArthur siding north of Likely (Alturas Field Office segment).

Backpacking, actually overnight hiking also occurs in the above areas but there are no developed trails of sufficient length to facilitate the sport therefore this use is sporadic and mainly associated with hunting.

Mountain Biking

Mountain biking continues to gain popularity in Lassen County. Visitors drive long distances to ride the Bizz Johnson National Recreation Trail and, while in Lassen County, seek other areas to ride.

Notable rides within the field office:

- Ascents of Shaffer Mountain, Fredonyer Peak and Burro Mountain on existing dirt roads offer dramatic vistas.
- The Fort Sage Off-Highway Vehicle Area affords good mountain bike riding in a scenic high desert and mountain setting.
- The 1700 miles of dirt roads and trails throughout the field office offer a variety of riding experiences over a variety landscapes for every skill level.

Presently, mountain biking does not occur on many of the roads because the roads are in remote locations, the surfaces can be very rocky, most do not provide looped riding opportunities, and most riders are not aware of the many miles of riding opportunity available on public lands within the field office.

Many riders prefer rides that afford loop rides on surfaces that are not excessively rocky and in scenic settings with low to moderate elevation gain. More highly skilled and fit riders, however, seek challenging rides on narrow trails that can be very rough in places. Few single-track trails currently exist on BLM-administered land. Such trails are highly sought by mountain bikers and could become destination attractions if a quality system of looped single track trails were constructed.

BLM lands have excellent potential to provide a wide variety of new scenic trails that could be designed and constructed to meet a broad spectrum of rider interests and abilities which would capture local rider interests and attract and hold visiting mountain bikers in the area.

Further, there is excellent potential to use over 100 miles of existing dirt roads linked by well laid out new trails to create a grand loop trail around Honey Lake Valley on the public lands north and east of the valley and on Lassen and Plumas National Forests lands southwest and west of Honey Lake Valley along the Sierra Crest. Such a trail could become a destination attraction for multi day outings that would attract mountain bikers and other trails users to the area to enjoy the diversity of landscapes, scenic beauty and grand vistas of this region. Such a trail would support the rural economic diversification work of Lassen and Plumas Counties.

The trackless roadbeds of the abandoned railroad grades of the Modoc Line and the Susanville to Wendel segment of the Fernley and Lassen Branch line provide gentle grade trails that serve local riders and, as they become known, should retain area visitors that come to Lassen County for destination mountain biking experiences on the Bizz Johnson Trail.

In 2005, Lassen County is developing recreational marketing efforts to promote the natural resource based tourism. Excellent potential exists to support local community efforts to expand rural tourism by providing more information about existing mountain biking opportunities on public lands and to work with mountain bikers to plan and develop a system of high quality single track mountain bike trails on public lands near population centers and recreation activity areas.

Horseback Riding

Interest in recreational horseback riding within the field office continues to increase. There are four horseback riding clubs in Lassen County and each club conducts some rides on public lands. There area also many equestrians who do not belong to clubs who enjoy riding on public lands in the area. Equestrians from throughout northern California and Northwestern Nevada also travel to the area for special endurance rides and recreational rides in the high desert country and on the Bizz Johnson Trail.

BLM's Dry Valley Rim, Skedaddle, Twin Peaks, Five Springs and Buffalo Hills WSAs all afford excellent horseback riding opportunities through broad open terrain, canyons and along broad ridge tops. Local equestrians also like to ride in the hills north of Wendel, just east of the abandoned Modoc Line railroad grade. Bald Mountain, near Standish and Janesville, also provides local riding opportunities for Honey Lake Valley residents.

Human-powered Boating

Travel by human powered watercraft occurs on:

- Buckhorn Reservoir
- Round Corral Reservoir,
- Biscar Reservoir,
- Dodge Reservoir,
- Eagle Lake, and
- Honey Lake.

Round Corral, Buckhorn, and Biscar Reservoirs are small water bodies that are primarily used for fishing. Human powered watercrafts on these water bodies include float tubes, canoes, kayaks and rowboats.

Dodge Reservoir, approximately 0.25 by 1.5 miles in size when full, is the largest of the reservoirs suitable for boating. Human powered watercrafts on Dodge Reservoir include float tubes, canoes, kayaks and rowboats associated with fishing. The long and rough access road to Dodge (25 miles northeast of Ravendale) tends to limit the size and number of boats that are hauled to the reservoir.

Human powered watercraft on Eagle Lake and Honey Lake consists of float tubes, kayaks, canoes and row boats.

3.15 Utilities, Transportation, and Telecommunications

Antelope Mountain Communication Site

A right-of-way (ROW) grant is an authorization to use a specific piece of public land for certain projects, such as roads, pipelines, transmission lines, and communication sites. The grant authorizes rights and privileges for a specific use of the land for a specific period of time. In general, ROW applications are initiated by the public to address a need for access across BLM-administered lands. Other uses, such as communications facilities, require an ROW (lease) for use of public land.

ROWs are processed on a case-by-case basis. Although applicable land use plans designate utility corridors, communication sites, and existing route upgrades and improvements, these ROW authorizations are subject to NEPA compliance prior to approval. Through the NEPA environmental analysis process, the ROW request may be either denied or substantially affected or altered to avoid impacts on other resources.

3.15.1 Utilities

Existing utility ROWs are shown on the Master Title Plats available in the Eagle Lake Field Office area. Designation of utility corridors is a highly controversial issue in this area, with the majority of residents strongly objecting to any corridor designations anywhere within the viewshed of their home, their recreation areas, or their normal driving routes. There are no utility/transportation corridors identified in the existing MFPs or land use plans within the Eagle Lake Field Office's jurisdiction.

3.15.2 Transportation

Major improved transportation networks or public highways managed by counties and the Department of California Transportation (Caltrans) and Nevada Department of Transportation (NDOT) within the Eagle Lake Field Office area have been established for many years. These highways and roads have been authorized by numerous Acts of Congress, including the Act of 1866 (Revised Statute [RS] RS 2477), FLPMA, and a wide variety of Federal Aid Highway Acts under the administration of the Federal Highway Administration. Specifics of the authorizations for individual highways may be found on the Master Title Plats.

There are a number of major roadways within the Eagle Lake Field Office management boundary, including Interstate 80; U.S. Highway 395; and California State Highways 49, 70, 89, 44, 36, and 139; and a number of county maintained roadways—although most of these roadways are not on BLM-administered lands. Limited improved dirt roads are maintained by the county and BLM to permit access within Nevada and California. A comprehensive inventory of roads has not been conducted for the Eagle Lake Field Office management area. Road names and mileage are unknown, other than those names and mileages shown on the various county road department maps. Road information is maintained by the counties and the state road departments.

Numerous well-established, casual-use roads cross public lands in the Eagle Lake Field Office area. Although these casual-use roads may be construed by the public as a major roadway network, these roads are actually defined by regulation as activities involving practices that do not ordinarily cause any appreciable disturbance or damage to the public lands, resources, or improvements. These roads, therefore, do not require an ROW grant or temporary use permit.

RS 2477, Section 8 of the 1866 Mining Act, granted an ROW for the construction of highways across public lands not reserved for public uses. Although RS 2477 was repealed with passage of FLPMA in 1976, highways constructed before FLPMA have valid existing rights. RS 2477 contained no process for notifying the federal government of ROWs or for documentation in the public land records. Thus, the number and location of RS 2477 ROWs in the Eagle Lake Field Office area is not known.

Under BLM policies, all existing public roads, trails, and tracks are open to public motorized use unless specifically closed for documented, specific resource protection needs. Such closures become effective upon final publication of a legal closure notice in the Federal Register.

3.15.3 Telecommunications

Management of communication sites has recently changed with the inception of the 1996/1997 regulations governing communication sites on USFS and BLM management public lands. Any new or renewed ROW (lease) for a communication site will be managed under the new regulations (43 CFR 2800).

Three communication sites lie within the Eagle Lake Field Office's jurisdiction: Shaffer Mountain, Antelope Mountain, and Grasshopper Mountain.

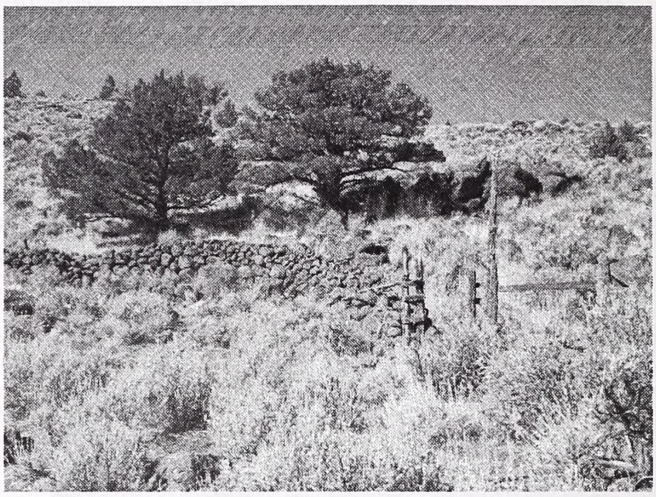
3.15.4 Trends and Forecasts

ROW applications continue to be filed as private landowners seek to ensure access to residences and lands surrounded by BLM-administered lands for management and economic growth purposes.

It is anticipated that the demand will increase for new communications site authorizations for cellular telephone tower locations. There may also be some increase in demand for wind energy sites on public lands, if future studies show locations that are physically and economically feasible for such development. Any development of a wind energy site would also require approval of new roads and new powerline construction to tie into the existing power grid.

As the population in the western United States increases, development of electric vehicles progresses, and demand for cleanly-generated household electricity continues to grow, there will be an increased need for new transmission lines, gas pipelines, and designation of utility corridors.

3.16 Vegetation



For this RMP/EIS, *vegetation resources* refer to all terrestrial and aquatic vegetation communities, special-status plants, and noxious weeds. These three vegetation resource categories are described separately in this section. Additional information that relates to vegetation resources (primarily vegetation communities) is also provided in the sections for "Fire and Fuels," "Wildlife and Fisheries," "Forestry," "Grazing," and "Water Resources."

3.16.1 Terrestrial Vegetation

Resource Indicators

The primary characteristics, or *indicators*, used to describe vegetation conditions are closely linked to biotic integrity. *Biotic integrity* is defined as the capacity of the site to support characteristic functional and structural communities in the context of normal variability, to resist loss of this function and structure despite disturbance, and to recover from disturbance. Disturbance relationships are important because ecosystem processes are regulated by the type, severity, size, and frequency of the disturbances that adversely affect those ecosystems. Important natural disturbances include fires, droughts, insects, pathogens, and invasions of annual grass and weedy plants. Human-caused disturbances include past heavy livestock grazing, unregulated wild horse and burro populations, deliberate fire (including fire exclusion), farming activities, OHV use, construction, and logging. Because of positive management changes, many of these activities do not present the same impacts as they have in the past.

Biotic integrity applies directly to the vegetation associations found throughout the Eagle Lake Field Office area, and to their health. The resource indicators that have been used to assess the biotic integrity of the vegetation associations in the Eagle Lake Field Office area are identified in Table 3.16-1. This table is based on the results from the Land Health Assessment at 278 sites, encompassing approximately 215,600 acres. These results indicate the average status of vegetation health indicators across the area.

Overview of Existing Conditions

The majority of the Eagle Lake Field Office area falls within the Modoc Plateau of the Great Basin Division Province, as described in The Jepson Manual (Hickman 1993). The Modoc Plateau region excludes the Warner Mountains and terminates along the eastern boundary of the Eagle Lake Field Office area in the unvegetated playa of the Smoke Creek Desert. The remainder of the Eagle Lake Field Office area, along the western and southwestern boundary, is situated within the Cascade Range and Sierra Nevada regions of the California Floristic Province. The Diamond Mountains are the northernmost extension of the Sierra Nevada region in the western and southern areas of the Eagle Lake Field Office area. These three geographic regions meet on the lands administered by the Eagle Lake Field Office and support four vegetation alliances, 16 vegetation associations, and 40 vegetation communities, described in the following subsections. Map-VEG-1 shows the locations of these vegetation communities. The total acreage of each vegetation community and other feature mapped in the Eagle Lake Field Office area is summarized in Table 3.16-2.

Table 3.16-1 Average Indicator Scores for Biotic Integrity Status across the Eagle Lake Field Office Area, from the Current Land Health Assessment

Indicator[a]	Score[b]	Description
Soil structure resistance to erosion	2	Healthy but trending away from healthy toward "at risk" or vice versa
Soil surface loss or degradation	2	Healthy, but trending away from healthy toward "at risk" or vice versa.
Compaction layer	1	Healthy, in range one would expect for sites surveyed. Normally attributed to ungulate trailing or movement
Function/structural groups	3	At risk of becoming unhealthy; this is a moderate departure from what is expected of the sites in this area
Plant mortality/decadence	2	Healthy but trending away from healthy toward "at risk" or vice versa
Litter amount	2	Healthy but trending away from healthy toward "at risk" or vice versa
Annual production (total site production not tied to specific species such as in ecological site evaluation)	2	Healthy but trending away from healthy toward "at risk" or vice versa
Invasive plants (nonnative invasive species, predominantly cheatgrass and medusahead, as well as natives such as juniper)	3	At risk of becoming unhealthy; this is a moderate departure from what is expected of the sites in this area
Reproductive capability of perennial plants	2	Healthy but trending away from healthy toward "at risk" or vice versa

a The indicators are inter-related, not independent. No one indicator is weighted more than the others. The final biotic integrity rating is based on the preponderance of evidence provided by the nine indicators together.

b Indicator scores have been converted to numerals to facilitate analysis: 1 = No to slight deviation from that expected for the site sampled (healthy) and 5 = Extreme deviation from that expected for the site sampled (unhealthy). Site expectations are based on ecological site descriptions developed by the Natural Resources Conservation Service (NRCS), correlated to the soils mapped during the NRCS Order 3 Soil Surveys encompassing the Eagle Lake Field Office area.

Vegetation alliances are the broadest subdivision of plant formations (ESA 2004, and FGDC 1997). For this document; "an alliance is a vegetation classification unit containing one or more associations, and defined by a characteristic range of species composition, habitat conditions, physiognomy, and diagnostic species, typically at least one of which is found in the uppermost or dominant stratum of the vegetation (ESA 2004)." The four vegetation alliances in the Eagle Lake Field Office area are Forest/Woodland, Shrub, Herbaceous, and Wetland-Riparian." A vegetation association, in this document, is a vegetation classification unit defined on the basis of a characteristic range of species composition, diagnostic species occurrence, habitat conditions and physiognomy (ESA 2004). Examples of vegetation associations are mixed Great Basin mixed shrub and basin big sagebrush. A vegetation community is a group of organisms living together and linked together by their effects on one another and their responses to the environment they share (ESA 2004). The 40 vegetation communities found in the Eagle Lake Field Office area are described in the appropriate vegetation association subsections below.

In general, the biotic integrity of these vegetation alliances, associations, and communities ranges between healthy and at risk (Table 3.16-1). The most visible factor leading to an at-risk determination is the loss of function and structure within the community, initiated by the dominance of invasive plant species.

Table 3.16-2 Biotic Integrity for Selected Vegetation Associations in the Eagle Lake Field Office Area (acres)[1/]

Associations	Healthy	Healthy/ Lacking Key Attributes[2/]	At Risk	Unhealthy	Total
Coniferous forest (all canopy cover classes)	18,982	1,366	1,614	0	21,962
Juniper woodland (>20% canopy cover)	0	4,185	9,837	6,907	20,929
Black oak woodlands	0	1,298	0	0	1,298
Mountain mahogany	1,035	465	0	0	1,500
Aspen forest and thicket	15	1,176	210	0	1,401
Big sagebrush – Wyoming big sagebrush	2,205	5,788	16,813	2,756	27,562
Big sagebrush – mountain big sagebrush	14,079	28,660	7,542	0	50,281
Big sagebrush – basin big sagebrush	14,893	4,869	0	8,878	28,640
Low sagebrush – low sagebrush	42,717	38,220	26,979	4,495	112,411
Low sagebrush – Lahontan sagebrush	6,198	54,461	14,282	0	74,941
Great basin mixed shrub	180,539	156,617	146,059	47,781	530,996
Mixed desert shrub	24,860	25,462	46,873	9,153	106,348
Herbaceous – grassland – annual	0	3,007	2,909	11,448	17,364
Herbaceous – grassland – perennial	1,056	4,922	69	215	6,262
Herbaceous – forb	0	0	2,483	2,357	4,840
Other	0	0	0	0	32
Total	306,579	330,496	275,670	93,990	1,006,767
Percent of total in each health status	31%	33%	27%	9%	

[1/] Acres based on Land Health Assessment sample extrapolation using geographic information system (GIS) analysis. Accuracy is a function of sample size/variability and GIS data integrity.

[2/] Healthy/lacking key attributes means that lands were rated as healthy based on the nine indicators for the biotic integrity attribute rating (U.S. Bureau of Land Management 2000), but indicators did not fully meet the Biodiversity Land Health Standard.

Sources: USDI 2000.

Biological soil crusts are often omitted from discussions of vegetation communities. Biological soil crusts, also known as cryptobiotic crusts or crytograms, are made up of mosses, lichens and cynobacteria (blue-green algae). Mosses are the most common biological soil crust in this area. Biological soil crusts are an important source of biologically fixed nitrogen on nutrient-poor soils of the Great Basin and they protect the fragile and sparsely vegetated soils in this region from erosion. In addition, biological crusts may reduce the invasion of weedy, non-native annual grasses such as cheatgrass (Kaltenecker et al. 1999). Biological soil crusts are most common on shallow soils regardless of texture, and fine textured deeper soils (silty loam). Highly calcareous soils derived from limestone or gypsum can support up to 80% lichen cover, while adjacent less calcareous soils may have less than 10% cover (Rosentretter and Belnap 2001). Vegetation density and structure provide natural controls for biological soil crusts. Well vegetated sites with dense herbaceous vegetation and litter will replace crusts.

Human activities which result in constant soil disturbances or disturbances at the wrong time of year eliminate biological soil crusts (Rosentretter and Belnap 2001).

Work is still needed for the Eagle Lake Field Office Natural Resources Interdisciplinary Team to fully analyze where and when biological crusts should occur; however, their absence and presence is recorded as part of the Functional/Structural Indicator when evaluating land health status.

General descriptions of the vegetation alliances, associations, and communities located in the Eagle Lake Field Office area are provided below.

3.16.2 Vegetation Alliances

Forest and Woodland Alliance

The forest and woodland alliance is characterized by the predominance of trees, which are defined in Sawyer and Keeler-Wolf (1995) as woody plants with tall final heights—commonly with one stem (trunk) from the base. Thirteen communities are described in the forest and woodland associations. Some of the communities are dominated by species that can take either a shrub or tree form. Such communities are included here because most of these species have potential to achieve tree structure under supportive environmental situations, including limited herbivory when the plants are seedlings or saplings.

Coniferous Forest Association

Approximately 42,891 acres of conifer forest and juniper woodland vegetation association occur on BLM administered lands in the Eagle Lake Field Office area. Each of the six coniferous forest community types is described below.

OPEN WHITE FIR/EASTSIDE PINE FOREST COMMUNITY

This community consists of open forest with a mixture of evergreen trees and a canopy cover of 25–59%. Tree height normally reaches 100–120 feet. The open canopy allows for more understory than found in a closed forest. Understory is primarily composed of the mixed mountain shrub or evergreen mountain shrub communities.

The open white fir/eastside pine forest community is dominated by white fir, Jeffrey pine, and ponderosa pine. Other associated species are western juniper, curlleaf mountain mahogany, gooseberry and currant, greenleaf manzanita, tobacco brush, snowberry, antelope bitterbrush, mountain big sagebrush, California brome, squirreltail, silvery lupine, mule's ears, and Columbia tower butterweed. The community occurs on steep to moderate slopes at elevations of 4,500– 8,000 feet; it is often a transitional community between eastside pine forest and white fir forest. It is found on Fredonyer Peak and in the Diamond Mountains.

OPEN WHITE FIR FOREST/MOUNTAIN BIG SAGEBRUSH COMMUNITY

This community is a sparse evergreen tree community with a canopy cover of 10–24%, with the trees generally less than 100 feet tall. The overstory is dominated by white fir with a dense evergreen shrub understory consisting of 3- to 4-foot-tall mountain big sagebrush. Other associated species are western juniper, squaw carpet, wax currant, tobacco brush, snowberry, antelope bitterbrush, California brome, Idaho fescue, silvery lupine, slender penstemon, and Columbia tower butterweed. This community occurs on moderate to gentle slopes, often on peaks and ridges in higher elevation sagebrush communities at elevations of 6,800–8,000 feet.

CLOSED WHITE FIR FOREST COMMUNITY

This is a dense evergreen forest with a canopy cover of 60-100%, and 100 - 120 foot tall white firs. Understory vegetation is very sparse; groundcover primarily consists of dead limb material and needle litter. Associated species are gooseberry, mountain snowberry, and pine drops.

This community occurs on steep to moderate slopes at elevations of 4,500–8,000 feet. Some stands in the area are located on the edge of the white fir precipitation zone, occurring on the more mesic sites adjacent to the Jeffrey pine forests on Fredonyer Peak and in the Diamond Mountains.

EASTSIDE PINE FOREST COMMUNITY

This community consists of moderate to dense coniferous forest with a canopy cover of 50–100%. It has a Jeffrey pine and ponderosa pine overstory, with a park-like understory of sparse shrub and grass cover combined with needle litter. Other associated species are California black oak, antelope bitterbrush, big sagebrush, rubber rabbitbrush, squirreltail, Sandberg's bluegrass, Kentucky bluegrass, cheatgrass, mule's ears, and arrowleaf balsamroot. The community is found on the lower slopes of the Diamond Mountains, on Susan Peak, and at the south end of Eagle Lake—on flat to moderate slopes of sandy to loamy soils at elevations of 4,400–6,000 feet.

EASTSIDE PINE FOREST/BLACK OAK COMMUNITY

This community is a diversely structured, rather densely canopied community dominated by large coniferous trees as tall as 100 feet and medium deciduous trees from 20 to 50 feet tall. The understory is composed of a moderate to open shrub and grass layer. Dominant species are Jeffrey pine, ponderosa pine, and California black oak. Associated species include western juniper, curlleaf mountain mahogany, big sagebrush, rubber rabbitbrush, serviceberry, plateau gooseberry, blue wildrye, squirreltail, Sandberg's bluegrass, Kentucky bluegrass, cheatgrass, yarrow, hot rock penstemon, mules ears, and arrowleaf balsamroot. This community is found from dry lower mountain slopes to moderate upper slopes on sandy-granitic to rocky loams at elevations of 4,200–5,200 feet. It occurs on the lower slopes of the Diamond Mountains and in the foothills west and north of Susanville. This community grades into eastside pine at higher elevations.

BLACK OAK/EASTSIDE PINE COMMUNITY

This community is a diversely structured, rather densely canopied community dominated by 20- to 50-foot-tall California black oak and 100-foot-tall Jeffrey pine or ponderosa pine. The understory is composed of a moderate to open shrub and grass layer. Associated species include western juniper, curlleaf mountain mahogany, big sagebrush, rubber rabbitbrush, serviceberry, plateau gooseberry, blue wildrye, squirreltail, Sandberg's bluegrass, Kentucky bluegrass, cheatgrass, yarrow, hot rock penstemon, mules ears, and arrowleaf balsamroot. This community is found from dry lower slopes to moderate upper slopes on sandy-granitic to rocky loams at elevations of 4,200–5,200 feet. It occurs on the lower slopes of the Diamond Mountains and in the foothills west and north of Susanville.

Deciduous (Aspen) Forest Association

Aspen is adapted to a much broader range of environments than most plants found associated with it. Aspen is one of the few plants able to grow in all mountain vegetational zones, from subalpine tundra to the basal plains (Daubenmire 1943). Consequently, it can be found as part of the vegetation mosaic of a broad range of zones. Aspen frequently occurs at its lowest elevations as stringers or small islands on the fringes of semiarid sagebrush-grass steppes. At intermediate elevations, it usually is found in pure or mixed stands interspersed among a variety of coniferous forest types or as groves among forest communities. Successionally, aspen functions as a seral species in habitat association where conifer trees are climax and as a climax dominant in aspen forest association. Aspen reproduces vigorously by root suckers following fire. Grazing has contributed to the variability of aspen forests; the lush undergrowth of aspen forests is considered excellent summer range.

More than a century of grazing (frequently intense in the late 1800s and early 1900s) has left its mark in both pronounced and ill-defined alterations in species composition and production (Mueggler 1988).

ASPEN FOREST COMMUNITY

This is a dense to relatively open deciduous forest with an aspen canopy of 30–100%. Trees are up to 60 feet in height. The understory varies from an open grass and forb structure to a medium-height (less than 3 feet) deciduous shrub and forb structure.

Associated species include white fir, western juniper, curlleaf mountain mahogany, big sagebrush, snowberry, gooseberry, wax currant, California brome, columbine, and western chokecherry. This community occupies gentle to moderate, mostly north- and east-facing slopes throughout the region at elevations of 5,000–8,000 feet.

ASPEN THICKET COMMUNITY

Aspen thickets occur on concave shoulders of mountains and plateaus on northerly aspects or on the lee-side of snow-blown plateau and mountain summits. This community is usually found at elevations between 6500 to 9000 feet. Dense stands of low-growing quaking aspen (< 15 feet tall) at maturity. Each location usually represents a single clone of aspen with a common genetic makeup. Snowberry is an important understory shrub. Understory grasses include mountain brome, needlegrass, and slender wheatgrass. Forbs found in the understory include horsemint giant hyssop, daisy, geranium, waterleaf, lupine, groundsel and meadowrue.

Juniper Woodland Association

As described previously, approximately 42,891 acres of conifer forest and juniper woodland vegetation type occur on BLM-administered lands in the Eagle Lake Field Office area. This acreage includes two types of juniper woodland communities. A brief description of the juniper woodland ecology is provided below, followed by a description of each of the juniper woodland communities.

OVERVIEW OF ECOLOGICAL CONDITIONS

Juniper woodlands have large ecological amplitudes and occupy a variety of parent materials, soils, topographic positions, and climates. This woodland community can occupy and dominate many different plant cover types. Adding to the spatial complexity of these woodlands are their temporal dynamics. Many juniper woodlands are in various stages of succession from early to late development. The stage of woodland development affects fuel loads, wildlife habitat, management operations, cost of conversion, and response to treatment.

There has been an increase in both the distribution and density of juniper across the Intermountain West, starting in the late 1800s. Woodlands now occupy more productive sites with deeper well-drained soils. Because of a combination of factors (Tausch et al. 1993), including active fire suppression, ungulate grazing that lowers the competitive capabilities of the shrub/grass community, reduction of effective precipitation over the last 13,000 years, and increased carbon dioxide levels in the atmosphere (Morrison 1991). Junipers have the potential to actively replace existing shrub/grass communities.

As trees gain dominance and shrubs and herbaceous vegetation decline, fuel structure changes, which contributes to significant increases in the length of mean fire return intervals (historically, 12–25 years; now greater than 100 years). Dense tree-canopied woodlands are now becoming susceptible to intense crown fires. The intensity of these fires can lead to dominance by exotics, further altering the successional dynamics of the site. In the past, juniper woodlands have been treated to control the expansion. However, wildlife and environmental concerns, and different perceptions of the intrinsic values of these environments recently have limited treatment of woodlands, including the use of prescribed fire. During the early to middle stages of development, when these woodlands contain understories of native shrubs and herbs, they can successfully be treated by various methods—particularly fire.

However, once communities become tree-dominated woodlands, treatment becomes difficult and expensive (Miller and Tausch 2001). It must be noted, however, that some soils within the Eagle Lake Field Office area do support juniper woodlands as their site potential (USDA-NRCS 2004). These soils are listed on Table 3.16-3. Juniper found on these soils should be managed as natural juniper woodlands.

Table 3.16-3 Soil Series That Support Juniper Woodlands in the Eagle Lake Field Office Area

Soil Series / Soil Map Unit	Site Index	Volume (Cu. Ft./Ac.)	Understory Ecological Site Number and Name
Buckbay	24	29	021XE007CA – Loam 12-16"
Orhood	26	29	021XE004CA – Stony Loam 12-16"
Fiddler	20	14	021XE004CA – Stony Loam 12-16"
Whitinger	25	29	021XE004CA – Stony Loam 12-16"

GREAT BASIN JUNIPER WOODLAND 10–24% MIXED SHRUB/PERENNIAL GRASS COMMUNITY

This is an open to moderately dense evergreen woodland/shrub community with a canopy cover of 10–24%. Trees are typically less than 30 feet tall and often are much shorter. Associated shrubs are dominated by medium to tall (3–6 feet) big sagebrush and antelope bitterbrush. Dominating the grass/forb understory is bluebunch wheatgrass, Idaho fescue, Thurber's needlegrass, squirreltail, mountain blue penstemon, rock eriogonum, and woolly daisy. There is often considerable rock cover. This community is found on flat to moderate slopes at elevations of 4,200–8,000 feet and is normally associated with basalt flows across much of the Modoc Plateau and the Great Basin. Long-term climate changes (with associated increase in CO_2 levels), heavy grazing, and active fire suppression benefit juniper and increase its competitive capabilities to eventually dominate the community. Fire normally kills juniper, leading to increases in herbaceous and, eventually, shrub cover.

GREAT BASIN JUNIPER WOODLAND 10–24% ROCK COMMUNITY

This is an open to moderately dense evergreen woodland community with a canopy cover of 10–24%. The trees are typically older, large in diameter, and less than 20 feet tall. Associated plants consist primarily of low (less than 2-foot-tall) evergreen shrubs, such as low sagebrush and plateau gooseberry, with herbaceous and grass understories of the species found in the previously discussed community. The feature that distinguishes this community from the previously described juniper woodland community is that rock cover dominates the understory. This community is found on flat to steep slopes at elevations of 4,200–6,500 feet and is closely associated with rock outcrops and lava flows. It occurs on Observation Mountain and in patches on the Tablelands. Disturbance factors discussed for the previous community do not necessarily apply in this community; the abundance of rock limits the potential for fire and overgrazing, resulting in a fairly stable state.

Mountain Mahogany Association

Trimble (1989) referred to curlleaf mountain mahogany as a small tree with great character. Approximately 1,500 acres of this association are found on BLM-administered lands in the Eagle Lake Field Office area. Curlleaf mountain mahogany grows on rocky ridges and steep slopes with thin soil. This plant can form nearly closed single-dominant species communities or be a secondary component in other tree-dominated communities (Sawyer and Keeler-Wolf 1995). Curlleaf is intolerant of fire. Because the species' seeds have low establishment success in the shallow, rocky soils in which the plant grows, plant reproduction rates are slow. Rabbits, rodents, and mule deer feed on mahogany seedlings, further reducing reproductive success.

MOUNTAIN MAHOGANY 10–24% MIXED SHRUB COMMUNITY

This community is a sparse to open, broad-leaved, evergreen shrub to tree community with a canopy cover of 10–24% that is dominated by curlleaf mountain mahogany. Mountain mahogany takes a variety of forms, from a young shrub type 3–10 feet in height to an older small tree structure 10–20 feet in height. Associated plants are primarily deciduous and evergreen shrubs that are 3–5 feet tall. Associated species include white fir, western juniper, snowberry, antelope bitterbrush, plateau gooseberry, rubber rabbitbrush, serviceberry, bluebunch wheatgrass, squirreltail, arrowleaf balsamroot, phlox, and sulfur buckwheat. This community occupies gentle to moderate slopes at elevations of 5,300–7,000 feet on the south end of Grasshopper Valley.

MOUNTAIN MAHOGANY 25–39% MIXED SHRUB COMMUNITY

This community is an open, broad-leaved, evergreen shrub to tree community with a canopy cover of 25–39%. The mahogany plants vary from young 3- to 10-foot-tall shrubs to small 10- to 20-foot-tall trees. Associated with the mahogany are mixed, medium-height (3–5 feet), mostly deciduous shrubs. The understory varies from open grass to rocky surfaces. Associated species include western juniper, ponderosa pine, Jeffrey pine, white fir, antelope bitterbrush, snowberry, Idaho fescue, bluebunch wheatgrass, squirreltail, silvery lupine, mule's ears, arrowleaf balsamroot, and sulfur buckwheat.

MOUNTAIN MAHOGANY 40–59% MIXED SHRUB COMMUNITY

This community is an open to rather dense, broad-leaved, evergreen shrub to tree community with a canopy cover of 40–59%. The mahogany plants vary from young 3- to 6-foot-tall shrubs to small 10- to 20-foot-tall trees. The associated interspaces support medium shrubs less than 6 feet in height and perennial grasses and shrubs. Dominating species are curlleaf mountain mahogany and big sagebrush. Associated species include western juniper, ponderosa pine, Jeffrey pine, white fir, rubber rabbitbrush, yellow rabbitbrush, serviceberry, antelope bitterbrush, snowberry, chokecherry, Idaho fescue, and bluebunch wheatgrass. This community occupies gentle to steep slopes at elevations of 4,500–8,000 feet. It is found throughout the region, from the foothills around Susanville north into the Warner Mountains.

MOUNTAIN MAHOGANY 40–59% ROCK COMMUNITY

This community is an open to rather dense, broad-leaved, evergreen shrub to tree community with a curlleaf mountain mahogany canopy cover of 40–59%. The mahogany plants primarily take the small tree form (10–15 feet tall). The community is associated with rock outcrops and lava flows supporting shrubs and perennial grasses. Associated species include big sagebrush, antelope bitterbrush, serviceberry, bluebunch wheatgrass, Idaho fescue, Columbia tower butterweed, and sicklepod rockcress. The community is found on gentle to steep slopes from 4,500–8,000 feet on Observation Mountain.

MOUNTAIN MAHOGANY 60–100% COMMUNITY

This community is a dense, broad-leaved, evergreen shrub to tree community with a curlleaf mountain mahogany canopy cover of 60–100%. The overstory is comprises 8- to 15-foot-tall trees. The understory vegetation is sparse in the densest stands but sometimes consists of mosaics of big sagebrush and perennial bunchgrass. Other associated species include Jeffrey pine, western juniper, white fir, big sagebrush, gooseberry and current, antelope bitterbrush, rubber rabbitbrush, chokecherry, bluebunch wheatgrass, and Idaho fescue. This community is found on gentle to steep slopes at elevations of 4,500–8,000 feet from the foothills around Susanville north to the top of the Warner Mountains.

3.16.3 Shrub Alliances

Shrubs are defined by Sawyer and Keeler-Wolf (1995) as woody plants with relatively short ultimate heights, commonly with two or more stems from the base. Seven shrub associations have been identified in the Eagle Lake Field Office area. Each of these vegetation types are described below.

Because certain disturbances affect each of the following vegetation associations in approximately the same way, they are addressed here. Specific disturbance responses are presented in the description of particular vegetation communities. Disturbance means the occurrence of a significant change in the resource base (i.e., an alteration of the plant community away from a stable state, and a compositional change in both plant species and life histories).

The key functional elements of any disturbance are its timing (seasonality), intensity (resource loss), abiotic resources available (water and nutrients), biotic resources available (species and their attributes), frequency (recovery interval between disturbances), and regime (connectivity to other disturbances in time and space) (Sousa 1984).

Grazing and fire tend to raise issues surrounding ecological uncertainty: whether these disturbances will produce a feedback that enforces the stability of the present community or whether they will promote transitions to a more or less desired community. Given the present state of the sagebrush steppe ecosystem, key questions center on how to influence sagebrush communities through the presence or absence of grazing and fire. The effects on vegetation and soils caused by overgrazing, high-frequency fires, and other factors (such as uncontrolled OHV use) may be rather obvious (Blaisdell et al. 1982, Bunting et al. 1987, Vavra et al. 1994). Less obvious are the effects on other biota. Judicious grazing practices and prescribed fires are associated with varying degrees of uncertainty regarding short-term and long-term outcomes. These degrees of uncertainty can be expected because the key functional elements of disturbance vary widely through time. Further, in the presence of a highly variable climate, they function as a disturbance regime rather than as independent events (Eddleman and Doescher 1999).

Current human influences in the sagebrush steppe, such as grazing, fire, and recreation, are not perpetuating the original plant community composition. West (1999) estimated that less than 1% of the sagebrush steppe remains in its original condition. Rather, there is a system in which disturbances cause several very different changes in species composition. First, disturbances may enhance the competitive ability of one dominant species (sagebrush) and reduce the competitive ability of the other dominant species (perennial grass). Second, disturbances may enhance the competitive ability of one dominant species (perennial grass) and eliminate the other dominant species (sagebrush). Third, disturbance may cause the loss of the original dominants. In all three cases, one or all of the original dominants are required to function in the ecosystem like the dynamic disturbance-adapted species such as cheatgrass; however, the dominants are not well adapted to this role.

Great Basin Mixed Shrub Association

Approximately 530,996 acres of the mixed Great Basin association occur in the Eagle Lake Field Office area on BLM-administered lands. Nine vegetation communities are found within this association. A few communities encompass a range of variation in overall canopy cover or understories.

Natural and human phenomena that can adversely affect the communities in this association include invasion of juniper woodland, late summer heavy ungulate browsing on snowberry, antelope bitterbrush, and other palatable shrubs; long-term climate changes with decreasing effective precipitation; and short-term climate extremes, such as drought. Potential dominance by invasive annuals after disturbances such as fire is high for stands below approximately 5,500 feet because of lower precipitation and consequently drier sites. Above 5,500 feet in elevation, native plants normally receive more precipitation and therefore respond more positively and quickly to disturbance, out competing annual invasive plants such as cheatgrass.

MIXED MOUNTAIN SHRUB 25–39% PERENNIAL GRASS COMMUNITY

This is a moderate to dense, mostly broad-leaved, evergreen shrub community. Shrub heights vary from 3 to 6 feet, with a shrub canopy cover of 25–39%. Dominant shrubs are mountain big sagebrush and snowberry. Understory grasses include California brome, western needlegrass, Idaho fescue, bluebunch wheatgrass, and squirreltail.

Forbs in the understory include mule's ears, old man's whiskers, and silvery lupine. This community is located at elevations of 6,600–7,600 feet. It is often associated with north facing slopes and occurs throughout the region, but particularly on Observation, Shinn, and Skedaddle Mountains.

EVERGREEN MOUNTAIN 75–100% SHRUB COMMUNITY

This is a dense, broad-leaved, evergreen shrub community less than 3 feet high, with a 75–100% shrub cover. There are sometimes scattered occurrences of tall trees and open mosaics of perennial bunchgrasses. Tobacco brush and greenleaf manzanita are the dominant shrubs, with an understory of bluebunch wheatgrass and Idaho fescue for grasses. Lupine, Columbia tower butterweed, slender penstemon, and phlox form the forb layer. This community occupies moderately steep north-facing slopes at elevations of 7,200–8,000 feet, where patches of heavier snowpack occur. The community can be found on Fredonyer Peak, on Observation Peak, and in the Diamond Mountains.

Tobacco brush and greenleaf manzanita often resprout or reestablish quickly after fire. Their rapid response, when associated with coniferous forest, serves to slow the natural recovery of the forest because they out-compete tree seedlings. This natural process can extend the recovery to tree-dominated forest to approximately 40 years.

GREAT BASIN MIXED SHRUB 10–24% PERENNIAL GRASS COMMUNITY

This is an open to moderately dense, broad-leaved, evergreen and deciduous shrub community dominated by medium big sagebrush (3–6 feet), with a canopy cover of 10–24%. The grass understory is composed of Sandberg's bluegrass, squirreltail, bluebunch wheatgrass, basin wildrye, Thurber's needlegrass, and cheatgrass. Tapertip hawksbeard, silvery lupine, skeletonweed, mule's ears, arrowleaf balsamroot and Hooker's balsamroot, sulfur buckwheat, and rock eriogonum comprise the forb understory. This community occurs primarily on flat to moderate slopes at elevations of 4,500–5,800 feet on Shinn Mountain.

GREAT BASIN MIXED SHRUB 10–24% BARE GROUND COMMUNITY

This is an open, primarily broad-leaved, evergreen shrub community with a canopy cover of 10–24%. Medium (3- to 5-foot-tall) big sagebrush and rubber rabbitbrush form the overstory. Bare ground or weedy annuals, such as medusahead, tumblemustard, tansymustards, and filaree, comprise the understory. This community occurs primarily on flat to moderate slopes at elevations of 4,000–5,400 feet on Karlo Tablelands and in the Skedaddle Creek and upper Smoke Creek areas.

The presence of medusahead causes this community to be very susceptible to crossing a threshold from its present composition to a medusahead-dominated site, should frequent fires occur. Also, improper grazing would remove any perennial grasses and forbs present, converting the community to a shrub/medusahead site.

GREAT BASIN MIXED SHRUB 10–24% ROCK COMMUNITY

This community is very similar to the Great Basin mixed shrub (10–24%/bare ground community), except that big sagebrush is the single dominant species in the overstory and rock dominates the understory, with scattered patches of perennial grasses and forbs. This community is scattered throughout the Great Basin and Modoc Plateau at elevations of 4,200–6,200 feet, primarily on gentle to moderate slopes—with some occurrences associated with steep rimrock.

GREAT BASIN MIXED SHRUB 25–39% BARE GROUND COMMUNITY

This community is similar to the Great Basin mixed shrub (10–24%/bare ground community), except for a denser sagebrush and rubber rabbitbrush canopy cover. Russian thistle and clasping pepperweed are found in the annual weedy understory, and cheatgrass is present instead of medusahead. There is also some sparse perennial vegetation in the understory, which is composed of squirreltail.
The community is found on flats and gentle slopes at elevations of 5,200–5,400 feet on the Madeline Plains between Termo and Madeline, California.

LOW SAGEBRUSH SCRUB 10–24% BIG SAGEBRUSH SCRUB 10–24% COMMUNITY

This is an open, broad-leaved, evergreen shrub community with a canopy cover of 10–24% and shrubs of low to medium height (1–5 feet). The canopy can consist of low sagebrush or big sagebrush, or a mix of the two. The understory can vary between primarily perennial grasses and forbs in a healthy condition to primarily annuals in an unhealthy condition. The community occupies flat to gentle slopes at elevations of 4,200–6,800 feet. It is often associated with rocky areas and tables. This community is scattered throughout the region, occurring primarily in the Skedaddle Mountains.

Mountain Big Sagebrush Association

Most researchers believe that the genus *Artemisia* (to which sagebrush belongs) evolved in Eurasia. Mountain big sagebrush, the most genetically primitive form, evolved during the middle Pliocene Epoch, approximately 5 million years before present or earlier. During pluvial times, mountain big sagebrush had an almost continuous distribution. During hypsithermal climatic conditions and into recent times, mountain big sagebrush retreated into mountains and foothills with deep, summer-moist, well-drained soils (Trimble 1989).

Approximately 50,281 acres of the mountain big sagebrush association are found in the Eagle Lake Field Office area on BLM-administered lands. In this area, mountain big sagebrush is normally found at elevations above 5,000 feet on deep, well-drained soils. Mountain big sagebrush is not a fire responder and requires up to 20 years for recovery from fire (Bunting et al. 1987).

In undisturbed communities, shrub canopy cover varies from 15 to 40%, but can range up to 50% in wetter communities with deep, loamy soils and north aspects. Bitterbrush and snowberry are shrubs commonly associated with mountain big sagebrush (Tisdale 1994). Idaho fescue, bluebunch wheatgrass, and Thurber's needlegrass are the principal grasses on the drier mountain big sagebrush sites. On deeper, loamier sites, onion grass, western needlegrass, and subalpine needlegrass are common. The forb component is usually abundant, producing approximately 12 different genera with more than one species per genera.

BIG SAGEBRUSH 10–24% PERENNIAL GRASS COMMUNITY

This is an open to moderately dense, broad-leaved, evergreen shrub community with a canopy of 10–24%. Medium (3- to 6-foot-tall) shrubs are associated with perennial grasses and forbs. Mountain big sagebrush dominates the overstory, with bluebunch wheatgrass obviously dominating the understory. Other species found in this community include plateau gooseberry, antelope bitterbrush, snowberry, basin wildrye, Idaho fescue, arrowleaf balsamroot, mule's ears, and prickly gilia. This community occurs on flat to steep slopes, mostly at elevations of 5,500–7,800 feet in the Amadee Mountains, in the Skedaddle Mountains, and on Fredonyer Peak.

BIG SAGEBRUSH SCRUB 40–59% PERENNIAL GRASS COMMUNITY

This is a dense, broad-leaved, evergreen shrub community of medium height (3–5 feet), with a canopy cover of 40–59%.

The understory is dominated by perennial grasses that form a canopy cover of 10–30% with a variety of forbs. Associated species include antelope bitterbrush, snowberry, interior rose, bluebunch wheatgrass, Idaho fescue, junegrass, squirreltail, Sandberg bluegrass, mule's ears, arrowleaf balsamroot, Hooker's balsamroot, blue penstemon, sicklepod rockcress, and rosy everlasting.

This community occupies elevations of 5,500–7,600 feet on north-facing slopes in the Skedaddle Mountains.

Basin Big Sagebrush Association

Approximately 28,640 acres of the basin big sagebrush association occur in the Eagle Lake Field Office area on BLM-administered lands. Basin big sagebrush is an erect, heavily branched, unevenly topped shrub. This subspecies has trunk-like main stems. Shrub heights normally range between 3 and 6 feet. Some forms, however, may reach 15 feet in height.

These extremely tall forms are normally found along deeply incised drainages. The plant grows in a variety of soils, but prefers dry, deep, well-drained soils on plains, valleys, and foothills below 7,000 feet (Blaisdell et al. 1982). The presence of this subspecies has generally been considered indicative of productive ranges because it often grows in deep, fertile soil (Blaisdell et al. 1982, Collins 1984). Basin big sagebrush was once the most abundant shrub in North America on lowland ranges, which have since been converted to agriculture. The subspecies has generally been regarded as intolerant of alkali, but there are ecotypes that grow in relatively high alkalinity in association with such alkali-tolerant plants as black greasewood, shadscale, saltbush, and saltgrass (Blaisdell et al. 1982).

Basin big sagebrush stands are killed by fire and require up to 50 years to recover (Bunting 1990). Stands in which the understory has been overgrazed to the extent that the perennial grass understory is lost are highly vulnerable to invasion by annual grass and to crossing the threshold to an annual grass–dominated community.

BIG SAGEBRUSH 10–24% PERENNIAL GRASS COMMUNITY

This is an open to moderately dense, broad-leaved, evergreen shrub community with a canopy of 10–24%. Medium (3- to 6-foot-tall) sagebrush is associated with perennial grass and forbs. Basin big sagebrush dominates the overstory, with bluebunch wheatgrass obviously dominating the understory. Other species found in this community include basin wildrye, Sandberg's bluegrass, and Thurber's needlegrass. This community occurs on flats at elevations of 4,700–7,800 feet in the Amadee Mountains, in the Skedaddle Mountains, and on Fredonyer Peak.

BIG SAGEBRUSH SCRUB 10–24% BARE GROUND (ANNUALS) COMMUNITY

This is an open, broad-leaved, evergreen shrub community dominated by basin big sagebrush, with a canopy cover of 10–24%. Shrub heights range from 3 to 6 feet. Interspaces support vegetation consisting primarily of weedy annuals, such as cheatgrass, tumblemustard, tansy mustard, and filaree during wetter springs, or consist of bare ground during dry springs. This community is located on mostly flat to gentle slopes around basins that have often been heavily grazed in earlier years. This is a community in very poor condition (unhealthy). It occupies locations at elevations of 4,200–5,500 feet in the Madeline Plains and on Mud Flat.

BIG SAGEBRUSH SCRUB 10–24% ROCK COMMUNITY

This is an open, broad-leaved, evergreen shrub community with a canopy cover of 10–24%. Basin big sagebrush of medium height (3–5 feet) provides the overstory. Interspaces usually are occupied by rocky soil with a cover of small rocks to boulders and lava flow outcrops. Associated species include rubber rabbitbrush, gray horsebrush, Mormon tea, spiny hopsage basin wildrye, squirreltail, Sandberg's bluegrass, cheatgrass, lupine, stemless goldenweed, desert yellow daisy, cespitose buckwheat, and low phlox. This community is located along drainages, mountain slopes, and lava flows at elevations of 4,200–6,000 feet around Snowstorm Mountain, around the Skedaddle Mountains, and on Painter Flat.

BIG SAGEBRUSH SCRUB 40–59% PERENNIAL GRASS COMMUNITY

This is a dense, broad-leaved, evergreen shrub community of medium height (3–5 feet) with a canopy cover of 40–59%. The understory is dominated by perennial grasses forming a canopy cover of 10–30% with a variety of forbs.

Associated species include antelope bitterbrush, snowberry, interior rose, bluebunch wheatgrass, Idaho fescue, junegrass, squirreltail, Sandberg bluegrass, mule's ears, arrowleaf balsamroot, Hooker's balsamroot, blue penstemon, sicklepod rockcress, and rosy everlasting. This community occupies elevations of 5,500–7,600 feet on north-facing slopes associated with drainages in the Skedaddle Mountains.

Wyoming Big Sagebrush Association

Wyoming big sagebrush appears to have originated from a cross between basin big sagebrush, mountain big sagebrush, and black sagebrush (Trimble 1989). Although Wyoming big sagebrush can occur in combination with the other two big sagebrush subspecies, it occupies the poorer, drier, shallower soils. It is the shortest of big sagebrushes found in this area, normally reaching only 3–4 feet (Blaisdell et al. 1982).

Approximately 27,562 acres of the Wyoming big sagebrush association occur in the Eagle Lake Field Office area on BLM-administered lands. Wyoming big sagebrush is a mid- to late-seral species that requires 40 years or more to establish after a stand-replacing fire. Grasses usually dominate the site before reestablishment occurs. Sites are reestablished from seedbanks, seeds produced by remnant plants, and seeds from adjacent plants. Because fuels are discontinuous in Wyoming big sagebrush communities, mosaic burn patterns often prevail, leaving remnant plants that provide seed (Bushey 1987). Fire does not stimulate germination of soil-stored Wyoming big sagebrush seed, but neither does it inhibit its germination (Champlin and Winward 1982).

Fire intervals in Wyoming big sagebrush communities appear to have ranged from 10 to 110 years or more. Recovery to 20% canopy cover after a burn may take more than 40 years (Young and Evans 1989, Winward 1991). Because Wyoming big sagebrush occupies drier soils and sites, historical overgrazing has easily removed most of the perennial grass understory in the Eagle Lake Field Office area. Following the removal of perennial grasses, cheatgrass easily invaded the understory. With a cheatgrass understory, Wyoming big sagebrush is highly susceptible to increased fire frequency, resulting in cheatgrass domination of sites and the alteration of Wyoming big sagebrush communities to annual grass–dominated communities (Young and Evans 1989).

BIG SAGEBRUSH 10–24% PERENNIAL GRASS COMMUNITY

This is an open to moderately dense, broad-leaved, evergreen shrub community with a canopy of 10–24%. Low-height (3 feet) sagebrush is associated with perennial grass and forbs. Wyoming big sagebrush dominates the overstory, with Thurber's needlegrass dominating the understory. Other species found in this community include squirreltail and Sandberg's bluegrass. This community occurs on flats at elevations of 4,700–5,500 feet in the Amadee and Skedaddle Mountains.

BIG SAGEBRUSH SCRUB 10-24% BARE GROUND (ANNUALS) COMMUNITY

This is an open, broad-leaved, evergreen shrub community dominated by Wyoming big sagebrush with a canopy cover of 10–24%. Shrubs are approximately 3 feet tall. Interspaces support vegetation consisting primarily of weedy annuals, such as cheatgrass, tumblemustard, tansy mustard, and filaree during wetter springs or of bare ground during dry springs. This community is located on mostly flat to gentle slopes that have often been heavily grazed in earlier years. This community is in very poor condition (unhealthy). It occurs at elevations of 4,200–5,500 feet in the flats between Shinn Mountain to the north and the Skedaddle Mountains to the south, as well as in Little Mud Flat.

BIG SAGEBRUSH SCRUB 25–39% BARE GROUND (ANNUALS) COMMUNITY
This is an open to moderately dense, broad-leaved, evergreen shrub community with 25–39% Wyoming big sagebrush canopy cover. Shrubs are of medium height (3–4 feet).

The interspace consists mostly of bare ground; however, it may support an assemblage of weedy annuals, such as cheatgrass, tumblemustard, tansy mustard, and filaree, during wetter springs, or bare ground during dry springs, with sparse perennial vegetation of squirreltail and Sandberg's bluegrass. This understory can occur even if Wyoming big sagebrush canopy cover increases excessively. Goodrich et al. (1999) estimated a 3.8% decrease in understory herbaceous production for every 1% increase in Wyoming big sagebrush canopy cover of more than 15%.

This community occurs on flat to moderately steep slopes at elevations of 4,000–5,000 feet throughout the region. These sites are considered to be in poor ecological condition (unhealthy).

Low Sagebrush Association

Approximately 187,352 acres of the low sagebrush association occur in the Eagle Lake Field Office on BLM administered lands. Low sagebrush grows on dry, sterile, rocky, often alkaline soils. In the warmer, drier parts of its range, particularly in Nevada, it may grow well into the mountains above 9,800 feet. In some areas, low sagebrush occurs on disjunct low- and high-elevation bands. Normally, its sites are more rocky and clayey than those that support big sagebrush; they are wetter in spring and drier in fall (Blaisdell et al. 1982).

Low sagebrush communities seldom burn when situated within mixed big sagebrush/low sagebrush stands. Under very extreme fire conditions, this type will burn and requires a longer recovery time than big sagebrush. If overgrazed, low sagebrush communities are susceptible to cheatgrass invasion. On heavy clay soils, the invasive grass is normally medusahead (Blaisdell et al. 1982).

LOW SAGEBRUSH SCRUB 10–14%/PERENNIAL GRASS COMMUNITY
This is an open, broad-leaved, evergreen shrub community with a canopy cover of 10–24%. Shrubs are low in stature, usually less than 1 foot tall. Associated plants consist primarily of perennial grasses and forbs, sometimes with scattered western juniper. Perennial grasses are often pedestalled, with some surface soil loss evident. Sandberg's bluegrass is the dominate grass. Other associated species include antelope bitterbrush, plateau gooseberry, gray horsebrush, squirreltail, bluebunch wheatgrass, Idaho fescue, ballhead sandwort, desert yellow daisy, low pussy-toes, rock eriogonum, Bolander's yampah, Hooker's balsamroot, and cushion eriogonum. This community occurs on flats to gentle slopes at elevations of 4,200–6,800 feet. It is often associated with rocky areas and tables, and is found scattered throughout the region—in the Skedaddle Mountains, on Fredonyer Peak, and on Observation Mountain.

Mixed Desert Shrub Association

Approximately 106,348 acres of the mixed desert shrub association occur in the Eagle Lake Field Office area on BLM-administered lands. The vegetation in salt-desert shrub types is characteristically sparse. Plant communities are largely dominated by shrubs and half-shrubs of the family Chenopodiaceae. Some of the more important shrubs are shadscale, four wing saltbush, Torrey's saltbush, and greasewood. Some sagebrush species are scattered throughout the type (Blaisdell and Holmgren 1984). Native annuals seldom comprise more than a small fraction of the total cover, but three nonnative species (cheatgrass, Russian thistle, and halogeton) produce abundantly on poor-condition (unhealthy) range when the amount and timing of precipitation are favorable. Halogeton is poisonous to livestock (Blaisdell and Holmgren 1984).

The naturally sparse plant cover, along with fine-grained saline soil, has made salt-desert shrub ranges especially vulnerable to water and wind erosion. Although not all salt-desert areas are high sediment producers, some are among the most severely eroding localities in the Intermountain region. Biological soil crusts in the interspaces help to stabilize the soils. The blue-green algal component is a major fixer of nitrogen. However, disturbance by livestock trampling weakens this crust and greatly increases the susceptibility of soil particles to wind and water erosion (Blaisdell and Holmgren 1984).

BIG SAGEBRUSH SCRUB 10–24% GREASEWOOD COMMUNITY

This is an open, broad-leaved, evergreen and deciduous shrub community, with a basin big sagebrush and black greasewood canopy cover of 10–24%. Shrubs are of medium height (3–5 feet). The associated understory consists primarily of saltgrass or bare ground, or of weedy annuals such as cheatgrass and Russian thistle. This community occurs on alkaline flats at elevations of 3,900–4,200 feet, along the west edge of Smoke Creek Desert and near Flannigan, Nevada.

GREASEWOOD SCRUB 0–10% MIXED SHRUB COMMUNITY

This is a very open, broad-leaved, deciduous, desert shrub community. Shrubs are of medium height (2-5 feet). The understory is mostly bare soil, with some sparse annual, perennial, or mixed vegetation including rubber rabbitbrush, basin big sagebrush, spiny hopsage, saltgrass, and Russian thistle. This community occurs primarily on alkaline flats at elevations of 4,000–5,300 feet. This community is probably more sparsely vegetated and on lighter-colored soils than mixed desert shrub 0–9% (described below).

GREASEWOOD SCRUB 10–24% MIXED SHRUB COMMUNITY

This is an open to moderately dense, broad-leaved, deciduous desert shrub community dominated by black greasewood and basin big sagebrush, with a canopy cover of 10–24%. Shrubs are of medium height (2–5 feet). Associated plants include shadscale, fourwing saltbush, rubber rabbitbrush, spiny hopsage, littleleaf horsebrush, saltgrass, basin wildrye, squirreltail, tumblemustard, tansy mustard, clasping pepperweed, povertyweed, and Russian thistle. This community occurs on flat to very gentle slopes at elevations of 4,000–5,300 feet on alkaline soils associated with dry lakebeds—on Honey Lake Island, at the north end of Smoke Creek Desert, on the Madeline Plains, and on Mud Flat.

MIXED DESERT SHRUB 0–9% COMMUNITY

This is a very open, broad-leaved, deciduous desert shrub community with rubber rabbitbrush, basin big sagebrush, and greasewood dominants of medium height (3–5 feet). The understory is mostly bare soil with sparse annual to moderate perennial grass communities. Associated species include silver sagebrush, budsage, saltgrass, cheatgrass, tumblemustard, and Russian thistle. This community occurs on alkaline flats at elevations of 4,000–5,300 feet, primarily in desert areas east of Honey Lake, Smoke Creek Desert, and the Madeline Plains. The community can be associated with open sand dune areas, as seen in the Madeline Plains.

MIXED DESERT SHRUB 10–24% COMMUNITY

This is an open, broad-leaved, deciduous desert shrub community with shadscale, spiny hopsage, and Wyoming big sagebrush dominants of medium height (2–4 feet). The understory consists mostly of annual forbs and grasses. Associated species include budsage, Mormon tea, littleleaf horsebrush, rubber rabbitbrush, greasewood, cheatgrass, squirreltail, basin wildrye, tumblemustard, and Russian thistle. This community occurs on flats and the lower terraces of desert mountains at elevations of 4,000–5,300 feet, primarily in the periphery of Smoke Creek Desert and the Madeline Plains. The soil surface varies from a light, loamy crust to gravelly to stony.

RABBITBRUSH SCRUB 0–10% BARE GROUND (ANNUALS) COMMUNITY

This is a very open, broad-leaved, deciduous shrub community dominated by rubber rabbitbrush of medium height (3–5 feet). The understory is mostly bare soil with some sparse annual vegetation.

Associated species include basin big sagebrush, gray horsebrush, greasewood, cheatgrass, medusahead, poverty weed, and tumblemustard. The community is located on flats and gentle lower slopes at elevations of 4,500–5,500 feet on the Tablelands.
Vertisol soils and medusahead infestations are associated with this community.

RABBITBRUSH SCRUB 10–24% BARE GROUND COMMUNITY
This is an open, broad-leaved, deciduous shrub community dominated by rubber rabbitbrush of medium height (3–5 feet), with a canopy cover of 10–24%. The understory is mostly bare soil with weedy annuals. Associated species include basin big sagebrush, gray horsebrush, greasewood, cheatgrass, medusahead, poverty weed, low sagebrush, antelope bitterbrush, rushes, basin wildrye, squirreltail, Sandberg's bluegrass, skeletonweed, Cusick's sunflower, white-stemmed stickleaf, and tumblemustard. The community is located on flats to gentle slopes at elevations of 4,200–5,000 feet, often on alkaline flats or associated with burns or disturbed sites throughout the region.

SILVER SAGEBRUSH SCRUB COMMUNITY
This is a dense to open, broad-leaved, evergreen shrub community, dominated by silver sagebrush usually less than 2 feet in height, with 20–40% shrub cover. Interspace coverage varies from low grasses, rushes, or sedges and forbs to nearly bare. Associated species include basin big sagebrush, Baltic rush, basin wildrye, mat muhly, Lassen lomatium, whitestem rubber rabbitbrush, variedleaf green rabbitbrush, alkali plagiobothrys, meadow barley, and creeping wildrye. This community occurs in closed drainage basins and flats in moist, alkaline, poorly drained soils—often associated with basin big sagebrush and rabbitbrush communities. It is found at elevations of 4,000–5,600 feet at Painter Flat and on the Madeline Plains.

3.16.4 Herbaceous and Grassland Alliance

By definition, herbaceous plants lack woody stems above ground. They may be annual or perennial, and include aquatic species, forbs, and grasses. (Sawyer and Keeler-Wolf 1995) Normally, herbaceous vegetation is considered in the context of being the lowest structure of an understory to trees or shrubs. In this document, the herbaceous communities discussed represent the overstory, or compose the dominant structure of the stand. Approximately 28,466 acres of herbaceous and grassland communities occur in the Eagle Lake Field Office area on BLM-administered lands. These are primarily seasonally dry meadows and meadow and seep communities. (The latter are described under "Wetland and Riparian Associations" below.)

Most native herbaceous species found on the Modoc Plateau and in the Great Basin are capable of withstanding fire effects unless the fire burns very hot and kills the grass at the crown and roots. Herbivory by livestock and wild horses and burros, if not properly managed, can overuse herbaceous plants, resulting in their removal from the stand. This adverse impact can result in replacement of native perennial herbaceous species with invasive annuals. OHV use in herbaceous-dominated communities can be negligible; however, constant travel on identical tracks can remove the vegetation, creating opportunities for erosion or for invasive annuals to move into the site.

The persistence of annual grasses (primarily medusahead and cheatgrass) is expected to continue whether or not livestock grazing occurs. This persistence is attributable primarily to the ability of annual plants to produce seed every year, store many years of seed in surface litter and soil, and germinate earlier than the remaining perennial plants. The invasion and dominance of annuals was accelerated by the loss or reduction of native perennial bunchgrass/shrub communities.

The experience of BLM technical staff indicates that annuals will persist, but that it is possible to slow or reduce their spread by applying intensive grazing management techniques in the surrounding areas.

BLM staff members have focused their efforts on designing a grazing strategy that recognizes areas where annuals dominate a plant community or site as well as areas where annuals are a minor component. Improvement has been observed in both situations, evidenced by increased vigor and seed production of native perennial plants.

BLM has prioritized its efforts by stabilizing and improving the native plants that surround disturbed areas. Improvement in surrounding areas has created a natural barrier that has slowed the spread of annuals. BLM recognizes that many past and present factors stimulate and retard the spread of annuals, but efforts appear to have had some positive influence.

In total, the Eagle Lake Field Office area supports three vegetation associations and four vegetation communities in this alliance. This section describes only one community: pasture and cropland.

Pasture and croplands do not normally occur on BLM-administered lands within the Eagle Lake Field Office area, except where private landowners provide fallow fields to BLM, or where the mapping exercise included crested wheatgrass seedings under this type. There are 5,581 acres of the pasture and cropland type mapped on BLM-administered lands in the Eagle Lake Field Office area.

Pasture and cropland consists of agricultural crops or fallow fields, crested wheatgrass seedings associated with weedy annuals, or repopulating shrubs removed by fire and reseeded to crested wheatgrass. This community is usually found around the Madeline Plains, in Honey Lake Valley, and in Dry Valley at elevations of 4,000–5,000 feet.

3.16.5 Wetland and Riparian Alliance

Riparian and wetland communities generally occur along the edges of, and within, creeks, lakes/playas, and irrigation canals. Because of their proximity to water, the plant species present in riparian areas are different from species found in the adjacent uplands: they can tolerate wet or saturated soil conditions that upland plants cannot. Wetland and riparian habitat can include marshes, swamps, lakeshores, wet meadows, estuaries, and springs or seeps.

Nationwide, riparian-wetland areas comprise less than 9% of the total land base. They are the most productive and highly prized resources on BLM-managed public lands. Riparian-wetland areas play a significant role in restoring and maintaining the chemical, physical, and biological integrity of the nation's water. Wildlife species use riparian areas proportionately more than any other type of habitat. In addition, riparian areas are highly prized for their economic values and other uses, which include livestock grazing, various recreational uses (e.g., hiking, fishing, photography, biking, and OHV use), American Indian cultural uses, and as educational destinations for students.

Generally, the local riparian areas or zones occur in canyon bottoms and appear as thin green ribbons. Many of the high mountain drainages have a green strip less than 15 feet wide (including the creek channel); the largest streams in the area vary in width from 10 to 40 feet. In some places the Susan River exceeds 100 feet in width. The width of riparian vegetation varies with the width of water present in creeks and streams, and is limited by the soil and water influence zone along the stream or creek. Riparian communities represent a relatively minor proportion of the total acres in the field office area but are considered extremely important as wildlife habitat and are popular for recreational purposes.

BLM's Riparian-Wetland Initiative for the 1990s (USDI 1991) establishes national goals and objectives for managing riparian-wetland resources on public lands. The initiative's chief goals are to: (1) restore and maintain riparian-wetland areas so that 75% or more are in properly functioning condition (PFC) by 1997; and (2) achieve an advanced ecological status, except where resource management objectives (e.g., PFC) require that an earlier successional stage be present to provide the most habitat diversity for wildlife, fish, and watershed protection.

The Riparian-Wetland Initiative for the 1990s also contains a strategy to focus management on the entire watershed. Knowing the condition of the watershed is an important part of assessing whether a riparian wetland area is functioning properly.

The Eagle Lake Field Office completed an intensive riparian-wetland assessment from 1995 to 2000. This assessment included more than 200 site-specific assessments of streams/creeks and springs/seeps. An interdisciplinary team was created to inventory and assess the functioning condition of all riparian wetland areas. The team was composed of a variety of staff specialists, including rangeland ecologists, botanists, wildlife biologists, soil scientists, hydrologists, and archaeologists. Table 3.16-4 summarizes the riparian-wetland inventory.

A functioning riparian zone provides fish and wildlife habitat, protects water quality, stabilizes streambanks, aids groundwater recharge, assists in flood control, provides aesthetic values, allows for wildlife and livestock grazing, and provides recreational opportunities.

Table 3.16-4 Summary of Wetland and Riparian Status for the Eagle Lake Field Office Area

Community Type	Proper Functioning Condition	Functioning at Risk: Trend Up	Functioning at Risk: Trend Not Apparent	Functioning at Risk: Trend Down	Non-functional	Unknown	Total
Riparian (flowing water) miles	62.76[a]	25.14	8.75	0.92	0	3	100.57
Percent riparian by condition class	**63%**	**24%**	**10%**	**1%**	**0%**	**2%**	**100%**
Wetland (standing water) acres	120.7	8.28	31.59	18.72	0	0	179.24
Percent wetlands by condition class	**65%**	**6%**	**17%**	**10%**	**0%**	**2%**	**100%**

Note: See U.S. Bureau of Reclamation 1994 and 1995 for definitions of wetland and riparian status condition classes.

[a] Combined total "on the ground" for riparian functional assessment field inventory 1995, 1996, 1997, 1998, and 1999–2002.

Table 3.16-4 identifies more than 100 miles of flowing water and almost 200 acres of wetland or standing water that have been inventoried and assessed. In both flowing and standing riparian-wetland areas, the majority of sites assessed were identified as being in PFC. Many sites were assessed as "functional at risk but with an upward trend." In sum, more than 87% of riparian-wetland areas are either in PFC or are making progress toward being in PFC.

It is reasonable to predict that, based on past experience with many sites functioning at risk but with an upward trend, such sites would begin to recover and stabilize very quickly with management changes (including protective fencing). Often, this progression can occur in 5 years or less when all the components are in place and the site is rested. This rate of progression is an indication that most sites are in or are moving toward a hydrologic condition that is satisfactory, but more work needs to be done. Management efforts have focused on riparian sites that are identified as functional at risk with either a static or downward trend; these are often the highest management priority because a decline in resource values is apparent. There usually is an opportunity to reverse this trend through changes in management.

In the last 10–15 years, protective fences have been built around the riparian vegetation at many sites to prevent livestock and wild horses and burros from congregating in the wet area.

Although many sites are unfenced and open, changes in livestock management (pasture rotation and rest/deferment) has resulted in positive changes in groundcover, plant production, and vigor—as evidenced by residual growth and regrowth after use has occurred in riparian areas.

Where appropriate, offsite water in the form of water troughs is provided for livestock, wild horses and burros, and wildlife. This measure provides large grazing animals with a water source without damaging the ground seep or spring. Small ground-dwelling animals and birds have access to water inside the fenced area or at the water trough. The fencing is designed to allow pronghorn antelope and deer to jump over or go under the protective fence. However, most large wildlife species use the water troughs even if livestock is nearby.

The main riparian and wetland communities documented in the Eagle Lake Field Office area are described below.

Riparian Scrub/Herbaceous Association

Riparian areas, zones, associations, and/or habitat is found adjacent to streams, lakes, or other natural free water, which have a predominant influence on associated vegetation or biotic communities (USDA 1997). Vegetation described in riparian associations, communities, or ecological sites are those plant species occurring within the riparian zone. Obligate species require the environmental conditions within the riparian zone, where as; facultative species tolerate the environmental conditions, therefore may also occur away from the riparian zone. Riparian ecosystems are distinctly different from the surrounding lands because of unique soil and vegetation characteristics that are strongly influenced by free or unbound water in the soil (USDA 1997). Riparian communities are repeating, classified, defined, and recognizable assemblages of riparian plant species. There is at least 570 acres of riparian/wetland communities and ecological sites within the Eagle Lake Field Office area, not counting lands bordering the northern end of Eagle Lake. These areas are too small to be shown or tabulated on the scale of map being used for development of this RMP.

WILLOW SCRUB COMMUNITY

This is a moderately dense to open, deciduous tall shrub (less than 8 feet) or tree (less than 30 feet) community dominated by willow, with associated wet meadow plants and scattered low shrubs 3 feet or less in height. Associated species can include narrow-leaved willow, arroyo willow, red willow, Scouler's willow, Lemmon's willow, shining willow, interior rose, sedges, rushes, columbine, mountain alder, American dogwood, quaking aspen, and black cottonwood. This community occupies flat to gentle slopes in meadows, wet drainages, and springs throughout the region.

Willows are found in riparian and wetland associations and on their periodically saturated soils. Healthy willow communities respond well to fire by resprouting. Willows also respond quite well to revegetation efforts in which cuttings are planted. The co-habitation with water sources makes willows vulnerable to overgrazing by all large ungulates. However, most potential damage can be attributed to livestock and wild horses and burros because of their size. Trampling of stream banks causes continued stream cutting, forcing the lowering of the water table and resulting in the conversion of willow scrub communities into upland shrub communities. Construction of roads or OHV use along riparian habitats can, if improperly managed, increase erosion into the drainage and thereby increase stream cutting, leading to the same result.

SEASONALLY DRY MEADOW COMMUNITY

This community encompasses areas with primarily remnant meadow soils that are wet in spring and usually dry by early summer. The plant community consists primarily of perennial, grasslike plants. This community can have considerable amounts of weedy annuals or bare ground when in poor condition (unhealthy). It may also contain scattered medium shrubs (3–6 feet tall).

This community is usually dominated by Baltic rush and sedges. Other associated species include silver sagebrush, rubber rabbitbrush, squirreltail, annual beardgrass, clustered field sedge, mat muhly, beardless wildrye, inland saltgrass, meadow barley, finebranched popcornflower, and tanseyleaf evening primrose. The community occurs mostly on flat to gentle slopes at elevations of 4,000–6,000 feet. It is found throughout the region but is often associated with overgrazed pastures in Honey Lake Valley and on the Madeline Plains.

WET MEADOW OR SEEP COMMUNITY

This community comprises meadow, spring, or seep areas that are wet most of the year. It supports a rather dense community of primarily riparian grasslike plants, possibly with a few scattered medium shrubs (3–6 feet). Rushes and sedges dominate this community.

Other associated species include willows, golden currant, interior rose, Nebraska sedge, Baltic rush, common spikerush, short-awn foxtail, meadow barley, spike redtop, thingrass, western blue flag, smallflowered camas, hoary nettle, and common monkeyflower. The community occurs mostly on flat to gentle slopes at elevations of 4,000–8,000 feet. It is often associated with drainage outlets in large basins throughout the region, with considerable amounts in the Honey Lake Basin.

Dry Lakebed/Alkali Playa Association

Approximately 10,832 acres of this type occur on BLM-administered lands in the Eagle Lake Field Office area. Only one community is described for this type: ephemeral lake basins that are usually of light, fine textured, poorly drained soils. They are usually closed drainage basins in which salts have accumulated. The areas are typically devoid of vegetation, except for scattered saltgrass. They are often inundated during the wet winter, drying in the summer months. This community occurs mainly at elevations of 4,000–5,000 feet and is exemplified by the Smoke Creek Desert, Madeline Plains, and Honey Lake Valley. Vegetation communities found along the edges of lake basin communities are described earlier under "Mixed Desert Shrub Association."

3.16.6 Special-Status Plants

For this Draft RMP/EIS, special-status plants are defined as:

- Species listed or proposed for listing as threatened or endangered under ESA (Title 50, Code of Federal Regulations [CFR], Section 17.12 for listed plants; and various notices in the Federal Register for proposed species);
- Species that are candidates for possible future listing as threatened or endangered under ESA (67 FR 40657);
- Species that are federal species of concern (i.e., former USFWS C1 or C2 candidates);
- BLM-designated sensitive and special-interest species;
- California state-listed species;
- California Native Plant Society List (CNPS) List 1B species (plants that are rare, threatened, or endangered in California and elsewhere); and
- Nevada Native Plant Society Watch List species.

Although CNPS List 1B plants are included as "special-status species" in this Draft RMP/EIS, the priority for the application of management actions would be federal endangered or threatened proposed species, federal candidate species, state-listed species, BLM sensitive species, and BLM special-interest species.

Based on the most current data, a total of 26 special-status plants are known to occur in the Eagle Lake Field Office action area. Of these species, 18 are known to occur in the field office area.

Table 3.16-5 (at the end of this section) lists these species, with information on their regional distribution, local occurrence, legal status, habitat requirements, and threats to their populations. Map VEG-4 shows the currently known locations of special-status plants in the Eagle Lake Field Office area.

3.16.7 Noxious Weed Species

Noxious or invasive species are now recognized worldwide as threats to biological diversity, second only to direct habitat loss and fragmentation. Noxious weeds are known to alter such ecosystem functions as nutrient cycles, hydrology, and wildfire frequency; out-compete and exclude native plants and animals; and hybridize with native species. All natural communities are susceptible to invasion by noxious weeds. The presence and abundance of noxious weeds in an ecosystem are highly dynamic, subject to changes in the local environment from both natural and human influences. The noxious weeds considered problematic in certain area, as well as their locations, acreages, and priority for control, can change in a short time (within 2 years) as new noxious weeds are located, acreages of infested lands increase or decrease, and management priorities change.

Table 3.16-6 provides a summary of the known noxious weed sites and the approximate size (in net acres) of each site in the Eagle Lake Field Office area.

The trends of noxious weeds in a particular planning area are measured in terms of the number, status, net acreage, and/or gross acreage of the weeds occupying the area. A positive trend would include a reduction in any one of these factors. The ultimate goal of the noxious weed program in the Eagle Lake Field Office area is to eliminate noxious weeds from the lands they administered.

Possible changes in the conditions of noxious weeds are difficult to predict because of the complex interaction of natural processes and management influences. There is a consensus that, in the absence of continued inventory, coordination of weed treatments, and a yearly evaluation of each weed program, the continued spread of noxious weeds will occur. Certain noxious weeds have already reached a high level of infestation in some areas and are considered to be “too common to control.” Without an emphasis on continued inventory and control, it is highly likely that additional noxious weed populations will increase dramatically on all watersheds and ultimately become “too common to control.” A memorandum of understanding (MOU) has provided an avenue to each land manager bordering BLM-managed lands the opportunity to coordinate all weed treatments. It is anticipated that noxious weed problems on lands administered by the Eagle Lake Field Office will continue to improve with the aid of cooperating groups and agencies.

Fire suppression and overgrazing of livestock have allowed native woody shrubs such as juniper to invade sagebrush communities. The reintroduction of fire can be complicated by the positive effect of fire on alien invasive plants and the subsequent effects of invasives on post-fire establishment by native species (Brooks and Pyke 2001).

The invasive grass, cheatgrass, has become widespread throughout lower-elevation juniper woodlands. The cooler, more mesic woodlands appear to be less susceptible to invasion and complete dominance by introduced annuals. However, a better understanding is needed of ecological factors that influence woodland susceptibility to invasive species. Whistenant (1990) reviewed the effect of cheatgrass on fire frequency in the shrub-steppe and found that cheatgrass tends to become dominant on disturbed soils and, because it forms a continuous fuel load, its presence leads to increased fire frequency.

This leads to a reduction in the diversity and cover of native species making it easier for cheatgrass to increase its presence in the relatively undisturbed soils.

Invasive nonnative grasses especially benefit from fire and promote recurrent fire—in many cases, to the point where native species cannot persist and native plant assemblages are converted to nonnative grasslands. This vegetation type conversion can affect wildlife ranging from herbivores to carnivores and reduce overall biodiversity. The effective management of many wildlife species can depend on the control of invasive plants and the maintenance of appropriate fire regimes (Brooks and Pyke 2001).

Fire can be used to either control invasive species or to restore historical fire regimes. However, the decision to use fire as management tool must consider the potential interrelationships between fire and invasive species. Historical fire regimes did not occur in the presence of many invasive plants that are currently widespread and the use of fire may not be a feasible or appropriate management action if fire tolerant invasive plants are present (Brooks and Pyke 2001).

The interactive effects of invasive plants and fire are generally negative but, when incorporated into management plans, fire and some alien plants can become positive tools. Fires control some invasive plants, while some alien plants may provide fire-resistant fuel breaks that control the spread of fire. Fire is an effective tool for controlling invasive plants provided it kills all adult plants and, if perennials, their persistent meristems—or eliminates seed banks (Whelan 1995 in Brooks and Pyke 2001). For example, invasive annuals (such as cheatgrass) with short-lived seed banks may be amenable to control using fire. Cheatgrass has a soil seedbank that can approach zero density before seeds contained within inflorescences disperse to the ground (Pyke 1994 in Brooks and Pyke 2001). With most of the next generation's seed suspended above ground, this alien annual is susceptible to local extirpation or significant population reductions immediately following fire (Brooks and Pyke 2001).

Although fire may be used to control invasive annual grasses, its effectiveness is often partial or temporary. Follow-up treatments with herbicides may be necessary to kill individuals that escape initial fire treatments. A study is currently underway, the Management of Fuel Loading in the Shrub-Steppe, through Washington State University (accessed at www.tricity.wsu.edu/shrub_steppe). The 3-year study is designed to develop a fuel management protocol that will reduce the risk of wildfire at minimal cost.

The study places special emphasis on minimizing the presence of cheatgrass in the ecosystem at Columbia NWR by comparing treatments and effects on the competitive balance between native species and cheatgrass. As part of the study, the ability of various treatments (including herbicides, prescribed burns, and seeding with natives) to reduce fuel loading will be investigated to determine the relationship between fine fuel cover and the probability of a sustained fire. Their overall management goal is to return lands to a highly diverse assemblage of native species that will reduce fire risk (Pellant et al. 2000) to natural levels.

Land managers must also be cautious when using fire to control invasives because it may promote the establishment of other fire-tolerant invasive species. For example, prescribed fire is used to remove invading junipers from sagebrush plant communities (Miller and Tausch 2001), but this tool may promote the dominance of invasive annual grasses.

Another technique to control invasives, mechanical removal, may create opportunities for other invasive species to dominate and must be considered when targeting invasives for control. Finally, reducing levels of available nitrogen immediately after fire may increase the rate of establishment by native plants and reduce the dominance of invasive annuals. More research is needed to identify cost-effective techniques for reducing available nitrogen and enhancing the success of native plants (Brooks and Pike 2001).

Table 3.16-5 Special-Status Plants Known or Suspected to Occur in the Eagle Lake Field Office Area

Plant Name / Family	Status[a]	Occurrence in Area	Locations[b]	Quads[c]	Habitat	Threats	Needs	Current/Relevant Information
Astragalus agrestis Field milk-vetch Fabaceae	CNPS 2 BLM S	Known	Madeline Plains n. of Termo E-2, A-S	570A,657B658 A,658D Las; NV,OR+	Sagebrush scrub flats.	None known but watch grazing practices.	Continue inventory on the Madeline Plains.	Madeline Plains north of Termo Highly disjunct from other states' occurrences.
Astragalus argophyllus var. *argophyllus* Silverleaf milk-vetch Fabaceae	CNPS 2 BLM S	Known	Smoke Creek Rd. area w. of NV stateline. E-3	638D Las, Iny, Mon; NV +	Moist alkaline seeps in sagebrush scrub.	Not grazed. Could be out-competed by saltgrass?	Continue inventory. Ocular monitor populations in Buffalo Berry exclusion for saltgrass or other competition.	Smoke Creek Road area W. of Nevada state line. Highly disjunct from other states' occurrences.
Astragalus geyeri var. *geyeri* Geyer's milk-vetch Fabaceae	CNPS 2 BLM S	Known	Foothills n. of BLM horse corrals, east side Honey Lake Valley. (Also Washoe Co.) E-8, S-S	602A,602D 620C,621A Las, Iny, Mon; NV, OR +	Sandy areas in sagebrush scrub.	Livestock trampling in early spring and summer. Rodents eat plant.	Continue inventory and monitor livestock activity. This is an annual, so numbers can fluctuate greatly.	Foothills N. of BLM horse corrals uncommon, potential habitat.
Astragalus lentiformis Lens-pod milk-vetch Fabaceae	CNPS 1B	Known	W. of Portola E-1	586B,586C 587A,587B 587C,588A 588D,603C Plu	Bitterbrush/ sagebrush in open pine forest.	None known on BLM site. Possible shrub and tree competition.	Ocular monitor population for possible disturbances such as trespass uses, and OHV annually	West of Portola, only known occurrence
Astragalus pulsiferae var. *pulsiferae* Pulsifer's milk-vetch Fabaceae	CNPS 1B NNPS W	Known	N. end of Sierra Valley. (Bonta and Magee grazing lease allotments) E-2	586A,586C 586D,587D 604C Las, Plu, Sie; NV	Decomposed granite in sagebrush scrub and open pine.	Trespass uses (rock removal) on Bonta parcel. May be some competition from shrubs. Likes some disturbance and openings. Not noticeably grazed.	Ocular monitor parcel regularly for trespass uses on Bonta parcel. Watch for noxious weeds at site. Continue inventory in Sierra Valley.	North end of Sierra Valley. Bonta and McGee grazing allotments.

Table 3.16-5 Special-Status Plants Known or Suspected to Occur in the Eagle Lake Field Office Area

Plant Name / Family	Status[a]	Occurrence in Area	Locations[b]	Quads[c]	Habitat	Threats	Needs	Current/Relevant Information
Astragalus pulsiferae var. *coronensis* Modoc Plateau milkvetch Fabaceae	CNPS 1B NNPS W	Known	Shaffer Mtn., Ramhorn e. to NV E= + 39, A= +11	621A,624C,625D,638B 638C,638D, 639A,639B 639C,640B, 656C,657C 675A,676B, 676D,692A 692D Las, Mod, Plu; NV OR	Rocky to gravelly sites in sagebrush scrub. Habitat not real descriptive or distinct.	None known	Inventory for BLM occurrences; new variety (*coronensis*); previously called var. *suksdorfii*. Now var. *suksdorfii* in Sha,western Las and Plu (on LNF), and WA.	Several occurrences in Alturas FO
Dalea ornata Ornate dalea Fabaceae	CNPS 2 BLM S	Known	Tablelands n. of Belfast. E-6	621B,639C Las; NV OR +	Rocky clay sagebrush /rabbitbrush flats.	Often grows in areas of dense medusahead but not certain whether it affects the Dalea. Questionable impact from livestock or wildlife.	Continue to inventory and observe for any possible livestock or noxious weed impacts.	Tablelands north of Belfast. Highly disjunct from other states' occurrences
Gratiola heterosepala Boggs Lake hedge-hyssop Scrophulariaceae	State E CNPS 1B	Known	Snowstorm Wetland; Green Place, Fall River Valley. E-1, A-5 (+?)	639B, 661A, 678B, 678D (+LNF and MNF quads) Las, Mod, Sha,+; OR	Vernal pools and flats. Often occurs in human-made reservoirs.	Changes in water regime. No threats at wetland site since it is fenced.	Continue to inventory for. RPSAC recommended downlisting, but it was not changed.	CA State Endangered, common on Modoc Plateau
Iliamna bakeri Baker's globe mallow Malvaceae	CNPS 1B	Known	Observation and Fredonyer Peaks, Willow Fire; Cold Sp Mtn., Bald Mtn.; Boot Lake + E-5, A-5+, S-4	640A,640C,656C,656D, 657C, 661C, 673C,673D,674D,675C,675D Las, Mod, Sha +; OR	Rocky sagebrush, juniper, and mtn. mahogany communities-prevalent after fires.	Out-competed by dense shrub cover. Grazed and browsed by livestock and wildlife.	Continue to inventory for – especially recent burns. Ocular monitor grazing use of known populations.	Willow Fire, Blue Fire, Observation, and Fredonyer Peaks.

Table 3.16-5 Special-Status Plants Known or Suspected to Occur in the Eagle Lake Field Office Area

Plant Name / Family	Status[a]	Occurrence in Area	Locations[b]	Quads[c]	Habitat	Threats	Needs	Current/Relevant Information
Ivesia aperta var. *aperta* Sierra Valley ivesia Rosaceae	CNPS 1B NNPS T Fed Sp of concern	Known	E. side of Sierra Valley n. of Correco Canyon. E-1	570B,570D 571A,571B 571D,586B 587C,587D 602C,603D Las, Plu, Sie; NV	Dry meadow flats and slopes in sagebrush and open pine. Often grows with *sericoleuca*	Affected by livestock grazing. BLM site grazed very little if any.	Continue to inventory for in and around Sierra Valley. Ocular monitor BLM populations at least biennially.	East side of Sierra Valley north of Correco Canyon.
Ivesia webberi Webber's ivesia Rosaceae	CNPS 1B NNPS T Candidate NV-CE#	Known	E. side of Sierra Valley (Dellera Allot.) Most of this popul. is on State land. S. of Hallelujah Junc. E. of Constantia. E-(1)	570A,570B 570D,586A, 586C,589B,605C Las, Plu, Sie; Was, Dou	Gravelly flat and slopes in sagebrush scrub.	Does not appear to be grazed by livestock but trampling would affect.	Continue to inventory for. Ocular monitor Dellera allotment population annually.	East side of Sierra Valley (Dellera allotment). Most of population is on state land south of Hallelujah Junction, east of Constantia. (Candidate sp.)
Loeflingia squarrosa var. *artemisiarum* Sagebrush loeflingia Caryophyllaceae	CNPS 2	Known	E. edge of Madeline Plains between Buckhorn and Horne Ranch Rds. Flats e. of Herlong.E-3, A-S?, S-S	602A,656C Las, Iny, (Kern, LA) NV, OR, WY	Moist sandy area in sagebrush/ rabbitbrush scrub.	Very small annual plant. Any spring or early summer surface activity could affect population. Changes in moisture regime may also affect.	Continue to inventory for. Ocular monitor known BLM occurrences biennially.	East edge of Madeline Plains between Buckhorn and Horne Ranch Roads. Flats east of Herlong.
Oryzopsis exigua Little ricegrass Poaceae	CNPS 2 BLM S	Known	Upper slope of Observation Peak and Mt Dome. E-1, A-1, S-S	656C,730C Las, Sis; NV, OR +	Rocky outcrops in sagebrush steppe.	Could be affected by livestock grazing but is not noticeably grazed at this site.	Continue to inventory for. Two recent sites in CA.	Upper slopes of Observation Mountain Potential habitat in all field offices.
Pedicularis centranthera Dwarf lousewort Scrophulariaceae	CNPS 2 BLM S	Known	Near Karlo area and s. E. of 395 n. of Mud Flat. E-5	639D, 638C	Dry ashy flats in sagebrush scrub.	Not noticeably grazed by livestock; could be affected by trampling. Potential for OHV impacts at some sites.	Continue to inventory for. Ocular monitor known sites biennially for potential impacts.	Near Karlo area south and east of Highway 395 north of Mud Flat.

Table 3.16-5 Special-Status Plants Known or Suspected to Occur in the Eagle Lake Field Office Area

Plant Name / Family	Status[a]	Occurrence in Area	Locations[b]	Quads[c]	Habitat	Threats	Needs	Current/Relevant Information
Penstemon sudans Susanville beardtongue Scrophulariaceae	CNPS 1B	Known	Along Bizz Johnson Trail, n. of Susanville, and e to Tablelands, Observation, Snowstorm Mtn. E-25	622A,622B 623A,623B 623D,638B 639A,639D 640D, etc.	Rocky volcanic slopes and outcrops in sagebrush scrub.	No known threats. Doesn't appear to be grazed. Recruits well on some disturbed sites.	Continue to inventory for. This plant is common locally but has very limited distribution. Known as Susanville penstemon.	Along Bizz Johnson Trail north of Susanville and east to Tablelands, Observation, and Snowstorm Mountain.
Phacelia inundata Playa phacelia Hydrophyllaceae	NNPS W CNPS 1B BLM S	Known	SE side of Eagle Lake, nw Modoc Co, NW Nevada. E-2, S-1	640B,640C 712A,728C Las,Mod NV,OR	Moist alkaline playas and meadows.	Trampling by livestock.	Continue to inventory for. Revisit historic Secret Valley site.	Southeastern side of Eagle Lake, northwest Modoc County, Nevada.
Pyrrocoma lucida Sticky pyrrocoma Asteraceae	CNPS 1B	Known	Claireville Flat. E-2	588D	Seasonally wet flat or drainage within eastside pine forest.	Logging, OHV.	Inventory other Plumas County parcels. Monitor logging and OHV effects.	
Thelypodium howellii var. *howellii* Howell's thelypodium Brassicaceae	CNPS 1B	Known	Known from Rodeo Flat, e. edge of Madeline Plains, and Ash Valley (private). A-S, E-2	656A, 656C	Moist alkaline meadows and flats in sagebrush steppe.	Could be affected by livestock grazing and habitat manipulation. Rodeo Flat site is fenced.	Continue to inventory for. Ocular monitor biennially for potential impacts. Relocate Madeline Plains and Dixie Valley occurrences.	Known from Rodeo Flat and east edge of Madeline Plains. Potential habitat elsewhere.
Astragalus lemmonii Lemmon's milkvetch Fabaceae	CNPS 1B	Suspected	Sierra Valley and Ash Valley. E-S, A-S	587D, 675C 676D, 712A Las, Mod, Plu, Sie, Mon; NV OR	Moist sandy flats in silver sage.	Land conversion.	Inventory for on BLM parcels in Sierra Valley. Possibly in Madeline Plains.	Sierra Valley potential habitat.
Astragalus webberi Webber's milk-vetch Fabaceae	CNPS 1B	Suspected	S. of Crescent Mills. None known on BLM. E-S	605C, 605D 606D Plu,Sie	Open lower montane coniferous forest.	Unknown	Continue to inventory for.	South of Crescent Mills. None known on BLM administered lands. Federal candidate.

Table 3.16-5 Special-Status Plants Known or Suspected to Occur in the Eagle Lake Field Office Area

Plant Name / Family	Status[a]	Occurrence in Area	Locations[b]	Quads[c]	Habitat	Threats	Needs	Current/Relevant Information
Ivesia sericoleuca Plumas ivesia Rosaceae	CNPS 1B	Suspected	Sierra Valley and areas to n. and s. of there. None known on BLM. E-S	570C, 570D, 571B, 571C, 571D, 572D, 586B, 587B, 587C,587D, 602C,603C,603D,622D Las, Plu, Sie, +	Dry meadow flats and slopes in sagebrush scrub and open pine. Often grows with *I. aperta*.	Affected by livestock grazing.	Continue to inventory for in and around Sierra Valley. Also reported from Janesville area.	Sierra Valley and areas to north and south of there. None known on BLM administered lands, potential habitat.
Lupinus dalesiae Quincy lupine Fabaceae	CNPS 1B	Suspected	S. of Greenville. None known on BLM. E-S	589A, 605C 606A, 606B 606C, 606D Plu,Sie,Yub, But	Often disturbed areas in montane coniferous forests.	Unknown	Continue to inventory for.	South of Greenville, potential habitat. None known on BLM-administered lands.
Mimulus evanescens Ephemeral monkeyflower Scrophulariaceae	CNPS 1B	Suspected	Moll Reservoir and LNF. Historic "10 mi south of Ravendale". E-1(historic), A-2	639A, 657B, 676A, 676D Las, Mod, Sis; OR, ID, NV?	At the edge of reservoirs and lakes and vernally moist depressions in sagebrush scrub.	Changes in water regime and trampling.	Continue to inventory for.	Potential habitat in Eagle Lake FO
Oreostemma elatum Tall alpine-aster Asteraceae	CNPS 1B	Suspected	None known for Eagle Lake FO but suspected. Occurs on Dyer Mtn. e. of Almanor. E-S	589B, 590A 605C, 606A Las,Plu,Teh	Bogs and wet meadows.	Unknown	Be aware of plant and keep an eye out for on suitable habitats.	None known of BLM-administered lands but suspected on potential habitat. Occurs, Dyer Mountain east of Almanor.
Polyctenium williamsiae William's combleaf Brassicaceae	CNPS 1B NNPS T Fed Can	Suspected	Mud Flat (private land) E-S	621A	Seasonally wet flat.	Livestock, road maintenance.	Continue to inventory; Look closely at *Polyctenium fremontii* record locations.	Mud flat (private land).
Rorippa columbiae Columbia yellow cress Brassicaceae	CNPS 1B	Suspected	Small potential for this plant in w. portion of Eagle Lake FO. Near intersection of A-21 and Hwy 44. A-S, E-S	642D	Vernally wet flats in sagebrush steppe.	Livestock trampling, hydrologic changes.	Be aware of this plant and search for in suitable habitat.	None known on BLM-administered lands. Near intersection of A-21 and Highway 44. Small potential for This plant in western portion of Eagle Lake Field Office and parts of Alturas FO.

a CNPS Inventory 2001. BLM S = Designated as BLM Sensitive; CNPS = California Native Plant Society; NNPS = Nevada Native Plant Society 2003 list (NNHP = Nevada Natural Heritage Program 2003); NV= Nevada; CE# = recommended for listing as critically endangered.

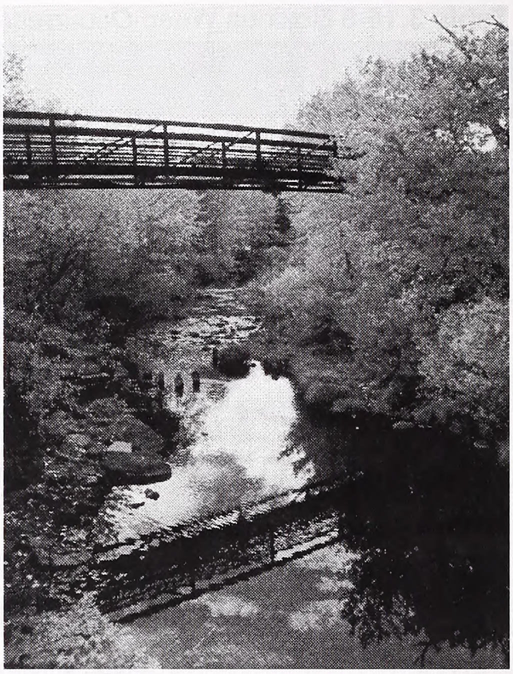
b Locations refer only to the locations within NORCAL East. Number of known occurrences on BLM lands in each field office—either a number is given or "S" indicates suspected.

c Quads are only those in or near BLM-administered lands.

Table 3.16-6 Noxious Weed Occurrences in the Eagle Lake Field Office Area

Noxious Weed Species	Watershed	Number of Sites	Number of Net Acres
Bull thistle (*Cirsium vulgare*)	Horse Lake	5	Each site is 5 acres or less
Canada thistle (*Cirsium arvense*)	Susan River/Honey Lake Horse Lake Eagle Lake	6 1 1	Each site is 5 acres or less 5 acres or less 5 acres or less
Dalmatian toadflax (*Linaria dalmatica*)	Sierra Valley Susan River/Honey Lake	1 4	1 acre Each site is 5 acres or less
Mediterranean sage (*Salvia aethiopis*)	Horse Lake Eagle Lake Madeline Plains	1 2 1	444 acres Each site is 5 acres or less Each site is 10 acres or less
Perennial pepperweed (*Lepidum latifolium*)	Susan River/Honey Lake Horse Lake Eagle Lake Madeline Plains	14 16 4 16	Each site is 5 acres or less Each site is 5 acres or less Each site is 5 acres or less Each site is 10 acres or less
Poison hemlock (*Conium maculatum*)	Susan River/Honey Lake Smoke Desert	1 5	5 acres or less Each site is 5 acres or less
Russian knapweed (*Acroptilon repens*)	Susan River/Honey Lake Eagle Lake Madeline Plains	1 2 2	5 acres or less Each site is 5 acres or less Each site is 10 acres or less
Russian olive (*Elaeagnus angustifolius*)	Horse Lake	1	5 acres or less
Scotch thistle (*Onopordum acanthium*)	Susan River/Honey Lake Smoke Desert Horse Lake Eagle Lake Madeline Plains	1 7 16 4 17	5 acres or less Each site is 5 acres or less 3 sites over 10 acres, the remaining sites are 5 acres or less Each site is 5 acres or less Each site is 10 acres or less
Hoary cress (*Cardaria draba*)	Susan River/Honey Lake Horse Lake Eagle Lake	1 1 1	5 acres or less 5 acres or less 5 acres or less
Yellow starthistle (*Centaurea solsistialis*)	Susan River/Honey Lake Smoke Desert Horse Lake Eagle Lake Madeline Plains	10 3 13 1 2	1 site is 99 acres, remaining sites are 5 acres or less Each site is 5 acres or less Each site is 5 acres or less 5 acres or less Each site is 10 acres or less
Puncturevine (*Tribulus terrestris*)	Susan River/Honey Lake	3	5 acres or less
Dyer's woad (*Isatis tinctoria*)	Susan River/Honey Lake Eagle Lake	1 1	Each site 5 acres or less
Spotted knapweed (*centaurea maculosa*)	Susan River/Honey Lake	1	1 site 5 acres or less

3.17 Visual Resources



Visual resources are scenic features of the landscape that include land, water, vegetation, structures, and other objects. BLM uses a visual resources management (VRM) classification system during planning activities to manage the quality of the landscape and assess the level of potential impacts on visual resources resulting from development activities. These classes, Class I through Class IV, are developed through an inventory process and are based on the visual quality of an area, the sensitivity of the landscape to change, and the distance from which the landscape is viewed. The results of the inventory performed for the RMP are shown in Table 3.17-1.

The Eagle Lake Field Office is located at the junction of three geographic provinces. The 1,022,767 acres of the field office are located where the northwestern edge of the Great Basin intersects the northern end of the Sierra Nevada Mountains and the southeastern side of the Cascade Range, with a sub-region called the Modoc Plateau comprising much of the Cascade portion of the area. The most dominant typical Great Basin segment of the field office area includes the expansive Honey Lake Valley; the Smoke Creek Desert on the eastern side of the field office jurisdiction; various small, shallow lakes that dry out in summer; and the expansive Madeline Plains, a pliestocene lake bed now covered with shrubs and grasses. Eagle Lake, a closed basin lake with no outlet—unlike other shallow Great Basin lakes in the area, contains a healthy fishery and is a major recreational attraction because of its high scenic quality and excellent Eagle Lake rainbow trout fishery.

Table 3.17-1 Visual Resources Management Inventory in the Eagle Lake Field Office Area

VRM Class	Acres
I	403,437
II	365,743
III	253,587
IV	1,022,767

Rising above these broad, open valleys are numerous fault block ridges, conical volcanic mountains of various sizes and eroded calderas reaching up to the mid 7,500-foot elevation above base elevations of 4,000 to 5,000 feet. Most rock is of volcanic origin; however, the Fort Sage Mountains in the southeast side of the field office are a striking mixture of lower slopes made up of rounded, granular, light-colored, decomposed granite with volcanic peaks rising up to the east nearly 8,000 feet and over 4,000 feet of vertical relief above the 4,000-foot base elevation of Honey Lake Valley. The Skedaddle Mountains are the most striking of the desert mountains, with deeply incised canyons and vertical cliff faces. Dry Valley Rim, with over 1,500 feet of vertical relief, is a striking escarpment that extends over 20 miles north to south. The higher peaks of Shinn Mountain, Spanish Springs Peak, and Observation Peak ring the upper Smoke Creek watershed. Lower Smoke Creek cuts between Dry Valley Rim's northern end and the steep slopes of Burro Mountain. Twin Peaks and the Buffalo Creek canyons comprise the northeastern end of the jurisdiction and contain rugged canyons and desert mountains. Antelope Mountain and Shaffer Mountain form the north side of the northwest end of Honey Lake Valley, where most of Lassen County's population is located.

Three rivers on the eastern side of the field office area with perennial flows that eventually empty into Great Basin desert lakes and playas provide high visual interest. The Susan River Canyon provides scenic interest as it cuts through the Sierra/Cascade interface, slicing through mostly volcanic rock but also exposing granite in some areas. The Susan River flows year round and sustains a rich riparian habitat, including thick cottonwood groves and many species of shrubs. The canyon also contains the historic Fernley and Lassen Railway grade, with 11 steel railroad bridges and two tunnels, now the route of the scenic Bizz Johnson National Recreation Trail.

Willow Creek north of Belfast is a mixture of two very different canyon segments. The 4 miles of the upper canyon is a small, narrow, wooded canyon with scattered conifers and thick riparian vegetation located between Tunnison Mountain to the north and wooded hills to the south. The 3.5 miles of the lower canyon is entirely different and cuts through a flat volcanic tableland in a desert setting. Flows are low, but sufficient to sustain riparian growth—mostly grasses and some shrubs.

Upper Smoke Creek is a small stream that originates from a spring and proceeds to gradually cut a shallow but deepening canyon in its 13-mile run to Smoke Creek Reservoir in the middle of its course. Below the private reservoir, the creek cuts between the Twin Peaks and Burro Mountain areas to the east and north of the creek—and the Cherry Mountain and Dry Valley Rim areas to the west and south of the creek—before spreading out on the Smoke Creek Desert Playa, where the creek dries up. After 100 years of grazing, the vegetation along the creek was heavily affected. In the 1980's BLM fenced the creek and has kept livestock out of most of the creek since then. The riparian area is now improving along the creek's length. The Nobles Emigrant National Historic Trail passes through the lower Smoke Creek canyon. The largely unchanged physical landscape adds substantially to the historic context of experiencing the trail in this area. An historic military patrol route also passes along the volcanic tablelands adjacent to upper Smoke Creek. The largely unchanged physical landscape here also adds substantially to the historic context of experiencing the trail in this area.

Throughout the field office area, vegetation is mostly high desert species dominated by shrubs and grasses. However, areas of conifers, aspen, mountain mahogany, and juniper are located at the higher elevations—mainly on the western side of the office's jurisdiction.

The landscape is largely natural appearing, with most human-made features associated with the development around the Honey Lake Valley; along the Highway 395 corridor between Reno, Nevada and Susanville, California; and, to a far lesser extent, around smaller communities where residential properties and farming and ranching occur. One 345-KV powerline with a high rusted brown Corten steel "H" type double tower configuration extends along portions of Highway 395 between Alturas and Reno, with various segments also located away from the highway. Other smaller single wooden pole power lines and phone lines parallel Highway 395 and portions of other state and county roads.

Main highways considered as scenic corridors by Lassen County are Highways 36, 44, 139, and 395. These routes carry the most traffic through BLM lands, particularly 395 (1400 to 8500 average annual daily traffic at various areas of the highway) and 139 (500 to 620 average annual daily traffic at various areas of the highway). The highest traffic volume of any road through BLM land is on Highway 395. (www.dot.ca.gov/hq/traffops/saferesr/trafdata/2004all.htn) Visual sensitivity is considered high along all of these roads because of the high traffic volumes. Lassen County Road A-1 around Eagle Lake is also considered a scenic highway by the county.

In a randomly sampled population of northern Californians (study group called non-residents) and a separately sampled population of residents living within northeastern California, northwestern Washoe County, Nevada and Klamath Falls, Oregon, researchers found that “Over 82% of non-residents and 68% of residents agreed that maintaining the natural undeveloped appearance and vistas of the northeastern California and northwestern Nevada region was extremely important” (page iii, Executive Summary, Northeastern California Outdoor Recreation Market Analysis, Tierney, Patrick and Erik Rosegard, 2002).

BLM WSAs and other roadless areas area expected to receive increasing use from hikers and equestrians as they discover the relatively low-use areas of public land in the Eagle Lake Field Office area. Motorized OHV enthusiasts and mechanized mountain bikers also will seek more public land roads and trails to enjoy their activities, and the 1,900 miles of existing dirt roads and trails in the Eagle Lake Field Office area jurisdiction will continually receive more use. Maintenance of scenic quality will be a very important part of maintaining the opportunity for quality primitive recreational experiences currently enjoyed throughout most of the Eagle Lake Field Office jurisdiction.

Lassen County has excellent scenic resources and affords visitors the unusual opportunity to experience both desert and wooded mountain terrain during a relatively short visit. Trails and scenic driving loops have great potential to attract visitors to the area and to enhance visitor enjoyment of the Lassen County and northwestern Washoe County area.

Proposals for wind energy development in the Eagle Lake Field Office area provide the greatest potential to affect existing visual quality. Construction of a second powerline parallel to the existing powerline would impact visual quality but would not be as significant if it followed the current line rather than along a new alignment. Proposals by cell phone tower installation companies to construct 200-foot tall cell phone towers at 5- to 7-mile intervals along Highway 395 has the potential to significantly alter the current landscape experienced by 395 travelers.

3.18 Water Resources

The following discussion gives a general overview of the Eagle Lake Field Office area water resources and regulations pertinent to the resource.

3.18.1 Climate and Precipitation

The Eagle Lake Field Office area is generally a high desert climate, with mild summers and cold winters. Precipitation is mainly in winter months and falls as either rain or snow. The 10-year, 24-hour precipitation quantity ranges between 1.6 inches in the eastern portions of the study area to 5.0 inches in the western portions. The 100-year, 24-hour precipitation quantity ranges between 2.4 and 6 inches (Western Regional Climate Center 1973). Average annual precipitation ranges from less than 10 to over 35 inches.

3.18.2 Surface Water

Hydrology

For this discussion, the Eagle Lake Field Office area has been divided into seven watersheds: Horse Lake, Eagle Lake, Madeline, Smoke Creek Desert, Susan River/Honey Lake, Headwaters of the Feather River, and Sierra Valley. No information was available for the Sierra Valley or Headwaters of the Feather River watersheds.

BLM has traditionally developed various forms of direct diversion in association with its livestock grazing program. Developments for the benefit of wildlife range from the development of guzzlers to wetlands and reservoirs. Subtle changes in surface water conditions have occurred over many decades as a result of roads and past heavy livestock use. Relatively large irrigation dams have been built under permit on public lands as well.

BLM has very little information on water quantity on BLM-administered land in the Eagle Lake Field Office area. Some estimates and measurements have been documented in association with the water quality samples collected between hydrologic year (HY) 2002 and present for most perennial and important intermittent streams. Two streams, Willow Creek and Susan River, have been gauged by outside agencies. Smoke Creek below the Rock Springs Ranch recently had gauges installed, and it is monitored during low flow to ensure that the 5-cfs minimum flow protected under water rights is maintained. Reservoir capacities are known, but little monitoring of their levels has been conducted.

3.18.3 Horse Lake Watershed

This watershed contains both perennial and intermittent streams. Willow Creek and its Petes Creek tributary flow to Belfast and join the Susan River before terminating in Honey Lake, as do Secret Creek and its tributaries (Snowstorm Creek, Stoney Creek, and Deep Creek). Shoals, Pine, and Cottonwood Creeks drain the northwest portion of the watershed into Horse Lake—an intermittent lake.

Discharge in these streams ranged from 0.003 cfs at Stony Creek to 14 cfs at Willow Creek. This does not include the many dry streams that were documented from midsummer to fall. When discharges fall below 10 cfs, water quality degrades rapidly.

Willow Creek originates at Muriers Meadow, which is fed from a series of springs and drains 90.4 square miles to the stream gauge below Willow Creek Valley. An additional area drains Petes Creek and the downstream portion of Willow Creek to Belfast. Discharges that have been measured at the gauging station range from a peak of 1,210 cfs in 1989 to summer low flows that commonly fall below 2 cfs.

3.18.4 Eagle Lake Watershed

There are no perennial streams in the Eagle Lake watershed, and Grasshopper Creek is the only intermittent steam draining public lands. This stream was dry during an August 28, 2002 sampling event, as well as on June 5, 2003 suggesting that it might not have flowed at all in 2002–2003.

3.18.5 Madeline Watershed

Perennial and intermittent streams in the Eagle Lake Field Office area portion of the Madeline watershed include Red Rock Creek, Slate Creek, Horse Camp Spring, Buckhorn Creek, and Painter Creek. Slate Creek and Horse Camp Spring were sampled only in 2002 and Painter Creek was sampled only in 2003. Discharge in these streams ranged from 0.05 cfs in Painter Creek to 3.0 cfs in Slate Creek. Mean discharge was 1.13 cfs.

3.18.6 Smoke Creek Desert Watershed

Perennial and intermittent streams in the Smoke Creek Desert watershed include Rush Creek; Smoke Creek; Frog Creek; Parsnip Creek; and the West, Middle, and North Forks of Buffalo Creek. Rush Creek was dry between Rush Spring and Rush Creek Ranch at the time of sampling, as was most of the North Fork of Buffalo Creek. Stations with flowing water had discharges ranging from 0.001 cfs in the West Fork of Buffalo Creek to 7 cfs in Smoke Creek.

3.18.7 Susan River/Honey Lake Watershed

The streams in the Susan River/Honey Lake watershed include the Susan River, Cheney Creek, Skedaddle Creek, Snowstorm Creek, and Willow Ranch Creek.

Water Quality

Water quality in the Eagle Lake Field Office area is discussed in terms of water quality indicators and waterbodies that are listed as impaired. Primary indicators used for management of impacts on water resources are temperature, nutrients, fecal coliform, turbidity, sediment, dissolved oxygen (DO), and stream channel condition. Indicators were chosen based on the Standards and Guidelines, which are discussed further in Section 4.20. A summary of water quality conditions for key streams is given by watershed in Table 3.18-1. Note that no water quality data were available for the Sierra Valley or headwaters of the Feather River watersheds. For a more comprehensive discussion of water quality in the Eagle Lake Field Office area, please refer to the Analysis of the Management Situation (Jones & Stokes 2004) and associated specialist's reports.

Impaired Waterbodies

Multiple waterbodies located on, or downstream of, BLM lands have been designated as impaired by the Sacramento RWQCB, Lahontan RWQCB, the State of Nevada, or the EPA. Within the Susan River/Honey Lake watershed, the Susan River has been designated as an impaired waterbody below public lands for unknown toxicity.

Honey Lake, also downstream of public lands within that watershed, has been designated as impaired for arsenic and salinity. It is unlikely that activities on BLM-managed lands are contributing to these impairments. Within the watershed, Skedaddle Creek has also been listed as impaired for coliform; BLM is currently implementing management measures to control releases of coliform into Skedaddle, and it is recommended for removal from the 303(d) list.

Within the Eagle Lake watershed, Eagle Lake is designated as an impaired waterbody for nitrogen and phosphorus. It is possible that activities on BLM-administered land are contributing to this impairment.

Groundwater

In the BLM-managed areas, groundwater is found in defined aquifers, as well as in areas without such aquifers. Defined aquifers in the region mainly consist of weathered and fractured basalt, other volcanic deposits, and alluvial and lake deposits. In undefined areas, subsurface formations tend to be more highly consolidated and to have lower yields. Groundwater in these areas is often found in fractures, or weathered portions of rock between consolidated materials. Groundwater yields from fracture systems depend on the extent of fracturing, the connectivity between the fractures, and the transmissivity of the fractures (California Department of Water Resources 2003). Groundwater serves as a source for some surface waterbodies. Because groundwater is not used as a water source within the BLM-managed areas, it is not discussed in further detail.

3.18.8 Regulatory Setting

The majority of the Eagle Lake Field Office area is in California; however, portions are in Nevada.

3.18.9 State of California

The State Water Resources Control Board (SWRCB), and its nine RWQCBs are responsible for regulation of water quality and water rights in California. The SWRCB signed an MOU with BLM in 1993 to ensure the coordination of nonpoint source policies and activities, and to pursue the development of a Management Agency Agreement (MAA) and Water Quality Management Plan (WQMP) for nonpoint source pollution control on BLM lands. The MAA with BLM has not been completed.

The Eagle Lake Field Office area falls within the jurisdiction of the Central Valley RWQCB (Region 5) and the Lahontan RWQCB (Region 6). These RWQCBs have adopted Basin Plans to implement plans, policies, and provisions for water quality management in their respective regions. Beneficial uses of surface waters are identified and described in the Basin Plans. In addition, the Basin Plan identifies water quality objectives for the protection of the beneficial uses of the basin.

Table 3.18-1 Water Quality Conditions for Key Streams in the Eagle Lake Field Office Area

Stream	Meets State Standard?	Meets Beneficial Use Need?	Meets Standards and Guidelinesa Water Quality Criteria?
Horse Lake Watershed			
Willow	No	No	Yes
Snowstorm	Insufficient data	Unknown[b]	Insufficient data
Secret	Probably	Unknown[b]	Probably
Stony	No[c]	Yes	Probably
Deep	Dry	No	Probably not
Cottonwood	No	Probably not	No
Shoals	No	Probably not	No
Petes	Insufficient data	Insufficient data	Probably
Pine	Insufficient data	Insufficient data	Probably
Eagle Lake Watershed			
Grasshopper	Probably	Probably	Yes
Madeline Watershed			
Red Rock	No	No	No
Slate Creek	Yes	Probably[c]	Probably
Horse Camp	Yes	Probably	Probably
Painter	No	Probably not	Yes[d]
Smoke Creek Desert Watershed			
Smoke	No	No	Yes
North Fork Buffalo Creek	Probably	Probably[b]	Probably
West Fork Buffalo Creek	Probably	Probably	Probably
Middle Fork Buffalo Creek	Probably	Probably	Probably
Parsnip	Dry	Probably[b]	Probably
Frog	Probably	Probably	Probably
Susan River/Honey Lake Watershed			
Willow Ranch	No	No	Yes
Susan	No	Probably	Yes
Cheney	Probably	Probably not[b]	Probably
Skedaddle	No[e]	Probably (mostly dry)	Probably

a Based on U.S. Bureau of Land Management (1999).
b Depends on the aquatic species to be managed for.
c More information is needed to determine the cause of high bacteria levels.
d Horses were gathered after assessment.
e Section 303(d) listed stream for bacteria but recommended for removal from list.

3.18.10 Beneficial Uses and Water Quality Objectives

Beneficial uses define the resources, services, and qualities of the aquatic system that are the ultimate goals of protecting and achieving high water quality. Beneficial uses of waters in the Eagle Lake Field Office area generally include municipal supply, agricultural supply, groundwater recharge, contact and non-contact water recreation, warm and cold spawning and freshwater habitat, and wildlife habitat.

The RWQCBs have set water quality objectives for all surface waters in their basins concerning bacteria, biostimulatory substances, chemical constituents, color, DO, floating material, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity. Also, specific objectives for concentrations of chemical constituents are applied to bodies of water based on their designated beneficial uses.

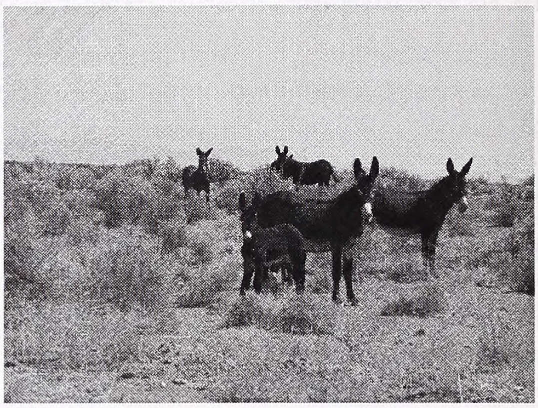
Beneficial uses of all groundwater in the project area have been designated as follows: municipal and domestic supply, agricultural supply, industrial supply, and freshwater habitat. Water quality objectives applicable to all groundwaters have been set for bacteria, chemical constituents, radioactivity, and tastes and odors.

3.18.11 State of Nevada

Nevada Water Pollution Control Law

Water pollution control in Nevada is guided by the Nevada Revised Statutes (laws) and Nevada Administrative Code (regulations), under Sections 445A.300 through 445A.730. The Nevada Division of Environmental Protection (NDEP) is responsible for administration of these laws and regulations, which provide state authority to protect water quality for public use, wildlife, existing industry, and agriculture, and the beneficial economic development of the state. NDEP defines waters of the state to include surface watercourses, waterways, drainage systems, and underground water. NDEP administers the NPDES permits for surface storm water discharges but also requires that discharges into subsurface waters be controlled if a potential for contamination is present. NDEP requires a zero-discharge permit for projects with potential to contaminate groundwater.

3.19 Wild Horses and Burros



Wild, free-roaming horses and burros have a long history of occurrence on lands administered by the Eagle Lake Field Office. Wild horse and burro populations are characterized by their genetic predecessors; animal numbers; sex and sex ratios; and herd descriptors such as average size, age classes, and foal crop (number of foals/total population).

3.19.1 Herd Management Areas

Wild horse and burro herds are designated and managed according to the areas, in which they occur, referred to as herd management areas (HMAs) (Map WHB-1). In the Eagle Lake Field Office area, wild horses and burros are managed in three HMAs summarized in Table 3.19-1 and shown in Map WHB-1.

Currently, HMAs account for 678,799 acres of BLM-administered land in the Eagle Lake Field Office area. These HMAs also contain significant areas of non-BLM-managed land (149,770 acres—primarily privately owned). Management is conducted cooperatively with other landowners.

The appropriate number of wild horses and/or burros for an HMA, referred to as the appropriate management level (AML), is established through an analysis of forage and water conditions, in consideration of other competing animals (i.e., livestock and wildlife). Forage is allocated for wild horses and burros based on the assessment of available forage and water, and in consideration of competing uses. The AML is used as a guide, during horse censuses, to determine whether excess animals must be removed ("gathered"). The AML is evaluated and adjusted as necessary to meet the goal of maintaining a thriving natural ecological balance.

The present combined AML range for the three HMAs is 513-848 horses and 72-116 burros. Herd size estimates made in October 2003 show herd levels at 1058 horses and 80 burros, indicating that the number of horses exceeds the aggregated AML for horses by 25%. Horse populations exceed the AML on two of the three HMAs (Table 3.19-1). The burro population is currently within its AML.

Individual band sizes generally range from 7 to 14 animals. There may be variation in the ratio of mares to studs between the herds, but it usually approximates a stallion/mare ratio of 1:1. Assuming an average foaling rate of 20%, which is typical for northern California, herds in the Eagle Lake Field Office area would produce an average of 211 foals per year at current populations.

Table 3.19-1 Wild Horse and Burro Herd Management Areas within the Eagle Lake Field Office Area

Herd Management Area	Herd Number	Acres of BLM-Managed Lands (Other Lands)	Appropriate Management Level Range – Number of Horses (+ Burros)	Estimated Population (October 2003)
New Ravendale	CA-243	9615 (5268)	10-25	95
Twin Peaks	CA-242	653,425 (144,502)	448-758 (72-116 burros)	927 (80 burros)
Fort Sage	CA-241	15,759 (0)	55-65	36
Total		678,799 (149,770)	513-848 horses (72-116 burros)	1,058 horses (80 burros)

3.19.2 Wild Horse and Burro Management

Maintaining animal populations within appropriate management levels is the principal ongoing management action for horses in the Eagle Lake Field Office area. In addition, baseline genetic data are being collected that will be used to refine current herd management. Animal movement and distribution are affected by fencing and the distribution of watering sources, but decisions regarding these facilities are generally made through allotment management plans (AMPs) for livestock management.

Horses generally need to be gathered on a 3- to 4-year schedule to maintain animal populations within appropriate management level ranges. However, past funding limitations have not allowed this schedule to be maintained. Consequently, herds can easily exceed the AML within only a few years of no gathering. The need to gather animals is determined when monitoring indicates that populations exceed the AML. During gathers, animals are selected for return to the HMA or are determined to be excess and then placed into the adoption program or put into long-term holding.

3.20 Wildlife and Fisheries

3.20.1 Resource Indicators

The Bureau of Land Management is charged with providing habitat, where appropriate, for wildlife use and development (FLPMA 1976). For this document habitat is defined as "the resources and conditions present in an area that produce occupancy – including survival and reproduction – by a given organism. Habitat is organism-specific. It relates the presence of a species, population, or individual (animal or plant) to an area's physical and biological characteristics (Hall et al. 1997)." The four basic habitat elements are food, water, cover, and space. These elements and organism-specific conditions are provided within ecosystems. An ecosystem is defined as a specific area of the earth that includes all of the organisms, along with all components of the abiotic environment within its boundaries (Likens 1992). Abiotic refers to the "nonliving" components of the ecosystem such as water, rocks, and mineral soils. The largest and most obvious living component that will be discussed in this chapter is vegetation.

Eagle Lake Field Office is charged with managing ecosystems for biological diversity (USDI 1999 and 2000). A general definition of biological diversity is the variety of life and its processes, including the variety of living organisms and genetic differences among them, as well as the variety of habitats, communities, ecosystems and landscapes in which they occur (Keystone Center 1991). With the approval of the Secretary of the Interior (USDI 2000) Eagle Lake Field Office was given direction to manage for biological diversity through the Biodiversity Standard for Land Health. This standard is to insure "viable, healthy, productive, and diverse populations of native and desired plant and animal species, including special status species, are maintained. Meaning that: Native and other desirable plant and animal populations are diverse, vigorous, able to reproduce and support nutrient cycles and energy flows (USDI 2000)".

One of the primary tools used in determining if the criteria for the Biodiversity Standard are being met is the analysis of biotic integrity during land health assessment. Land health assessment is used by the Eagle Lake Natural Resource Interdisciplinary Team (ID Team) to interpret indicators of land health (Pellant et al. 2000). The nine indicators used to determine the status of biotic integrity – the capacity of the site being evaluated to support characteristic functional and structural communities in the context of normal variability, to resist loss of this function and structure due to disturbance, and to recover following disturbance – relate to the eight criteria for meeting the Biodiversity Standard. Table 3.20-1 lists the nine criteria of biotic integrity. Table 3.20-2 compares the nine indicators of biotic integrity from (interagency) Technical Reference 1734-6 (Pellant and others 2000) with the seven criteria used to determine compliance with the biodiversity land health standard.

Table 3.20-1 Nine Indicators of Biotic Integrity[a] That Apply to Land Health

Number	Indicator Description
8	Soil Surface Resistance to Erosion. Surface soil is stabilized by organic matter decomposition products and/or a biological crust.
9	Soil Surface Loss or Degradation. Soil surface horizon intact. Soil structure and organic matter content match that expected for the site.
11	Compaction Layer (below soil surface). A compaction layer is a near-surface layer of dense soil caused by the repeated impact on or disturbance of the soil surface. Compaction becomes a problem when it begins to limit plant growth, water infiltration, or nutrient cycling processes.
12	Functional/Structural Groups. Functional/structural groups are a suite of species that because of similar shoot (height and volume) or root (fibrous vs. tap) structure, photosynthetic pathways, nitrogen fixing ability, or life cycle, grouped together on an ecological site basis.
13	Plant Mortality/Decadence. The proportion of dead or decadent (e.g. moribund, dying) to young or mature plants in the community relative to that expected for the site, under normal disturbance regimes.
14	Litter Amount. That portion of the litter component that is in contact with the soil surface (as opposed to standing dead vegetation which is not) provides a major source of soil organic material and the raw materials for onsite nutrient cycling.
15	Annual Production. Above-ground biomass (i.e. annual production) is an indicator of the energy captured by plants and its availability for secondary consumers in an ecosystem, given current weather conditions.
16	Invasive Plants. Plants that are invasive to the area of interest. These plants may or may not be exotic.
17	Reproductive Capability of Perennial Plants (native or seeded [i.e., non-native]). Reproductive growth occurs in a modular fashion, similar to the remainder of the plant inflorescence production (e.g., seed stalks) becomes a basic measure of reproductive potential for sexually reproducing plants and clonal production (e.g. tillers) for vegetative reproducing plants.

a. The determination of biotic integrity is based on the preponderance of evidence in evaluations using the nine indicators.

Table 3.20-2. A Comparison of the Indicators of Biotic Integrity with the Criteria for Biodiversity

Criteria for the Biodiversity Standard for Land Health (with Biotic Integrity Indicator Numbers applicable for each Criterion)[b]
Wildlife habitats include seral stages, vegetation structure, and patch size to promote diverse and viable wildlife populations. (12)
A variety of age classes is present for most species. (13, 15, 17)
Vigor is adequate to maintain desirable levels of plant and animal species to ensure reproduction and recruitment of plants and animals when favorable events occur. (11, 13, 15, 17)
Distribution of plant species and their habitats allows for reproduction and recovery from localized catastrophic events. (12, 13, 17)
Natural disturbances, such as fire, are evident but not catastrophic. (12, 13)
Non-native plant and animal species are present at acceptable levels. (16)
Habitat areas are sufficient to support diverse, viable, and desired populations and are connected adequately with other, similar habitat areas. (landscape ecology)
Adequate organic matter (litter and standing dead plant material) is present for site protection and decomposition to replenish soil nutrients and maintain soil health. (8, 9, 11, 13, 14, 15)

b. All seven criteria used to describe biodiversity must be fulfilled to meet that standard. If biotic integrity is judged 'healthy' (i.e. the nine indicators are fulfilled) but one or more of the criteria for biodiversity have not been met, the vegetation alliance/association is at-risk or unhealthy, and the over-all standard has not been met.

3.20.2 Habitats

Discussions of habitats are primarily focused on the vegetation component. Table 3.20-4 is a listing of 24 habitats with potential and known associated wildlife species. These habitats are incorporated into 13 vegetation habitats for discussion here, and associated biotic integrity conditions are listed in Table 3.20-3. The habitats are discussed in a hierarchical order beginning with those with the most complex structural complexity and ending with those habitats with the least structural complexity. The Ecological Society of America (ESA 2004) states that "the structural complexity and diversity of ecosystems directly influence the pattern and rate of many ecosystem processes as well as providing habitat for organisms which maintain important processes.

Structural complexity in natural forests includes trees of varying size, condition, and species, standing dead trees, logs and woody debris on the forest floor, as well as multiple canopy levels and canopy gaps. This structural complexity is critical in providing unique habitats for a large array of organisms, many of which have highly specialized habitat requirements. Some of these organisms carry out key ecosystem functioning. For example, lichens dwelling in the forest canopy convert atmospheric nitrogen into biologically useful forms." Voles and other wildlife that inhabit down and rotting logs and trees provide the prey base for canopy dwelling predators such as owls. "Structural complexity of forests is also itself important in maintaining and regulating processes, such as aspects of the hydrologic cycle." For a more in-depth description of the vegetation communities that are found within the 13 habitats refer to the Vegetation Section within this chapter.

Coniferous Forest Habitats

Coniferous forest within the Eagle Lake Field Office area is found on the north end of Eagle Lake, Fredonyer Peak, above and along the Susan River Canyon, and along the Diamond Mountains. Ponderosa pine is the most dominate tree and forest community with some intermingling of Jeffrey pine. Pure stands of white fir are found on Fredonyer Peak. Black oak woodlands are intermingled with ponderosa pine along the highland of Roop Mountain and Susan Peak north of Susanville, mid-elevations of the Diamond Mountains south of Susanville, and above and within the Susan River Canyon. Indicator wildlife for these habitats include Lewis's woodpecker, white-headed woodpecker, brown creeper, western wood peewee, mountain chickadee, western screech owl, cooper's hawk, golden-mantled ground squirrel, and rubber boa. Open stands of these habitats that support a shrub/grass understory also provide habitat for mule deer, especially where the shrubs are dominated by bitterbrush. Bald eagles use large pines for nesting habitat when they find suitable stands within a short distance of bodies of water that support foraging.

Ponderosa pine has a higher tolerance to drought and fire than white fir. It currently is in little danger of being lost, except possibly through drought-triggered insect infestations.

Western Juniper Habitats

Western juniper is expanding its range and density in the Eagle Lake Field Office area. Throughout the field office area, juniper is considered an invasive species on those sites that are not historical juniper woodland sites, as mapped in the soil surveys. Combinations of aggressive fire suppression, improper livestock grazing, and, some believe, an increase in carbon dioxide due to global warming (Miller and Wigand 1994) have served to advance juniper from its natural distribution into sagebrush as well as other shrub stands.

Table 3.20-3 Acres of Vegetation Habitat in Various Categories of Biotic Integrity Condition

Vegetation Type and Sub - Type	Healthy	Healthy/ Lacks Key Attributes[a]	At Risk	Unhealthy	Totals
Coniferous Forest (All Canopy Cover Classes)[b]	18,982	1,366	1,614	0	21,962
Juniper Woodland >20% Canopy Cover	0	4,185	9,837	6,907	20,929
Black Oak Woodland	0	1,298	0	0	1,298
Mountain Mahogany	1,035	465	0	0	1,500
Aspen	15	1,176	210	0	1,401
Riparian Shrub/Tree[c]	-	-	-	-	-
Great Basin Mixed Shrub	180,539	156,617	146,059	47,781	530,996
Big Sagebrush – Mountain Big Sagebrush	14,079	28,660	7,542	0	50,281
Big Sagebrush – Basin Big Sagebrush	14,893	4,869	0	8,878	28,640
Big Sagebrush – Wyoming Big Sagebrush	2,205	5,788	16,813	2,756	27,562
Low Sagebrush[d]	48,915	92,681	41,261	4,495	187,352
Mixed Desert Shrub	24,860	25,462	46,873	9,153	106,348
Herbaceous – Grassland - Annual	0	3,007	2,909	11,448	17,364
Herbaceous – Grassland - Perennial	1,056	4,922	69	215	6,262
Herbaceous – Forb	0	0	2,483	2,357	4,840
Total Acres By Health Status	**306,579**	**330,496**	**275,670**	**93,990**	**1,006,735**
Percent of Total Veg. in Each Health Status	**30%**	**33%**	**27%**	**9%**	

a "Healthy/Lacking Key Attributes" means that lands were rated as healthy based on the nine indicators used for the Biotic Integrity Attribute Rating (USDI 2000), but the indicators did not fully meet criteria for the Biodiversity Standard for Land Health (USDI 2000).

b Includes black oak woodlands because much of the black oak is intermixed with pines.

c Exact acreages are not known. The current estimate is less than 1,000 acres.

d Includes both low sagebrush and Lahontan sagebrush.

The following habitat discussions and species listed are based on what should occur if the habitat is healthy. As indicated in Table 3.20-2 30% of the habitat acres in the Eagle Lake Field Office area are healthy while the remaining habitats are in some stage of degradation. Habitat degradation will limit species abundance and diversity, and lower population vigor.

Native, open juniper stands often serve as important thermal and hiding cover for mule deer and pronghorn. In those areas where juniper has invaded shrub communities and the juniper reaches approximately 18% cover bird communities' shift from shrub species such as Brewer's sparrow, sage thrasher, and sage sparrow to woodland species such as western scrub jay, juniper titmouse, and Oregon junco. Juniper berries are an important food source for wintering birds, especially Townsend's solitaire, mountain bluebird, American robin, and cedar waxwing. Breeding birds associated with this habitat include Swainson's hawk, long-eared owl, juniper titmouse, and gray flycatcher. Ferruginous and red-tailed hawks, and golden eagles roost on and hunt from juniper perches. Some bat species found in the Eagle Lake Field Office area may also roost in juniper.

Aspen Habitats

Quaking aspen is found in two forms of limited size and distribution within the Eagle Lake Field Office area. One form is trees aggregated into stands on deep moist soils on concave slopes of mountains such as Shinn Mountain, Skedaddle Mountains and Spanish Springs Peak. Tree forms are also associated with wetland or riparian areas such as on Fredonyer Peak, Skedaddle Mountains, and in small stands intermingled with Fremont and black cottonwood, along the Susan River. The second form is referred to as aspen thickets. Within these stands the aspen is bent and twisted into a shrub form by snow pack. This form is found in pockets, where the snow is the heaviest, on Shinn Mountain and Spanish Springs Peak, and other mountains. Many aspen stands have been degraded through extensive livestock grazing, and aggressive fire suppression. Aspen are fire responsive if the fire is not extremely hot.

Aspen stands provide fawning and foraging habitat for mule deer. Aspen also supports high densities of breeding birds, including some species that prefer or are found most often in aspen stands. Species found in aspen include northern goshawk, Cooper's hawk, orange-crowned warbler, warbling vireo, Bullock's orioles, tree swallow, house wren, bluebirds, sapsuckers, western tanager, and woodpeckers. Several bat species use very old and decaying aspen for roosting and nursery colonies.

Riparian Tree/Shrub Habitats

Riparian tree/shrub habitats are found along perennial streams within the Eagle Lake Field Office area. Of the three longest streams Susan River has the most continuous woody riparian habitat which includes Fremont and black cottonwoods, and some aspen. Willows such as shining willow, red willow, Pacific willow, and Scouler's willow grow in either a shrub or tree form, and Lemmon's and arroyo willow which grow in a shrub form, also line the Susan River. Smoke Creek, both Upper and Lower, supports shrub willows, and very small patches of cottonwoods. Willow Creek supports some tree and shrub willows, and very limited cottonwoods. These three threads of water and riparian vegetation along with several other smaller streams that represent less than one percent of the field office area provide the highest density of wildlife species and variety of species found within the field office area.

Mule deer utilize these habitats for fawning, fawn-rearing, browsing, and thermal cover. Point Reyes Bird Observatory (PRBO) recorded a greater number of bird species within these habitats along the Susan River, lower Smoke Creek, and Willow Creek than in the larger upland habitats sampled. Bird species found on all three creeks included Bewick's wren, black-throated grosbeak, Bullock's oriole, bushtit, canyon wren, killdeer, mallard, song sparrow, Wilson's warbler, and yellow warbler. Susan River produced the only American dippers recorded while lower Smoke Creek provided the surprising opportunity to observe a yellow-breasted chat. Amphibians such as the tree frog and reptiles such as the Rocky Mountain rubber boa, valley garter snake, and Sierra garter snake find suitable habitat within the woody riparian habitat. Some of the small mammals found within this habitat include porcupine, Great Basin and long-tailed pocket mice, long tailed weasels, and montane voles.

Of these three major streams Willow Creek provided the least diversity, perhaps an indication of a once over-utilized recovering stream. Lower Smoke Creek is benefiting from the presence of beavers whose dams and ponds have helped the widening and recovery of a once degraded riparian habitat.

Mountain Mahogany Habitat

Curlleaf mountain mahogany occurs on very rocky soils usually on the shoulder or ridge of mountainous landforms. Some larger stands of mountain mahogany are found on Fredonyer Peak sideslopes, and on shoulders and ridges. Mountain mahogany can be dense thickets exhibiting a shrubby growth form or more open treelike stands. Mountain mahogany is intolerant of intense fire as seen by the recent, normally long-term, loss of a large stand on the upper north slopes of Observation Peak. Re-seeding has begun and will proceed into the near future.

Mule deer utilize curlleaf mountain mahogany for fawning, fawn-rearing, foraging, escape and thermal cover. Other wildlife species characteristic of this habitat includes Say's phoebe, sage thrasher, lesser goldfinch, western harvest mouse, least chipmunk, and common porcupine.

Great Basin Mixed Shrub Habitats

There are a minimum of seven different communities within Great Basin Shrub, the most widely distributed habitats within the Eagle Lake Field Office area. These range from tobacco brush and greenleaf manzanita dominated communities at the higher elevations, to snowberry/mountain sagebrush communities, bitterbrush/big sagebrush communities, bitterbrush dominated communities, and a community of low sagebrush/big sagebrush mix. Fredonyer Peak, Shinn Mountain, Spanish Springs Peak and the Diamond Mountains exhibit the elevation shifts in these communities.

Sage-grouse use the low sagebrush/ big sagebrush community for winter habitat. California quail are found throughout these habitats while mountain quail, although rare, can be found in the higher elevation communities. Other birds' characteristics of these habitats include the black-chinned sparrow, western tanager, northern flicker, and gray flycatcher. Mule deer use the tobacco brush stands for fawning, escape and thermal cover. Bitterbrush is an important browse for mule deer in the late summer, fall, and winter. Small mammals found in these habitats include least chipmunk, deer mouse, and Great Basin pocket mouse.

Big Sagebrush Habitats

These habitats, which are found throughout the field office area, include mountain big sagebrush communities, basin big sagebrush communities, and Wyoming big sagebrush communities. Mountain big sagebrush communities are found at higher elevation (usually above 5,500 feet) in deep, highly productive soils. These communities normally produce greater shrub overstory/perennial grass understory diversity than the other two big sagebrush subspecies. Basin big sagebrush is the tallest big sagebrush, growing to heights exceeding six feet, in deep soils at a variety of elevations normally near or alongside degraded riparian/wetland areas. Wyoming big sagebrush grows in the least hospitable of big sagebrush habitats. These habitats are normally below 5,500 feet in elevation, with the subsequent limited precipitation (8" – 10"), and in soils series that produce the shallowest soils available to big sagebrush. Wildlife diversity and relative abundance will be greater in mountain big sagebrush, followed by basin big sagebrush with Wyoming big sagebrush producing the least.

The majority of sage-grouse nesting within the Eagle Lake Field Office area occurs under Wyoming big sagebrush. Brood-rearing can take place within all the big sagebrush communities but those that have a diverse forb (wildflower) understory provide the best habitat. Other birds found in big sagebrush habitats include Say's phoebe, sage thrasher, gray flycatcher, sage sparrow, black-chinned sparrow and Brewer's sparrow. Mule deer use big sagebrush for escape, bedding, and thermal cover. Sagebrush forage provides a higher level of crude protein than bitterbrush but due to the caustic effects of the turpentine-like oils in sagebrush leaves mule deer cannot consume large quantities.

Pronghorn appear to be better equipped for consuming sagebrush which they do during the winter. Wyoming big sagebrush, with its lower structure, is more suitable habitat for pronghorn than the other two big sagebrush subspecies. Pronghorn do fawn in Wyoming big sagebrush stands, and use the shrub for thermal cover. Other mammals commonly found in big sagebrush communities include the Great Basin pocket mouse, black-tailed jackrabbit, cottontail rabbit, deer mouse, and at times, Heermann's kangaroo rats. The Great Basin rattlesnake, gopher snake, and terrestrial garter snake are the predominate reptile species found in big sagebrush habitats.

Low Sagebrush Habitats

Low sagebrush is a more nutritious and palatable forage than big sagebrush. Pronghorn and sage grouse prefer this sagebrush for winter forage and often wait to migrate until heavy snows force them to move on to less palatable plants, (e.g., big sagebrush). Low sagebrush is important to pronghorn, because pronghorn are adapted to areas with low vegetation that enables a better view of potential predators. Large raptors often hunt in this habitat because it affords a good view of prey and, depending on the site, few obstructions for low-level flight. Low sage often occurs in association with gravels or boulders. A combination of the soil surface, low structure, and relatively wide spacing between sagebrush plants makes these habitats fairly tolerant of fire, except where they are intermingled with taller sagebrush species, and under intense wind-driven fire conditions. The Dry Valley Rim, and shrink-swell heavy clay soils scattered throughout the field office area are where this habitat is located.

Mixed Desert Shrub Habitats

Mixed desert shrub habitats refer to at least three black greasewood, two saltbush, and two rabbitbrush dominated communities, and one silver sagebrush community. These habitats are found on fine-grained saline soil, sometimes closely associated with dry lakebeds, or along the vegetated borders of non-vegetated playas. Major locations for these sparse habitats are near Flannigan, Nevada; the Madeline Plains; Mud Flat; and along the periphery of the Smoke Creek Desert.

Reptile and mammal species found within these habitats include the pygmy and northern desert horned lizards, antelope ground squirrel, and Merriam kangaroo rat. The northern and loggerhead shrike, as well as chipping sparrows also occupy these habitats. Mule deer and pronghorn use salt desert shrub habitats sparingly. Pronghorn will feed on a shrub, winterfat, during the winter, and bud sagebrush in the early spring.

Herbaceous Riparian (wetland) Habitats

Wet and semi-wet meadow communities dominate these habitats. There is a high diversity and relative abundance of wildlife species found on and around these normally postage stamp-sized habitats scattered throughout the field office area. A major attraction for these sites beyond vegetation is surface water availability. Like riparian areas these wetland sites are wildlife habitats with a value far beyond their small acreage.

Marsh wrens occupy the more marshy sites that have bulrush and cattails. Other bird species include winter wrens, red- winged blackbirds, and yellow-headed blackbirds. Sage-grouse use these wetlands for late summer brood-rearing. Mammals attracted to these sites include mule deer, montane vole, and several bat species.

Herbaceous/Grassland Habitats

Herbaceous habitats discussed here include three primary habitats, Perennial Grassland, Annual Grassland, and Forb Habitat. Although herbaceous and grassland have low habitat-specific biodiversity values (defined as number of species they support) compared to other more structurally-complex habitats, perennial grassland and forb habitat contribute importantly to regional biodiversity. Annual grasslands (cheatgrass and medusahead) are considered biological deserts.

Perennial Grass Habitats: This community is dominated by bluebunch wheatgrass or other perennial grass species. Some shrubs do occur within this habitat but are a minor component. Monoculture crested wheatgrass seedings devoid of shrubs or forbs are very biologically limited. Although mule deer, pronghorn, and sage-grouse are the most obvious species found within this community there are small mammals and song birds that benefit even more. Small mammals include Great Basin pocket mouse, northern grasshopper mouse, and western harvest mouse. Grassland birds include horned larks, western meadowlarks, rock wrens, and California quail.

Table 3.20-4 Special-Status Species and Important Big Game Species Habitat Relationships

Common/ Scientific Name	Status[a]	White Fir	Ponderosa/ Jeffrey Pine	Juniper Woodland	Mountain Mahogany	Aspen	Riparian	Mountain Shrub	Juniper/ Big Sagebrush	Mixed Shrub	Bitterbrush	Big Sagebrush/ Bunchgrass	Big Sagebrush	Low Sagebrush	Greasewood/ Shadscale	Silver Sage	Semi-Wet Meadow	Bluebunch Wheatgrass	Cheatgrass	Sunflower	Natural Aquatic	Manmade Reservoir	Talus	Cliff/ Canyon	Alkaline flats/ saltgrass
Northern sagebrush lizard *Sceloporus g. graciosus*	BLM		X	X	X				#	#	#	X	#	#	X		X	X	X	X			X	#	
Pygmy rabbit *Brachylagus idahoensis*	BLM						X	X	X	X	X	#	X									X			
Townsend's big-eared bat *Plecotus townsendii*	BLM	X	X	X	X		X	X	X													X	X	X	
Pallid bat *Antrozous pallidus*	BLM		#				#					X					X						X	#	
Spotted bat *Euderma maculatum*	BLM	X	X	X	X	X	X	X	X	X	X	X	X	X										X	
Fringed myotis *Myotis thysanodes*	BLM	X	X	X	X		X	X	X	X	X		X				#					X		X	
Long-eared myotis *Myotis evotis*	BLM	X	#		X	X	#	X		X							#					#	X	X	
Small-footed myotis *Myotis ciliolabrum*	BLM	X	X	X	X	X	X	X	X	X	X	X	X	X										X	
Yuma myotis *Myotis yumanensis*	BLM	X	X	X	X	X	X										X					X		X	
Bald eagle *Haliaeetus leucocephalus*	FT, SE, FEPA	X	X				X											#			X	#			
Swainson's hawk *Buteo swainsoni*	ST, BLM	X		X	X	X	X	#	X	X		X	X	X	X		X	X	X	X					

Common/ Scientific Name	Status[a]	White Fir	Ponderosa/ Jeffrey Pine	Juniper Woodland	Mountain Mahogany	Aspen	Riparian	Mountain Shrub	Juniper/ Big Sagebrush	Mixed Shrub	Bitterbrush	Big Sagebrush/ Bunchgrass	Big Sagebrush	Low Sagebrush	Greasewood/ Shadscale	Silver Sage	Semi-Wet Meadow	Bluebunch Wheatgrass	Cheatgrass	Sunflower	Natural Aquatic	Manmade Reservoir	Talus	Cliff/ Canyon	Alkaline flats/ saltgrass
Golden eagle *Aquila chrysaetos*	FEPA	X	X	#	X	X	X	#	#	#		#	#	#	#	#	#	#	#	#	#		#	#	
Greater sage-grouse *Centrocercus urophasianus*	BLM						#	#	#	#	#	#	#	#	#		#	#			#				
Greater sandhill crane *Grus canadensis tabida*	ST, BLM						#										#				#	#			
Yellow-billed cuckoo *Coccyzus americanus*	FC, SE						X														X				
California spotted owl *Strix occidentalis occidentalis*	BLM	X	#				X																		
Burrowing owl *Athene cunicularia*	BLM									X			X	X	#	#	#			#	#				
Willow flycatcher *Empidonax traillii*	SE						#	X										X							
Bank swallow *Riparia riparia*	ST					X	X										X					#	X		
Tricolored blackbird *Agelaius tricolor*	BLM						X										X						X		
Carson wandering skipper *Pseudocopaeodes eunus obscurus*	FE																								X

Common/ Scientific Name	Status[a]	White Fir	Ponderosa/ Jeffrey Pine	Juniper Woodland	Mountain Mahogany	Aspen	Riparian	Mountain Shrub	Juniper/ Big Sagebrush	Mixed Shrub	Bitterbrush	Big Sagebrush/ Bunchgrass	Big Sagebrush	Low Sagebrush	Greasewood/ Shadscale	Silver Sage	Semi-Wet Meadow	Bluebunch Wheatgrass	Cheatgrass	Sunflower	Natural Aquatic	Manmade Reservoir	Talus	Cliff/ Canyon	Alkaline flats/ saltgrass
Mule deer *Odocoileus hemionus*		#	#	#	#	#	#	#	#	#	#	#	#	#	X	#	#	#	#	#		#	#	#	
Pronghorn *Antilocapra americana*			#			X	#		#		#	#	#	#	#	#	#	X	#	#		#			

Location indicators:

= Recorded during 1979 and other inventories.

X = Potential for occurrence in habitat type.

[a] Status:

FE = Federally endangered.

FT = Federally threatened.

FC = Federal candidate status for listing.

SE = State endangered.

ST = State threatened.

BLM = BLM sensitive species.

FEPA = Federal Bald and Golden Eagle Protection Act.

PFL = Has been petitioned for listing under ESA.

Several raptors hunt this community because the short vertical structure allows for ease of seeing prey. These raptors include northern harrier, red-tailed hawk, rough-legged hawk, and golden eagle. Examples of this habitat are found on steeper slopes of the Skedaddle Mountains and within the 2001 Observation Fire.

Forb Habitats: Within the Eagle Lake Field Office area this habitat is dominated by annual and perennial sunflower, and located primarily on the Tablelands. There are shrub species and some juniper associated with this habitat but the forbs dominate. Bird species found within this unique habitat include northern harrier, red-tailed hawk, rough-legged hawk, golden eagle, American kestrel, sage-grouse, horned lark, western meadow lark, mourning dove, scrub jays, and American goldfinch. Mammals and reptiles include California ground squirrel, pronghorn, mule deer, deer mice, and Great Basin rattlesnake.

Aquatic Habitats

Aquatic habitats consist of marshes (Biscar Cooperative Wildlife Management Area), streams (see Riparian Habitats), lakes (Eagle Lake) and reservoirs (Round Corral, Dodge, Buckhorn, and Pilgrim). These habitats are required by fish and amphibians, while the tall marsh vegetation supplies important nesting habitat for marsh wrens. Waterfowl, gulls, terns, herons, egrets, and American dipper are found in the true aquatic (water) habitat. Some nest along the shoreline. Bald eagles, osprey, and other birds forage extensively in these habitats.

3.20.3 Federally Listed Threatened and Endangered Species

The following paragraphs describe the current status and distribution of wildlife species that are known or suspected to occur in the Eagle Lake Field Office and have been listed or are candidates for listing as either threatened or endangered under the federal Endangered Species Act of 1973, as amended (ESA). These species are included because they have been identified for protection and management in the Eagle Lake Field Office area. Habitat relationships of these species are identified in Table 3.20-3.

Carson Wandering Skipper

Habitat for the Carson wandering skipper (*Pseudocopaeodes eunus obscurus*), a federally endangered butterfly, is alkaline-tolerant salt grass grasslands and alkaline or alkaline-intolerant nectar sources in, or near, salt grass habitats. The larval host plant for this subspecies is salt grass (*Distichlis spicata*), and it is believed this species produces only one brood per year during June to mid-July. Although the full range of habitat requirements is unknown, the species tends to occur in open areas near water or geothermal springs, at elevations less than 5,000 feet. (USDI USFWS 2002.)

There are no known populations of Carson wandering skipper on BLM-administered lands in the Eagle Lake Field Office area. However, approximately 35,000 acres of potential habitat are being inventoried. The butterfly occupies sites on nearby Department of Defense, private, and CDFG lands. USFWS is developing a recovery plan, in cooperation with other agencies and local citizens. There is no information on population trends for this species in the Eagle Lake Field Office area.

Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) is federally listed as threatened. It has been proposed for delisting. Bald eagles require large trees for perching and nesting near lakes and large rivers. Most bald eagle nest sites in California are within 1 mile of large waterbodies or free-flowing streams with abundant fish (Polite et al. 1990). Bald eagles primarily forage on fish, waterfowl, and carrion. Winter foraging sites are usually within 12 miles of bald eagle roosts (Shimamoto and Newman 1981).

The following information was excerpted from the Pacific Bald Eagle Recovery Plan (U.S. Department of Interior 1986) and from Lehman (1979). Nest stands generally have from 20% to less than 40% overstory canopy cover. Nest trees are often situated upslope from a water body in an exposed, prominent position. Nest trees range from 76 to 150 feet tall, and the average diameter is 43 inches diameter at breast height (dbh). In California, 71% of the trees used for nests are ponderosa, Jeffrey, and sugar pines.

Noise and potential harassment of eagles from management activities is a concern. Disturbance studies have shown that bald eagles at nest sites respond most to pedestrian activities, less so to boats and ground vehicles, and least from aircraft flights. Distance to human activity is important in determining response; a minimum buffer of 600 meters is recommended around breeding bald eagles (Grubb and King 1991). However, individual pairs show varied response to human disturbance in northeastern California, with some pairs acclimating to higher levels of disturbance at closer distances to the nest.

Bald eagle habitat is limited within the Eagle Lake Field Office area (Detrich 1979). One active bald eagle territory is known to occur on BLM-administered lands in the field office area. Monitoring of active territories during the 1990s showed average annual territory occupancy rates (77%) and average annual productivity (1.32 young per occupied nest) that are consistent with healthy bald eagle populations. Productivity is greater than what occurred in the general region during the 1970s–1980s, when pesticides were affecting reproductive success

The Cleghorn Bald Eagle Habitat Management Plan is being implemented in the Eagle Lake basin. These objectives specify: (1) maintaining and improving eagle habitat by providing a ponderosa or Jeffrey pine overstory of 15–20% crown closure made up of trees of large, open-branched, thick-limbed conformation; and (2) providing for an uneven-aged, multiple-storied, lower-story stand of 20–40% canopy coverage to ensure tree vigor and long-term perpetuation of the stand.

A large wintering population of bald eagles uses Eagle Lake, and smaller numbers can be found at other ice-free waterbodies throughout the field office area. The wintering population at Eagle Lake has increased substantially over the last 25 years (Table 3.20-5), consistent with the species recovery throughout its range.

3.20.4 California State-Listed and BLM Sensitive Species

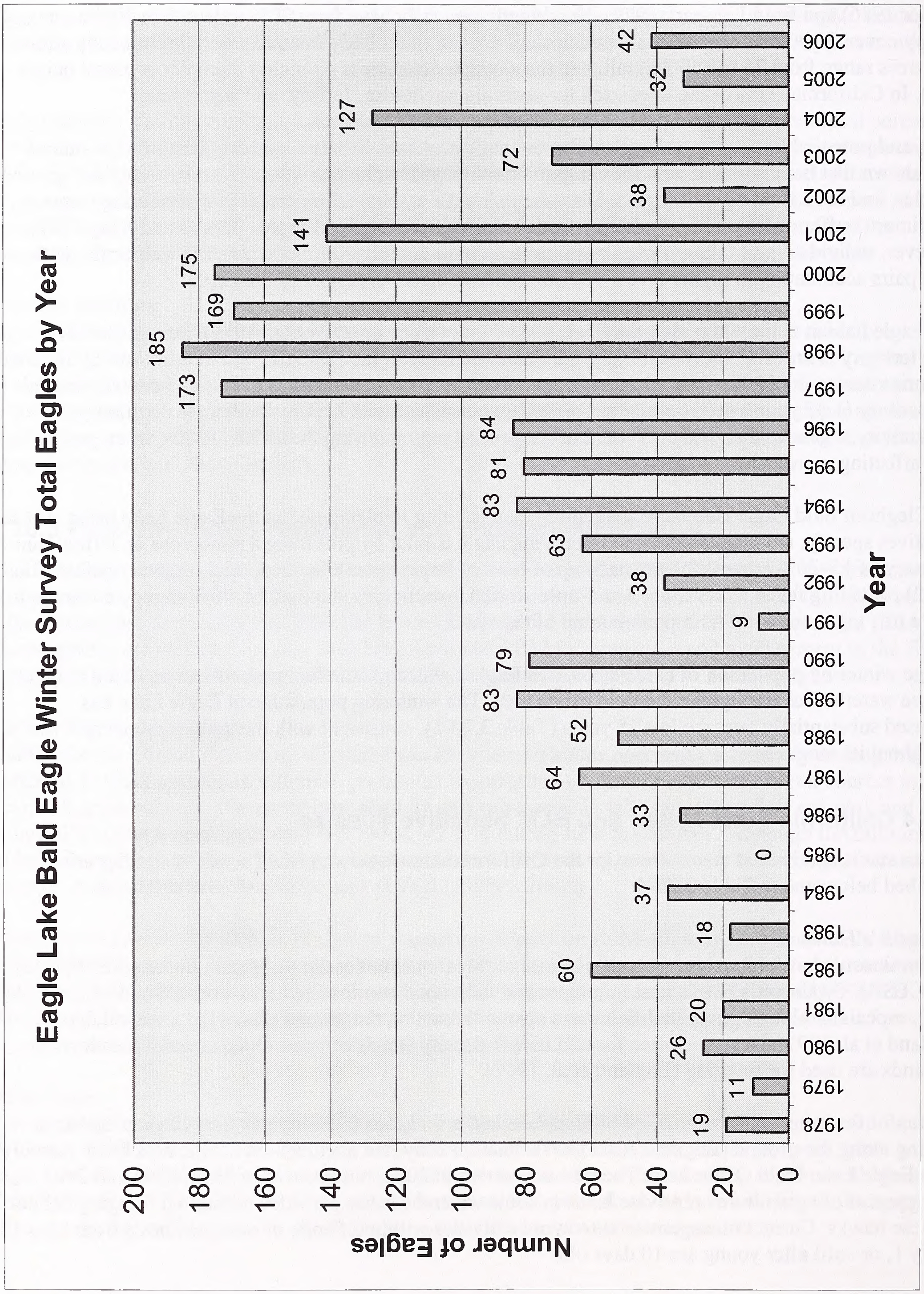
Species status and habitat associations for the California state-listed and BLM sensitive species are described below and in Table 3.20-4.

Swainson's Hawk

The Swainson's hawk (*Buteo swainsoni*) is listed as threatened under the California Endangered Species Act (CESA). Swainson's hawks nest in juniper and individual conifer and hardwoods (Woodbridge et al. 1995), especially along agricultural fields and also will roost on the ground if no trees are available (England et al. 1997). Nests are often located in low-density stands of trees. Open areas of meadows or croplands are used for foraging (England et al. 1997).

This raptor feeds on small rodents, rabbits, snakes, and arthropods either by catching them in the air or jumping along the ground (England et al. 1997). There is only one documented Swainson's hawk territory in the Eagle Lake Field Office area. The nest was active in 2002, but inactive in 2003, 2004 and 2005. Development of agriculture on private lands in some watersheds has provided additional foraging habitat for these hawks. Current management is to avoid activities within 0.5 mile of occupied nests from May 15 to July 1, or until after young are 10 days old.

Table 3.20-5


Eagle Lake Bald Eagle Winter Survey Total Eagles by Year
Number of Eagles
0
20
40
60
80
100
120
140
160
180
200
Year
1978
19
1979
11
1980
26
1981
20
1982
60
1983
18
1984
37
1985
0
1986
33
1987
64
1988
52
1989
83
1990
79
1991
9
1992
38
1993
63
1994
83
1995
81
1996
84
1997
173
1998
185
1999
169
2000
175
2001
141
2002
38
2003
72
2004
127
2005
32
2006
42

Greater Sandhill Crane

Greater sandhill cranes (*Grus canadensis tabida*), listed as threatened under the CESA and a BLM sensitive species, nest mainly in wetlands—especially along margins of shallow water, where the birds assemble a nest of floating materials. Nesting also has been documented on islands. When feeding, this subspecies prefers open areas in croplands and meadow habitats in dry and wet (preferred) habitats. Sandhill cranes feed on roots, tubers, grasses, grains in croplands earthworms, mice, snakes, frogs, crayfish, and various insects; they will also take fruits and berries if available (Tacha et al. 1992).

BLM-administered lands in the field office area do not support nesting habitat. The wetlands needed to support greater sandhill cranes are found on private and CDFG administered lands. Cattle grazing in wet meadow systems and sedge marshes may reduce habitat quality and disturb nesting cranes. There is no information on the current or historical population status or trends for cranes on BLM-administered lands in the field office area. Without habitat on BLM-administered lands, the only effort for maintaining viable populations in the field office area is to support CDFG in their conservation efforts, such as when issuing right-of-way permits in cooperation with the State of California that cross BLM, state, and CDFG lands.

Yellow-Billed Cuckoo

There are no known records of yellow-billed cuckoos (*Coccyzus americanus*) on BLM-administered lands in the Eagle Lake Field Office area. The species is a federal candidate for listing and is state listed as endangered. In the western United States, yellow-billed cuckoos breed in mature riparian forests dominated by Fremont cottonwood and willow (Hughes 1999). There are two records from Lassen County, but these pertain to vagrant individuals. There are currently no known populations in northeastern California. Surveys by the Point Reyes Bird Observatory in 2002, 2003,and 2004 did not locate any yellow-billed cuckoos in potential habitat (PRBO 2005). Only two streams in the Eagle Lake Field Office area, the Susan River and Lower Smoke Creek, currently support potential habitat for this species.

Willow Flycatcher

The willow flycatcher (*Empidonax traillii*) is state listed as endangered. Willow flycatchers are found in larger riparian and wet meadow systems from 2,000 to 8,000 feet, and generally nest in large willow thickets over or near slow-moving water (Sedgwick 2000, Harris et al. 1987). Although there are no known breeding records of willow flycatchers on BLM-administered lands in the Eagle Lake Field Office area, recent and historical records indicate that breeding is possible in suitable habitat.
Surveys completed by the Point Reyes Bird Observatory in BLM-administered riparian habitat did not find breeding willow flycatcher (PRBO 2005).

Bank Swallow

The bank swallow (*Riparia riparia*) is listed as threatened under the CESA. Bank swallows build their nests on vertical to near-vertical riverbanks, cliffs, bluffs, and road cuts. Their nests are dug into cliff faces near the top of the face and often near a source of water such as a stream or lake, or in a riparian area. Cliff substrate is generally of a fine-textured or sandy soil. Locally, bank swallow nesting habitat is found in stream systems with the deep "incised banks" associated with natural and human activity induced erosion. This species feeds primarily on insects it "hawks" over open wet meadows and other riparian areas. In migration, this species flocks with other swallows over many open habitats. (Garrison 1999.)

There are scattered, local breeding colonies of bank swallows in Lassen County (Airola 1980). It is possible that some are established in BLM-administered wetlands in the Eagle Lake Field Office area. However, there is no information on the current or historical population status or trends for bank swallows in the Eagle Lake Field Office area.

Northern Sagebrush Lizard

The northern sagebrush lizard (Sceloporus graciosus graciosus) is on BLM's list of sensitive species. Northern sagebrush lizards are widely distributed in the Great Basin and Intermountain regions (Stebbins 2003). Typical habitat is sagebrush-dominated, but sagebrush lizards can be found in open forests of juniper, ponderosa pine, and lodgepole pine (Nussbaum et al. 1983). They forage on small arthropods, especially ants and beetles (Stebbins 2003). They often bask in the sun for thermo-regulation on the ground, in low branches, and on rocks. Eggs are laid in small holes dug a few centimeters deep in loose soil at the base of shrubs. Northern sagebrush lizards hibernate in crevices and small rodent burrows.

Northern sagebrush lizard is common in the region; however, there is little to no information available regarding these lizards on BLM-administered lands in the Eagle Lake Field Office area. No surveys have been conducted since 1978 for sagebrush lizard or its habitats in the field office area except in the Fort Sage Mountains OHV Area. These surveys began in 2004. There is no information on population trends for this species in the Eagle Lake Field Office area.

Golden Eagle

The golden eagle (*Aquila chrysaetos*) is on BLM's list of sensitive species. Golden eagles nest on cliffs, although a few use large trees (Menkens and Anderson 1987). They are long-lived and loyal to their territories (Steenhof et al. 1997). A study by BLM biologists in northeastern California showed that jackrabbits and cottontail rabbits comprised over 90% of the biomass consumed by golden eagles during the breeding season (Bloom and Hawks 1982). There is no recent information on the number of golden eagle territories, reproduction, or population trends in the Eagle Lake Field Office area.

Greater Sage-Grouse

Greater sage-grouse (*Centrocercus urophasianus*) is on BLM's list of sensitive species. The greater sage-grouse is heavily dependent on sagebrush habitats and is considered a sagebrush obligate species. On BLM lands in the Eagle Lake Field Office area, historical and active strutting grounds (known as leks) are located primarily in low sagebrush habitats. Sage-grouse inhabit sagebrush stands throughout the year. Leks are often located in open areas surrounding sagebrush (Connelly et al. 2000). Sage-grouse most often nest successfully under sagebrush with a mean height of 26", an herbaceous understory with a mean height of 9" and a visual obstruction of 13" (Popham and Gutierrez 2003). Although many nests have been found in lower-quality habitats, these are almost always unsuccessful due to nest abandonment and/or predation.
Sage-grouse raise their broods in sagebrush habitats with an abundance of forbs during the early summer. As these sites dry out, wet meadow and riparian habitat become primary habitat. The young can forage on the abundant insects that are a critical component to their diet during their first few weeks of life (Schroeder et al. 1999.)

In 2002, USFWS received a petition to list greater sage-grouse throughout its range. A finding has been made by the USFWS that this species does not warrant listing (Federal Register 2004). A conservation strategy for sage-grouse and sagebrush ecosystems is currently being developed for the 1.6-million-acre Buffalo-Skedaddle Population Management Unit (PMU) (Northern California Sage-Grouse Working Group 2005), of which the majority is in the Eagle Lake Field Office area. The PMU conservation strategy is being prepared by BLM; CDFG; Nevada Department of Wildlife (NDOW); representatives from Lassen County, the livestock industry, and the Northeast California Resource Advisory Council; and interested and affected private citizens under the facilitation of the University of California, Davis Cooperative Extension. The goals, objectives, and management actions of the conservation strategy are to be incorporated into the RMP/EIS.

The draft conservation strategy indicates that the annual sage-grouse population within the PMU ranges between 1,500 and 4,500 individuals. Overall nesting success is low, approximately 5%. Of the 1.6-million-acre PMU, 1.475 million acres consists of sagebrush habitat. Approximately 46% of the PMU is in a degraded condition (habitat classes R-3 and R-4 (Table 3.20-7), as defined in the Northern California Sage-Grouse Working Group 2005) and has been substantially invaded by cheatgrass or juniper. Approximately 19% of the sagebrush ecosystem within this PMU is dominated by cheatgrass or juniper (classes X-3 and X-4 as defined in the Northern California Sage-Grouse Working Group [In Development]).

While no data are available to speculate about original or early historic conditions of sage-grouse populations within the Buffalo-Skedaddle PMU, the most essential breeding component (leks) have undergone a decline of greater than 80% since the 1950s. Reasons for the loss of these leks include loss of adjacent and essential sagebrush components to fire and conversion to agriculture, construction of overhead power and telephone lines (which results in increased avian predation), fence construction, juniper invasion, and increasing distribution of cheatgrass and other nonnative annuals. Increases in fire frequency and acres burned within the PMU are pervasive threats to Wyoming big sagebrush habitats in the PMU, without revegetation, (Northern California Sage-Grouse Working Group 2005.)

Burrowing Owl

The burrowing owl (*Athene cunicularia*) is a BLM sensitive species. In northeastern California, burrowing owls are summer residents of open grasslands and sagebrush stands. This small owl primarily roosts and nests in the burrows of ground squirrels and other small mammals. It hunts from low perches where it may pounce on insects and other small prey. Burrows and shrubs are important to this species for thermo-regulation. Ground squirrels provide many burrows in much of the species ranges, and rodent eradication campaigns often lead to abandonment of the area by burrowing owls. In areas where burrows are scarce, human-made structures such as pipes, culverts, and nest boxes also are frequently used for nesting (Haug et al. 1993.)

There are no records of burrowing owls on BLM-administered lands in the Eagle Lake Field Office area, however one nest site is known on private land. They have declined in northeastern California, but reasons for the decline are not clear. There are very few records of this species in Modoc and Lassen County since the mid-1980s. There has been a decline and possible extirpation of burrowing owls from much of the Eagle Lake Field Office area.

California Spotted Owl

The California spotted owl (*Strix occidentalis occidentalis*) is a BLM sensitive species. On June 21, 2005 the USFWS 90-day determination found that this owl may warrant listing under the ESA. This species is found primarily in large patches of hardwood or conifer forests with large trees (>90 centimeters (35") dbh) and a high canopy closure. Spotted owls prey primarily upon squirrels, voles, woodrats, rabbits, mice and pocket gophers and, to a lesser extent, on insects and amphibians. (Gutierrez et al. 1995)

Historical and current spotted owl habitat has not been identified in any of the specific land use plans. One nest was located on BLM-administered lands in the early 1990s above Gold Run. An active nest was also located within 1 mile of the BLM site on the Lassen National Forest. The nest on BLM-administered lands has been inactive in recent years. Current policy requires that all forestry activity areas be surveyed for California spotted owl prior to commencing with the management activity. There is not sufficient information to indicate a population trend in the Eagle Lake Field Office area.

Tricolored Blackbird

The tricolored blackbird (*Agelaius tricolor*) is a BLM sensitive species. Tricolored blackbirds nest primarily in colonies in marshes dominated by cattails (*Typha* spp.), bulrushes (*Scirpus* spp.) and, to a lesser extent, willows (*Salix* spp.) and blackberries (*Rubus* spp.). They forage on insects, seeds, and livestock feed in lightly grazed rangelands, livestock feedlots, agricultural fields, wet meadows, irrigated pastures, and some shrublands (Beedy and Hamilton 1999).

There are only a few scattered breeding colonies of tricolored blackbirds in Lassen County. It is possible that some individuals could nest in BLM-administered wetlands in the Eagle Lake Field Office area; however, the last survey that recorded tricolored blackbirds in these wetlands was completed during 1978. Therefore, no population status or trends can be determined.

BLM Sensitive Bats

A variety of bat species, including BLM sensitive Yuma myotis (*Myotis yumanensis*), fringed myotis (*Myotis thysanodes*), long-eared myotis (*Myotis evotis*), small-footed myotis (*Myotis ciliolabrum*), pallid bat (*Antrozous pallidus*), spotted bat (*Euderma maculatum*), and Townsend's western big-eared bat (*Plecotus townsendii*) may be found throughout the field office area due to a high amount of suitable habitat. Rock outcrops, canyon cliffs, trees, and mineshafts provide roosting and maternity habitats. Northeastern California and northwestern Nevada—unlike other areas of the west—have relatively low mineral potential; therefore, historic mining shafts that provide important bat habitat elsewhere are very limited on lands managed by the field office. No extensive bat surveys have been conducted on BLM-administered lands in the Eagle Lake Field Office area since 1978. Therefore, no information on current or historical status or population trends exists for these bat species in the planning area.

Yuma Myotis. Yuma myotis inhabit open woodlands and forests with streams, stock tanks, and ponds over which they feed and drink. They roost in buildings, bridges, mines, caves, and crevices, as well as abandoned swallow nests. These sites also are used for maternity colonies. This species has a relatively poor urine-concentrating ability and must therefore drink water regularly. Winter habitat is poorly understood, but apparently this species hibernates. (Nevada Bat Working Group 2004 and California Department of Fish and Game 2002)

Fringed Myotis. Fringed myotis occur in a variety of habitats, including desert scrub, grasslands, sagebrush steppe, pinion-juniper woodlands, and pine forests. They forage primarily on beetles on or near vegetation but also will prey upon moths and other flying insects over water and open areas. Fringed myotis have poor urine-concentrating ability and must therefore drink water regularly. Day and night roosts are often in buildings and mines but also in rock crevices and in snags. Trees are probably the most important day roosts; caves and mines are used only at night. This species usually forms nursery colonies numbering up to 200 adult females, but males are often found roosting alone or in small groups. This species does not migrate and hibernates in caves and mineshafts. (Nevada Bat Working Group 2004, California Department of Fish and Game 2002)

Long-Eared Myotis. Long-eared myotis are found primarily in juniper and higher-elevation coniferous forests. Long-eared myotis feed along open habitat edges, in open areas, and over water. They avoid highly arid areas and are closely associated with water, as this species has a relatively poor urine-concentrating ability. Nursery colonies and roost sites consist of buildings, crevices, snags, and the spaces under bark. Caves are used primarily as roost sites. Long-eared myotis forage on beetles, moths, spiders, and flies over water, trees, and shrubs. This species does not migrate, but little is known of its winter hibernation habits. (Nevada Bat Working Group 2004, California Department of Fish and Game 2002).

Small-Footed Myotis. Small-footed myotis occur in a variety of habitats, including desert scrub, grasslands, sagebrush steppe, pinion-juniper woodlands, and pine forests. Summer and winter ranges appear to coincide. Often seen foraging over water and trees, these bats prey on aerial moths, flies, beetles, and bugs. Small maternity colonies are found in buildings, caves, and mines. These sites, as well as bridges and bark crevices can be used for roosting. Often seen drinking water soon after emerging, small-footed myotis prefer humid roost sites. They have a high tolerance for cold and can be found in drafty sites less tolerable to other myotis. The species is known to hibernate and often can be found feeding or roosting with other bat species. (Nevada Bat Working Group 2004, California Department of Fish and Game 2002)

Pallid Bat. Pallid bats occur in a variety of habitats, including desert scrub, grasslands, sagebrush steppe, pinion-juniper woodlands, and pine forests. They prey primarily on large arthropods on the ground, including beetles, crickets, and centipedes, but also will take moths in flight. Their day roosts include trees, rock outcrops, mines, caves, buildings, and bridges. At night, they roost primarily under bridges, and in caves and mines. They do not migrate and sometimes awake from hibernation during winter to forage and drink. (Nevada Bat Working Group 2004, California Department of Fish and Game 2002)

Spotted Bat. Spotted bats occur in a variety of habitats, including desert scrub, grasslands, sagebrush steppe, pinion-juniper woodlands, and pine forests. They are closely associated with cliff faces, where they primarily roost. They sometime roost during winter in caves and have been documented roosting in buildings. Spotted bats prey on moths and other flying insects, most often over canyons, riparian vegetation, or open meadows and scrubland. They are not known to congregate as they often forage and roost alone. They do not migrate and sometimes awake from hibernation during winter to forage and drink. (Nevada Bat Working Group 2004, California Department of Fish and Game 2002)

Townsend's Western Big-Eared Bat. Townsend's western big-eared bats occupy a variety of habitats, including late-seral stage forests and riparian areas. Foraging habitats are varied, but they primarily prey on moths. These bats roost exclusively in caves, mines, and buildings. Caves need to meet specific microclimatic conditions for successful roosting, and this species is very susceptible to disturbance (Campbell and MacFarlane 2000). Potential habitats for this species include almost all vegetation types; however, the presence of caves, mines, buildings and other human-made structures is essential. (Nevada Bat Working Group 2004, California Department of Fish and Game 2002)

Big Cave has the largest known population of Townsend's big-eared bats in the Eagle Lake Field Office area. Other than buildings, potential roosting and reproduction habitats (e.g., small caves, habitable mines, and other human-made structures) have not been inventoried in the Eagle Lake Field Office area. Because potential habitat for this species includes almost all vegetation types, quantifying acres of potential habitat for the species is difficult. This bat could forage over literally tens of thousands of acres, depending on the presence of caves and other features.

3.20.5 Species Requiring Special Consideration

Pygmy Rabbit

The pygmy rabbit (*Brachylagus idahoensis*) is not federally listed California State-Listed or a BLM Sensitive Species but because declines have been attributed to conversion of deep-soil sagebrush habitat to agricultural and managed grasslands it is given special attention. Pygmy rabbits are dependent on sagebrush, primarily big sagebrush (*Artemisia tridentate ssp.*) growing in deeper soils. Soil types can be loamy to ashy, and burrows are generally found greater than 20 inches deep. Burrows tend to occur in areas with few bunchgrasses and with overall shrub cover ranging from 21 to 36%.

Pygmy rabbit burrows are almost always located under big sagebrush and only rarely in the open. In some instances, pygmy rabbits use old burrows of badger and marmots, as well as other natural cavities in rock or in the ground. (O'Neill and others 1997; Washington Department of Fish and Wildlife 1995).

A study to assess occurrence of the pygmy rabbit on BLM lands resulted in no detections of pygmy rabbits or their sign within the Eagle Lake Field Office area, including locations of historical records (Sequin 2004). The paucity of recent sightings suggests that the species is currently rare or extirpated in the region.

3.20.6 Ungulates

The principal big game species that require management consideration in the Eagle Lake Field Office area are mule deer and pronghorn antelope. Rocky Mountain elk are less common in the field office area but have a potential to increase. California bighorn sheep were once present in the field office area but do not occur here now. Habitat relationships for these big game species are summarized in Table 3.20-4.

Mule Deer

Mule deer (*Odocoileus hemionus*) inhabit early- to intermediate-successional forests and brushlands, and prefer a mosaic of various-aged vegetation that provides woody cover, meadow and shrubby openings, and free water (Zeiner et al. 1990). Habitat requirements can be summarized as consisting of 55% forage areas, 20% hiding cover, 10% thermal cover, 10% fawn rearing, and 5% fawning habitat across their habitat landscape. In winter habitat all of the fawn rearing, fawning, and 20% of the hiding cover is replaced with thermal cover. For thermo-regulation, many deer use heavy shrub and tree cover, as well as southern topographic aspects during winter and northern aspects during summer. Deer require adequate supplies of highly digestible, succulent forage for optimal growth and productivity (Anderson and Wallmo 1984). Foraging habitat is considered a limiting factor for mule deer in northeastern California, but lands managed by the Eagle Lake Field Office provide important transition or intermediate ranges (California Department of Fish and Game 1998). These ranges are important to deer preparing for fawning in spring and preparing for winter by gaining weight. They include bitterbrush, mountain mahogany, and juniper habitats as well as dense groundcover of forbs (Table 3.20-6).

Comprehensive monitoring data are lacking on the condition of mule deer habitat; however, the type, amount, and condition of vegetation have changed due to aggressive fire suppression as well as climatic conditions such as extended drought. In some mule deer wintering areas, bitterbrush is old and dying, and little reproduction is occurring. In these areas, there is minimal seedling establishment, and many of the browse plants are growing out of the reach of deer. However, the stands still produce some browse for wintering deer, and the decaying and dead plants provide valuable thermal and hiding cover. Habitat alteration in the Madeline Plains watershed associated with logging, burning, agricultural expansion, and livestock grazing are believed to have contributed to a long-term decline in deer numbers. In some watersheds, juniper expansion has caused a decline in shrub reproduction and health.

Table 3.20-6 Habitat Values and Importance of Plant Communities for Deer (From Leckenby et al. 1982)

Plant community and key plant	Habitat Value	Season	Importance[a]
Tall sagebrushes			
Mountain big sagebrush	Hiding & thermal cover (good), forage (fair), fawning (good), fawn-rearing (good)	Summer, winter, and spring-fall	1
Wyoming big sagebrush	Hiding & thermal cover (poor), forage (fair)	Winter	1
Basin big sagebrush	Hiding & thermal (good), forage (poor)	Winter	1
Silver sagebrush	Hiding & thermal cover (fair/ poor), forage (good)	Summer and winter	2
Short sagebrushes			
Low sagebrush	Hiding & thermal cover (poor), forage (good)	Summer, winter, and spring-fall	1
Black sagebrush	Hiding & thermal cover (poor), forage (poor)	Summer and winter	3
Other shrubs			
Bitterbrush	Hiding & thermal cover (good), forage (good)	Summer, winter, and spring-fall	1
Greasewood	Hiding & thermal cover (poor), forage (poor)	Winter	3
Shadscale	Hiding & thermal cover (poor), forage (fair)	Winter	3
Snowberry	Hiding & thermal cover (good), forage (good), fawning (good), fawn-rearing (good)	Summer and spring-fall	1
Snowbrush	Hiding & thermal cover (good), forage (good), fawning (good), fawn-rearing (good)	Summer	1
Chokecherry; bittercherry	Hiding & thermal cover (good), forage (good), fawn-rearing (good)	Summer	1
Willow	Hiding & thermal cover (good), forage (good), fawn-rearing (good)	Summer	1
Squawapple	Hiding & thermal cover (fair), forage (fair or poor)	Spring-fall, winter	2
Trees			
Quaking aspen	Hiding & thermal cover (good), forage (good), fawning (good), fawn-rearing (good)	Summer & spring-fall	1
Mountain mahogany	Thermal cover (good), forage (fair)	Summer & spring-fall	1
Mountain mahogany/shrub	Hiding & thermal cover (good), forage (good), fawn-rearing (good)	Summer and spring-fall	1
Western juniper	Hiding & thermal cover (good), forage (fair), fawn-rearing (fair)	Summer, winter, and spring-fall	1
Western juniper/shrub	Hiding & thermal cover (good), forage (good), fawning (fair), fawn-rearing (fair)	Summer, winter, and spring-fall	1
Cottonwood	Hiding & thermal cover (good), forage (good), fawning (good), fawn-rearing (good)	Summer	1
Special communities			
Riparian	Hiding & thermal cover (good), forage (good), fawning (good), fawn-rearing (good)	Summer, winter, and spring-fall	1
Grassland	Forage (good, especially fall and spring greenup)	Summer, winter, and spring-fall	1 2
Bluebunch wheatgrass	Forage (good needs livestock grazing to maximize availability of new growth)	Spring, some fall, and winter	2
Idaho fescue	Forage (good needs livestock to maximize availability of new growth)	Spring, some fall, and winter	2
Cheatgrass	Forage (good while green and early spring, fall, winter green-up)	Spring, fall, & winter	1
Sandberg bluegrass	Forage (good)	Spring, fall, & winter	1
Bottlebrush squirreltail	Forage (good, needs livestock grazing to maximize availability of new growth)	Spring, fall, and winter	2

[a] Importance to deer, based on habitat value and distribution: 1 = high, 2 = moderate, 3 = least.

Pronghorn

During pre-settlement, pronghorn (*Antilocapra americana*) were one of the most abundant game species in California; by 1923 however, only about 1,000 remained due to "adverse land use and unregulated hunting" (Pyshora 1977). Pronghorn prefer open rangeland that supports a variety of vegetative types. Vegetation requirements include 50% vegetation cover and 50% non-vegetation composed of 5-15% grasses, 5-10% forbs, and 10-35% shrubs. Vegetation diversity should be 5-10 grass species, 10-70 forb species (majority perennial, succulent), and 5-10 shrub species (O'Gara and Yoakum 2004). Areas with low structured shrubs and a diversity of native grasses and forbs typify summer habitat (Gregg et al. 2001). Pronghorn do not appear to depend on open water if there is sufficient moisture in the vegetation (Reynolds 1984, O'Gara 1978). Although browse is the dominant food ingested during winter, succulent forbs predominate in the summer diet (O'Gara and Yoakum 2004). Pronghorn and other large and small game benefit from management that favors increases in forb cover.

Pronghorn populations are managed under CDFG's Pronghorn Antelope Management Plan (Pyshora 1977). Small numbers of pronghorn relative to southeastern Oregon occur throughout the Eagle Lake Field Office area. They occupy low structured sagebrush habitats, agricultural fields on private lands, and some natural meadow areas. Pronghorn numbers declined historically due to natural causes, and human-associated activities. According to Frank Hall (pers. comm.), the Unit Biologist for CDFG in Lassen County, pronghorn numbers have increased slightly over the last 25 years but are still low.

3.20.7 Native and Nonnative Fish and Aquatic Species

During 2003, 17 streams in the Eagle Lake Field Office area were surveyed to describe stream and fishery habitat. The results of that survey are provided by watershed in Appendix M. Four human-made reservoirs and Eagle Lake support fisheries in the Eagle Lake Field Office area. Fish found in the reservoirs and in Eagle Lake are listed in Table 3.20-8. Currently, all the human-made reservoirs have a minimum pool that supports some fish at the end of summer.

Eagle Lake is California's second largest natural lake. Its depth fluctuates with the climate. Eagle Lake is a major regional sport fishery and the source of Eagle Lake rainbow trout, a distinct strain of rainbow trout that tolerates more highly alkaline conditions than expected for rainbow trout. This strain is used to stock many waterbodies in northeastern California and elsewhere in the state.

3.20.8 Native Wildlife and Special Habitats

Upland Gamebirds

Native upland gamebird species managed by CDFG include the native California quail (*Callipepla californica*), mountain quail (*Oreortyx pictus*), greater sage-grouse (*Centrocercus urophasianus*), blue grouse (*Dendragapus obscurus*), morning dove (*Zenaida macroura*), and several other minor game species, as well as the non-native chukar (*Alectoris chukar*) (See "Non-native Wildlife and Invasive Species"). California quail are abundant in the Eagle Lake Field Office area. Mountain quail occur in small groups in many areas but most often around creeks with good riparian vegetation. Blue grouse are fairly abundant in higher-elevation forested lands, primarily in the Diamond Mountains above BLM-administered lands. Mourning doves occur throughout the region, primarily near water sources. No data are available on population trends for these species except for sage-grouse in the Eagle Lake Field Office area.

Table 3.20-7 Acreages and Definitions of Habitat Condition Using "R" Values

Value Class	Acres (percentage)	Definition of Value Class
RO	124,120 (8.4)	Areas with desired species composition with sufficient, but not excessive, sagebrush canopy and sufficient grasses and forbs in the understory to provide adequate cover and forage to meet seasonal needs of sage grouse (nesting, early brood, summer, and fall/winter).
R1	323,966 (22)	Areas with potential to produce sagebrush plant communities with a good understory composition of desired grasses and forbs but lack sufficient sagebrush canopy.
R2	66,275 (4.5)	Areas with potential to produce sagebrush plant communities with a sagebrush overstory but lack sufficient herbaceous understory.
R3	4,251 (0.3)	Areas with potential to produce sagebrush communities that have not crossed the pinion/juniper, or juniper woodland threshold but are in various stages of becoming dominated by pinion/juniper or juniper (mature sagebrush and seedlings are present).
X3	97,226 (6.6)	Areas that have crossed the threshold from sagebrush plant communities (sagebrush seedlings are absent) into pinion/juniper or juniper woodlands.
R4	684,627 (46)	Areas with potential to produce sagebrush communities (mature sagebrush and seedlings are present) whose understories are currently dominated by annual grass, forbs, or bare ground.
X4	175,041 (12)	Areas that have crossed the threshold from sagebrush communities (seedlings are absent) into annual grasslands, forbs, or bare ground.
Total	1,475,506 (100)	

Note: R values are categories in a system that classifies sagebrush complexes according to their ability to respond positively to management.

Source: Northern California Sage Grouse Working Group In Development.

Table 3.20-8 Fish Found in Eagle Lake and Reservoirs in the Eagle Lake Field Office Area

Water body	Fish Species Present
Dodge Reservoir	Eagle Lake rainbow trout, Lahontan cutthroat trout, brown trout (all planted)
Biscar Reservoir – Biscar Cooperative Wildlife Management Area	Large-mouth bass, perch, bluegill (all planted)
Round Corral Reservoir	Eagle Lake rainbow trout, Lahontan cutthroat trout (all planted)
Buckhorn Reservoir Eagle	Eagle Lake rainbow trout, Lahontan cutthroat trout (all planted)
Eagle Lake Eagle	Eagle Lake rainbow trout, Eagle Lake tui chub, Lahontan red-sided shiner, Lahontan speckled dace, brown bullhead, Tahoe sucker, Lahontan cutthroat trout (planted)

Sources: BLM staff, Moyle 2002.

Other Terrestrial Wildlife

Appendix G shows predicted and known species occurrence on lands managed by the Eagle Lake Field Office, based on data from earlier BLM land use plans, a 1979 inventory survey, museum specimen records, field notes, and local knowledge. Most taxa, including invertebrates, have not been surveyed or have been surveyed only at very low levels. Other taxa such as songbirds have been surveyed more extensively (e.g., recent Point Reyes Bird Observatory surveys), but only in certain habitats

Based on the assessments of biotic integrity for existing habitat on lands administered by the Eagle Lake Field Office (shown in Tables 3.20-3 and 3.20-4), trends can be assessed for some areas and habitat types. Overall, biodiversity is highest in riparian habitat but is also relatively high in other forested and aquatic habitats (Table 3.20-9).

3.20.9 Nonnative Wildlife and Invasive Species

Chukars are introduced upland game birds that inhabit steep rocky areas that support grasses. CDFG conducts surveys for chukar; however, no data are available on population trends for this species in the Eagle Lake Field Office area. No nonnative wildlife or fish species have been identified as management issues for native wildlife in the Eagle Lake Field Office Area. The nonnative European starling has the potential to compete for nest sites with some native species. The brown-headed cowbird, an obligate parasitic nester native to North America, has expanded its range only recently into the region. Both species tend to concentrate near agricultural and developed lands. The cowbird has affected nesting success of some species in northern California, at least locally (Airola 1985).

A number of nonnative warm water and coldwater sport fish and the bullfrog have been established in waters on BLM-administered lands. Many of these waters have been created or modified by impoundments on public and private lands, and by water use practices that favor nonnative species. Nonnative species can out-compete and prey upon native species of fish and amphibians in these waters.

Table 3.20-9 Species Richness (numbers of species) for Major Habitats in the Eagle Lake Field Office

	Number of Species			
Habitat Type	**Reptiles and Amphibians**	**Mammals**	**Birds**	**Total**
White fir	6	35	108	149
Ponderosa/Jeffrey pine	10	42	79	133
Juniper woodland	10	32	63	105
Mountain mahogany	11	34	90	140
Aspen	10	37	122	169
Riparian	13	48	170	231
Mountain shrub	9	31	77	117
Juniper /big sagebrush	15	36	90	141
Mixed shrub	10	45	39	96
Bitterbrush	11	26	55	92
Big sagebrush/bunchgrass	17	30	65	112
Big sagebrush	16	30	69	115
Low sagebrush	13	20	37	70
Greasewood/shadscale	13	18	47	78
Semi-wet meadow	12	42	107	161
Bluebunch wheatgrass	5	14	36	55
Cheatgrass	5	13	41	59
Natural aquatic	10	6	119	135
Human-made reservoir	7	38	143	188

Note: For additional information on species, see Appendix G.

Chapter 4: ENVIRONMENTAL CONSEQUENCES

Chapter 4. Environmental Consequences

Introduction

This chapter describes the environmental consequences of implementing the five alternatives described in Chapter 2. The purpose of this chapter is to determine the potential for significant impacts of the actions proposed in the Draft RMP on the human environment. As defined in 40 CFR Section 1508.14, the human environment is interpreted comprehensively to include natural and physical resources and the relationship of people with those resources. This chapter discusses the potential effects of each alternative on various environmental, socioeconomic, and land use program areas.

For the purpose of this document the terms impacts and effects are synonymous. The Council on Environmental Quality directs federal agencies to examine three types of effects of their decisions: direct, indirect, and cumulative. Direct effects occur at the same time and place as the federal action or decision (in this case the proposed RMP); indirect effects are caused by the decision, take place at a later time or are farther removed in distance, but are still reasonably foreseeable; and cumulative effects are the combination of direct and indirect effects of the decisions made here, combined with other continued trends or anticipated effects that are outside the scope of the RMP decisions, that may affect the resources discussed here.

Effects are also defined as adverse or beneficial. An effect is considered adverse when the outcome of the action results in undesirable effects. A beneficial impact can result if the current condition is improved or if an existing undesirable effect is lessened. Both adverse and beneficial effects of management actions are described in this document; discussions focus on effects considered to be substantive.

Environmental Consequences of the Alternatives

Throughout this analysis, assumptions about expected future actions or conditions, or general relationships between the decisions being made and expected environmental consequences, are used to facilitate the analysis. Some basic assumptions used for all resources are described below.

All decisions made by the RMP would be in accordance with national policy and direction, and would be in force until a revised or amended land use plan changes those decisions. All RMP decisions anticipate continuation of all valid existing rights. Currently authorized permits would be brought into compliance with new requirements as soon as is reasonably practicable following the Record of Decision and in accordance with legal authorities that guide those permits.

The RMP is expected to guide land use activities for the next 20 years.

All alternatives anticipate future actions needed to implement management direction that will require funding and personnel. For many program areas, past funding has been insufficient to meet demands; future funding levels are uncertain but are not likely to show substantial increases. For the purposes of this analysis, it was assumed that existing resources and personnel would be redistributed to respond to new priorities set by this plan, although the amount of work accomplished annually to meet plan direction would continue to depend on annual budgets and overall BLM priorities. Full plan implementation assumes increased cooperation with other agencies, supplemental funding and resources supplied through grants, and an active volunteer program.

Measures that would avoid, minimize, rectify, reduce, or compensate for any potential adverse environmental effects of implementing the alternatives are included in the allocations, allowable uses, objectives, and guidelines for each of the alternatives. These are summarized in Chapter 2. All analyses presented here incorporate those requirements.

Acreage figures and other numbers used in this analysis are approximate projections only for comparison and analytic purposes. They do not reflect exact measurements or precise calculations.

Organization of Resource-Specific Environmental Consequences

Discussions of environmental consequences for most resources follow the outline described below.

Methodology, Assumptions, and Incomplete Information

Each resource section begins by discussing the methodology used for the analysis of environmental consequences and the basic assumptions that were used to support the impacts analysis. Examples of what would be included under assumptions include what data and indicators were used to evaluate effects, where the data came from (e.g., past observations, literature, professional judgment, or modeling), the analysis boundaries, technical assumptions, and how impacts were analyzed. Incomplete or unavailable information is also documented as applicable.

Impacts Common to All Alternatives

The impacts expected as a result of management actions that are common to all alternatives are addressed under "Impacts Common to All Alternatives." In addition, this section describes the general impacts of each program area on the program area under consideration. Detailed information is not provided for resources with little to no anticipated effects. Resources for which all effects are common across all alternatives are not described beyond this section.

Effects under Specific Alternatives

Substantive impacts from resource areas that differ by alternative are described in this section. The effects of each alternative (the No Action Alternative, Alternatives 1—3, and the Preferred Alternative) are summarized. The impact analysis for the No Action Alternative was prepared as the baseline for the alternatives analysis. Discussions under "Impacts Common to All Alternatives" and effects under the "No Action Alternative" contain a detailed description of impacts used for comparison with other alternatives. Where management actions and effects would be identical or similar between alternatives, reference is made to the first description of these actions and effects to avoid repetition.

Each resource section ends with a comparative summary of the environmental consequences of all alternatives.

4.1 Potential Effects on Air Resources

This section describes the potential impacts on air resources from implementation of the various resource programs under the alternatives.

4.1.1 Methodology and Assumptions

Sources of air pollutants include smoke from wildland fire and prescribed burning, vehicular/equipment emissions, and fugitive dust from use of unsurfaced roads and construction activities.

Smoke from wildland fires and prescribed burning are expected to result in the greatest impacts on air quality. WFU uses naturally ignited fire to protect, maintain, and enhance resources; in these areas, fire would be allowed to function in its natural ecological role. Wildland fires from within the plan area and from upwind sources would result in sporadic smoke impacts in summer. Wildfires are expected to burn at a greater intensity than prescribed burns and thus create more potential for air quality degradation. Alternatives that perform more fuels treatment, apply the appropriate management response (AMR) suppression prescription to more land, and use full suppression on less land are expected to result in fewer acres burned by wildfire in the long term, reduced fire intensity, and thus less air quality degradation.

Prescribed fire would be used to protect, maintain, and enhance resources. All prescribed burning activities would comply with the California Smoke Management Guidelines for Agricultural and Prescribed Burning. ELFO resource managers will follow the direction and requirements of the Northeast Air Alliance (consisting of the Butte, Lassen, Modoc, Plumas, Shasta, Siskiyou and Tehama air pollution control districts) to achieve acceptable air-quality standards while implementing fuel reduction projects, prescribed fires, and wildland fire use projects. Protocol is in place within the Northeast Air Alliance that requires all prescribed burning projects be coordinated with other BLM, USFS and California Department of Forestry (CDF) offices through a daily smoke management conference call. Through this conference call, resource managers can mitigate and avoid any potential smoke management conflicts by collectively adjusting the timing of their respective projects. The use of prescribed fire would be based on approved Burn Plans and would follow project-specific prescriptions contained in these Burn Plans. Impacts from prescribed fire were assumed to be generally proportional to the acreage treated, with generalized consideration given to any differences in vegetation types treated. Smoke emissions from prescribed burning generally would dissipate in the direction of the most common winds. Ecosystems that contain more overall biomass would yield more smoke than more lightly vegetated rangelands and shrub steppe ecosystems. Smoke management strategies are becoming more and more complex as fire is used more frequently to preserve, restore, or maintain rangeland health and reduce hazardous fuels.

In general, use of prescribed fire and WFU would reduce emissions over the long term by reducing fuel loads but would result in a more consistent generation of emissions on an annual basis, because naturally ignited fires would be allowed to burn (as opposed to being subjected to suppression under AMR or full suppression strategies) and prescribed burns would be regularly conducted. WFU uses naturally ignited fire to protect, maintain, and enhance resources; in these areas, fire would be allowed to function in its natural ecological role.

Fugitive dust from vehicle travel mostly settles quickly and remains relatively close to the point of origin, resulting in only localized effects. These effects are expected under all alternatives. Other sources of emissions (emissions from vehicles, minerals exploration, and construction activities) generally would be localized and of short duration. However, because of the non-attainment status for carbon monoxide and ozone in Washoe County, Nevada, any emissions from BLM lands in Washoe County would bc contributing to cumulative air quality impairments.

4.1.2 Incomplete or Unavailable Information

Acreage of lands subject to wildfire in any given year is unknown. Consequently, potential effects of wildfire are described in relative terms, based on the extent of fuels treatments and the assigned suppression prescription. Because the ranges of acreages identified for prescribed burning are generally broad, annual emissions from prescribed burning cannot be precisely determined; therefore, the potential effects of prescribed burns also are described in relative terms. The amount of airborne fugitive dust resulting from operation of vehicles on paved and unpaved roads, construction activities and other earth-moving activities, and disturbance of soils is not known and cannot be quantified. Further, the types of vehicles and equipment that would be necessary for specific plan actions are not known.

4.1.3 Analysis

The following impact thresholds were used for analyzing the intensity of effects on human health and air quality related values.

Negligible: No changes would occur, or changes in air quality would be below or at the level of detection and if detected, the effects would be considered slight.

Minor: Changes in air quality would be measurable, although the changes would be small and local. No air quality mitigating measures would be necessary.

Moderate: Changes in air quality would be measurable and would have appreciable consequences, although the effect would be relatively local. Air quality mitigating measures would be necessary, and they probably would be successful.

Major: Changes in air quality would be measurable, would have substantial consequences, and would be noticed regionally. Air quality mitigating measures would be necessary, and their success would be uncertain.

4.1.4 Impacts Common to All Alternatives

Under all alternatives, some wildland fires and some prescribed burning for fuels treatment would occur. Under all alternatives, the majority of the field office would be subject to full fire suppression, and the acreages would be relatively similar—resulting in similar impacts. Effects on air quality, including visibility and human health, would be consistent with current programs and policies. Prescribed fire and wildland fire would generate smoke that may cause a temporary localized conflict with residents, recreational users, and other visitors. Because management would be generally similar across alternatives, impacts would be similar between alternatives, with slight differences related to acreages subject to prescribed fire and other strategies such as AMR and WFU.

Operation of motorized vehicles (including recreational vehicles) and any equipment with an internal combustion engine would result in pollutant emissions, including ozone precursors (ROG and NO_X), CO, and PM10. The use of unsurfaced roads, recreational OHVs, and construction activities would generate localized fugitive dust. Vehicular and equipment emissions and fugitive dust from use of unsurfaced roads—as well as timber harvest, construction activities, and other activities from new projects that would be undertaken—would require site-specific NEPA analysis. Appropriate management practices would be applied in compliance with NEPA.

4.1.5 No Action Alternative

Effects under the No Action Alternative would be as described under "Impacts Common to All Alternatives." Prescribed burning of 0–100 acres per year would result in a low level of emissions compared to the other alternatives.

The No Action Alternative would result in a continuation of existing conditions, with periodic smoke and particulate emissions from wildfire. The degree of adverse effects from wildfire would depend on the fire size, duration, and intensity. Smaller, more regular emissions also would occur in association with vehicular, timber harvest, construction, and other activities carried out on BLM-administered lands.

Wildland fires in the region would continue to periodically contribute particulate matter to the region. Increasing populations and increasing recreational visits would increase the probability for airborne dust related to travel on dirt and gravel-surfaced roads. Carbon monoxide and ozone emissions from vehicles and other activities on BLM-administered lands located in, or upstream of, the air basin in Washoe County, Nevada, would contribute to cumulative impacts in that area because of the non-attainment status for those pollutants.

4.1.6 Alternative 1. Economic Development

Effects under Alternative 1 would be as described under "Impacts Common to All Alternatives." Prescribed burning of 0–1,500 acres per year would result in a somewhat higher level of emissions compared to the No Action Alternative. However, prescribed burning and other fuels management activities would attenuate wildland fire intensity over the long term as fuel loads are reduced.

Overall effects under Alternative 1 would be similar to those of the No Action Alternative, with somewhat greater emissions on an annual basis from prescribed burning but resultant reduced emissions associated with periodic wildfires.

4.1.7 Alternative 2. Ecosystem Restoration

Effects under Alternative 2 would be similar to those identified for Alternative 1. Prescribed burning of 0–4,500 acres per year would result in a somewhat higher level of emissions compared to Alternative 1, as would the designation of 10,339 acres as a WFU area. However, these factors would attenuate wildland fire intensity over the long term as fuel loads are reduced in those areas, with slightly greater beneficial effects than under Alternative 1 because of the greater acreages subject to such treatments.

Alternative 2 would result in overall effects similar to those of Alternative 1. Somewhat greater emissions on an annual basis would result from an increased amount of prescribed burning and WFU; however, this approach would result in reduced emissions associated with periodic wildfires.

4.1.8 Alternative 3. Traditional Uses

Effects under Alternative 3 would be slightly higher than those identified in the No Action Alternative. The same acreage as the No Action Alternative would receive full suppression however the fuels treatments using prescribed fire would be lower. Emissions from prescribed burns could be slightly higher because of a greater range than under the No Action Alternative (i.e., 0 – 500 acres per year under Alternative 3 versus 0 – 100 acres per year under the No Action Alternative).

Overall effects under Alternative 3 would be similar to those under the No Action Alternative, with a somewhat greater variability in annual emissions from prescribed burns.

4.1.9 Preferred Alternative

Overall effects under the Preferred Alternative are identical to the effects described in Alternative 2.

4.1.10 Comparative Summary of Impacts

Alternative 2 and the Preferred Alternative would result in the greatest emissions as a result of implementation of WFU over 10,339 acres and the implementation of AMR over 730,124 acres. Alternatives 1 and 3 would result in slightly less impacts than Alternative 2 and the Preferred Alternative because of using full suppression but would result in greater impacts than the No Action Alternative because of the potentially greater use of prescribed fire.

4.1.11 Cumulative Effects

Smoke from prescribed or wildland fires burning simultaneously on the adjacent national forest—Modoc, Lassen, and Plumas—adjacent BLM districts—Alturas Field Office, Surprise Field Office and Winnemucca field Office—and private and state lands, would have a significant impact on the air quality of northeastern California and northwest Nevada. Prevailing winds in the area are south and southwesterly. As a result, multiple fires could degrade air quality in Southern Oregon and northwest Nevada.

It is not likely that several prescribed fires would occur at the same time since a protocol is in place within the Northeast Air Alliance that requires all prescribed burning projects be coordinated with other BLM, USFS and California Department of Forestry (CDF) offices through a daily smoke management conference call. However, large wildland fires or escaped prescribed fires could occur in a number of areas at one time resulting in significant air quality degradation.

4.1.12 Mitigation Measures

No major adverse air quality impacts are projected under the proposed alternatives. However, the following mitigating measures may be implemented to further minimize air quality emissions related to the proposed management decisions.

Prescribed burning would be concentrated in spring (mid-April through mid-June) and fall (mid-September through mid-November) to avoid coinciding with peak summer levels of air pollutants from other anthropogenic activities in the area and winter inversion potential. Computer modeling to assess smoke dispersion, and related smoke management techniques would be used to reduce the potential that prescribed burning would result in adverse air quality impacts.

4.1.13 Unavoidable Adverse Impacts

The adverse effects on air quality from all alternatives would be short term and limited to the local region. The intensity of effects would range form negligible to moderate, with most prescribed and wildland use fires causing minor effects. Fugitive dust from roads with current traffic use would produce short-term local effects of negligible intensity. Large wildland fires or escaped prescribed fires could occur in a number of areas at one time resulting in significant air quality degradation. The addition of sources outside the management area occurring during the same time period could produce more intense but still moderate effects throughout the area.

4.1.14 Short-Term Uses Versus Long-Term Productivity

Prescribed fire may result in short-term minor degradation of air quality through increases in wind-borne particulate (PM10 and PM2.5) due to loss of vegetation, and smoke. This short-term increase in local and sub regional smoke associated with prescribed burns must be compared against the large regional smoke plumes of the wildfires that can be expected without prescribed burning over the long-term. Prescribed fires are planned and implemented with the intent to accelerate ecosystem and plant community recovery to a healthier and more vigorous state. This would result in beneficial long-term impacts to air quality.

4.1.15 Irreversible and Irretrievable Impacts

With proper management and remediation, there is no projected irreversible or irretrievable air quality impacts associated with the proposed prescribed burning alternatives.

4.2 Potential Effects on Cultural Resources

This section discusses the potential effects on cultural resources from implementing management actions for the resource programs under the alternatives.

4.2.1 Methodology and Assumptions

BLM would comply with all federal cultural resource laws that implement Sections 106 and 110 of the National Historic Preservation Act of 1966 and other rules, agreements, laws, and regulations, especially as defined in the new BLM 8100 Manual (Cultural Resource Management), and with the existing BLM Nevada and California State Historic Preservation Office Protocols that implement 36 CFR 800 (Protection of Historic and Cultural Properties).

An interdisciplinary team and an interactive public-private partnership process would be used to determine potential impacts to cultural resources and propose mitigation for each alternative. The cultural resource data base (numbers, types, condition, National Register quality, and location of cultural resource sites) used to analyze potential effects on Cultural Resources is based on geographic information system (GIS) data, professional inventory and project reports (e.g. Delicorte 1997; King and others 2004; Manuel 2002; BLM 1981b, 1982, 1984; Hamusek 1992) and other information found in the files of BLM's Eagle Lake Field Office and both the Nevada and California Offices of Historic Preservation.

The exact locations of prehistoric, ethnographic, and historic cultural resources and traditional cultural properties have been kept confidential and are not included in this document.

4.2.2 Incomplete and Unavailable Information

Thus far, more than 1,500 cultural sites have been found in the Eagle Lake Field Office area, and professional estimates suggest the area has at least 3,000 unidentified cultural sites. Because less than 15% of the field office area has been professionally inventoried for the presence of cultural resources, we have used relevant statistical and other studies (see above) to estimate the numbers, types, locations, and condition of the cultural resources potentially found in the field office area. Several studies note a relationship between certain types of ecosystems and the locations known to have been used by historic, prehistoric, and ethnographic populations. The studies have estimated the overall cultural resource site density (numbers of sites/square acre/type of ecosystem) and sensitivity (numbers of sites potentially of National Register quality) as higher than would be expected when compared to other areas within the northwest Great Basin. The physical condition (site matrix) of many of these cultural sites is unknown, but some of the above studies suggest a direct correlation between the condition of the land (land health) and the stability and condition of any associated cultural resource sites.

4.2.3 Analysis

For the purpose of this analysis, the levels of effects on cultural resource management are defined as follows:

Negligible: The effect on archaeological or historic sites would be at the lowest levels of detection–barely measurable with any perceptible consequences, either beneficial or adverse, on archaeological resources. For the purposes of Section 106 of the National Historic Preservation Act, the site's eligibility would not be threatened, and the determination of effect would be ***no adverse effect***.

Minor: The adverse effect on archaeological or historic resources would be measurable or perceptible, but it would be slight to localized within the relatively small area for a site or group of sites. The action would not affect the character or diminish the features of a National Register eligible or listed archaeological site and would not permanently affect the integrity of any archaeological sites. For the purposes of Section 106, the site's National Register eligibility would remain intact, and the determination of effect would be ***no adverse effect***.

Moderate:_ The adverse impact would be measurable and perceptible. The action would change one or more character-defining features of an archaeological resource, but it would not diminish the integrity of the resource to the extent that its National Register eligibility would be jeopardized. For purposes of Section 106, the site's National Register eligibility would be threatened, and the determination of effect would be ***adverse effect***. A beneficial moderate effect would involve site stabilization. For purposes of Section 106, the determination of effect would be ***no adverse effect.***

Major: The adverse impact on archaeological or historic sites would be substantial, noticeable, and permanent. For National Register eligible or listed archaeological sites, the action would change one or more character-defining features of an archaeological resource, diminishing its integrity to the extent that it would no be longer eligible for listing on the National Register. For purposes of Section 106, the site's National Register eligibility would be lost, and the determination of effect would be ***adverse effect***. A beneficial major effect would involve active intervention to preserve and improve sites. For purposes of Section 106, the determination of effect would be ***no adverse effect.***

4.2.4 Impacts Common to all Alternatives

Under current management protocols, effects on significant cultural resources would be avoided whenever possible. As directed by BLM Manual 8100, the National Historic Preservation Act, and the appropriate BLM/state protocol, BLM would determine the proper action to protect cultural resources by evaluating ground-disturbing activities such as the following:

- livestock grazing;
- wildlife habitat and sagebrush improvements;
- off-highway vehicle (OHV) travel;
- commercial wood cutting;
- urban development projects;
- fire suppression and burnt land rehabilitation;
- authorizations for rights-of-way,
- mineral development,
- recreational staging areas, and
- other activities that could directly or indirectly affect identified cultural resources.

The major adverse effect of managing other resources on cultural resources is usually minimal to moderate because of the time and sometimes money needed to comply with the above laws, regulations, and protocols.

4.2.5 No Action Alternative

Under the No Action Alternative, cultural resource management on public lands would continue under current laws, policies, regulations, and under management plans and protocols. The cultural resource database for this area would expand slowly each year as data is collected from Section 106 projects and Section 110 inventory.
These programs would have a moderately beneficial effect. Cultural resources within protected areas and newly rehabilitated areas would continue to experience minor to major beneficial effects.

The fire history of the Eagle Lake Field Office area suggests a long history of both natural and human-induced fire. In the recent past, grazing, environmental changes, and the introducing of exotic plants have altered this cycle. In the past, fires burned with less intensity and heat than today's fires. In many areas fire-tolerant native species have been replaced by species that burn more rapidly and much hotter. These species sometimes out-compete native species and, especially after wildfire, replace them and create a fire-prone environment. Repeated high-intensity fire destroys cultural sites by causing erosion and exposing sites to vandalism.

Management under the No Action Alternative is aimed at slowing down the above process by using new fire and post-fire management methods such as the following:

- initiating new fire prescription projects,
- improving grazing practices,
- expanding riparian protection,
- recognizing and solving ongoing problems with recreation management, and
- replacing exotic plant species with native species where possible.

Wildfire management under No Action would consist of full suppression on 1,022,767 acres. Full suppression would reduce the number of acres that would burn, limiting the acreage of ground surface exposed. Full suppression would protect cultural resources from increased risk of unauthorized collection and site erosion. But intense short-term vehicle traffic during active fire suppression could disturb unidentified cultural resources, as possibly would heavy equipment used to build firelines. This disturbance could constitute a short-term moderate adverse impact during suppression.

Several known culturally sensitive areas (e.g. Smoke Creek and Willow Creek) in the field office area are protected from mechanical suppression.

Overall, full suppression of wildfires would be a long-term major benefit to cultural resources. In areas burned over by wildfire, any post-wildfire rehabilitation project that leaves a more natural environment would create a long-term moderate beneficial effect because it would slow down the present fire cycle. These projects would reduce site erosion by stabilizing the soil and help to protect (hide) sites from vandals.

Wild horse and burro populations have the same types of consequences on cultural resources as do cattle and sheep. But unlike cattle and sheep, wild horses and burros are harder to control. Generally, effects are minor to moderately adverse at site-specific locations from trampling, erosion, and displacement of artifacts.

Under the No Action Alternative, 987,777 acres would be open to grazing. Livestock might cause erosion at playa sites and unfenced water sources. Livestock could also create trails and denude areas of vegetation where they congregate, adding to surface soil erosion and site displacement.

Livestock use would cause site-specific minor to major adverse effects on cultural resources. Trampling and displacement of surface sites and erosion of more complex sites on uplands could also cause minor to major adverse effects to cultural resources.

Many of these ongoing adverse effects have been moderated by recent changes in how the field office manages grazing. For example, the following actions have all benefited cultural resources by reducing the amount of time and the season during which grazing takes place:

- fencing water sources,
- implementing rest and rotation policies,
- reducing grazing numbers,
- changing the season of grazing use (e.g. winter range in Dry Valley),
- seeding, especially with native plants, and
- sheep grazing.

The No Action Alternative would continue inventories to locate culturally sensitive areas and sites and monitoring programs to access the impacts of grazing on cultural resources.

The closing of 20,160 more acres to livestock grazing would moderately benefit any cultural resources within them. Parts of the field office area are fenced from grazing, especially springs, streams and drainages, major creeks, and lake shores. Within these areas (e.g. Eagle Lake, Smoke Creek, Laird Spring, Willow Creek, Snowstorm Creek, Lower Deep Cut Creek, and Pete's Creek) large numbers of cultural sites and landscapes are protected from grazing and are stabilizing. In many cases, these actions are having a moderate to major benefit on cultural resources when compared to their eroding conditions as listed in the old environmental impact statements.

The No Action Alternative would build more fencing in the field office area. Depending on how they are built, fences could both harm and benefit cultural resources. Any vegetal rehabilitation should have minor to moderately beneficial long-term effects on cultural resources. Juniper thinning would be regulated by laws and regulations and should have a negligible effect on cultural resources.

Off-highway vehicle (OHV) designations could have minor to major adverse effects on cultural resources because some 582,133 acres are 'open' to use and only 8,665 acres are 'closed'. That 393,164 acres are 'limited to existing roads and trails' and 22,210 acres are 'limited to designated roads and trails' could have a minor to major beneficial effect respectively on cultural resources. Unrestricted OHV use damages any associated cultural resources. Such use disturbs surface sites and their artifacts, causes erosion that damages site integrity, and allows access for vandals to collect or excavate sites for artifacts.

The No Action Alternative would designate no new areas of critical environmental concern (ACECs), wild and scenic rivers, or historic trails. Because these types of management actions usually benefit cultural resources, both known and unidentified cultural resources that might be protected under these designations would be subjected to minor to major adverse effects.

The No Action Alternative would cause moderate adverse impacts to maintaining the long-term integrity of archaeological resources on public lands by allowing the continuation of off-highway vehicle (OHV) cross-country use on 582,133 acres. Unrestrictive OHV use damages any associated cultural resources by

- disturbing surface sites and their artifacts,
- causing erosion that damages site integrity, and
- allowing access for vandals to collect or excavate sites for artifacts.

No special area designations (ACECs, wild and scenic rivers, or historic trails) would be established to protect areas recognized as having significant and unique cultural resources. Cultural resources that might be protected under these designations would be subjected to minor to major adverse effects. Individual sites would experience minor adverse impacts from livestock and vehicles from grazing, vegetation, and fire suppression activities.

The No Action Alternative would also have moderate long-term benefits to cultural resources from the following management actions:

- fuels and vegetation management,
- fire suppression,
- National Historic Preservation Act, Section 110 projects,
- livestock grazing improvements, closures, and exclosures, and
- riparian area improvements.

4.2.6 Alterative 1. Economic Development

Under the Economic Development Alternative, cultural resource management would continue to follow existing rules, regulations, management plans, and state-BLM protocols. But the emphasis would change to a more intensive management of selected cultural resources for visitor, business or Native American use and a decrease in the number of Section 110 projects carried out. For example, the number of areas (15) and acreage (9,084) under proactive Section 110 management would drop to four areas (all historic trails) and 1,114 acres. Additionally, several areas that BLM partly manages for their cultural resources would be looked at for their ecotourism potential.

Potential impacts could be reduced by an increase in site monitoring and law enforcement patrols and increased visitor awareness of projects within these areas. For example, more interpretive signs, information brochures, and public awareness projects could reduce some potential impacts. But generally, adverse impacts would be minor, and effects could be beneficial because they would increase public awareness of cultural resources.

An increase in Section 106 inventory at the expense of Section 110 projects could increase the data base but would also decrease the time spent conducting proactive inventories.

Parts of the Economic Development Alternative would involve extensive interaction and cooperation with the local Native American community, both to determine possible projects and to ensure the protection of cultural resources from adverse impacts. The same type of interaction would be needed with local business to propose ecotourism projects. All of these types of projects would involve lengthy Section 106 time commitments.

Fuels management under the Economic Development Alternative would increase the acres treated. This increase would affect cultural resources because treatments would need to comply with cultural resource laws, regulations, and protocols. This requirement could cause minor short-term delays in project timelines, but in the long term would moderately benefit both programs.

The effects of the wild horse and burro program on cultural resources would be the same as under the No Action Alternative: short-term adverse impacts on site-specific areas because of the time needed to complete project clearances.

The effects of livestock grazing on cultural resources could be negligible to moderately adverse for the following reasons.

- More lands could be open to grazing.
- Less land would be protected.
- Less land would be rotated or rested from livestock grazing.

Because these changes differ from existing management, more time and funding would be needed to complete the required cultural resources clearances. If the clearances are not completed, BLM could risk losing the existing BLM-state protocols.

For example, if the existing exclosures are not maintained, many National Register quality cultural sites and districts within several fenced drainages (e.g. Deep Cut, Willow Creek, Upper Smoke Creek) and along the Eagle Lake shoreline would endure moderately adverse impacts by trampling and site erosion.

Under the existing protocols, the required site evaluation process for accessing impacts is lengthy and expensive. Without the protocols, the time and cost required would at least quadruple. For example, several watersheds (e.g. Snowstorm, Pete's Creek) that would be moderately affected have the following traits:

- are fenced to protect cultural and other values,
- were never completely inventoried for cultural resources,
- are known to contain many cultural resource sites and districts.

The increase in the miles of new fences could have short-term minor adverse effects to cultural resources. But the long-term effects could benefit cultural resource protection and stabilization if the fences are properly designed.

The amount of time and resources needed to complete any required cultural clearances would increase because the number of acres proposed (up to 8,000) for future new seedings would be higher. There could be some short-term minor adverse impacts to cultural resources, but the long-term stabilization and protection would benefit these resources.

Under the Economic Development Alternative, the number of recreation users and visits to public lands in the field office area could increase. This increase would cause minor to moderate adverse impacts to cultural resources. The greatest impact to the recreation and cultural resource programs could result from the need to increase consultation over potential mitigation measures with the Native American community and the state historic preservation officers (SHPOs) under the following conditions:

- recreation use starts to effect areas of special interest to Indians, such as Belfast or other rock art sites or
- the general condition of cultural resources in the field office area begins to decline.

Alternative 1 would result in minor to moderate adverse impacts and beneficial impacts to the long-term integrity of the archaeological resources on public lands. Increased emphasis on recreation visitor use, without added measures to protect cultural resources in sensitive sites, could harm resources by increasing vandalism. But the emphasis on interpretation programs is designed to increase public awareness to reduce these actions. Allowing more acres to be grazed by livestock, with less emphasis on exclosures and rest from grazing, would increase onsite damage to archaeological sites from trailing, trampling, and increased erosion. Areas 'open' to OHV cross-country travel would be reduced from 562,197 to 419 acres, with substantial reduction in direct impacts to cultural resources from vehicle traffic.

Up to 5,000 acres of fuels treatments would have short-term adverse effects but the long-term benefits of improving vegetation cover and site stability.

4.2.7 Alternative 2. Ecosystem Restoration

The Ecosystem Restoration Alterative would emphasize achieving healthy and functional ecosystems as the major management goal for the Eagle Lake Field Office area. Although the field office would follow existing rules, regulations, and protocols, as a management tool it would take a more holistic multi-resource approach instead of a single-resource focus.

The number of Section 110 cultural resource management areas (CRMAs) would increase from 15 to 19. The area covered by these CRMA plans would increase from 9,084 to 56,782 acres. Over the next 20 years management plans would be developed for each CRMA as a part of the interdisciplinary team process. Where possible, all plans would use a model of the area's pre-1850 ecosystem as a planning tool to protect, interpret, and stabilize the cultural landscape (e.g. Belfast/Willow Creek, Lower Deep Cut Creek, Rocky Table Spring, Upper Smoke Creek). Some of these plans would also focus on expanding and protecting existing CRMAs by the following measures:

- creating buffer zones by limiting off-highway vehicle (OHV) use to existing roads and trails (i.e., Belfast/Willow Creek, Upper Smoke Creek, Eagle Lake, Smoke Creek Desert shoreline);
- limiting surface occupancy and also limiting OHV use to existing roads and trails (North Dry Valley), and
- removing cattle and limiting OHV use to existing roads and trails (Laird Spring, parts of Eagle Lake).

The following new areas would be evaluated:

- Snowstorm Creek,
- Laird Spring,
- Dry Valley Camp,
- Pete's Creek,
- Saddle Rock, and
- Parsnip Creek.

One historic trail (Nobles Emigrant) would be intensively managed, and one new cultural area of critical environmental concern (ACEC)–North Dry Valley–would be developed. Another ACEC would be developed in coordination with the recreation program on Buffalo Creek. Several other historic trails would be evaluated for their National Register quality and national historic trails eligibility (e.g. Merrillville-Bieber Wagon Road, Buffalo Hills Toll Road) and two historic military/stage roads. One cultural resource management area–Upper Smoke Creek–would also be recommended as a wild and scenic river.

Under the Ecosystem Restoration Alternative, the numbers of acres treated by the fuels management program could substantially increase and could cause some minor short-term adverse impacts to cultural resources. But in the long term, the effect would be beneficial because the projects would help both to protect and stabilize cultural resources.

The energy and minerals programs would moderately benefit cultural resources because both the number of acres limited to no surface occupancy (NSO) and closed to mineral development would increase substantially, especially in North Dry Valley, in the Buffalo Hills, and near Eagle Lake.

Any cultural resources in these areas would be protected from impacts.

Under the Ecosystem Restoration Alternative, the livestock grazing program should have minor to moderate benefits on cultural resources as a result of any reduced animal unit months (AUMs) of forage, increased rest, areas closed to grazing, and more exclosures.

Travel management would have minor to moderate benefits on cultural resources, because closing areas to OHV use would reduce the cultural resources that could be affected by off-route travel.
Historic trail management would be moderately beneficial to cultural resources because the number of trails brought under management would increase. The nomination of Upper Smoke Creek as a wild and scenic river would moderately benefit cultural resources because it would give it more protection. But some minor adverse impacts could result from increased visitation to the area.

4.2.8 Alternative 3. Traditional Uses

Generally, except for some potential increased use by the local Native American community of some selected areas for their resources, this alterative proposes the same management for cultural resources as the No Action Alternative, and the effects would be the same as under No Action.

4.2.9 Preferred Alternative

The Preferred Alterative proposes the same management for cultural resources as the Ecosystem Restoration Alternative. This alternative would protect and stabilize large numbers of National Register quality cultural resources that are known to exist within the Eagle Lake Field Office area and determines new areas that could contain National Register quality cultural resources. This alternative would also provide for the greatest compliance with existing laws, regulations, BLM cultural resources policy, and the California and Nevada BLM-State protocols.

Under the Preferred Alternative, the number of culturally sensitive areas under active cultural resource management would increase from 15 to 19, as would the number of acres from 9,084 to 56,782. Several areas under present management would receive more protection from new buffer zones and increased off-highway vehicle (OHV) restrictions. One new ACEC–North Dry Valley–would have a no surface occupancy (NSO) requirement for leasable minerals.

Several areas, such as Eagle Lake, Willow Creek, and the Buffalo Hills would also receive more protection through more intensive management. Another area, Upper Smoke Creek, would be designated a wild and scenic river. This designation would improve both its protection and management potential. New areas have been listed in a new Class I inventory report and by ongoing field work for future cultural resource management opportunities.

Many of the ongoing adverse impacts, such as erosion and vandalism, to cultural resources that were discussed in this RMP and in both the Class I Inventory report and other data could be slowed down if the ecosystem alternative is adapted because more cultural resources would be protected and allowed to stabilize and would receive more intensive on the ground management. The ecosystem alternative would have a minor to major beneficial effect on cultural resources.

In summary, the Ecosystem Restoration and Preferred Alternatives would result in minor adverse effects and moderate to major beneficial effects to cultural resources. These alternatives would protect and stabilize large numbers of National Register quality cultural resources that are known to exist within the field office area.

These alternatives would also provide for maximum compliance with existing laws, regulations, and BLM cultural resources policy, and especially with both the California and Nevada BLM-state protocols. The number of culturally sensitive areas under active cultural resource management would increase from 15 to 19, and the number of actual acres would increase from 9,084 to 56,782.
Several areas under present management would receive more protection from establishing new buffer zones and increasing off-highway vehicle (OHV) restrictions. OHV use would be restricted to designated routes on 760,837 acres, and 261, 511 acres would be closed to OHV use.

One new area of critical environmental concern (ACEC)–North Dry Valley–would be designated to protect the area's unique cultural resources. This designation includes a no surface occupancy (NSO) restriction to leasable minerals to avoid ground disturbance. Another ACEC would be developed in coordination with the recreation program on Buffalo Creek. Several areas–Eagle Lake, Willow Creek and Buffalo Hills–would also receive more protection through more intensive management. Upper Smoke Creek Cultural Resource Management Area (CRMA) would be designated as a wild and scenic river, which would improve the protection and management of cultural resources in this area. Fuels treatments on up to 10,000 acres per year would have the long-term of both protecting and stabilizing cultural resource sites.

4.2.10 Cumulative Effects

Cumulative effects under current management from actions or activities by agencies or entities other than BLM could affect archaeological districts, historic districts, cultural landscapes, and linear historic and prehistoric districts (trails). The Eagle Lake Field Office area has not been entirely surveyed, and few districts or landscapes have been found. It is difficult therefore to determine whether more significant districts and landscapes exist and whether contributing elements exist on lands adjoining BLM-administered land. Ground-disturbing activities and actions that alter settings on adjoining government or private lands might affect the significance of potentially eligible districts and landscapes in these areas. Cumulative loss of significant resources might affect the eligibility of districts and cultural landscapes for listing on the National Register of Historic Places.

Conversion of sagebrush habitats to agricultural use on adjacent private lands might degrade cultural resources by disturbing the integrity of resources. In addition, converting habitat to residential use by private landowners might result in similar cumulative effects. Juniper treatment and logging on private lands might involve ground-disturbing activities that degrade individual significant cultural resources and districts. All ground disturbance and actions by agencies or entities other than BLM with the potential to affect the integrity of resources could have cumulative effects on significant cultural resources. Compliance with Section 106 of the National Historic Preservation Act would minimize potential effects. But the flag-and-avoid approach used as mitigation by both BLM and U.S. Forest Service might cumulatively affect cultural resources by not evaluating potentially significant sites and districts. Lack of evaluation of cultural resources would fail to collect the added data about the resources that are needed to relate them to larger regional and thematic districts or landscapes. Under any alternative for which such evaluation is not conducted, therefore, less protection might be afforded these resources, which might, in fact, be part of larger districts or landscapes.

4.2.11 Mitigation Measures

All actions proposed under all alternatives are subject to compliance with cultural resource laws and internal agency guidelines such as the Nevada and California protocols. These laws and guidelines are intended to eliminate, reduce, or mitigate adverse impacts to cultural resources. Although the preferred treatment of important cultural resources within an area of an undertaking is usually complete avoidance, this is not always possible or always the best alternative.

As such, mitigation of impacts is offered as an alternative to avoidance. Proactive protective measures such as soil stabilization and fencing of cultural landscapes, where needed, are good alternatives to complete avoidance. The site context (physical anthropological record) is left intact (except for minor surface disturbance and natural environmental processes) and would eventually heal and protect the cultural resource.

4.2.12 Unavoidable Adverse Impacts

The location and nature of many cultural resources in the area are unknown. Hence, it is not possible to determine if there would be unavoidable adverse impacts to all cultural resources or what these impacts might be. There is some potential for unavoidable adverse impacts from nearly any proposed management decision. Some recent studies and the Class I inventory have found some adverse trends, such as erosion and artifact displacement, resulting from recreation and livestock grazing. But adherence to the relevant cultural resource laws and protocols would allow the mitigation of many of these impacts.

4.2.13 Short-Term Uses Versus Long-Term Productivity

None

4.2.14 Irreversible and Irretrievable Impacts

Casual, unauthorized activities (such as dispersed recreation, off-highway vehicle (OHV) use, and vandalism) and natural processes (natural decay, deterioration, or erosion) all contribute to deterioration and destruction of cultural resources. Once these resources are damaged, they can not be replaced.

4.3 Potential Effects on Energy and Minerals

This section analyzes the direct, indirect, and cumulative effects on energy and minerals activities from land use plan decisions under the alternatives. The current potential for energy (oil and gas) and locatable minerals development is very low in the field office area (John Snow, Nevada Division of Minerals, oral communication), as described in the *Reasonably Foreseeable Development Scenario, Appendix D*. The development of geothermal energy within the Eagle Lake Known Geothermal Resource Area has a medium potential of occurring. A demand for saleable minerals will continue, and small-scale development is expected. Even with low potential for the development of oil and gas and locatable minerals, objectives for energy and mineral resource management could conflict with those for physical, biological, and cultural resource management. These conflicts would be resolved through the following:

- mitigation measures,
- withdrawal of the land from mineral entry, or
- making specific parcels unavailable for development.

Mitigation measures would be incorporated as terms, conditions, and stipulations in permits and leases.

4.3.1 Methodology and Assumptions

We considered effects on energy and minerals development adverse if they would restrict or raise the cost of mineral and energy exploration, development, and extraction. We considered the effects beneficial if they would increase access to the resources. We considered effects on energy and minerals more beneficial if more land would be open to development with fewer restrictions. And we considered alternatives less beneficial if more land would be closed to development or more restrictive conditions would be placed on development.

4.3.2 Incomplete or Unavailable Information

Limited information exists on the location and extent of mineral resources in the Eagle Lake Field Office area. Consequently, the first step in mineral and energy activities is often exploration to determine the extent and economic feasibility of mineral resource extraction. Until a potential permittee or lessee approaches BLM with an application or plan of operations, the location and extent of potential activities are unknown. As a result, the planning approach to energy and minerals management is to determine where mineral activities could conflict with other resources and consider conditions to mitigate the conflict or withdraw the lands from mineral entry.

4.3.3 Analysis

For this analysis, the defined levels of effects on energy and mineral management are as follows:

Negligible: The effect would be barely detectable and would not cause any more restrictions beyond the standard lease terms, or add higher costs to the exploration, development, or extraction of the resources. The amount of land open to energy and minerals development without restrictions would be maximized.

Minor: The effect would be slight, but detectable and would impose only minor restrictions or add slightly higher costs to the exploration, development, or extraction of the resources. The amount of land open to energy or mineral development would be slightly lower (up to 25%) than at present for an adverse effect or slightly higher (up to 25%) for a beneficial impact.

Moderate: The effect would be readily apparent and would moderately restrict or impose moderately higher costs to the exploration, development, and extraction of resources. The amount of land open to development of energy and minerals would be moderately lower (26-50%) than at present for an adverse impact or moderately higher (26-50%) for a beneficial impact.

Major: The effect would be severely adverse, and substantially more restrictions would be imposed or substantially higher costs would be added to the exploration, development, and extraction of resources. The amount of land open to energy and mineral development would be substantially lower (>50%) than at present for an adverse impact or substantially higher (>50%) for a beneficial impact.

4.3.4 Impacts Common to All Alternatives

Essentially, the goals and objectives for mineral and energy development common to all alternatives are to help BLM meet local and national, nonrenewable and renewable energy and other public mineral needs, while ensuring a viable, long-term mineral industry and providing reasonable and necessary protections to other resources.

For both nonrenewable and renewable alternative energy resources, the following principles would apply.

- Encourage and facilitate the development by private industry of public land minerals to satisfy national and local needs and provide for economical and environmentally sound exploration, extraction, and reclamation.
- Process applications, permits, operating plans, mineral exchanges, leases, and other use authorizations for public lands in accord with existing policy and guidance.
- Monitor saleable, leasable, and locatable mineral operations to ensure proper resource recovery and evaluation, production verification, diligence, inspection and enforcement of contract sales, common-use areas, community pits, free-use permits, leases, and prospecting permits.

This RMP would recognize and conform to the National Energy Policy (National Energy Policy Development Group 2001) by:

- recognizing the need for diversity in obtaining energy supplies,
- encouraging the conserving of sensitive resources, and
- improving opportunities for energy distribution.

4.3.5 LEASABLE MINERAL RESOURCES

Lands open to mineral leasing would fall into one of three categories of conditions in leasing. The least restrictive are lands open to leasing under standard lease terms. The most restrictive are lands open for leasing with no surface occupancy requirements. In some areas, restrictions beyond the standard lease terms might be implemented to protect sensitive resources. The third category of conditions consists of these added restrictions, which this section refers to as restrictive stipulations.

The existing wilderness study areas (WSAs)–380,359 acres (37%)–would remain closed to leasable minerals as per Interim Management Policy for Lands under Wilderness Review (IMP) (BLM 1995b). Any WSAs, or portions thereof, that are not designated as wilderness and are released by Congress from WSA status will be open to leasing unless closed by other management actions.

5.1 No Action Alternative

The No Action Alternative imposes few restrictions on leasable energy and mineral activities throughout the field office area. A total of 642,408 acres (63%) of BLM-administered lands would be open to mineral leasing under standard lease terms. The existing wilderness study areas (WSAs)–380,359 acres (37%)–would remain closed to leasable minerals.

The adverse effects of wildlife habitat restrictions on energy and minerals development and operations would be negligible to minor. The total surface area of restrictions, applied during the specific environmental assessment, would be relatively low, and needed mitigation would result in only a minor change to operations, such as the following:

- using structures that do not allow raptors to perch,
- selecting different access routes to avoid critical habitats,
- adjusting locations for drill rigs, and
- applying site-specific mitigation measures.

Summary of Effects – No Action Alternative

The No Action Alternative would have negligible adverse impacts on leasable energy and mineral exploration, development, and extraction because of the relatively few acres that are closed, fall under permanent no surface occupancy rules, or require restrictive stipulations. The acres within WSAs that are closed are done so by requirements from the BLM Wilderness IMP (BLM 1995).

5.2 Alternative 1. Economic Development

Alternative 1 emphasizes commodity production from resources, including energy and minerals. A total of 602,427 acres (59%) of lands would be open to mineral leasing under standard lease terms. The following acreages would fall under mineral leasing restrictions:

- Seasonal and other restrictions would apply to 160 acres within the Pine Dunes Research Natural Area.
- Other restrictive stipulations would apply within 0.25 miles of greater sage-grouse leks, known raptor nests, and pronghorn kidding grounds.
- Permanent no surface occupancy (NSO) restrictions would apply to 5,501 acres within the Bizz Johnson Trail Special Recreation Management Area (SRMA) and the Aspen Groves Area of Critical Environmental Concern (ACEC).
- A total of 414,679 acres (including 34,320 acres at Eagle Lake Basin ACEC and 380,359 in existing WSAs) would be closed to all leasable mineral operations.

Several restrictions could be implemented to protect certain wildlife species during times of critical habitat needs. These restrictions would limit the location and season of use for energy and minerals development and operations near the habitats of these species.

The adverse effects of wildlife habitat restrictions on energy and minerals development and operations would be negligible to slight. The total surface area of restrictions would be relatively low, and needed mitigation measures would only slightly (minor effects) change operations, such as the following:

- using structures that do not allow raptors to perch,

- selecting different access routes to avoid critical habitats,
- adjusting locations for drill rigs, and
- applying site-specific mitigation measures.

BLM would maximize mitigation measures to protect soil and water resources to allow energy and mineral development with only minor restrictions. Sediment intrusion buffer zones around sensitive resources, such as water bodies, cultural resources, special status plant or animal habitats, would not exceed 50 feet.

Energy and mineral operations generally require roads and other conveyance systems. Thus existing or proposed systems are generally advantageous to those operations as long as they are not restricted from use. Alternative 1 provides for adding 15 miles of new permanent roads to support recreation activities and invasive western juniper management. Lands and realty actions also might create access to public lands that were previously inaccessible, opening these lands to energy and mineral development without building new roads. Alternative 1 would allow new utility corridor development. But the total benefit to energy and mineral development from these new developments would be negligible because of the small percentage of lands affected by these actions.

Summary of Effects – Alternative 1

Alternative 1 would have negligible to minor adverse impacts to leasable energy and mineral exploration, development, and extraction because of the relatively few acres that would be closed, fall under permanent no surface occupancy rules, or require restrictive stipulations. A minor benefit could result from realty actions, new road building, and the possible release of wilderness study areas from interim management.

5.3 Alternative 2. Ecosystem Restoration

Alternative 2 emphasizes resource management through ecosystem restoration. This alternative would restrict lands open to mineral leasing under standard lease terms to 391,339 acres or 38% of the BLM-administered lands in the field office area.

Seasonal use and other restrictions would apply to 137,071 acres (13%). Other restrictive stipulations would apply to lands within 0.60 to 2.0 miles of greater sage-grouse leks. The suitable buffers for each level of restrictive stipulations will be implemented as important habitat is located.

A total of 76,922 acres (8%) of BLM-administered lands would fall under permanent no surface occupancy rules. These areas include the following:

- 24,340 acres for the Nobles Emigrant Trail,
- 2,887 acres for Pine Dunes ACEC,
- 2,130 acres Willow Creek ACEC,
- 894 acres Lower Smoke Creek ACEC,
- 10,156 acres for North Dry Valley ACEC, and
- 36,515 acres for Buffalo Creek Canyon ACEC.

No surface occupancy (NSO) would also be required for all lands within 0.25 miles of greater sage-grouse leks, 0.5 miles from known raptor nests, and 0.25 miles from pronghorn kidding grounds.

These acreages will vary (numbers and actual locations) as new habitat is found during field work and the environmental assessment (EA) and EIS process for specific applications.

A total of 417,435 acres would be closed to mineral leasing including the following:

- 34,320 acres in Eagle Lake Basin ACEC,
- 2,756 acres in Bizz Johnson SRMA, and
- 380,359 acres in existing WSAs.

Other closed acres would include all lands within 0.25 miles of greater sage-grouse leks, or known or occupied sage-grouse habitats. All lands would be closed within 0.25 miles from known raptor nests. Other sensitive wildlife habitat may also be deemed closed as information is developed.

Alternative 2 would not allow the building of new permanent roads to support other resource objectives. Measures to protect soil and water resources would be implemented by restricting activities in sensitive areas. Sediment intrusion buffer zones around sensitive resources such as water bodies, cultural resources, or special status plant or animal habitats would have to be at least 100 feet wide. Energy development would be allowed as long as there is unimpeded progress toward meeting water quality and hydrologic goals and objectives. For streams with water quality-limited segments, uses and activities would be allowed in the contributing watershed only if they would promote restoring water quality to state standards.

Summary of Effects – Alternative 2

Alternative 2 would have minor to moderate adverse impacts to leasable energy and mineral exploration, development, and extraction because of increased restrictions on acres that are closed, fall under permanent no surface occupancy rules, or require restrictive stipulations. Alternative 2 would reduce the total lands open to mineral leasing under standard lease terms from 63% of BLM-administered lands to 38%.

5.4 Alternative 3. Traditional Uses

Alternative 3 emphasizes traditional uses of resources, combined with mitigation and resource protection. Under this alternative, 591,337 acres (59%) of BLM-administered lands would be open to mineral leasing under standard lease terms.

A total of 11,210 acres (1%) would be required to abide by seasonal use restrictions to protect critical wildlife habitat, as follows:

- 160 acres in Pine Dunes ACEC,
- 894 acres in Lower Smoke Creek ACEC,
- 10,156 in North Dry Valley ACEC, and
- within 0.50 miles of greater sage-grouse leks and known raptor nests and within 0.25 miles of pronghorn kidding grounds.

A total of 5,501 acres (0.005 %) of BLM-administered lands would fall under permanent no surface occupancy rules, including the following areas:

- Bizz Johnson Trail SRMA, and
- Aspen Groves ACEC.

All mineral leasing would be closed on 414,679 acres, including 34,320 acres at Eagle Lake Basin ACEC and 380,359 in existing WSAs).

Summary of Effects – Alternative 3

Alternative 3 would have negligible to minor adverse impacts to leasable energy and mineral exploration, development, and extraction under because of the relatively few acres that would be closed, fall under permanent no surface occupancy rules, or require restrictive stipulations. A minor benefit could result from realty actions, new road building, and the possible release of wilderness study areas from interim management.

5.5 Preferred Alternative

The Preferred Alternative emphasizes resource management through commodity production combined with mitigation and resource protection. Under this alternative 388,594 (38%) of BLM-administered lands would be open to mineral leasing under standard lease terms.

A total of 139,816 acres (14%) would be required to abide by seasonal use restrictions to protect critical wildlife habitat, as follows:

- 2,745 acres in Aspen Groves ACEC,
- 28,494 acres in Fort Sage SRMA,
- 61,764 acres in Antelope/Schaefer/Bald Mountain ACEC, and
- 46,813 acres in South Dry Valley SRMA.

A total of 79,678 acres (8%) of BLM-administered lands would fall under permanent no surface occupancy rules, including the following areas:

- 24,340 acres along the Nobles Emigrant Trail,
- 2,756 acres in the Bizz Johnson Trail SRMA
- 2,887 acres in Pine Dunes ACEC,
- 2,130 acres in Willow Creek ACEC,
- 894 acres in Lower Smoke Creek ACEC,
- 10,156 acres in North Dry Valley ACEC, and
- 36,515 acres Buffalo Creek Canyon ACEC.

Other no surface occupancy (NSO) restrictions would apply to the following:

- lands 0.25 to 0.60 miles from sage-grouse leks,
- lands 0.25 to 0.50 miles from known raptor nests, and
- lands within 0.25 miles of pronghorn kidding grounds.

A total of 414,679 acres (40%) of BLM-administered land would be closed to mineral leasing, including the Eagle Lake Basin ACEC and existing WSAs.

The Preferred Alternative would allow the building of 15 miles of new permanent roads to support other resource objectives. BLM would evaluate restrictions to protect soil and water resources on a case-by-case basis. The width of sediment intrusion buffer zones around sensitive resources such as water bodies, cultural resources, or special status plant or animal habitats would be greater than 50 feet.

For streams with water quality-limited segments, uses and activities would be allowed when state water quality standards are either met or exceeded at the same or greater rate than without the activity.

Summary of Effects – Preferred Alternative

The Preferred Alternative would have minor to moderate adverse effects to leasable energy and mineral exploration, development, and extraction under because of the acres that are closed, fall under permanent no surface occupancy rules, or require restrictive stipulations. Conflicts with other resources would be resolved by applying mitigation measures or by closing specific parcels to mineral leasing. BLM would implement needed mitigation measures and incorporate them into terms, conditions, and stipulations in permits and leases. A minor to moderate benefit could result from realty actions and the release of WSAs from wilderness study.

5.6 Comparative Summary of Impacts

Alternatives 1, 3, and the Preferred would close an additional 3% of lands to mineral leasing compared to the present condition under the No action Alternative, while Alternative 2 would close an additional 4% of lands. Alternatives 1 and 3 are very similar to the No Action Alternative, in that 59% of lands would be open under standard lease terms, compared to 63% that are currently open. Alternatives 2 and the Preferred would have more adverse impacts than the No Action, 1, and 3, as 8% of lands would require NSO requirements, and 14% of lands would require restrictive stipulations.

However, all alternatives would have negligible to minor impacts, as the majority of BLM administered lands are open to leasable energy development under some form of requirements. The Preferred Alternative is expected to meet all of the demands within the field office area for leasable energy and mineral development. In accord with Executive Order 1312, federal policy requires that all decisions consider adverse impacts on the President's National Energy Policy. The Eagle Lake RMP would not adversely affect energy and is in compliance with the National Energy Policy.

5.7 Cumulative Effects

The area of analysis for cumulative impacts on leasable minerals consists of the Eagle Lake Field Office area and land within 50 miles of its boundaries. Because of the history of minimal interest in oil and gas exploration and the planning area's limited development potential, activity over the next 15 to 20 years is likely to be sporadic. Oil and gas activity will probably consist of issuing some competitive and over-the-counter leases, a few geophysical surveys, and perhaps the drilling of two or three exploratory wells. The total surface disturbance from exploratory drilling over the life of this plan is expected to be about 13 acres. Any oil and gas deposits found in the planning area would probably be too small to be economically developed. But if oil and gas are developed, the total surface disturbance from exploration and development would be about 800 acres.

The geothermal energy resources known to exist in the region are essentially undeveloped, especially in the field office planning area. With recent interest in geothermal resources expressed by some governmental and private entities, geothermal exploration may begin in the planning area, possibly leading to developing the resource. But the small, somewhat isolated population of the area makes unlikely any direct use of geothermal energy on public land.

Because of past geothermal exploration in California and Nevada and a projected increase in power demand, six notices of intent for surface geophysical surveys and five notices of intent to drill 30 temperature gradient holes would be filed under all alternatives during the life of this plan. These notices of intent would most likely be filed in the known geothermal resource area (KGRA).

Total surface disturbance from geophysical surveys over the life of the plan is expected to be about 0.5 acres. Disturbance from temperature gradient holes is expected to be 5.5 acres. Eight exploratory wells would be drilled under all alternatives and during the life of RMP, resulting in a total surface disturbance of 34 acres. A generating facility, if built, would disturb from 25 to 75 acres.

The most favorable condition for exploring and developing mineral resources would be with as few restrictions as possible. Those involved in exploration and development face many environmental obligations to comply with standard requirements and lease and sale terms. Any more measures for mitigating disturbance to lands and other resources impose even greater burdens on mineral exploration and development. Mitigation measures generally add costs to mineral exploration and development, thereby increasing the adverse effects to these programs. Stipulating no surface occupancy is most suitable for small areas where directional drilling might be feasible (up to 0.5 miles).

For large areas covering many square miles, such as the proposed ACECs, no surface occupancy stipulations may effectively close the area to mineral leasing. In addition, seasonal restrictions for other resource needs, such as wildlife habitat, could result in access times being too short for effective exploration and development.

Within the area being evaluated for cumulative effects are several ownerships, including BLM, that require lands be closed to leasable mineral operations. These lands include wildlife refuges, military withdrawals, WSAs, and other special management areas. Although the cumulative acreage of lands closed to mineral leasing is somewhat substantial, these impacts are minor to the industry because of low expected proposals for exploration and development.

Energy and minerals development potential and operations on lands outside BLM's jurisdiction are not expected to be significantly affected by any of the alternatives, and no cumulative impacts are expected.

5.8 Mitigation Measures

None of the alternatives would substantially decrease acres open to energy and mineral leasing. None would result in impacts that would require mitigating oil, gas, and mineral resources. Therefore, mitigation measures would not be needed.

5.9 Unavoidable Adverse Impacts

None of the alternatives would substantially restrict leasable mineral development. Accordingly, none of the alternatives would result in unavoidable adverse impacts to mineral development.

5.10 Short-Term Uses Versus Long-Term Productivity

If and when fossil fuel and mineral resources are extracted and the short-term beneficial uses (e.g., increased supply of minerals to meet demand, decreased production costs, increased royalties) are realized, the resources would no longer be available for long-term or future production.

5.11 Irreversible and Irretrievable Impacts

Extracting and developing mineral resources would cause an irreversible and irretrievable loss of those minerals because of the finite nature of the resource.

4.3.6 LOCATABLE MINERAL RESOURCES

Public lands are either open or closed to locatable mineral use. Closed areas are said to be "withdrawn" from mineral entry. Locatable mining operations on lands open to mineral entry (as well as on claim locations that predate withdrawal) must be conducted in compliance with the 43 CFR 3809 (surface management) regulations. These regulations require an operator to prevent unnecessary or undue degradation of the land. The three levels of operation under these regulations are casual use, notice, and plan of operations.

In general, casual use, which usually includes recreational mining, only negligibly disturbs federal lands and resources. For example, activities that do not involve the use of earthmoving equipment or explosives may be considered casual use. This level of mining does not require mechanized equipment or explosives, does not require notification of BLM, and does not require an approved plan of operations. But casual use does require reclamation.

Notice-level mining operations are on 5 acres or less within a mining claim or project area. The claimant or operator submits a notice to BLM. The notice declares the intention to begin an operation and allows BLM to review the operation for potential resource conflicts and to eliminate the need for federal action. The notice must describe the following:

- the proposed activities,
- the location on the ground,
- the start-up date,
- road access and construction, if any, and
- reclamation measures.

BLM's receiving and reviewing a notice is not a federal action. Notice-level mining does not require preparing an environmental assessment (EA) or environmental impact statement (EIS). BLM does not have to approve a notice.

Plan of operations-level mining involves more than 5 acres and requires the operator to submit a plan of operations to BLM. A plan of operations must document in detail all actions that the operator plans to take from exploration through reclamation. It must include the following:

- a description of the proposed activities,
- road access and construction,
- reclamation measures,
- timeframes of non-operation, and
- a sketch or a map of the area to be disturbed, including all access routes.

For plan-level operations, BLM or the claimant/operator must prepare an EA or EIS before any surface-disturbing activities can begin. BLM must also approve the plan of operations before operations can begin. Extracting locatable minerals on special category lands, as defined in 43 CFR 3809.1-4, always requires a plan of operations. A plan of operations would have to be filed for operations conducted in the following areas:

- areas in the National Wild and Scenic Rivers System and areas designated for potential addition to the system;
- designated areas of critical environmental concern (ACECs); and

- areas designated as closed to off-highway vehicle (OHV) use (as defined in 43 CFR 8340-5); lands or waters known to contain federally proposed or listed threatened or endangered species, or their proposed or designated critical habitat.

The filing of plans of operation is generally more laborious than filing notices and the cost of extracting locatable minerals would increase on special category lands. Given the moderate potential for the occurrence of economical locatable minerals within the planning area and the limited development activity expected over the next 15 years, requirements for plans of operations would not likely have adverse economic impacts on most mining operators.

6.1 No Action Alternative

The No Action Alternative proposes closing no areas to locatable mining and imposes only a few restrictions on locatable mineral activities. A total of 1,022,767 acres (100%) of BLM-administered lands would be open to locatable mineral activities. Existing WSAs–380, 359 acres (37%)–would continue to be regulated by the Wilderness Interim Management Policy (BLM 1995). The policy restricts mineral activities to those that don't require reclamation.

BLM would evaluate stipulations to protect soil and water resources on a case-by-case basis. Fencing areas to protect unique plant communities from impacts would negligibly affect locatable mining because the total acreage involved would be relatively low. But if a unique plant community lies within the proposed development, mitigation measures would be implemented on a case-by-case basis.

The adverse effects of wildlife habitat restrictions on locatable mineral development and operations would be negligible to minor. The total surface area of restrictions, applied during specific environmental assessments, would be relatively small, and needed mitigation measures would result in only a minor change to operations, such as the following:

- using structures that do not allow raptors to perch,
- selecting different access routes to avoid critical habitats,
- adjusting locations for drill rigs, and
- applying site-specific mitigation measures.

The No Action Alternative would have negligible to minor adverse impacts to locatable mineral exploration, development, and extraction.

6.2 Alternative 1. Economic Development

Alternative 1 emphasizes commodity production from resources, including locatable minerals. A total of 1,020,272 acres (99%) of BLM-administered lands would be open to locatable mineral activities. Alternative 1 would restrict locatable mining from the Susan River ACEC, 2,495 acres. As in No Action, the existing WSAs would continue to be regulated by the Wilderness Interim Management Policy (BLM 1995). The policy restricts mining to activities that don't require reclamation.

BLM could implement several restrictions to protect certain wildlife species during times of critical habitat needs. These restrictions would seasonally limit certain exploration activities. The adverse effect of wildlife habitat restrictions on locatable minerals operations would be negligible to slight. The total surface area of restrictions would be relatively low.

Mitigation measures needed would result in only minor changes to operations, such as the following:

- using structures that do not allow raptors to perch,
- selecting different access routes to avoid critical habitats,
- adjusting locations for drill rigs, and
- applying site-specific mitigation measures.

Mitigation measures to protect soil and water resources would allow locatable mineral development with only minor restrictions. The width of sediment intrusion buffer zones around sensitive resources such as water bodies, cultural resources, special status plant, or animal habitats, would not exceed 50 feet.

Locatable mineral operations generally require roads and other conveyance systems. Thus, existing or proposed systems are advantageous to those operations as long as they are not restricted from use. Alternative 1 provides for the addition of new permanent roads for other resource purposes. Using existing permanent and temporary roads saves road-building and maintenance costs. If these roads are in the right place, they can be used for locatable mineral operations without the added costs of road building.

Lands and realty actions might also create access to public lands that were previously inaccessible, making lands available for locatable minerals development without more new road building. Alternative 1 would allow new utility corridor development. The total benefits to locatable minerals from these new developments would be slight because of the small percentage of lands affected by them. Utility development benefits mineral development by providing a nearby energy source. But utility development can be costly if existing lines need to be rerouted when they conflict with static locatable minerals infrastructure.

Summary of Effects – Alternative 1

Alternative 1 would have negligible to minor adverse impacts on locatable mineral exploration, development, and extraction because of the relatively small area with a WSA designation and the minor restrictions/mitigation measures required from site-specific National Environmental Policy Act (NEPA) review. A minor benefit could result from realty actions and new road building, and if Congress releases WSAs from wilderness study.

6.3 Alternative 2. Ecosystem Restoration

Alternative 2 emphasizes resource management through ecosystem restoration and would close 52,882 acres (5%) of lands to mineral location activities.

Exploration, development, and extraction of locatable minerals in areas that could disturb cultural resources would be restricted or not allowed. But because affected areas are expected to be relatively small, the adverse effect would be negligible to minor.

Alternative 2 does not allow building new permanent roads to support other resource objectives. Temporary roads would be reclaimed to pre-disturbance or enhanced condition. Alternative 2 would emphasize measures to protect soil and water resources by restricting activities in sensitive areas. Sediment intrusion buffer zones around sensitive resources such as water bodies, cultural resources, or special status plant or animal habitats would be at least 100 feet wide. For streams with water quality-limited segments, uses and activities would be allowed in the contributing watershed only if they would promote restoring water quality to meet state water quality standards.

Summary of Effects – Alternative 2

Alternative 2 would have minor adverse impacts on locatable mineral exploration, development, and extraction because of the increased acreage closed and the added restrictions and stipulations that would increase time and costs.
Alternative 2 would reduce the total lands open to locatable minerals activities from 1,022,767 acres (100%) of BLM-administered lands to 969,885 acres (95%). The lands included within the proposed ACEC closures have a low potential for the discovery of locatable minerals.

6.4 Alternative 3. Traditional Uses

Alternative 3 emphasizes traditional uses of resources, combined with mitigation and protection measures for resource protection. Under this alternative 1,022,767 acres (100%) of BLM-administered lands would be open to locatable minerals. The impacts under Alternative 3 would be the same as under the No Action Alternative.

Alternative 3 would have negligibly adverse effects on locatable mineral exploration, development, and extractions because all BLM-administered lands within the field office area would be open to locatable mineral activities.

6.5 Preferred Alternative

The Preferred Alternative emphasizes resource management through commodity production combined with mitigation and measures for resource protection. Under this alternative 99% all of the BLM-administered lands in the field office area would be open to locatable minerals. Four ACECs totaling 8,406 acres would be closed. Existing WSAs–380, 359 acres (37%)–would continue to be regulated by the Wilderness Interim Management Policy (BLM 1995). The policy restricts mineral activities to those that don't require reclamation.

Fencing riparian and other areas to protect unique plant communities from animals would have negligibly adverse effects because the total area fenced would be relatively low. But if the unique resource is within an area proposed for development, mitigation measures will be implemented on a case-by-case basis

Exploration, development, and extraction of locatable minerals in areas where cultural resources could be adversely affected would be mitigated or restricted. But because areas affected are expected to be relatively small, the adverse effect would be negligible to slight.

The Preferred Alternative allows for the building of 15 miles of new permanent roads to support recreation and other resource objectives. BLM would evaluate restrictions to protect soil and water resources on a case-by-case basis. Sediment intrusion buffer zones around sensitive resources such as water bodies, cultural resources, or special status plant or animal habitats would be at least 50 feet wide when relocation of site-specific activities is permissible.

For streams with water quality-limited segments, uses, and activities would be allowed if state water quality standards are either met or exceeded at the same or greater rate than without the activity.

Summary of Effects – Preferred Alternative

The Preferred Alternative would have negligible to minor adverse effects on locatable mineral exploration, development, and extraction because no lands are closed and restrictive mitigation would be limited. Conflicts with other resources would be resolved through mitigation measures.

A minor benefit could result from construction of new roads, realty actions, and if WSAs are released from wilderness study.

6.6 Comparative Summary of Impacts

No Action and Alternative 3 would provide for the entire BLM-administered lands in the field office area (1,022,767 acres) to be designated as open to locatable minerals. Alternative 2 would close the six proposed ACECs to locatable mineral activity. Alternative 1 and the Preferred Alternative also require closures, but the acreage is too slight to be significant. Restrictions and mitigation measures would be site/project specific and applied after the environmental analysis or environmental impact statement phase is completed. Locatable mineral exploration, development, and operations are tied directly to a static resource—the mineral deposit. Therefore the relocation of certain activities is severely restricted, and mitigation measures are necessarily applied to other conflicting resources. The Preferred Alternative would meet all of the demands within the field office for locatable mineral exploration, development, and operations.

6.7 Cumulative Effects

The area of analysis for cumulative impacts on locatable minerals consists of the Eagle Lake Field Office area and land within 50 miles of its boundaries. Because of the planning area's history of minimal interest in locatable minerals exploration and limited development potential, activity over the next 15 to 20 years is likely to be sporadic. Locatable minerals activity will probably consist of the following:

- maintaining the present claims,
- staking a few new claims,
- noninvasive geophysical, geochemical, and geological exploration, and
- drilling exploration holes.

The major commodities of interest over the next 15 to 20 years will probably be gold/silver and zeolites. Other commodities that may be present in the field area are diatomite, bentonite and perlite. This assessment is based on market conditions (especially for precious metals) and the favorable geologic environment for mineral occurrences. The economics of mining in the planning area will be driven by the relationship between production costs and the market price of the commodity.

Over the next 15 to 20 years, it is expected that two mines may be developed in the planning area: one open-pit gold mine using chemical heap leaching, at least in part; and one mine of zeolites.

Based on mineral exploration activity over the past 10 years and known occurrences in the planning area of hot springs type gold deposits, exploration for gold is expected to take place during the life of this plan. Depending on the market for gold, up to 25 exploration projects for hot springs gold deposits are expected over the next 15 to 20 years. A typical hot springs exploration project would involve six drill holes and approximately 0.5 mile of new road 12 feet wide (total disturbed width of 20 feet) for each drill hole, resulting in 4.2 acres of disturbance/project, or 105 acres of total disturbance.

A moderate amount of exploration for industrial minerals—mainly zeolite—is expected during the life of this plan. Depending on market conditions, up to three projects are expected for zeolite. Exploration for this commodity consists of auger holes or trenching and road construction. An average project would involve up to 10 auger holes; 5 trenches 20–25 feet wide, 60–125 feet long, and 15–25 feet deep; and 1,000 feet of road 12 feet wide (total disturbed width of 20 feet), for a disturbance of 0.8 to 1 acre/project.

The most favorable condition for exploration and development of mineral resources would be having as few restrictions as possible. Those involved in exploration and development face many environmental obligations to comply with the National Environmental Policy Act (NEPA) and state and federal regulations.

Any more measures for mitigating disturbance to lands and other resources would impose even more adverse impacts to mineral exploration and development. Mitigation measures generally increase the cost of mineral exploration and development, thereby increasing the adverse effects to these programs. In addition, seasonal restrictions for other resource needs, such as wildlife habitat, could make access times too short for effective exploration and development.

Within the area being evaluated for cumulative effects, Congress' conversion of WSAs to wilderness would close 380,359 acres to mineral entry. Although the cumulative acreage of lands closed to mineral leasing would be substantial, these impacts are minor to the industry because of few expected proposals for exploration and development.

Energy and minerals development potential and operations on lands outside BLM's jurisdiction would not be affected significantly by any of the alternatives, and no cumulative impacts are expected.

6.8 Mitigation Measures

None of the alternatives would substantially decrease the acres open to locatable mineral development. None would result in impacts that would require mitigating locatable mineral resources; therefore, mitigation measures would not be needed.

6.9 Unavoidable Adverse Impacts

None of the alternatives would substantially restrict mineral development. Accordingly, none of the alternatives would result in unavoidable adverse impacts to mineral development.

6.10 Short-Term Uses versus Long-Term Productivity

If and when locatable mineral resources are extracted and the short-term benefits (e.g. increased supply of minerals to meet demand, decreased production costs, increased commodity prices) are realized, the resources would no longer be available for long-term or future production.

6.11 Irreversible and Irretrievable Impacts

Extracting and developing mineral resources would result in an irreversible and irretrievable loss of those minerals because of the finite nature of the resource.

4.3.7 SALEABLE MINERAL RESOURCES

Saleable minerals include decorative stone, sand and gravel, and aggregate. Under all of the alternatives, all existing saleable mineral material sites would be evaluated to determine continued need and ensure that they are meeting user needs. All alternatives would allow applications for contract sale and free use permits. BLM would establish common use areas and community pits in open areas unless they are otherwise encumbered. The impacts of management decisions on these materials would be direct and beneficial in the long term.

Lands available for saleable minerals would fall into one of two categories: opened or closed. The wilderness study areas (WSAs) (380,359 acres) would remain closed to saleable minerals.

7.1 No Action Alternative

Under the No Action Alternative, only WSAs would be closed to saleable mineral disposal. A total of 639,753 acres (63%) of BLM-administered lands would be open to saleable mineral activities. The existing WSAs–380,359 acres (37%)–would continue to be closed as regulated by the Wilderness Interim Management Policy (BLM 1995). The Bizz Johnson Trail recreation area and the Pine Dunes RNA would also be closed.

The following are other management actions for saleable minerals under the No Action Alternative.

- Allow decorative stone and flat rock collection on all BLM-administered land in the Eagle Lake Field Office area–1,022,767 acres.
- Continue to provide materials for BLM, state, county, and city uses from existing pits or previously closed pits.
- Provide new mineral materials sites after compliance with National Environmental Policy Act (NEPA) and protection of other resources.
- Allow individual decorative stone collection to continue throughout the field office area and commercial collection to continue after NEPA compliance.

The adverse effect of wildlife habitat restrictions on saleable minerals development and operations would be negligible to minor. The total surface area of restrictions, applied during the specific environmental assessment, would be relatively low. Needed mitigation measures would result in only a minor change to operations, such as the following:

- using structures that do not allow raptors to perch,
- selecting different access routes to avoid critical habitats,
- adjusting locations for drill rigs, and
- applying site-specific mitigation measures.

The No Action Alternative would have minor adverse impacts to saleable mineral exploration, development, and extraction.

7.2 Alternative 1. Economic Development

This alternative emphasizes commodity production from resources, including saleable minerals. Impacts to saleable minerals under Alternative 1 are very similar to those listed under the No Action Alternative. An additional 2,745 acres would be closed in the Aspen Groves ACEC. A total of 637,008 acres (62%) of BLM-administered lands would be open to saleable mineral activities. Other activities to promote saleable mineral use are as follows:

- Expand existing pits as needed to meet increases in local demand.
- Allow new community pits in other areas as needed.
- Provide sources for commercial sales of sand and gravel.
- Use existing pits and reopen closed pits to meet demands for materials.
- Locate new sources of sand and gravel and allow sales when disturbance is compatible with other high-value resources or could be satisfactorily mitigated.

- Provide sand and gravel for county and state road maintenance.
- Expand existing pits and find new sources as needed.

Mitigation measures to protect soil and water resources would allow saleable mineral development with only minor restrictions. Sediment intrusion buffer zones around sensitive resources such as water bodies, cultural resources, and special status plant or animal habitats, would be set at no more than 50 feet.

Saleable mineral operations generally require roads and other conveyance systems. Thus, existing or proposed systems are generally advantageous to those operations as long as they are not restricted from use. Alternative 1 provides for adding new permanent roads for other resource purposes. Using existing permanent and temporary roads saves costs for road building and maintenance.

Lands and realty actions might also create access to public lands that were previously inaccessible, opening them to saleable minerals development without building new roads. Alternative 1 would allow new utility corridor development. The total benefit to saleable mineral development from these new developments would be slight because of the small percentage of lands affected by these actions. Utility development can be detrimental to mineral development by adding costs for rerouting existing lines when they conflict with static saleable minerals infrastructure.

Summary of Effects – Alternative 1

Alternative 1 would have minor adverse effects to saleable mineral exploration, development, and extraction because of the acres within WSA designations and the minor restrictions and mitigation measures that would be required from site-specific National Environmental Policy Act (NEPA) review. A minor benefit could result from realty actions, new road building, and the release of WSAs from wilderness study.

7.3 Alternative 2. Ecosystem Restoration

Alternative 2 emphasizes resource management through ecosystem restoration. This alternative would close 385,759 acres (19%) to saleable mineral activities. In addition to the existing WSAs, Alternative 2 also proposes closing salable minerals on seven new ACECs.

The following are management actions for saleable minerals under Alternative 2.

- Keep existing community sand and gravel pits open, but do not expand them as material becomes exhausted.
- Reclaim pits and establish no new community sources for sand and gravel.
- Allow existing county and state sand and gravel pits to remain open and consider expanding them with restrictive stipulations to protect or mitigate other resources.
- Close and reclaim all minimally used pits.
- Open new pits as needed for road maintenance, subject to restrictive stipulations to maximize protection of other resources.
- Prohibit decorative rock (flat rock) sales and collection throughout the field office area.

BLM would emphasize measures to protect soil and water resources by restricting activities in sensitive areas. Required sediment intrusion buffer zones around sensitive resources such as water bodies, cultural resources, or special status plant or animal habitats would be at least 100 feet wide.

For streams with water quality-limited segments, uses and activities would be allowed in the contributing watershed only if they would promote restoring water quality to state water quality standards.

Summary of Effects – Alternative 2

Alternative 2 would have minor to moderate adverse effects on saleable mineral exploration, and extraction because of increased acreage closed and additional restrictions and stipulations. The total lands open to saleable minerals would be reduced to 553,011 acres (54%). 385,759 acres within WSAs and seven ACECs would be closed to saleable minerals.

Existing community sand and gravel pits would remain open, but would not be expanded as material becomes exhausted. In addition, the entire field office area would be closed to all collection of decorative stone and flat rock.

7.4 Alternative 3. Traditional Uses

Alternative 3 would have minor adverse effects to saleable mineral activities, and minor benefits. A total of 637,008 acres (62%) of BLM-administered lands would be open to saleable mineral activities. Impacts would be the same as described for Alternative 1.

7.5 Preferred Alternative

The Preferred Alternative emphasizes resource management through commodity production combined with mitigation and measures for resource protection. Under this alternative 634,002 acres (62%) of BLM-administered lands would be open to saleable minerals activities.

Exploration, development, and extraction of saleable minerals in areas where cultural resources could be disturbed would be mitigated or restricted. But because affected areas are expected to be relatively small, the adverse effect would be negligible to slight.

BLM would evaluate restrictions to protect soil and water resources on a case-by-case basis. Sediment intrusion buffer zones around sensitive resources such as water bodies, cultural resources, or special status plant or animal habitats would not have to exceed 50 feet in width when site-specific activities can be relocated.

For streams with water quality-limited segments, uses and activities would be allowed if state water quality standards are either met or exceeded at the same or greater rate than without the activity.

Benefits to saleable minerals would occur from expanding existing operations. Sand and gravel for county and state roads would be sourced from existing pits. Expansion would be considered as needed. New sand and gravel pits would be permitted as needed for road maintenance after existing and previously closed pits have been exhausted, if the disturbance doesn't conflict with other resources.

Decorative rock (flat rock) collection for personal use would continue. Commercial decorative rock collection would continue in designated areas compatible with other resource uses. Areas designated for decorative rock collection would be restricted to locations accessed by existing roads.

Only small, rubber-tired (low-impact) equipment or hand collection would be allowed off of existing roads and active disturbance areas.

Summary of Effects – Preferred Alternative

The Preferred Alternative would have minor adverse effects and minor benefits to saleable mineral exploration, development, and extraction. Under this alternative 634,002 acres (62%) of BLM-administered lands would be open to saleable minerals activities. Closed areas include existing WSAs and four ACECs.

Sand and gravel would be provided for the local community within existing pits, and expansion would be allowed as needed to respond to local demand.

Conflicts with other resources would be resolved through mitigation measures. The entire field office area would remain open to collection of decorative stone and flat rock, according to BLM policies. Commercial operations would be allowed in designated areas.

A minor benefit would result from new road construction, and if Congress releases WSAs from wilderness study.

7.6 Comparative Summary of Impacts

The Preferred Alternative, No action, and Alternatives' 1 and 3 would provide for the entire BLM-administered lands in the field office area (1,037,063 acres) to be designated as open to saleable minerals. Alternative 2 would close the two proposed ACECs to saleable mineral activity. Restrictions and mitigation measures are site/project specific and applied after the environmental analysis or environmental impact statement phase is completed. Saleable mineral development and operations are tied directly to a static resource–the mineral deposit. Therefore, relocating certain activities is severely restricted and therefore mitigation measures are necessarily employed for other conflicting resources. The Preferred Alternative is expected to meet all of the demands within the field office for saleable mineral development and operations.

7.7 Cumulative Effects

The area of analysis for cumulative impacts on saleable minerals consists of the Eagle Lake Field Office area and land within 50 miles of its boundaries. Because of the history of saleable minerals development within the planning area, activity over the next 15 to 20 years is likely continue at an increasing rate. As development continues within and around the field office area, nearby sources for saleable minerals will be depleted, and the demand will increase for low-cost public lands sources. Saleable minerals activity will probably consist of maintaining existing roadways and sales to people and companies for community growth. Any new saleable mineral operations are expected to by occupy fewer than 5 acres. The opening of any new saleable areas for other than state and county road maintenance will presumably be confined to Eagle Lake Valley proper because costs would increase as distances to resources increase.

The most favorable condition for developing saleable mineral resources would be with as few restrictions as possible. Those involved in saleable minerals development face many environmental obligations to comply with NEPA and state and federal regulations. Any more measures to mitigate disturbances to lands and other resources would bring about even more adverse impacts to saleable minerals development. Mitigation measures generally add costs to development, thereby increasing the adverse effects to these programs.

In addition, seasonal restrictions for other resource needs, such as wildlife habitat, could result in access times being too short or impinging too much on project timing for adequate removal of materials.

Energy and minerals development potential and operations on lands outside BLM's jurisdiction are not expected to be affected significantly by any of the alternatives, and no cumulative impacts are expected.

7.8 Mitigation Measures

None of the alternatives would substantially decrease acres open to saleable minerals development. None would result in impacts that would require mitigation of impacts to saleable mineral resources. Therefore, mitigation measures would not be needed.

7.9 Unavoidable Adverse Impacts

None of the alternatives would substantially restrict saleable mineral development. Accordingly, none would result in unavoidable adverse impacts to saleable minerals development.

7.10 Short-Term Uses Versus Long-Term Productivity

If and when saleable minerals are extracted and the short-term benefits (e.g. increased supply of minerals to meet demand, decreased production costs, increased commodity prices) are realized, the resources would no longer be available for long-term or future production.

7.11 Irreversible and Irretrievable Impacts

The extraction and development of saleable mineral resources from the Eagle Lake Field Office area would result in an irreversible and irretrievable loss of those minerals because of the finite nature of the resource.

4.4 Potential Effects on Environmental Justice

This section describes the potential impacts on environmental justice from implementation of the various resource programs under the alternatives.

The RMP planning process incorporated environmental justice considerations in order to meet federal law requirements by addressing any adverse human health or environmental impacts that may affect minority or low-income populations to a greater extent than the general population in the areas. The only environmental justice population found in the Eagle Lake Field Office area is the Native American community.

Most management actions would not affect this population. Proposed management activities with the greatest potential to result in effects related to environmental justice issues in the field office area are associated with cultural resources, fire and fuels, visual resources, and energy and minerals. Although potential effects exist, their impacts would be minor and are not expected to result in disproportionate effects on environmental justice populations. Where potential adverse effects have been identified, measures to avoid or reduce these effects have been recommended.

4.4.1 Methodology and Assumptions

No assumptions were made in the analysis of environmental justice effects.

4.4.2 Incomplete or Unavailable Information

Adequate information is available to analyze the effects on environmental justice at the plan level.

4.4.3 Impacts Common to All Alternatives

No effects related to environmental justice are anticipated from management actions associated with air resources; soil resources; terrestrial and aquatic wildlife; vegetation; water resources; wild horses and burros; forestry; grazing; lands and realty; recreation resources; special management areas; or utilities, transportation, and telecommunications. Effects of the following management actions would be the same under all alternatives.

Any action that would bring the public closer to TCPs (e.g., building interpretive sites) could result in adverse effects on Native Americans. Such actions should be implemented in close consultation with Native American communities. Fencing off cultural resources that would restrict access to Native Americans is considered an adverse effect. Fencing off cultural resources to the general population while allowing Native Americans occasional access is considered a beneficial effect, as the sacred sites, TCPs, and other resources would be protected.

Increases in particulates in the air associated with prescribed burning and AMR would adversely affect air quality during the summer fire season and periods when prescribed burns could be implemented. These short-term reductions in air quality would affect all populations in the field office area to the same degree. Because WUI areas are prioritized for fuel treatment, it would be beneficial to consult tribes when defining WUI areas on or near tribal lands.

Management actions resulting in aesthetic changes (e.g., fencing) on public lands that are near tribal lands may result in impacts on Native Americans. Consultation with tribal groups regarding proposed projects in proximity to sacred sites with high visual resources value would avoid potential use conflicts.

4.4.4 Summary of Effects

Impacts on environmental justice communities from the proposed management actions are not expected to be significant and would not differ among alternatives.

4.4.5 Cumulative Effects

There are no anticipated cumulative effects of the proposed management actions on environmental justice communities.

4.5 Potential Effects on Fire and Fuels

This section describes the direct, indirect, and cumulative effects on wildland fire and fuels management of land use decisions under the alternatives.

4.5.1 Methodology and Assumptions

The following assumptions were used in assessing impacts of resource program management actions on fire and fuels.

- Increased population density and increased use of public lands would positively correlate with an increase in the potential for human-caused ignitions.
- Natural ignitions (lightning strikes) and weather events affecting fire behavior (e.g. wind, precipitation, and relative humidity) are random events. Therefore, the amount of land that would burn annually as a result of wildfire could not be predicted.
- Effects on the fire management program are actions that would increase or decrease the costs of the fire suppression program. Later rehabilitation costs would be lower in healthy plant communities.
- Appropriate management response (AMR) includes the full range of suppression options but allows for some reduction in cost and effort depending on conditions affecting fire spread. AMR has the potential to reduce the cost of fire suppression over a longer timeframe.
- Adverse effects would do the following:
    - increase the potential for fire ignitions,
    - increase fire size or intensity, or
    - hinder suppression by limiting access or suppression actions.
        - Likewise, actions that would facilitate the return of communities to their natural fire regime with vegetation composition structure and composition intact (i.e. Condition Class 1) were considered beneficial.
- Beneficial effects would do the following:
    - decrease the potential for fire ignitions,
    - decrease fire size or intensity, or
    - improve suppression capability by improving access.
- Actions that would cause further departure of plant communities from their natural fire regime and degradation of communities with respect to composition, structure, and diversity (e.g. Condition Classes 2 or 3) were considered to cause adverse effects.
- Impacts of AMR would be equivalent to a full suppression strategy in as many as 90–95% of the fires during the normal fire season when conditions are favorable for the rapid spread of wildfire.
- When a targeted number of acres were noted in the alternatives description, the acreage was assumed to be a target to be achieved during the life of the RMP (20 years) rather than on an annual basis.

- Acres proposed for treatment to reduce juniper under the vegetation management program were assumed to be included in the acres proposed for fuels reduction under the fire and fuels program.
- Areas treated for juniper removal with less than 60% cover would include perennials in the understory and therefore would respond more favorably to fuel reduction treatments (including prescribed fire) than those with a denser canopy and negligible understory (Tausch 2004). Prescribed fire might not be as effective at removing large woody material, and stands might need to be treated several times to achieve the desired results.
- Post-fire restoration and rehabilitation would be commensurate with pre-fire vegetation on site and associated condition class. For example, Condition Class 3, degraded Wyoming sagebrush communities converted to cheatgrass or medusahead, would require a more active rehabilitation and restoration program than Condition Class 1 low sagebrush communities with a diverse understory, which might require only passive restoration.

4.5.2 Incomplete or Unavailable Information

Without vegetation maps of pre-European settlement, information on an area's soils, climate, and topography can be used to predict the potential natural vegetation (PNV). PNV groups represent the stable vegetation types that would become established on an ecological site if all successional stages were completed without human interference under present environmental conditions. Without these data, the departure of current vegetation from historical composition, structure, and fire regime (i.e. condition class) was based on current vegetation and extrapolated information from personal observation and historical photos.

Although all of the communities at risk in the wildland-urban interface (WUI) have been identified, the site specific WUI boundaries have not yet been delineated. Therefore, the acreage and vegetation types that would be affected by WUI-prioritized treatments were not analyzed.

4.5.3 Analysis

For the purposes of this analysis, the levels of effects on fire and fuels management were defined as follows.

Negligible: Vegetation fire regimes, fire suppression costs, and the risk of human-caused ignitions to vegetation would not change, the change would be below or at the level of detection, or if detected, the effects would be considered slight.

Minor: Vegetation fire regimes, fire suppression costs, and the risk of human-caused ignitions to vegetation would measurably change, but changes would be small and local.

Moderate: Vegetation fire regimes, fire suppression costs, and the risk of human-caused ignitions to vegetation would measurably change and would have appreciable consequences, but the effect would be relatively local.

Major Vegetation fire regimes, fire suppression costs, and the risk of human-caused ignitions to vegetation would measurably and substantially change, would have substantial consequences, and would be noticed regionally.

4.5.4 Impacts Common to All Alternatives

Fire and fuels management actions concern fuels reduction programs and the decisions of how, when, and where to suppress wildfires. Full suppression of fires reduces the frequency of medium-sized fires and results in increased fuels buildup over the long term. Over time, this buildup of fuels contributes to an increase in frequency of large, intense wildfires—which degrade soil and water quality and aquatic habitats and encourage the invasion of noxious weeds.

Appropriate management response (AMR), including wildland fire use (WFU), reduces fuels loadings over time to eventually return to natural fire regimes and Condition Class 1. These effects would be gradual and would increase over time as more areas are treated and lower intensity fires burn. Over time, one could expect increases in vegetation diversity and range productivity and reductions in the potential for large, intense, damaging fires. In as many as 90 to 95% of the fires during a normal fire season, AML would consist of a full suppression strategy. Therefore, many of the effects described for full suppression would also apply to most AMR fires.

If a fire starts in a wildland fire use (WFU) area and the conditions meet the prescription in the WFU burn plan (i.e. risk of the fire spreading out of control is very low), the fire could burn with only a minimal incident response (as outlined in the burn plan). The effect would be to reduce the cost of suppression, improve and maintain fire-adapted ecosystems, and reduce the size and intensity of future fires by reducing fuel loads. More acres would burn and more smoke would result than from a full suppression response.

Fuels reduction treatments would reduce hazardous fuels, particularly in the wildland-urban interface (WUI), making these areas safer for residents. Costs of fire suppression in these areas are expected to decrease over time, as the probability of large, stand-replacing fires declines in response to reduced hazardous fuels. Over the long-term, the combination of fuels reduction, including prescribed burning, and fire management would facilitate the return of natural fire regimes and would increase the structural and biotic diversity of plant communities.

Most fuels reduction would target juniper. Because dense stands of juniper are somewhat fire resistant, restoration of these stands might actually convert the landscape to plant communities with more frequent fire intervals. But rehabilitation costs would decrease over time because fires are smaller and rehabilitation costs lower in healthy plant communities.

Post-fire rehabilitation actions that focus on restoring native plant communities would increase over the long term in plant communities that are diverse and have fire regimes within the historical ranges (Condition Class 1). Risk mitigation and education programs could contribute to decreased fuel loading in residential areas as communities become more aware of the natural role of fire in ecosystems and their role as residents in creating defensible space.

Building livestock exclosures is a potential action to meet riparian and water quality standards and to stabilize upland soils that are not meeting land health standards. This action could affect the fire and fuels program by resulting in buildup of fine fuels in exclosures. Given that this actions would affect only a small area, its effects on fire and fuels management would be negligible to minor.

Management actions to improve habitat–including the use of prescribed fire, fuels reduction in bald eagle nest stands, and juniper removal–to improve habitat would be coordinated with the vegetation, fire and fuels programs. Habitat improvements to restore and rehabilitate native plant communities would also result in more diverse and resilient plant communities on the landscape.

Habitat improvements would bring plant communities closer to conditions where a historical fire regime is expected. Using green stripping to protect priority habitat areas would aid in fire suppression by providing natural firebreaks.

Vegetation management actions would benefit the fire and fuels program. Benefits are expected from decreasing the fuels loading across the landscape, particularly through the juniper reduction program. Benefits are also expected through efforts to restore riparian, aspen, mountain mahogany, and oak communities.

Fuels reductions would lead to decreased fire size, intensity, and rate of spread. In addition, vegetation management actions would restore more diverse vegetation community types and seral stages to the landscape. A diverse mosaic of vegetation types and stages creates a less homogenous landscape and slows the spread of fires. For many of the vegetation communities the proposed actions (whether mechanical, biological, chemical, or prescribed fire) to improve ecosystem health are designed to restore the community to a more natural ecosystem–taking communities with a Condition Classes 2 or 3 and restoring them to a Condition Classes 1 or 2. Adverse effects include an increased chance of human-caused ignition during these actions and a risk that prescribed fire will escape.

Livestock grazing could decrease the fine fuels across a large area, which could result in the benefit of limiting fire spread. Reducing fine fuels could make carrying a prescribed fire difficult or could result in a burn needing to be conducted at the extreme of the prescription to achieve the desired results. Therefore, where fire might be used as an ecosystem restoration technique and fire is desirable, grazing could impair the use of prescribed fire or allowable wildland fire. In addition, if the fine fuel load is not sufficient to carry a fire, fire-intolerant juniper could become established and out compete fire-tolerant grasses and forbs.

Management actions for wild horses and burros would affect the fine fuels in much the same way as livestock grazing. Reducing wild horse and burro numbers to meet appropriate management levels (AMLs) would increased fine fuel loads in these areas and could increase fire spread and frequency in HMAs.

Management actions for energy and minerals could affect fire management by encouraging infrastructure that could pose fire risk and result in added protection needs. In addition, the potential for increased visitation would increase the potential for human-caused ignition. Building a new road would provide more access for human-caused ignitions and increase access for fire suppression. Roads could also act as a fuel break and could contain certain fuel types. Current energy and mineral uses and trends would suggest that these effects on fire and fuels management would be negligible to minor in the field office area.

Forestry management actions to reduce fuel hazards in commercial and low-site forests would moderately benefit fire and fuels by doing the following:

- improving forest health,
- increasing resistance to wildfire,
- reducing the potential for catastrophic wildfire, and
- increasing fire safety in wildland-urban interface (WUI) areas.

Mechanical treatments to reduce canopy fuels, in addition to hand treatments to reduce ladder fuels, would result in more benefits to the fire and fuels program.

Recreation actions could both benefit and harm fires and fuels. Creating more opportunities for recreation would increase human density and therefore the potential for human-caused ignitions. But some actions that would increase human use would result in benefits.

Creating new roads would provide more access for recreational users as well as increased access for fire suppression. Roads could also act as fuel breaks and contain certain fuels types. New developments such as campgrounds or interpretive sites could affect suppression by creating priority protection areas. But they also could provide beneficial resources such as water sources, fuels alteration, and safety areas.

Limiting OHV use to existing roads would reduce the opportunity for human-caused ignitions in these sometimes remote areas.

Under all alternatives, use of heavy equipment would be avoided or require special authorization in

- areas of critical environmental concern (ACECs),
- National Register-eligible sites,
- wilderness study areas (WSAs), and
- other special management areas.

If used, heavy equipment would be restricted to existing roads and trails.

Retardant use would be allowed in these areas for initial attack. Retardant use during extended attack would be considered as a part of the wildland fire situation analysis, with consideration of the resources at risk and public and firefighter safety.

Limiting the use of retardants could hinder suppression, enlarging fires in these restricted areas. Nevertheless, the cost of controlling the fire might not be affected because suppression techniques would not include heavy equipment and would need to rely on indirect methods and natural barriers. In addition, restoration might be less costly without the need to restore areas disturbed by heavy equipment.

Restricting the fire management response allowed in areas of critical environmental concern (ACECs) would be commensurate with the level of protection required to preserve the special values in these areas. Resultant effects on the fire and fuels program in these areas would depend on the response method as described under the effects of fire and fuels management actions above.

Where suppression would be restricted in cultural resource management areas (CRMAs) (such as by limits on retardant or heavy equipment use), effects on the fire and fuels program would be similar to those described for special management areas below.

Other cultural resources management actions that could affect the fire and fuels program are developing and maintaining interpretive sites and exclosures. Exclosures in some of these areas would limit livestock use in the area. This restriction would increase fine fuels in the exclosure, increasing the potential for fire spread. Interpretive sites encourage human use and could increase the potential for human-caused ignitions. These sites would also be likely to influence fire management during an incident by creating priority protection areas, which could increase the suppression cost of an incident.

Effects of utilities management on the fire and fuels program include

- increased potential for human-caused ignitions during construction and maintenance, and
- creation of priority protection areas during fire incidents.

In some instances the utility corridor might act as a linear fuel break. The main impacts on the fire and fuels program would result from management actions of the fire and fuels program itself, and the vegetation, forestry, and grazing programs. All of these programs would reduce fuel loads on the landscape and therefore decrease the probability of large, catastrophic wildfires over the long term. Actions in these programs are also designed to improve structural, seral, and biotic diversity of plant communities and would result in healthier plant communities with a more natural fire regime.

Over the long term, the combined effects of the proposed actions would gradually convert degraded communities with Condition Classes 2 or 3 to communities with Condition Classes of 1 or 2. The timeframe for this conversion would depend on the current degree of departure from Condition Class 1. In addition to these effects common to all alternatives, the effects of management actions from these programs on the fire and fuels program are described in individual alternatives discussions.

4.5.5 No Action Alternative

Under the No Action Alternative, the fire management strategy would continue to be full suppression across all BLM-administered land in the Eagle Lake Field Office area. Fire-adapted ecosystems would continue to degrade. Because of the unnatural fuel buildup in many vegetation communities, the size and intensity of fires would increase over time, and the cost of suppression would continue to increase. With limited fuel treatments (<600 acres per year, 75% = juniper), ecosystem restoration would be limited.

Juniper reduction at the rate of 450 acres per year would help restore ecosystems that have been encroached upon by juniper and would contribute toward converting them from Condition Class 3 to Condition Classes 2 or 1. Because dense stands of juniper are somewhat fire resistant, restoring historical plant communities and their fire regimes might convert the landscape to a more fire-prone one with more frequent fire intervals. Such a conversion could increase average fire size, increase the rate of fire spread, and decrease the intensity of fires in these areas. But the effects of treating these small acreages would be minimal.

Under the No Action Alternative fuels would be reduced on 400 acres of commercial and low-site forests annually amounting to approximately 3% of the forest area over the life of the plan. This would affect fuels management by providing treatment of conifer communities. It would reduce large fuels and thin canopy fuels; follow up treatments would reduce surface fuels. Effects of fuels reduction through forestry practices would improve forest health and contribute to restoring natural fire regimes. Hazardous fuels reductions in the areas adjacent to the Bizz Johnson Trail SRMA would make these areas less prone to canopy fires and more fire safe for recreational uses and nearby homeowners. Given the limited area of conifer forest on BLM-administered land (<2%) the effect of forest management actions on fire and fuels at the landscape level would be limited.

The No Action Alternative would provide the opportunity for ‘open’ designation OHV areas of 578,708 acres. In other areas, OHV use would be ‘limited to existing roads and trails’ (412,966 acres), ‘limited to designated routes’ (22,210 acres), or ‘closed’ (8,883 acres). The effect on fire and fuels management is the potential for remote area human-caused fire ignitions. This risk would be greatest where cross-country travel is allowed under the current ‘open’ areas.

Summary of Effects – No Action Alternative

The No Action Alternative would have negligible to minor benefits to the fire and fuels program. The entire field office area would use a full suppression fire management strategy. WUI areas would be protected, but fuels would continue to build up throughout the field office area and would further increase the probability of large, intense wildfires.

A small acreage of juniper would be reduced annually, resulting in minor restoration of native plant communities on the field-office scale. Areas designated as 'open' to OHV use would undergo an increased risk of human-induced wildfire.

4.5.6 Alternative 1. Economic Development

Under Alternative 1, the fire management strategy would continue to be full suppression across BLM-administered land in the Eagle Lake Field Office area. The effects would be the same as described for the No Action Alternative.

Fuels treatment would occur at the rate of 600 to 5,000 acres per year, focusing on areas with a commodity value. Because these treatments would be prioritized by commodity production and focused on using mechanical treatments, only certain vegetation communities would be targeted; therefore, ecological restoration would be limited to these sites. In addition, the acres chosen for treatment are unlikely to be the most effective at altering fire behavior at the landscape level. Effects of rehabilitation efforts would be similar to those under the No Action Alternative.

The effects of forestry management actions on the fire and fuels program would be similar to those described for the No Action Alternative, except higher volumes of harvest would take place each year.

Juniper reduction at the rate of 3,750 acres treated annually under Alternative 1 would help restore ecosystems that have been encroached upon by juniper and would contribute toward converting them from Condition Class 3 to Condition Classes 2 or 1. This area is significantly greater than what would be treated under the No Action Alternative. Because dense stands of juniper are somewhat fire resistant, restoring historical plant communities and their associated fire regimes might convert the landscape to a more fire-prone ecosystem with more frequent fire intervals. Such a conversion could increase average fire size, increase the rate of fire spread, and decrease the intensity of fires in these areas

Under Alternative 1, most off-highway vehicle use would be restricted to designated routes (588,724 acres), or 'limited to existing routes' (412,966 acres). Only 419 acres within the Fort Sage OHV area would be designated as 'open' to off-highway (OHV) use. Therefore the risk of human-caused ignitions would be greatly reduced under this alternative.

Summary of Effects – Alternative 1

Under Alternative 1, fuels would continue to build up; and the size and the intensity of fires, with associated suppression costs, would continue to increase in most areas. However, fuels reduction treatments would contribute to restoration of native plant communities and natural fire regimes on up to 100,000 acres of BLM-administered land over the life of the plan. Most commercial and low-site forests would benefit from fuels reduction treatments. A limited 'open' designation for OHV use would limit the risk of human-induced ignitions from this recreational use.

4.5.7 Alternative 2. Ecosystem Restoration

Under Alternative 2, the fire management strategy would continue to be full suppression across 282,304 acres of BLM-administered land. The effects of this action would be continued degradation of fire-adapted ecosystems, as described for the No Action Alternative. Lands that are subject to this strategy are lands that are outside the BLM's DPA and most WUI areas, where this is the most appropriate strategy because of human safety concerns.

Under Alternative 2, BLM would use an AMR strategy on 730,124 acres. For conditions when full suppression would not be the AMR, the potential exists to reduce fire management cost and effort, and to contribute to the restoration and maintenance of fire–adapted ecosystems. Alternative 2 also includes designation of a 10,339-acre WFU area. This designation would reduce the cost of suppression, improve and maintain fire-adapted ecosystems, and reduce the size and intensity of future fires by reducing fuel loads. Burn acreage and smoke would increase. The use of AMR and WFU under this alternative would result in a greater degree of restoration of native plant communities and their associated fire regimes than either the No Action Alternative or Alternative 1.

Fuels treatment would occur at the rate of 600 to 10,000 acres per year under Alternative 2; 199,684 acres have been prioritized for these fuels treatments. Because these treatments emphasize prescribed fire, they are more likely to achieve restoration of fire-adapted ecosystems. They also would reduce surface fuels better than other treatment methods. Use of prescribed fire would reduce the cost of treatments on some acres; however, other treatment methods would still be used where needed. The amount of treatment is likely to affect fire behavior on BLM-administered lands in the field office area within 10 years, depending on the spatial arrangement.

The use of only native species in rehabilitation efforts would be beneficial to restoring native communities in the long term, but could take longer in heavily degraded areas where the use of introduced species as an intermediate step to stabilize communities could facilitate the restoration process.

Fine fuels would increase more under Alternative 2 than under other alternatives because pastures would be grazed only 1 out of every 3 years. This rest from grazing could increase fire frequency because fires would spread more efficiently–although they would be limited in intensity–at least over the short term. Over the longer term (8–10 years) a buildup of residual fine fuels could increase the intensity of fires.

Juniper is highly intolerant of fire. If the frequency of fires were increased, juniper seedlings would be killed, and their density would decrease. In comparison to other alternatives, Alternative 2 is likely to restore the natural fire cycle more quickly and would result in smaller fires, healthier plant communities, and reduced rehabilitation costs.

Under Alternative 2, most OHV travel would be 'limited to designated routes', and 301,644 acres would be 'closed' —thereby reducing the risk of human-caused ignitions from that under the No Action Alternative or Alternative 1.

Summary of Effects – Alternative 2

The use of AMR and WFU under Alternative 2 would result in a greater degree of restoration of native plant communities and their associated fire regimes than either the No Action Alternative or Alternative 1. Fuels treatments would result in additional restoration benefits on up to 200,000 acres over the life of the plan. The area targeted for fuels reduction under Alternative 2 is greater than under all alternatives, except for the Preferred Alternative. The use of only native species in rehabilitation efforts could slow the rehabilitation process in highly degraded areas. Reduction of livestock grazing under Alternative 2 would contribute to the restoration of natural fire regimes and favorable Condition Class, resulting in greater benefits to the fire and fuels program than under other alternatives. With no designation of 'open' areas for OHV use, the risk of human-induced ignitions would be minimized.

4.5.8 Alternative 3. Traditional Uses

Effects of fire management and fuels treatment under Alternative 3 would be similar to those as described for Alternative 1, with less emphasis on prescribed fire. Because these treatments de-emphasize prescribed fire, they are less likely to achieve restoration of fire-adapted ecosystems. Rehabilitation efforts would emphasize native species, thereby aiding in establishment of native communities while allowing for the use of introduced species as an intermediate step to stabilize communities and facilitate the restoration process.

The effects of forestry management actions on the fire and fuels program would be similar as those described for the No Action Alternative, except only 300 acres per year of commercial harvest would take place. The same acreage would be 'open' to grazing under Alternative 3 as under the No Action Alternative, and the effects would be the same as described for the No Action Alternative.
Effects from travel management and OHV use are the same as the No Action Alternative.

Summary of Effects – Alternative 3

Under Alternative 3, fuels would continue to build up, however not as much as in the No Action Alternative due to other types of fuels treatments; and the size and the intensity of fires, with associated suppression costs, would continue to increase in most areas. Fuels treatments would result in additional restoration benefits on up to 100,000 acres over the life of the plan. Beneficial effects of commercial forestry practices would be limited to only 32% of commercial and low-site forests on BLM-administered lands in the field office. The combination of native and introduced species in rehabilitation efforts would maximize the likelihood of rehabilitation success on highly degraded areas. This alternative would result in the greatest risk of human-induced fire ignitions associated with OHV use.

4.5.9 Preferred Alternative

Effects of fire management under the Preferred Alternative would be the same as described for Alternative 2. BLM would use an appropriate management response (AMR), including confine/contain strategy, to treat 730,124 acres. AMR includes the full range of suppression options but allows for some reduction of fire suppression resources in response to conditions. This approach likely would reduce the cost of suppression over a longer timeframe. Using AMR would result in some fires being larger. Fuels would be reduced or maintained where fire is allowed to burn. And fire-adapted ecosystems would be maintained or restored. These effects would be gradual but would increase over time as more areas are treated and lower intensity fires burn.

The effects of fuels treatment under the Preferred Alternative also would be the same as described for Alternative 2, with effects extending to the 10,339-acre WFU in Spanish Springs that also is prioritized for fuels treatment under the Preferred Alternative. Fuels would be treated at a rate of 500 to 10,000 acres per year, as under Alternative 2, with an emphasis on WUI areas. Rehabilitation efforts would emphasize native species, thereby aiding in establishment of native communities while allowing for the use of introduced species as an intermediate step to stabilize communities and facilitate the restoration process.

At up to 10,000 acres per year, the rate of juniper reduction would be the highest rate under any alternative. This treatment would help restore ecosystems that have been encroached upon by juniper and would help convert them from Condition Class 3 to Condition Classes 2 or 1. The largest area to be treated would be significantly greater than what would be treated under the No Action Alternative. The greatest annual treatment area would be the same as under Alternative 2.

Because dense stands of juniper are somewhat fire resistant, restoring historical plant communities and their fire regimes might convert the landscape to a more fire-prone ecosystem with more frequent fire intervals. Such a conversion could increase the rate of fire spread and decrease the intensity of fires in these areas.

Effects from travel and OHV use under the Preferred Alternative would be most similar to those described for Alternative 2. 760,837 acres would be 'limited to designated routes', and 261,511 acres would be 'closed' to OHV use. The risk of human-caused ignitions from OHV use would be minor.

Summary of Effects – Preferred Alternative

The Preferred Alternative would provide the greatest benefits to the fire and fuels program. Effects of fire management, fuels reduction, and forestry activities would be the same as described under Alternative 2. The combination of native and introduced species in rehabilitation efforts would maximize the likelihood of rehabilitation success on highly degraded areas. A limited area with an OHV designation of 'open' would minimize the risk of human-induced ignitions as a result of cross-country travel.

4.5.10 Comparative Summary of Impacts

Alternatives No Action, 1, and 3 would continue using a full suppression strategy for fires in most of the field office area. Although this approach continues to degrade fire-prone ecosystems, it might be the most appropriate strategy across much of the field office area, particularly the WUI. In WUI areas, fuel treatments would help restore degraded plant communities. Human habitation, non-fire-adapted ecosystems, or an unnatural fuel load creates situations where fire might not be desirable at any time.

Alternative 2 and the Preferred Alternative are the only alternatives to include a strategy other than full suppression for the majority (71%) of the field office area. Both of these alternatives include wildland fuel use (WFU) on selected area to achieve fuels treatment targets and maintain ecosystems. They would help to restore natural fire on the landscape and are expected to reduce suppression costs. They would also help educate the public on the natural role of fire in the ecosystem.

Fuels reduction and restoration would be limited under the No Action Alternative. Large annual targets for fuels reduction treatments are planned for in all of the other alternatives. The Preferred Alternative and Alternative 2 have the most aggressive treatment targets, with the highest maximum annual acreage. This would result in increased fuels treatments costs, but could also derive some reduction of costs if commodity production of wood chips were used. Alternative 1 focuses on reducing cost by prioritizing treatment by commodity potential.

All alternatives except the No Action include substantial juniper reduction. Juniper reduction would address some of the ecosystem restoration goals, returning sites to a sagebrush community rather than juniper woodland. But these treatments would not focus on the WUI. Rather they would occur on rangeland. Although this approach would promote ecosystem restoration across the landscape, it could also affect the size and occurrence of fires in these areas. Suppression costs could increase because of more frequent, larger fires in these areas. The fuels treatment program costs also would be affected because these restored communities would need to be maintained using prescribed fire.

Alternatives 1 and 2 and the Preferred Alternative would reduce the potential for human-caused ignitions through limitations on OHV use. The No Action Alternative and Alternative 3 would result in greater potential for such ignitions. This would be partly offset because both Alternative 2 and the Preferred Alternative include an increased amount of fuels treatments, which also would increase human-caused ignition.

Overall, Alternative 2 and the Preferred Alternative would be very similar in their effects on the fire and fuels program. They both are expected to result in some decreases in suppression costs and would provide the greatest amount of potential restoration and fuels treatments. These two alternatives also would result in the highest fuels treatment costs. Alternatives 1 and 3 would accomplish some restoration and fuels treatments but would increase suppression costs.

4.5.11 Cumulative Effects

Increased use of prescribed fire and mechanical fuels reduction projects would ultimately result in smaller and fewer wildland fires because of reduced fuel loading. Fire severity and intensity would also decrease. These actions would also begin to include fire as part of natural ecosystem processes and result in more potential natural vegetation groups across the landscape. Since prescribed fires and fuels reduction would also be applied on the adjoining Lassen and Plumas National Forests, and BLM field office areas, a more natural form of wildland fire in the ecosystem would begin to occur, not just in the planning area but over several million acres in northeast California and northwest Nevada.

The fire and fuels program is heavily influenced by urban growth. Increases in human occupancy and density are likely to result in increased human-caused ignitions, which would increase the costs of a suppression program. The current program focuses on the WUI and prioritizes treatments along the edges of the growth zone. Growth increases the complexity of the treatments in these areas, as boundaries change and intermingled ownerships increase. Using fire in these areas is complicated by artificial boundaries (property lines) and perceived risk. The cost of treatment increases dramatically either through complex burn operations or the need to use other more expensive treatments.

BLM shares the landscape with other federal and state agencies that are working toward many of the same goals. Many agencies share fire suppression responsibilities. (See discussion of direct protection areas [DPA] in Chapter 3.) Fuels treatment is a priority of many agencies administering adjoining lands and is expected to increase dramatically over the planning period.

BLM's fire and fuels program competes with these other agencies for both treatment and suppression resources. A finite number of contractors treat fuels. Typically, much of the work has been done using suppression resources when they are not committed to an incident. As fires increase in frequency, not only locally but in the western United States, these resources become increasingly scarce. And there is an increased need for outside contract crews. These factors affect both the costs and the timing of fuels treatment operations. Fuels treatments throughout the field office area and beyond would result in the following:

- more fire-safe communities,
- reduced risk of large wildfires,
- healthier plant communities, and
- a slowing of juniper encroachment.

Without aggressive juniper reduction treatments, the fuel loads in the Great Basin are likely to double in the next 50 years (Tausch 2004).

Prescribed fire use requires compliance with air quality standards. With an expected increase in the amount of prescribed fire use by all management agencies, the competition for airshed space would increase. To accomplish a prescribed fire treatment, several factors with limited controllability must align.

Prescribed conditions are mostly weather related but also include fire resources availability (i.e. helicopters, engines, and crews). In addition, the airshed must be kept below a threshold of particulate matter (e.g. smoke), and sensitive areas (e.g. residences and airports) must be avoided. If other burns are occurring, a burn might not be able to be started until the other burns are complete. This competition affects the fuels treatment program by increasing costs due to delays, increased complexity, or the need to use a non burning treatment.

Invasive exotic species could quickly alter vegetation communities, changing their fire regime condition class. A location that once supported a relatively inflammable system could (with an understory of native perennials, for example) in the short term, alter to a much more flammable system (of invasive annuals such as cheatgrass). Not only would fire ignitions become more frequent, but fire size would be increased in these areas. This process affects suppression and potentially treatment costs if the area is to be restored. The increased need for follow-up treatments to maintain the desired ecosystem affects the cost of fuels treatments and restoration.

4.5.12 Mitigation Measures

Education will emphasize community protection procedures and public safety measures. Eagle Lake Field Office (ELFO) fire managers are committed to providing fire education help to communities that have been or might be threatened by wildland fires. Active community participation and citizen-driven solutions are essential in reducing the risk of fire in the WUI. More specifically, the field office does the following:

- supports citizen education on fuel reduction and the effects of fire,
- develops community wildfire protection plans,
- annually conducts volunteer firefighter refresher training, and
- provides equipment to rural and volunteer firefighters when funding is available.

Communities might take action to live safely in fire-prone areas by availing themselves of grant programs such as rural, state, and volunteer fire assistance and economic action programs, available through state and federal agencies.

To reduce fire risk, vehicles and equipment used to implement treatments and carry people and equipment to treatment areas would be restricted to authorized routes or equipped with spark arresters. Prescriptive treatments would be managed in high-use recreation areas and during special seasons (e.g. big-game rifle hunting in the fall) to reduce or eliminate resource use conflicts as needed. To reduce wildland fire risk after wildfires and prescribed burning, areas would be seeded with shrub/grass/forbs to reduce cheatgrass and other noxious weeds and non-native species in high-risk areas.

Eagle Lake Field Office fire and resource managers work with communities, fire safety councils, and other government agencies to locate wildland fire hazards and create mitigation strategies, as well as to provide public education on fire ecology and fire as a natural ecosystem process.

4.5.13 Unavoidable Adverse Impacts

Wildland fire ignition risks from minerals development or recreation would be an unavoidable adverse impact. Recreation actions that increase public visitation would unavoidably impair fire management by increasing the risk of human-caused ignitions. In vegetation communities prone to annual invasive species, wildland fire might allow the area to be further overtaken by these species.

4.5.14 Short-Term Uses Versus Long-Term Productivity

Recreation decisions would potentially result in long-term impacts to fire management by increasing wildland fire ignition risks that result from increased visitor use in recreation areas. In addition, increased human presence in special recreation management areas may decrease the ability to control fuel loading through prescribed fire in these areas.

4.5.15 Irreversible and Irretrievable Impacts

There are no irreversible or irretrievable impacts to fire and fuels management resulting from any alternative.

4.6 Potential Effects on Forestry

This section describes the direct, indirect, and cumulative effects on forestry of land use decisions under the alternatives. Impacts on forestry from decisions on the following resources are not discussed further because they would be negligible or minor:

- air quality,
- wildland fire management,
- noxious weeds,
- special status plants,
- visual resources,
- wild horses and burros,
- wild and scenic rivers,
- range and grazing,
- lands and realty,
- water resources,
- energy and minerals,
- recreation,
- utilities and transportation,
- recreational opportunity spectrum,
- travel management,
- historic trails,
- cultural resources, and
- boating.

Impacts from decisions concerning fuels management, soils, wildlife, water resources, and visual resource management could affect forestry and are discussed here.

4.6.1 Methodology and Assumptions

The impact assessment for forestry is based on the assumption that inventories and vegetation surveys are the main sources of information on BLM forest resources in the field office area. The distribution of commercial forests was obtained from Sustainable Yield Unit (SYU) 15 plot data and the timber production capability classification (TPCC).

Indicators used to describe forest resources and their conditions include the following:

- species composition,
- site productivity,
- stand age,
- successional stage,
- standing volume,
- basal area, and
- stand health.

Current data on these indicators by stand are not available. (See Incomplete or Unavailable Information.). Forest health pertains to vigor, fuel hazard, and presence of and susceptibility to insect pests and pathogens.

Effects of other resource programs on the forestry program were evaluated for how they would affect forest health and the use of forest resources.

Although each alternative represents differing emphases on resources, it was assumed that interdisciplinary processes would still determine consequences on the forestry program and that those processes would continue in much the same manner regardless of the chosen alternative.

4.6.2 Incomplete or Unavailable Information

The analysis of effects assumes that budgets would remain at the present level and that fuels reduction and forest health would be emphasized into the foreseeable future. Forests in the Eagle Lake Field Office area have not been extensively surveyed for hazardous fuel loads. Ocular inventories have found that excessive hazardous fuels exist throughout the field office area's forest stands, and most would respond favorably to fuels reduction treatments.

No recent forest inventory has been conducted to determine growing stock, growth and yield, or other conditions of the timber stands. In 1974 plots were inventoried to calculate allowable cut, and in 1977 forests were inventoried to determine the lands capable of commercial timber production. Examinations of stands to determine treatment recommendations were completed in 1985. Future forestry prescriptions would need current information to determine suitable treatments and to prioritize the amount of biomass and sawlog material to be removed.

4.6.3 Analysis

This analysis defined the levels of effects on forestry as follows:

Negligible: Forestry would not be affected, or the effects would be at or below the level of detection. Impacts would be so slight that they would not be of any measurable or perceptible consequence to the forests and woodlands.

Minor: The effects on forestry would be detectable but localized, small, and of little consequence to the forests and woodlands. Mitigating measures, if needed to offset adverse effects, would be simple and successful.

Moderate: The effects on forestry would be readily detectable and localized, with consequences to the forests and woodlands. Mitigating measures, if needed to offset adverse effects, would be extensive and probably be successful.

Major: The effects on forestry would be obvious and would result in substantial consequences to the forests and woodlands. Extensive mitigating measures would be needed to offset adverse effects, and their success would not be guaranteed.

4.6.4 Impacts Common to All Alternatives

For some resource programs, management actions and their effects would be the same under all alternatives. These common actions and their effects are addressed in this section and are not repeated in the discussions for each alternative. For some management actions, the type of effect would be the same under all alternatives, but the magnitude of effect would vary by the acreage proposed for treatment.

Some of these actions also are discussed in this section, especially those that could result in substantive differences in effects. Where notable differences exist among alternatives in the magnitude of effects from actions common to all alternatives, they are discussed separately for each alternative.

Management emphases for protecting or restoring soil conditions would have minor impacts to forestry across all alternatives. Although the degree of emphasis on soil health varies among alternatives, the restrictions for heavy equipment, tools used for recovering areas in degraded condition, and road placement would overall benefit forestry by limiting activities to the most suitable soils and would improve soil aeration, water infiltration, and subsurface plant growth. Conversely, limiting heavy machinery could affect the necessary forestry practices that improve overall forest health and growth of desirable crop trees.

Land transactions that consolidate forests under Eagle Lake Field Office management and that dispose of landlocked, isolated, and small forest parcels would benefit forestry under all alternatives by reducing the management problems and costs of forest management. Rights-of-way and utility corridor management actions would negligibly affect forestry as described.

Rehabilitation plans for wildfire and aspen improvement projects, which include fencing aspen, would benefit the growth and establishment of the aspen clones.

Visual resources management (VRM) could have a moderate to major effect on juniper management in savanna pine forests where juniper is an invader species. To restore the fire regime, removing most junipers would violate Classes II-III of VRM under all alternatives. The effects would range from 75% of the acreage affected by VRM Classes II and III to 92% affected under the Preferred Alternative.

4.6.5 No Action Alternative

The No Action Alternative would continue the status quo, and vegetation management, grazing, recreation, and the other resource uses and management would remain much the same as at present. Similarly, forestry would be managed under existing plans. Few restrictions would be placed on forestry. Where land health standards are not being met, forest management would address these issues when a project is proposed.

Fuels management would slightly (minor impacts) affect forestry under No Action. The 0 to 500 acres proposed for mechanical treatments would decrease hazardous fuels, mainly because of the size of the treatments. But this acreage makes up less than 5% of the coniferous forest in the field office area. The proposed fuels treatment though prescribed fire and animal use would also approach having no effect on forestry. Without an increased emphasis on fuels management, severe, stand-replacing wildfires could increase.

Air quality relates to fuels management in that state restrictions on burning could disrupt the prescribed burning program when daily emissions are exceeded. Under the No Action Alternative, the fire management strategy would continue to be full suppression across all 1,022,767 acres of BLM-administered land. The result would be the continued buildup of fuel on the landscape, leading to increased size and intensity of fires over time and increased risk of forestlands being damaged or destroyed. Uncontrolled wildfires would result in some areas being replaced by naturally regenerated even-aged stands or plantations.

Over the life of the RMP, effects of forest management under the No Action Alternative would extend to 8,000 of the 18,500 acres of commercial and low-site forest. Mechanical treatments would be allowed on the 400 acres treated annually, thereby removing saleable logs and canopy fuels.

Effects of fuels reduction in these stands as a component of forestry practices would be improved forest health and decreased risk of a stand-replacing fire.

Vegetation treatments to improve wildlife habitats under the No Action Alternative would have the same effects on forestry as fuel treatments.

4.6.6 Alternative 1. Economic Development

Alternative 1 emphasizes commodity production, including

- vegetation management,
- grazing,
- recreation, and
- other resource uses.

Similarly, forestry would be managed to produce more timber and higher value in the trees. This alternative places few restrictions on forestry. As under the No Action Alternative, where land health standards are not being met, forest management would address this problem when a project is proposed.

Fuels management would have minor but increasingly beneficial impacts to forestry. The 500 to 1,500 acres proposed for mechanical treatment would decrease hazardous fuels, as would prescribe fire and animal use. Fuels reduction would benefit forestry, even though not all of the projects would be in forested areas. A decrease in up to 4,400 acres of severe, stand-replacing wildfires is possible with the increased emphasis on fuels management. This acreage amounts to 45% of the coniferous forest in the field office area.

Air quality relates to fuels management in that state restrictions on burning could affect the prescribed burning program when daily emissions are exceeded.

Under the Economic Development Alternative, the fire management strategy would continue to be full suppression across all 1,022,767 acres of BLM-administered land. Full suppression would encourage the continued buildup of fuel on the landscape, leading to increased size and intensity of fires over time and increased risk of forestlands being damaged or destroyed. Uncontrolled wildfires would result in some areas being replaced by naturally regenerated even-aged stands or plantations.

Over the life of this RMP, forest management under Alternative 1 would extend to 72% of the 18,500 acres of commercial and low-site forest. Mechanical treatments would be allowed on the 670 acres treated annually, thereby removing saleable logs and canopy fuels. Fuel reduction in these stands as a forestry practice would improve forest health and decrease the risk of a stand-replacing fire.

Vegetation treatments to improve wildlife habitats under Alternative 1 would have the same effects on forestry as fuel treatments.

4.6.7 Alternative 2. Ecosystem Restoration

Alternative 2 emphasizes resource management through ecosystem restoration. Greater restrictions on any resource use could benefit forestry. Similarly, forestry's emphasis would be on increased mechanical thinning to restore forest health and the historical fire regime. Few restrictions would be placed on forestry. As under the No Action and Economic Develop Alternatives, where land health standards are not being met, forest management would address these issues when a project is proposed.

Ecosystem Restoration would be the most beneficial alternative to fuels management. The 0 to 4,500 acres proposed for mechanical treatments would decrease hazardous fuels, mainly because of the size of treatments. The range on the low end equates Alternative 2 with No Action. But the much more aggressive high end would have a greater potential benefit than would Alternative 1.

Alternative 2's increased fuels treatment though prescribed fire and animal use should have benefits similar to Alternative 1's. As under Alternative 1, fuels reduction in forestry would be beneficial, even though not all of the projects would be in forested areas. A 9,500-acre decrease in severe, stand-replacing wildfires is possible with the increased emphasis on fuels management. This acreage amounts to 91% of the coniferous forest in the field office area.

Air quality relates to fuels management in that state restrictions on burning could affect the prescribed burning program when daily emissions are exceeded. Under Alternative 2, the fire management strategy would continue to be full suppression across 282,304 acres of BLM-administered land with appropriate management response tactics for the remainder of the field office. This action would allow fires to consume some non-forest fuels that would decrease the risk of fire's spreading into forests.

Over the life of the RMP, effects of forest management under Alternative 2 could extend to nearly all of the 18,500 acres of commercial and low-site forest. The remainder of the forest couldn't be harvested because it would be needed to protect other resources. This area of forest that couldn't be harvested is unknown, but it might reach 1,000 acres.

Mechanical treatments would be allowed on 1,100 acres treated annually, thereby removing saleable logs and canopy fuels. Fuel reduction in these stands as part of forestry would improve forest health and decrease the risk of a stand-replacing fire.

Vegetation treatments to improve wildlife habitats under Alternative 2 would have the same effects on forestry as fuel treatments.

4.6.8 Alternative 3. Traditional Uses

Alternative 3 emphasizes traditional uses of resources, combined with mitigation and measures for resource protection. Fewer restrictions on any resource use could have fewer impacts to forestry. Similarly, forestry's emphasis would be on decreased mechanical thinning and reverting to traditional practices. Alternative 3 would place few restrictions on forestry, but the reduced emphasis on thinning and fuels reduction would affect forest health. Addressing land health standards in proposed projects under Alternative 3 would be a greater necessity than under the other alternatives.

Fuels management would have minor but increasingly beneficial impacts to forestry under Alternative 3. The 500 to 2,500 acres proposed for mechanical treatments would have similar beneficial impacts as under Alternative 1. Proposed fuels treatment though prescribed fire and animal use would also increase (as opposed to No Action) and should have benefits, although fewer than under Alternative 1.

More use of chemical treatments would benefit forestry. As previously stated for the other alternatives, fuels reduction in forestry would be beneficial, even though not all projects would be in forested areas. A decrease in severe, stand-replacing wildfires is possible by up to 9,500 acres over the No Action Alternative, with the increased emphasis on fuels management. This acreage equates to 91% of the coniferous forest in the field office area.

Air quality relates to fuels management in that state restrictions on burning could affect the prescribed burning program when daily emissions are exceeded. Under the Alternative 3, the fire management strategy would continue to be full suppression across 282,304 acres of BLM-administered land with appropriate management response tactics for the remainder of the field office area. The effect of this action would be to allow fires to consume some fuels that might not be in the forest but would decrease the risk of fire spreading into forests.

Over the life of the plan, effects of forest management under Alternative 3 could extend to nearly all of the 18,500 acres of commercial and low-site forest. The remainder of the forest could not be harvested because of the need to protect other resources. This amount of area is unknown, but it might be as many as 1,000 acres. Mechanical treatments would be allowed on the 1,100 acres treated annually, thereby removing saleable logs and canopy fuels. Effects of fuels reduction in these stands as a component of forestry practices would be improved forest health and decreased risk of a stand-replacing fire.

Vegetation treatments to improve wildlife habitats under Alternative 2 would have the same effects on forestry as fuel treatments. Alternative 3 would be the most desirable for the increase in wildlife-related treatments.

4.6.9 Preferred Alternative

The Preferred Alternative for forestry is Alternative 2 with mitigation and measures for resource protection. This alternative's management actions that most affect forestry are those under Alternative 2. Many of those impacts, though, are beneficial. The effects of the Preferred Alternative of other resources on the forestry program vary because each resource has a different Preferred Alternative. Over all, the effects to forestry are closest to those under Alternative 2, Ecosystem Restoration.

4.6.10 Cumulative Effects

The area of analysis for cumulative impacts on forestry is the area within the boundaries classified as coniferous forest and juniper woodland, black oak woodlands, and aspen-riparian shrub as shown on the map VEG-1, Vegetation Classes. Forest management would not be affected by any resource management decisions outside these areas. Forestry resource management activities are not expected to affect other resources outside these areas.

Cumulative effects to forestry largely center on fuels activities and wildfire. The cumulative effect of juniper and conifer ingrowth affects the availability of water to the forest overstory, understory forbs, grass, and shrub species, and to the wildlife that inhabits the forests. Biomass accumulating on the ground and as the lowest layer of vegetation is tinder to fire that is certain to come in the near future. This tinder increases the intensity and duration of fire, damaging organic soils and water absorption capacity.

Juniper expansion into conifer forest and aspen stands affects the growth and overall health of those forests. As well, conifer invasion of aspen stands affects aspen growth. Bartos and Campbell (1998) have estimated that 60 to 90% of the aspen stands in the western United States have been taken over by other species due to fire exclusion since European settlement.

Increased recreation from existing and new special designations along with other activity could cumulatively affect forestry by changing the availability of treatments designed to reduce the crown bulk density and ladder fuels and to reduce the juniper invasion into range and forests. Much activity might have to be limited to areas away from roads and communities where thinning or removal would have the greatest benefit.

4.6.11 Mitigation Measures

- Use best management practices in compliance with Section 208 of the Federal Clean Water Act PL92-500 to reduce the short-term adverse impacts from forestry.
- Locate cultural resources and flag and avoid the sites to protect the potential for listing as to significance under the State Historical Preservation Office.
- Use limited operating periods and untreated zones to avoid impacts to nests, dens, and calving areas.
- Incorporate visual resource management into project design.
- Incorporate standard measures for noxious weeds (see the Eagle Lake Field Office's Noxious Weed Prevention Schedule [Appendix F]).
- Use interdisciplinary project design.

4.6.12 Unavoidable Adverse Impacts

No adverse impacts to forestry are unavoidable if mitigation measures are implemented.

4.6.13 Short-Term Uses Versus Long-Term Productivity

Short-term vegetation management activities, such as prescribed burning or mechanical treatments, would benefit the long-term productivity of the forests and woodlands.

4.6.14 Irreversible and Irretrievable Impacts

Irretrievable impacts to forestry would include the loss of soil and compaction in soils caused by vegetation treatments.

4.7 Potential Effects on Lands and Realty

This section analyzes the direct, indirect, and cumulative effects on lands and realty actions from land use plan decisions under the alternatives. The lands and realty program supports goals and objectives of other resource programs, while responding to public requests for land use authorizations and facilitating land ownership adjustments (e.g. acquisition, access acquisition, and disposal) under laws, regulations, and policies. Land use authorization, particularly rights-of-way grants and permits, is a function of demand for the use. Other future development of adjacent federal, state, and private lands would likely result in more requests for and approval of land use authorizations for facilities such as, roads, utilities, and communication sites.

4.7.1 Methodology and Assumptions

The laws, regulations, and policies that govern public lands provide strict guidance covering two states under the jurisdiction of the Eagle Lake Field Office. BLM policies for land tenure are based on the Federal Land Policy and Management Act (FLPMA). In accord with FLPMA, land tenure adjustments–including disposal or acquisition of public lands–must meet specific criteria and must serve the national interest. Processing land use authorizations, access (easement) acquisitions, acquisitions, and disposals often presents complexities for each transaction because of political sensitivities, special interests and conflicting laws (state versus federal).

BLM would manage major contiguous land bases within the Eagle Lake Field Office jurisdiction as areas for retention.

BLM might seek to acquire lands to meet specific objectives, such as the following:

- private lands with unique characteristics of the geographic area (e.g. historic resources, ecologically critical areas, abandoned railroad alignments) next to or within large contiguous public lands bases;
- parcels in newly developed special management areas or newly designated ACECs if offered for sale by a willing seller and funding is available;
- parcels available for purchase and considered to have high resource and important public interest resources.

Land acquisition depends on resource management objectives, public requests for access or other realty actions, the presence of willing sellers, and funding to support acquisition.

BLM would manage its newly acquired parcels the same as similar adjacent parcels unless the site-specific National Environmental Policy Act (NEPA) compliance documentation and the record of decision call for different management prescriptions.

BLM would dispose of lands that have low or unknown resource values or that are isolated or fragmented from other public ownerships making them difficult to manage.

BLM would respond to public requests for land authorizations and acquire administrative and public access where needed. The Interim Management Policy for Lands under Wilderness Review (BLM 1995b) would apply to right-of-way applications in Wilderness Study Areas. No land use authorizations would be granted for disposal or storage of hazardous wastes. New rights-of-way facilities would be located within or next to existing rights-of-ways to the extent possible.

The use of certain rights-of way built on public lands before FLPMA would be recognized as valid even though authorities have since been repealed (e.g. ditches and canals under Act of July 26, 1866; highways roads and trails under R.S. 2477).

This analysis assumes that under all alternatives state and major county roads would continue to be maintained to current levels and that in general, county roads would not be abandoned. BLM facilities, mainly roads, would continue to be maintained, with priority placed on those most heavily used by the public.

This analysis also assumes that major utility line companies would focus first on maintaining and upgrading existing lines before undertaking new construction of major utility lines within the field office area. Demand for smaller distribution facilities to extend power or telephone services as rural development continues is expected to remain at current levels under all alternatives. But this demand could fluctuate depending on the degree of economic growth and development within and adjoining the field office area.

4.7.2 Incomplete and Unavailable Information

If site-specific examination of lands selected for disposal reveals important resources or unique characteristics and the authorized officer determines that these resources are present, the lands will be designated as custodial (to remain under BLM management).

Classifying lands does not commit BLM to the sale or purchase of any specific parcel. BLM will consider the disposal or acquisition of selected parcels on a case-by-case basis. Lands actions are subject to evaluation under the Federal Land Policy and Management Act (FLPMA) and NEPA to determine suitability for disposal or acquisition. Determination of specific parcels or the full extent of disposal of public lands within the field office area is not within the scope of this RMP.

4.7.3 Analysis

It is difficult to apply impact intensity criteria (negligible, minor, moderate, and major impacts) to the acquisition/disposal process because of the complexities and uncertainties for each transaction. The impact intensity criteria of the levels of effects on the land use authorization process will be defined as follows:

Negligible: The effect would be barely detectable, the public would not be affected, and there would be no measurable change.

Minor: The effect would be slightly detectable, and the public might be affected.

Moderate: The effect would be readily apparent, there would be a measurable change that could result in a small but permanent change, and the public would be affected.

Major: The effect would be severely adverse or exceptionally beneficial, and the public would be affected.

4.7.4 Land Ownership Adjustment

A continued demand is expected both from within and outside BLM for land ownership adjustments to improve the manageability of public lands and nonfederal lands. Land exchanges would continue. Because of the relative differences in appraised values between BLM and nonfederal lands, a net loss in acres of BLM lands is expected in most exchange transactions.

Disposal of small tracts of public lands would not directly affect the environment because it would involve only a change in land ownership. But a change in ownership might have indirect or cumulative effects through later changes in the use of the lands that are bought, sold, or exchanged.

Regardless of the disposal or retention classification of lands in this RMP, no land disposals would be approved if, during National Environmental Policy Act (NEPA) review, the lands are found to contain superior resources. Such lands would be reclassified as retention or custodial lands and would be subject to BLM's long-term management for their resources.

4.7.5 Access

Transportation and facilities management could require that easements be acquired for any BLM roads or other types of facilities on nonfederal lands. Right-of-way reservations could be needed for BLM roads and other types of facilities to be located on public lands.

Demand for adequate access–the ability and legal right of the public, agency workers, and authorized users to reach public lands–is expected to remain high over the life of this RMP. Easement acquisition would be the main means of acquiring access where needed. Existing or future decisions by some private landowners to deny public and BLM administrative use of traditional access routes to public lands could impede the public's ability to use the public lands and BLM to administer them. Such actions could result in the need for more access easements or land ownership adjustments to secure legal and physical access.

4.7.6 Land Use Authorizations

The demand for land use authorizations, such as rights-of-way, leases, and permits, is expected to continue within the planning area for the life of this RMP. Demand for these land use authorizations would fluctuate directly with the degree of economic growth and development within and next to the field office area. Added future development of federal, state, and private lands would likely result in more requests for and approval of land use authorizations for facilities such as roads, utilities, and communications sites.

4.7.7 Acquisition and Disposal - Impacts Common to All Alternatives

- Retention of public lands with high resource values.
- Maintenance or improvement of public access through all land ownership adjustment transactions.
- Adjustments will provide public land management benefits as well as benefits for private landowners.
- Retention of larger contiguous tracts of BLM lands that are fairly well blocked.
- Private lands with unique characteristics of the geographic area (e.g. historic resources, ecologically critical areas, abandoned railroad alignments) could be acquired from willing sellers.

The management of wildfire/fuels, soil, air, water and geologic, wild horse and burros, noxious weeds, visual resources under all alternatives would not affect the acquisition or disposal process.

The management of cultural resources under all alternatives could affect several aspects of land ownership adjustments and the acquisition of legal and physical access to public lands.

These actions would require avoidance to prevent inadvertent damage to federal and nonfederal cultural resources by complying with Section 106 of the National Historic Preservation Act. Cultural resource inventories would need to be completed before any federal action. The discovery of cultural or paleontological resources could require abandoning a proposed land ownership adjustment such as a land exchange or sale.

Depending on the amount of private ownership within the proposed ACEC (Buffalo Creek Canyons), new private lands would be selected for acquisition, depending on available funding.

Any land ownership adjustment under any alternative might have to be restructured or eliminated to prevent special status plants or important riparian or wetland vegetation from being harmed. If a site-specific examination of lands selected for disposal finds special status plants or important riparian and wetland vegetation and the authorized officer determines that such a plant or vegetation type is present, the lands will be designated as custodial (lands to be retained under the management of BLM). Once the determination is made, BLM could no longer dispose of them during the life of this RMP.

BLM would continue efforts to consolidate public land holdings in the proposed Eagle Lake Basin and Bizz Johnson Trail ACECs to facilitate access to public lands and reduce the number of access easements needed. Consolidation would also reduce encroachment from adjacent property owners as a result of fewer miles of BLM boundaries. Designating these lands as retention areas (no disposal) would prevent land ownership adjustments.

The creation of two new special recreation management areas (SRMAs)–Antelope/Shaffer/Bald Mountain and South Dry Valley–create new opportunities to consolidate public land holdings to facilitate access to public lands and reduce the number of access easements needed. Consolidation would also reduce encroachment problems on public lands from adjacent property owners as a result of fewer miles of BLM boundaries. Designating these lands as retention areas (no disposal) would prevent ownership adjustments.

The Bald Mountain portion of the proposed new SMRA was determined to be difficult and uneconomical to manage because of its location or other characteristics and is shown on the land tenure map (Map LANDS-1) of proposed disposal areas. Disposal of the area would serve a public objective (such as expansion of communities and economic development) that outweighs other public objectives, including recreation and scenic values. If disposal actions are not feasible, the area would be managed as a SRMA.

Under all alternatives the need to manage historic trails to protect the values for which they were designated would increase BLM's actions to obtain legal and physical access to public lands. Land ownership adjustments such as sales or exchanges may need to be restructured or eliminated from consideration to avoid disposing of public lands containing important historic trail segments. Where opportunities are created to obtain abandoned railroad grades to convert to trails for recreational use, BLM will need to investigate all prior rights (where they cross public lands) that would revert upon abandonment.

The need to manage scenic and back country byways to promote recreational driving and sightseeing would increase BLM's actions to obtain legal and physical access to public lands. Land ownership adjustments such as sales or exchanges may need to be restructured or eliminated from consideration to avoid disposing of public lands containing important byway segments or reserving the right of the public in the patent.

4.7.8 Land Use Authorizations – Impacts Common to All Alternatives

The management of wildfire/fuels, air quality, environmental justice, forestry products, and wild horse and burros programs under all alternatives would not affect the land use authorization process.

Fire management under all alternatives would generally help protect facilities on public lands authorized through the lands and realty program by reducing fuel loads and suppressing fires. But a slight possibility always exists of losing control of prescribed fire and damaging above-ground facilities.

Managing cultural resources under all alternatives of land use authorization could result in project redesign, abandonment, and/or mitigation of adverse impacts through data recovery. Such outcomes could require such actions as rerouting a proposed right-of-way or road easement, causing project delays and increased costs. But the effect is expected to be so small that there would be no measurable change.

Wildfire and fuels management effects are expected to be at a lower level of detection. There would be no measurable change in how lands use authorizations are granted. Under all alternatives management is expected to generally help protect facilities on public lands authorized through the realty program by reducing fuel loads and suppressing fires. But there is always a slight possibility of prescribed fire getting out of control and damaging above-ground facilities.

Under all alternatives, the management of soil, air, water, and geological resources could affect land use authorizations such as rights-of-way, leases and permits, as well as the BLM's actions to obtain legal and physical access to public lands. Proposals for facilities and actions that are projected to degrade these resources would be mitigated or sited in acceptable alternative locations. In more extreme cases, these proposals would be denied altogether. But the effect is expected to be so small that there would be no measurable change.

The management of wildlife and fisheries, including special status plants, would have several effects under all alternatives. The need to protect special status plants and certain fish and wildlife species could affect land use authorizations on public lands. If facilities proposed under land use authorizations would affect wildlife or fisheries, they might need to be mitigated, built in other locations, or dropped from consideration. BLM would need to use the latest version of *Suggested Practices for Raptor Protection on Power Lines* (Avian Power Line Interaction Committee 1996) and the U.S. Fish and Wildlife Service's Interim Guidance to Avoid and Minimize Wildlife Impacts from Wind Turbines (USFWS 2003) as stipulations within the grant before granting a right-of-way for those uses.

Under all alternatives, noxious weeds and integrated weed management would continue as presently managed. The lands and realty program would continue helping prevent the introduction of noxious weeds and control known infestations on BLM-managed lands with mitigation measures in all land use authorization grants. Proposals for facilities and actions that are projected to degrade the resources would be mitigated, sited in acceptable alternative locations, or in more extreme cases denied altogether. But this effect is expected to be only slightly detectable and there would be only a small change.

Management of vegetation, including special status species, would have several effects. The need to protect special status species and riparian and wetland vegetation would affect land use authorizations. Facilities proposed to be built where these types of vegetation grow might need to be mitigated, built in other locations, or in extreme cases dropped from consideration. The need to protect certain vegetation types could also result in restructuring or eliminating a land ownership adjustment proposal such as an exchange or sale. Where fire is used to manipulate vegetation composition, there is always a slight possibility of its getting out of control and damaging BLM-authorized above-ground facilities.

The management of wildlife and fisheries, including special status species, would also have several effects. The need to protect special status species and certain other species of fish and wildlife could affect land use authorizations, land ownership adjustments, and the acquisition of legal and physical access to public lands. Facilities proposed to be built under land use authorizations or access easements in areas that could adversely affect wildlife or fisheries might need to be mitigated, built in other locations, or in some cases dropped from consideration. Land ownership adjustments such as exchange or sale proposed in areas where wildlife or fisheries could be harmed may need to be restructured or eliminated from consideration. These types of acquisitions could increase processing costs and time for both the federal and nonfederal parties.

Visual resources management (VRM) Class I and Class II objectives are the most restrictive in contrast ratings for all surface-disturbing activities under the VRM Preferred Alternative. Once the four classes are designated, a request for land use authorization would have to meet the criteria of the VRM class for the area: changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. If the request does not meet the criteria, the proposal would need to be restructured, built in another location, or in extreme cases dropped from consideration. As an alternative, the RMP could be amended to change the VRM class and allow the land authorization use.

Any renewable energy development proposed for public lands could result in requests for land use authorizations such as rights-of-way and permits. The management of leasable, salable, and locatable minerals under all alternatives would likely result in request for rights-of-way and permits for utilities and access.

BLM is expected to continue accommodating wind energy site testing and monitoring in acceptable areas and in conformance with this RMP. The following designations would restrict a variety of land use authorizations, including wind energy site testing and monitoring:

- wilderness study areas (WSAs),
- areas of critical environmental concern (ACECs),
- visual resource management (VRM) classes, and
- other special management areas.

Management for all WSAs within the Eagle Lake Field Office's jurisdiction is described in detail in the BLM Interim Management Policy for Lands under Wilderness Review (BLM 1995). Currently land use authorizations restrict new physical and legal access across public lands within the boundary of each WSA.

The proposed Eagle Lake Basin, Bizz Johnson Trail ACECs would further restrict land use authorization until ACEC plans are formulated defining avoidance or exclusion areas. A measurable change could result in a small but permanent change in how land use authorizations are evaluated.

The effect of creating two new SMRAs–Antelope/Shaffer/Bald Mountain and South Dry Valley–could result in a small but permanent change in how land use authorizations are evaluated if they are within the SMRAs.

Before implementing the proposal to manage the Antelope Pit as a shooting area, BLM will need to accept or deny the request for relinquishment from the California Department of Transportation to reduce its right-of-way from 400 feet (total width) to 200 feet. Before accepting the relinquishment, BLM would need to inventory the lands for the presence of hazardous materials (lead) or contaminants that might cause remediation for cleanup.

Conflict in management approaches to travel would occur when actions are taken to close or rehabilitate routes through the RMP or routes not designated for use in the RMP. Owners of nonfederal land surrounded by public land managed under FLPMA would be allowed a degree of access across public lands that would provide for reasonable use and enjoyment of the nonfederal land. Under all alternatives the use of certain rights-of-way built on public lands before FLPMA would be recognized as a valid use even though the authorities authorizing the use have since been repealed (i.e. ditches and canals, roads, and trails under R.S. 2477, etc.). But no regulations exist either to assert or recognize R.S. 2477 rights-of-way.

Under all alternatives the need to manage national trails to protect values for which they were designated could affect land use authorizations such as rights-of-way as well as BLM's actions to obtain legal and physical access to public lands. Proposed facilities such as power lines might need to be mitigated (e.g. burial of line) or rerouted to protect these trail values.

Under all alternatives, BLM would continue to deter unauthorized use and to abate such uses through prevention, detection, and resolution. Upon settlement of trespass liabilities, BLM would resolve the unauthorized use of public lands through termination, authorization, or sale or exchange, as suitable.

Under all alternatives BLM would continue to review withdrawals and classifications and revoke or terminate those no longer serving their purpose. Such actions would ensure that the public lands are not unnecessarily encumbered and are open to the widest possible array of uses consistent with other portions of this RMP. Such a review would also ensure that withdrawals and classifications still serving their intended purpose would remain in place. Management proposed for new withdrawals under all alternatives would also ensure that such actions encumber the smallest area to achieve their purpose.

Under all alternatives, land use authorizations such as rights-of-way and BLM access easements that cross livestock grazing areas could occasionally require mitigation that excludes livestock grazing during construction and rehabilitation phases of the project. Mitigation could also be required to facilitate livestock movement or provide for public safety (e.g. fencing, cattleguards) throughout the effective period of the authorization.

For health and safety reasons, BLM would not issue land use authorizations for uses involving the disposal or storage of materials that could contaminate the land. Lands proposed for acquisition or disposal would need to be inventoried for the presence of hazardous materials. The presence of contaminants might lead to actions such as the modification or abandonment of a land ownership adjustment proposal, or remediation in the form of cleanup and removal of contaminants.

4.7.9 Cumulative Effects

Few non-BLM land disposal actions in the region are large enough to contribute to a cumulative effect on land ownership. Many small land sales are expected to occur in the cumulative assessment area. Although they might contribute to a cumulative effect on land tenure, these transfers are mostly between private landowners and are not likely to substantially change the use or management of the land.

Lands may be acquired by each of the BLM field offices in the cumulative assessment area. But the acreage of land that may be acquired cannot be determined with any certainty.
Broad areas within each field office are classified for retention or acquisition, where BLM might seek to acquire lands to improve management efficiency. In addition, BLM might seek to acquire lands to meet specific objectives, such as improved access or resource management.

The number of land use authorizations, particularly rights-of-way and permits, is a function of demand for uses. Further development of adjacent federal, state, and private lands would likely result in more requests and approval of land use authorizations for facilities such as roads, utilities, and communications sites.

Existing or future decisions by some private land owners to deny public and BLM administrative use of traditional access routes to public lands could interfere with the ability of the public to use public lands and BLM to administer them. Such actions could result in the need for more access easements or land ownership adjustments to secure legal and physical access.

All alternatives would have the cumulative effect of reduced routing options for right-of-way facilities such as utilities and roads from

- designating right-of-way avoidance and exclusion areas on BLM-administered lands and
- similar restrictions on right-of-way development on adjacent lands, particularly National Forest System lands.

Under all alternatives, BLM would continue to process realty actions. Valid existing rights, such as the existing county road rights-of-way, would not be affected. Granting utility rights-of-way, where conforming to constraints, would meet the demand for such services along the U.S. Highway 395 corridor. Designating the Alturas Transmission Line route, described by the Western Utility Group (2003) as having the highest potential of being developed within Eagle Lake Field Office area would simplify future development.

Not designating a right-of-way corridor for electric transmission lines or pipelines and use areas for communication facilities could increase the likelihood that other land use developments during the life of this RMP might preclude or restrict the location of these types of facilities. Conversely, designating a right-of-way corridor could preclude or restrict the management potential for certain programs where activities proposed within the areas are deemed to interfere with their uses as right-of-way corridors or use areas.

4.7.10 Mitigation Measures

There are no mitigation measures necessary for Lands and Realty.

4.7.11 Unavoidable Adverse Impacts

There are no unavoidable impacts for Lands and Realty.

4.7.12 Short-Term Uses Versus Long-Term Productivity

There are no short term uses that reduce the long term productivity for Lands and Realty actions.

4.7.13 Irreversible and Irretrievable Impacts

All alternatives accommodate land tenure adjustments that may result in the permanent loss of lands from public ownership if they enter private or State ownership. There are no irreversible or irretrievable impacts to Lands and Realty for any alternative.

4.8 Potential Effects on Livestock Grazing

This section describes the direct, indirect, and cumulative effects on livestock grazing of land use decisions under the alternatives. The current potential for grazing is high and occurs on about 98% of public lands in BLM's Eagle Lake Field Office area.

4.8.1 Methodology and Assumptions

Information was obtained from the following sources:

- relevant literature;
- best management practices;
- Northeastern California and Northwestern Nevada Standards and Guidelines (Appendix B);
- land health assessments (both rangeland and riparian);
- monitoring;
- existing land use plans; and
- consultation with the public, permittees, and interdisciplinary teams.

Impacts were assessed using best professional judgment, monitoring information, and the following criteria to define impact intensities on livestock grazing:

Negligible: Grazing operations would not be appreciably affected.

Minor: The effect would be perceptible, and the action would slightly change grazing operations, but the change would be localized.

Moderate: The effects would be apparent, and the action would result in a noticeable change in grazing operations, increased labor requirements, and might adversely affect grazing revenue.

Major: The effects would be readily apparent or widespread, and the action would substantially disrupt grazing operations, revenue, and economic stability.

In addition, the analysis of impacts on the grazing use is based on the following assumptions:

- The field office area is open to grazing on 987,779 acres.
- The present level of animal unit months (AUMs) authorized under grazing permits is 52,250.
- This amount includes more than 10,000 cattle and from 4,000 to 6,000 sheep. Grazing authorization fluctuates annually in response to climatic variations (rain and snowfall amounts, drought conditions, spring growing temperatures, and other variables). From 75 to 90 % of all AUMs are applied for each grazing season. The total AUMs fluctuate because of seasonal variation from a low of 60 up to 100% on above-average years.
- The Eagle Lake Field Office area has 60 BLM grazing allotments, of which 54 are active. Of the six that are not now active, most are small allotments (under 1,000 acres). These allotments might be considered for future re-allocation or use (permanent or temporary) if BLM determines that it is beneficial to reinstate grazing and management to the area.

- Several existing conditions are a result of past activities on public lands:
    - unregulated grazing (pre 1960),
    - repeated wildland and human-caused fires with no rest from livestock grazing,
    - wild horses and burros,
    - no rehabilitation efforts,
    - unregulated road construction, and
    - some recreation activities in sensitive areas resulting in soil disturbance.
- These impacts have since been reduced, and positive actions have been taken to reduce or prevent further adverse impacts, including stabilizing and improving upland rangeland and riparian conditions. But some of the past impacts carry forward today, including soil loss, sheet erosion, and changes from native plant communities to annual grass types. These areas have been recognized as currently not meeting or making progress toward health standards. Substantial changes were implemented to livestock grazing management during the 1960s, including livestock reductions. More changes occurred during the 1980s, when the grazing environmental impact statements were developed with new management decisions and range improvements.
- Stabilization and improvement were found during upland health inventory from 1999 to 2003 by the Eagle Lake field Office Interdisciplinary Resource Team. The team assessed more than 270 sites and found a significant percentage of the areas to be meeting or making progress toward meeting land health standards. Many positive steps taken during the last 20 years have reduced impacts.
- Small isolated parcels of public lands might be considered for future land sales or exchanges. These might include public land parcels that were previously allocated for livestock grazing or were voluntarily surrendered allotments.

4.8.2 Incomplete or Unavailable Information

Adequate information exists to analyze the effects on livestock grazing at the RMP level with a few exceptions. Enough information is available from land health assessments (272 sites representing more than 200,000 acres) to project general health status and trends. But not all land health grazing determinations have been fully analyzed.

4.8.3 Impacts Common to All Alternatives

- Management actions would be consistent with the Taylor Grazing Act and other range/grazing policy and direction.
- Livestock grazing would continue to be authorized on 54 grazing allotments.
- Allotment management plans (AMPs) would be developed after the RMP is implemented if individual allotments are found to need AMPs to ensure stabilization and recovery.
- Grazing management would be implemented to meet and make progress toward land health standards, including riparian goals.
- The Eagle Lake Field Office would continue to use and update selective allotment management categories: improve (I), maintain (M), and custodial (C) as needed to refine and prioritize grazing management actions.

Rangeland improvements would include various methods, in various combinations, on a site-specific basis:

- prescribed fire;
- wildland fire in an appropriate management response (AMR);
- mechanical manipulation;
- biological agents;
- chemical agents;
- seeding with native perennial species;
- maintaining existing seedings using suitable species;
- managing grazing;
- water developments (including wells, spring developments, catchments, and new technology (solar and wind power) for pumping water; and
- new and rebuilt fences that comply with BLM wildlife specifications.

The size of required sediment intrusion buffer zones would differ by alternative (use of <50 feet versus >100 feet) around sensitive sites. But the buffer zones typically would be used for protection at road and trail locations. (See Soil Resources in Chapter 2.)

This analysis assumes that these measures would be implemented through individual project planning and that the planning would incorporate designating or building alternative routes where access for grazing is needed. Therefore, none of the sediment intrusion buffer measures under any alternative would substantially restrict the ability of livestock operators to transport livestock to or within permitted allotments. Nor would these buffers substantially restrict the ability of livestock to access forage within allotments.

Most management actions for wildlife terrestrial and aquatic resource groups are either common to all alternatives or would result in similar effects on livestock grazing. The main mechanisms by which effects could result are actions that change the following:

- availability of forage,
- allocating available forage,
- water availability, or
- access to water.

Also, because most of the habitat enhancement and restoration actions that would benefit wildlife are encompassed under the fire and fuels and vegetation management programs, impacts on wildlife are addressed in those discussions. The following effects of terrestrial and aquatic wildlife management actions are common to all alternatives and are not addressed in later discussion in this section.

All management actions for federally listed threatened, endangered, and candidate species are common to all alternatives and mostly involve direct coordination, monitoring, and direct management actions in limited areas occupied by these species. Many management actions for state-listed, BLM sensitive and state sensitive species also involve coordination and monitoring. But habitat management actions for some species (i.e. sage-grouse) apply to substantial land areas and differ among alternatives.

Management actions to protect the Carson's wandering skipper, if it is found, would not conflict with livestock grazing because potential habitat for this butterfly–saline areas–represents a small area that provides little forage.

The limited management activities for elk under all alternatives would also not conflict with livestock grazing management. California bighorn sheep would be reintroduced only after domestic sheep grazing permits are voluntarily surrendered. Such a plan could ultimately result in BLM's closing bighorn sheep introduction areas to domestic sheep.

Sage-grouse management differs somewhat between alternatives. Effects of this management on livestock grazing are discussed under each alternative. Adoption and implementation of the Conservation Strategy for Sage-Grouse (Northern California Sage-grouse Working Group 2005) would have moderate to major effects on grazing. But these effects are undefined at the present time. An adjustment in season of use and lowering of utilization on a site-specific basis could be expected. But because there are now no specific actions, the effects cannot be quantified or fully determined.

All management actions for controlling noxious weeds are common to all alternatives. Measures to control exotic pests and encourage the use of native species in revegetation would benefit livestock grazing. But finding that livestock significantly contribute to the spread of noxious weeds would have a moderately adverse effect on livestock grazing in some use areas by requiring grazing operations to take steps to reduce the spread of noxious weeds.

Special-status plant management actions would be localized and would not affect livestock grazing under any alternative. Typically, fencing or modifying seasons of use have had minor to moderate benefits to grazing, depending upon the restrictions.

Land acquisition and disposal under all alternatives generally do not affect livestock grazing on a large scale. Occasionally BLM's acquisition or disposal of a small parcel would have a minor effect on grazing if traditional use areas are modified or restricted.

Currently unallocated, small scattered parcels that might have had grazing in the past might be considered for sale or exchange. The effect of this action might be minor, depending on whether a qualified applicant has requested grazing use of an area that is being considered for sale or exchange. These parcels represent a small percentage of the grazing lands in the field office area. Typically land sales and exchanges are conducted on a willing-seller basis.

Under all alternatives, recreation proposals and activities generally do not affect grazing over a large area and are considered negligible to minor. But in a localized or small area the effects might be minor to moderate. Recreation might adversely affect areas now open to grazing that might be restricted under actions proposed by the alternatives.

Fencing is he main tool to prevent livestock grazing from interfering with recreation or becoming a nuisance in concentrated recreation areas. Areas such as campgrounds, special recreation management areas, and other high-use locations are examples of where livestock and recreation might conflict. The effects of building more fences include the cost and the cumulative effect of more miles of maintenance for grazing operators. For example, some permittees with larger numbers of livestock might have 20 to 60 miles of annual fence maintenance. This is a significant workload for both the operator and for the BLM to ensure that all assigned maintenance is satisfactory.

All management actions for eligible wild and scenic river segments are common to all alternatives. Livestock grazing would continue to be excluded from the Susan River and Upper Smoke Creek. Limited grazing would occur at Lower Smoke Creek and Willow Creek.

Livestock would continue to use water gaps and riparian pastures if riparian objectives are achieved and enhanced. But effects would be minor because of the small amount of new area that would be restricted.

Moreover, if further restrictions are found to be needed and livestock are excluded from an area, new range improvements would need to be established to provide water and fencing. These actions would cause minor to moderate adverse effects because of increased labor (including herding and fence maintenance), which adds to the cost of grazing operations.

4.8.4 No Action Alternative

The No Action Alternative represents the existing situation, which is a culmination of many years of developing and fine tuning existing grazing strategies. These actions or changes have included the following:

- fluctuation in livestock numbers,
- new construction and rehabilitation of existing range improvements (fences, water developments, prescribed fire, and seeding), and
- season of use adjustments.

Currently, livestock graze on 98% of public lands in the field office area each year. About 75 to 85% of grazed acres or 48% of all 60 allotments receive some rest or deferment each grazing season. This rest has benefited rangeland condition and trend, as seen in the following:

- improved functioning condition of riparian areas,
- improved ground cover, plant vigor, and seed production,
- increased root reserve, and
- residual plant material persisting into the next growing season.

Other livestock management adjustments might be needed as assessments and determinations are made based on Northeastern California and Northwestern Nevada Standards for Rangeland Health and Guidelines for Livestock Grazing Management (Appendix B) from the Northeast California and Northwestern Nevada Resource Advisory Council, hereafter referred to as the Susanville RAC. These standards are designed to provide healthy and functioning rangelands. As allotments and watersheds are evaluated to determine if standards and guidelines are being met or progress is being made toward meeting them, further adjustments might be needed. These adjustments might be in the form of

- reducing or increasing livestock numbers, season of use, or allocated AUMS;
- providing new and rebuilt range improvements to increase distribution, and
- further refining or developing more intensive management plans.

Impacts from the above actions would range from minor to major, depending on whether current livestock use is the cause or grazing has been found to be limiting progress toward meeting the standards. A total of 20,160 acres are either unallocated or restricted from current livestock use. In the future BLM might consider activating grazing on unallocated lands if that action is deemed suitable and a need has been established.

The grazing permittees have adjusted practices in sensitive areas, such as riparian areas, by focusing use in other areas with less restriction. In most cases permittees voluntarily restrict their livestock from sensitive areas such as riparian areas when these areas are found to need further rest or deferment to recover or improve.

Rest or protection has been especially helpful in about 60 riparian areas, including natural springs/seeps and several miles of streams and lakeshore where past livestock impacts might have been limiting plant recovery and water quality and quantity.

The response to management and rest can be seen as increased ground cover, plant vigor, residual plant material that serves as bank and shoreline protection, and improved hydrologic condition as revealed by a documented (riparian functional assessment) upward trend and reassessment of riparian areas.

For grazing to continue, new range improvements would need to be built and maintained. Such improvements include water developments and another 20 to 30 miles of new or rebuilt fence to provide for livestock control. Fencing would be used to create new pastures, which allow areas to be rested while specific pastures are grazed. Fencing new riparian areas would be considered when areas are determined to need more rest from grazing. The current forage production appears to satisfy both quantity and quality (nutritional requirement) for livestock in the grazing allotments.

Cultural resource sites and special management areas might have a minor effect on grazing if livestock use is totally restricted. For example, a fenced livestock exclosure around a sensitive or important cultural site might be needed to ensure long-term protection. Generally these areas are small compared to the total use areas and do not significantly affect grazing. Many sensitive areas are protected by fences. Areas under intensive grazing management and the number of new sites requiring total protection are not expected to be large.

Stabilized and improved range condition and intensive livestock management have increased ground cover. Increased ground cover better protects the soil and reduces the need for total exclusion by sufficiently protecting cultural sites. Surface impacts decrease when livestock are moved through an allotment onto separate pastures or use areas, as compared to past grazing when use period began as early as March and did not end until late fall. Today, most use areas have a reduced season of use that is about half that of past use. As more areas meet or make progress toward meeting land health standards, exclusion areas are less needed, and they have less effect on grazing.

Generally wildfire suppression does not affect grazing beyond the immediate suppression actions. Wildfire and prescribed fire might have minor and short-term effects because of the current field office rest and recovery fire policy. This policy requires at least two growing seasons of rest from livestock grazing. And vegetation must be making progress toward meeting land health standards before grazing is reestablished. The length of restriction or rest might be increased in response to the condition of the land before burning. Effects would differ in response to acreage treated and condition of the land before fire. Over the long term, fuels treatments are expected to benefit rangelands by making them more productive and slightly increasing forage (AUMs) for livestock.

In general, soil resource management actions involve implementing guidance for other management programs to achieve adopted land health standards. Appropriate management practices would be implemented to stabilize 113,236 acres of BLM-administered land known not to be meeting land health standards for soils. This acreage represents 11.5% of the area open to grazing in the field office area. A large percentage of the area found not to be meeting standards is dominated by invasive non-native annual grasses (medusahead and cheatgrass). Annual plant dominance is mainly due to the aggressive nature of annual grass and its ability to expand, compete, and prevent the natural recovery of native perennial vegetation. The effects of annual grass expansion are considered long term and extremely serious.

This annual grass situation is aggravated by recurring wildfires and ground conditions, such as extremely rocky conditions that limit or prevent reseeding by tractor/dozer and rangeland drill.

Aerial seeding of these areas has had limited success for a variety of reasons which include

- unpredictable precipitation,
- extended drought conditions,
- germination of annuals before the seeded species become established, and
- poor spring growing conditions.

Large-area rehabilitation is limited by current technology and funding, which increase the time needed for the recovery of native plant communities, which protect soil and make progress toward meeting land health standards for soil.

Soil resource actions for areas not now meeting standards might include the following:

- using rest and deferred rotation management,
- altering the timing of use (including eliminating or adjusting late-season grazing in riparian areas),
- reducing grazing use levels,
- establishing exclosures,
- manipulating vegetation, or
- taking many other actions. (See Soil Resources in Chapter 2.)

Most of these actions would be applied locally to problem areas. Their implementation would be coordinated with the livestock grazing program to reduce unneeded disruption (e.g. by providing alternative water sources when existing sources might be within grazing exclosures). Current practices to improve soil conditions would adversely affect grazing by increasing labor and operating costs for permittees and BLM to monitor and ensure compliance. Labor and operating costs are proportional to the level of management that currently exists and whether costs remain the same or increase.

Livestock actions to reduce or prevent damage to high shrink-swell soils would have a minor to moderate effect. Delaying use periods and adjusting use areas to resist compaction damage would increase labor costs and result in some loss of revenue due to reduced season of use.

Overall, soil resources management actions would continue to result in and localized adverse effects by removing a modest amount of forage from livestock use. Long-term benefits would include protecting the capacity of the range to continue to support livestock grazing and perhaps modestly increasing forage availability.

Under all alternatives, vegetation management would focus on restoration efforts to attain a "healthy" Land Health Standard for lands with biodiversity ratings of "at risk." Current grazing management efforts are actively involved with vegetation stabilization and recovery. Intensive grazing strategies are in place, and benefits such as the following are readily apparent:

- improved plant vigor,
- increased seed production,
- increased root reserves, and
- residual plant material is readily apparent.

But if further management actions are required, they would cause minor to moderate adverse effects on grazing. Typically, the effects include increased herding and pasture moves, delay or changes in season of use, and extended rest. All these actions require more labor and would adversely affect grazing operations by increasing the cost of doing business.

The No Action Alternative proposes 26,000 acres of treatment for juniper encroachment. Juniper management would focus on biomass (wood chip) projects and to a lesser extent woodcutting. All treatments would follow noxious weed prevention practices.

This program would allow treatment to focus on areas of greatest risk of biodiversity loss. Results would include the removal of juniper and increases in shrubs, grasses, and forbs, which could increase forage available for use by livestock, cattle, and wild horses and burros.

These activities would cause negligible to minor disruption of grazing since grazing can continue during the treatment and most areas would not need to be rested after treatment. If treatment areas require rest for more than 1 year following treatment, the effect would be minor and considered short term. In the long term juniper thinning would benefit understory plant production, which would increase and enhance livestock forage.

Under the No Action Alternative, water resources would have minor to moderate effects on livestock grazing. Maintaining and enhancing properly functioning condition (PFC) of streams and riparian/wetlands (springs and seeps) would increase labor requirements. Permittees would have more work to do, and they would earn less money on their grazing operations because of the costs of increased labor. Because livestock tend to congregate near streams, lakes, and springs for water and forage, the impacts might limit or require more time to meet the water resource goal.

Current livestock management is actively involved with riparian management and has made positive steps toward meeting or making progress toward meeting standards, as shown by the most riparian areas, either in an upward trend or in properly functioning. This improvement has been demonstrated in areas where a reassessment has resulted in an improved rating, which was attributed to improved grazing management. Currently most riparian areas are properly functioning or have an upward trend.

No Action recognizes current management that is taking positive steps to make progress or meet properly functioning condition (PFC). But applying new grazing strategies and adjusting season of use and numbers might be required and would affect grazing operations in both labor and operating expenses. Typically livestock numbers are not reduced but the length of time livestock use a riparian area is limited or reduced. Applying utilization guides with residual or stubble plant height would have a minor to moderate effect on grazing by requiring movement from the area if the use levels are exceeded.

New fencing and development of offsite water would reduce overall adverse effects to grazing by providing an alternative use area. These actions would continue progress toward meeting proper functioning condition (PFC) and desired future condition desired future condition (DFC) goals. The resulting effects on livestock grazing are not quantified and would be considered minor if more areas were not restricted from use.

The impact of No Action would be more noticeable in allotments with more streams and springs that provide water and forage for livestock. These allotments would require more adjustments in grazing management and labor by the permittee to ensure that livestock do not concentrate in riparian areas. The more pastures an allotment has, the less overall impact a pasture has to a grazing operation. Operations with one allotment and no extra pastures would be affected the most. No Action would have negligible to minor effects on allotments with few riparian areas.

Best management practices (BMPs) to improve water quality and progress toward meeting state standards might have a minor to moderate effect on livestock grazing on or near specific streams. Developing BMPs might require more labor for the grazing permittee if livestock use is found to degrade water quality. In many cases, accelerated livestock movement through an area or new protective fencing would stabilize and make progress with water quality and reduce the overall effect.

Under all alternatives, the Eagle Lake Field Office would manage wild horse and burro numbers at appropriate management levels (AMLs). This level is set and reevaluated and adjusted as needed to ensure a natural and thriving ecological balance. Because horse populations are now substantially above AMLs, reduced numbers would reduce pressure on forage that is intended to support livestock grazing and wildlife, as well as other ecological functions.

The effect of wild horse and burro numbers on livestock grazing increases as the herd size exceeds the AML. Under the No Action Alternative, numbers of wild horses and burros would be reduced to conform to the AML. Using the 2003 population of 1,317 horses and an AML midpoint of 675 animals, No Action would reduce horse numbers by an average of 642 horses. This reduction would reduce forage consumption by horses enough to support current livestock use. The reduction in wild horse use would help restore a proper balance in forage use among wildlife, wild horses, and livestock. The reduction in forage consumption by horses would help permittees graze at current permitted levels.

The current potential for energy and mineral development is low in the field office area. Such development would have a negligible to minor adverse effect on livestock grazing because of the small area involved. Typically, the developer would fence these areas to prevent livestock from wandering into a hazardous area, so there is little to no cost to the permittee. On the basis of current mineral activities, mineral and energy development under No Action would have only a negligibly adverse effect on livestock grazing.

Timber production and forest products would have a negligibly adverse effect on livestock grazing. An active timber sale or chipping operation might slightly interrupt localized livestock grazing in the short term.

Reforestation might require some change in turnout areas of livestock to prevent livestock from browsing on young pine seedlings. But these changes can usually be made cooperatively with the livestock operator. The adverse effect would still be considered minor if an area requires temporary (3 to 5 years) fencing to ensure seedling success.

Logging or thinning of forests under No Action would benefit livestock grazing. They would increase the production of herbaceous understory plants (grasses, shrubs, and forbs) and provide more nutritious and abundant forage in the forest understory. Livestock grazing can also reduce competition between pine seedlings and grass and shrubs and promote tree growth by managed grazing use.

Thinning juniper for landscape goals and biomass has been shown to benefit livestock grazing by reducing the competition between juniper and desirable understory vegetation. The reduction of juniper stimulates understory vegetation, which benefits watershed values (increased plant cover and improved infiltration) and livestock forage.

Management under the No Action Alternative would not alter the following:

- the number of livestock that can be grazed,
- the area open to grazing, or
- the infrastructure that affects management.

More than 987,000 acres (97.9% of total lands in the field office area) would be open to grazing, while 20,000 acres would be closed. Total permitted AUMs would amount to 52,250 (47,459 AUMs for cattle and 4,791 AUMs for sheep). Grazing would be conducted in a manner required to contribute to meeting land health standards. A variety of rangeland improvement actions would continue to be performed under all alternatives.

The field office area would conduct range rehabilitation on up to 3,000 to 4,000 acres over the life of the plan, using native seed or crested wheatgrass (only in existing areas where crested wheatgrass occurs).

Juniper would be reduced (described in the vegetation section) on a total of 26,800 acres, using a variety of techniques to treat stands with younger trees and lower canopy classes. These treatments would prevent future effects of juniper encroachment on forage availability for livestock and would allow current permitted grazing levels to continue.

In some areas of high off-highway vehicle (OHV) use, mainly motorcycles and all-terrain vehicle (ATV) recreation vehicles might need to be fenced or restricted to a specific area to reduce harassment or the constant movement of livestock in response to loud OHVs.

Designating special recreation management areas (SRMAs) might exclude or highly restrict livestock from designated areas. Under current management, the Eagle Lake shoreline has been generally restricted from livestock use. New designation would further reduce forage and water availability to livestock. The adverse effect would be moderate to major in localized areas. This restriction would require the following:

- new fencing,
- new water developments,
- increased fence maintenance by the permittee,
- more labor (herding or handling livestock), and
- a loss of revenue from the grazing operation because of the added maintenance and herding.

The restrictions might be less in other SRMAs, where OHVs would have minor adverse impacts on grazing.

Other SRMA exclusions would be small and would result in minor disturbance to the grazing program. Recreation Opportunity Spectrum (ROS) and travel management designations would not apply to livestock operators and their operations would not be obstructed by OHV designations under any alternative. The permittee's ability to access new or existing range improvements (mainly water developments) is vital to proper and successful grazing management.

Livestock exclusion in the Susan River Canyon, while noteworthy, is not expected to have more than moderately adverse effects on grazing in the surrounding area. Currently, the grazing permittees have reduced cattle numbers and tried to keep their livestock out of the canyon bottom. This effort has not been completely successful because more fencing is needed along the canyon rim to restrict cattle. Cooperative management agreements are needed, and permission is required from private landowners and timber companies to fence the entire area to ensure that cattle can be excluded from the canyon. For total restriction to be successful, more fencing would be required.

At the current levels of use, OHVs are not expected to conflict with livestock use through disturbance unless use dramatically increases in areas such as Rice Canyon or Fort Sage Mountain.

If use increases noticeably, more fencing and more water developments might be needed to separate recreation activities and grazing, which would affect grazing in these areas.

Special area designations such as areas of critical environmental concern (ACECs) would result in grazing effects that range from minor to moderate. The level of disturbance or effect would depend on

- the acreage,
- whether the area is totally restricted to grazing, and
- how the designation would change future grazing operations.

Management actions under the alternatives are listed for each proposed ACEC.

Generally, the No Action Alternative and Alternatives 1 and 3 would have only minor adverse impacts on grazing because they propose actions similar to the existing situation. Alternative 2 and the Preferred Alternative would have moderately adverse impacts. Effects would differ, depending on the size and number of areas closed to grazing.

The effect would be apparent and would increase labor costs and reduce grazing revenues because of loss of grazing areas and increased work to meet the ACEC goals. To restrict livestock from areas now open would require more labor and increased labor costs for maintaining fences and herding and conducting inspections.

The following ACECs are closed to grazing or have some highly restricted grazing use:

- Pine Dunes,
- Eagle Lake Basin, and
- Susan River Canyon.

The proposed acreage of the ACECs might not be significant when compared to the total acreage grazed in the field office area. But the consequences would be apparent:

- increased cost of fencing (both BLM and permittees),
- permittee labor for herding and fence maintenance, and
- the need for new water or range improvements.

These costs and needs would create a moderate to major adverse impact to the permittees.

The remaining ACECs have limited or restricted livestock use, which would have a minor to moderate effect on grazing:

- Willow Creek
- Lower Smoke Creek
- Buffalo Creek Canyons
- North Dry Valley Rim
- Aspen Groves

These impacts include increased labor to comply with changes in livestock numbers, season of use, and multiple pasture moves. Grazing might continue in the ACECs. But a predictable set of actions becomes more restrictive if current livestock management cannot meet or make progress toward meeting land health standards.

The response would be higher operating costs and the possibility of eliminating grazing in these areas.

Livestock use would continue to be permitted in wilderness study areas (WSAs) under all alternatives. Although programs to acquire lands within WSAs would differ among alternatives, their effects would be similar. All alternatives except the Traditional Uses Alternative would attempt to acquire private inholdings within WSAs. The total acreage of lands affected would be limited, and the lands are not highly productive for grazing. Therefore, acquisition would not substantially increase livestock production capability on BLM-administered lands. In most cases, many of these private lands are used for grazing by the same operators who graze livestock on the adjacent BLM-administered lands. Consequently, the changes in ownership are not expected to substantially affect permittee operations.

For these reasons, the effects of land acquisition in WSAs are considered similar under the alternatives and are expected to only negligibly benefit grazing programs.

The No Action Alternative proposes rights-of-way, utilities and transportation corridors, and telecommunication activities with a variety of management actions. The location and scale of these actions are narrow and generally do not affect livestock activities. Under all alternatives, these actions would have negligible to minor adverse impacts on livestock grazing. Infrequently, a proponent might need some fencing to prevent livestock from rubbing on towers, support lines, and control stations. Generally such fencing would have little to no effect on overall grazing operations. But the responsibility for maintaining the fence might be an issue if it is not clearly documented. Typically, fences (unless they are large) are maintained by the proponent, and fence maintenance is not an added burden to the livestock permittee.

Most corridors and rights-of-way are open to livestock use except during rehabilitation efforts. The adverse effects of removing livestock during rehabilitation are usually short term and minor.

Summary of Effects – No Action Alternative

The combined management actions under the No Action Alternative would have minor to moderately adverse effects on livestock grazing because of the relatively small acreage that is closed or limited to livestock use. But if more restrictions or closures are required, the adverse effects would increase, would be readily apparent, and would result in substantially disrupting grazing operations, revenue, and economic stability.

4.8.5 Alternative 1. Economic Development

The Economic Development Alternative emphasizes commodity production from resources, including livestock grazing. This alternative would slightly increase acreage for grazing and impose fewer management restrictions than at present, thereby reducing grazing operation and labor costs.

All activities would meet or make progress toward meeting land health standards. Future management actions cannot be described in detail until site-specific analysis and determinations are made for each allotment. Further management actions might be needed once BLM makes a determination that would affect livestock grazing. Most likely, grazing operations would change to ensure that progress is being made toward meeting land health standards. Such changes generally consist of changes in season of use, more rest or deferment, and possibly more fencing, which would increase labor costs.

- About 1 million acres would be open to livestock grazing, and less maintenance would be needed on fences and exclosures, which would amount to about a 10,000-acre increase. The level of permitted use could increase to 110% of normal where land health standards are being met or progress is being made toward meeting them. Livestock operations would benefit from more livestock being allowed to graze on public lands.
- Requiring only 40% of allotments to have rest or deferred grazing would be less restrictive and would need less labor from permittees. Increasing the season of use and opening more grazing areas would benefit operations.
- Develop up to 8,000 acres of new seedings using native perennial species. When rehabilitating old seedings, consider the use of crested wheatgrass on a case-by-case basis. An increase in forage is expected as the seedings become established and are used. Less labor would be needed, and therefore less cost would be involved when livestock use seedings than under multiple pasture rotation.
- New fencing would be used if it promotes extended use of areas that are not now used as long because livestock cannot be held in the area without more fencing.
- Increasing juniper reduction acreage to 30,000 acres would benefit livestock grazing because of increased understory vegetation resulting from less competition between the juniper and other more desirable vegetation.
- Increased logging and biomass production would stimulate the understory vegetation and provide increased forage for grazing.

The following other actions under the Economic Development Alternative would adversely affect livestock grazing.

- Alternative 1 proposes more special recreation management areas (SRMAs) (Aspen Groves), which might adversely effect livestock grazing if more restrictions are required than under the No Action Alternative. These effects could require extensive new fencing of aspen stands to reduce or prevent livestock grazing. Not all areas would require fencing, but a minor to moderate adverse effect to grazing would result from increased fencing and labor for grazing operations.
- Disposing of lands as proposed under all alternatives would slightly affect grazing. Large-scale effects would be negligible, but adverse effects to operations using the parcels being disposed of would be minor to moderate. No or minor effects would result from disposing of parcels not now having grazing permits or leases. Acquiring lands that are not within allotments being grazed would only negligibly to slightly (minor impacts) affect livestock grazing. But if grazing changes or is restricted, minor negative effects would result.

Summary of Effects – Alternative 1

Alternative 1 is expected to have an overall minor benefit to grazing. Available grazing lands would slightly increase with the opportunity for an increase of animal unit months (AUMs) of forage where land health standards are being met. AUMS of forage would increase only after BLM has determined that more forage is permanently available.

Minor adverse effects to grazing might result if large acreages of public lands are disposed of or acquired and current uses change. This effect is considered minor because of the relatively few acres where existing uses would be change or be modified compared to the entire field office area.

4.8.6 Alternative 2. Ecosystem Restoration

Alternative 2 would have the most negative effect on livestock grazing, would most restrict livestock grazing, and would substantially alter grazing management. Although the acreage open to grazing would be similar to that under current conditions (97% of all lands) and only about 30,200 acres would be closed outright, Alternative 2 would require rest (complete livestock exclusion) on all BLM-administered lands for 2 out of every 3 years. Rest would be rotated among pastures within allotments and among multiple allotments permitted to a single entity to provide as steady a supply of forage and AUM capacity to each permittee as possible.

Direct effects of this alternative would be to reduce annual AUMs available for grazing by 67% (from 52,250 to 17,417 AUMs). This direct reduction would substantially disrupt grazing operations of many permittees by requiring substantial herd reductions. The result would be decreased revenues. Alternative 2 would substantially increase the per-unit cost to maintain livestock infrastructure.
Costs per acre to maintain fences, corrals, and water sources would not change, but revenue would decline. It is difficult to quantify the effects of this program action on livestock production and the financial well-being of lessees, especially considering the complex indirect effects. Nonetheless, the general outline of effects is predictable.

Applying rest in 2 of 3 years would add substantial indirect effects to livestock operators. Of the 49 grazing permittees in the Eagle Lake Field Office area, only 23 have access to multiple pastures and thus could rotate livestock among these pastures in different years. These other operators would be required to implement some combination of efforts to reduce herds, locate other lands, or provide supplemental feed.

Simple herd reduction could increase per-unit costs and reduce other economies of scale, thereby reducing profitability, which could eliminate some operators from business.

The option to lease other lands is limited because most suitable private and public lands are already leased. The main source of lands would be BLM leases that would be abandoned by smaller operators who lease one or several pastures and therefore could not sustain a stable operation. (See the following discussion of effects on lessees with access to only one or two pastures.) The potential new demand for a large grazing capacity (nearly 35,000 AUMs) could result in competition for remaining available private grazing land and a resulting increase in leasing prices. Livestock operators have a limited economic capacity to accept added leasing costs.

An alternative option is that, if grazing on BLM-administered lands were reduced, some private ranchers would leave the business, and their lands could then be available for lease. Acquiring supplemental feed is likely to be a more expensive option to support livestock during rest years than competing for leases on other lands.

In view of all these factors, the grazing program under Alternative 2 is likely to reduce livestock production and result in major effects or substantial financial impacts on all BLM permits. Eliminating BLM grazing capacity could also indirectly affect management of private lands as operators scale back or leave the livestock business.

The other 21 permittees have access to only one or two pastures under their permits. During rest years, they would also be required to implement some combination of efforts to reduce herds, locate alternate lands, or provide supplemental feed. Herd reduction is not a viable strategy by itself, except by converting cow-calf operations to stocker operations (purchasing stock before the grazing season), which presumably is not as economically feasible (or it would be a current practice). Leasing alternative lands and supplemental feeding are not feasible options for operators with few pastures.

Alternatives to the forage provided on BLM-administered lands are likely to be limited (due to increased demand) and more costly.

To ensure a stable availability of leased lands, some operators with few leased pastures might acquire the permits of others who either do not renew their permits or leave the livestock business.
For this strategy to be successful, however, more than half of the small lessees would need to go out of business to keep the others viable. Building fencing to provide separate pastures that could be grazed in alternate years could be workable for some operators with one or two pastures. But costs could be prohibitive for others. Overall effects of Alternative 2 would be more severe for operators with one or two pastures than for operators who lease multiple permits with multiple pastures.

Alternative 2 would not focus efforts on building range improvements for livestock. But fuels treatments and vegetation treatments to restore land health would continue. These treatments likely would be adequate to maintain the lower level of grazing use proposed under this alternative.

The overall effect of Alternative 2 would be to reduce grazing use by at least 67% and potentially up to 75–80% or more on BLM-administered lands. Operators who lease smaller areas and lands with few pastures to rotate through on a year-to-year basis would be most affected. Effects on the grazing program under Alternative 2 would be major and substantially adverse.

The following other resources would adversely affect livestock grazing under Alternative 2:

- The creation of up to 90,000 acres of special recreation management areas (SRMAs) would adversely affect grazing if more restrictions are required than under the No Action Alternative. Since these restrictions have not been fully determined, specific impacts cannot be analyzed or described. These effects might include the following:
    - conflicts between off-highway vehicles and livestock;
    - added harsh or further restrictions on riparian, streambank, and shoreline grazing;
    - more fencing and labor for revised grazing operations.

Not all areas would require total fencing, but fencing would be a moderately interfere with grazing in the restricted area.

- New restrictions and adjustments would be required with soils, water resources, and vegetation. Most of the impacts from an accelerated management schedule would adversely affect grazing by
    - requiring an immediate change in grazing due to mandatory rest (2 out of 3 years),
    - creating new restricted areas needing fencing and/or eliminating livestock use,
    - requiring high or prohibitive costs for new or rehabilitated range improvements to ensure all standards are met, and
    - requiring prohibitive costs for rehabilitating existing vegetation to recreate native perennial plant communities.
- Soils, water, and vegetation resource actions would have minor to moderate adverse effects to grazing. Permittees would need more labor and money to maintain new and existing fences as well as a substantial increase in herding or rotating livestock to reduce livestock impacts to these resources. A large amount of new fence might be needed to accelerate management actions to meet land health standards. Because we don't have specific details and timetables, impacts could be greater than described. If the effects were greater, overall adverse effects might be major in specific areas.

Summary of Effects – Alternative 2

Alternative 2 is expected to have major adverse effects on livestock grazing across the entire grazing area. It would substantially alter grazing practices by restricting grazing of any lands to 1 out of every 3 years, thereby directly reducing the grazing capacity of the BLM-administered lands in the field office area by 67%. All livestock operators initially would experience reduced grazing use. Larger operators with multiple grazing permits and multiple pastures within allotments would be more able to adjust to grazing restrictions by annually rotating their smaller number of livestock among pastures and allotments. Alternatives to the forage provided on BLM-administered lands are likely to be limited (due to increased demand) and more costly. Operators would suffer substantial reductions in revenue and likely would incur greater per-unit costs.

These direct effects could result in business failures that could result in use of BLM-administered lands at a level even lower than prescribed by this alternative. Also, such financial effects could alter management of adjoining private lands.

Smaller operators who do not have at least three pastures under lease would be more affected by the lack of lands for leasing. Presumably many of these operators would surrender permit/leases, and other small or larger operators could compete for these permit/leases to maintain more stable operations.

Beneficial effects of other management actions, including vegetation and fire management that could enhance forage, would result in limited benefits for livestock grazing by increasing forage availability. But these improvements would provide only a modest offset to reductions imposed by the Ecosystem Restoration Alternative's overall management scheme.

4.8.7 Alternative 3. Traditional Uses

The Traditional Uses Alternative emphasizes commodity production from resources, including livestock grazing, and is comparable to the Economic Development Alternative (Alternative 1). BLM would allow presently unallocated lands to be used for grazing. Available acreage for grazing would slightly increase, which along with fewer management restrictions would reduce labor costs of grazing operations. Alternative 3 would not adopt traditional or high past (pre-1960) livestock use levels. But where an increase in grazing use could be supported, higher use would be allowed. The increase would be 10% higher than existing levels, or about 60,000 AUMs.

Vegetation management and its effects on livestock grazing would be similar to those under the No Action Alternative. Management actions for wild horses and burros and their effects on livestock grazing would be the same as under the No Action Alternative. The terrestrial and aquatic wildlife management program under Alternative 3 would be the same as under the No Action Alternative, and effects under the two alternatives would be similar.

The grazing management program under Alternative 3 and its effects on grazing would be similar to those under the No Action Alternative, with several exceptions. Minimal rest or deferment and less fence maintenance under Alternative 3 would provide a longer grazing season and simplify and reduce management cost to operators. The overall effect would be beneficial to grazing. Increasing use levels and less fence maintenance would allow livestock to concentrate in areas currently excluded.

Alternative 3 would have minor to moderately long-term adverse effects on livestock grazing. Less management and rest from grazing would cause a decline in forage production and range condition.

Effects of fire suppression strategies on livestock grazing under Alternative 3 would be nearly the same as under Alternative 2. Only slightly fewer acres (3%) would be treated by appropriate management response (AMR) under Alternative 3 than under Alternative 2.

Effects of fuels treatment under Alternative 3 would be the same as under the No Action Alternative, except that a focus on rehabilitation would emphasize forage production, thereby potentially increasing livestock use levels by an amount that cannot be quantified.

Effects of land and realty actions on livestock grazing under Alternative 3 would be nearly identical to those under the No Action and Economic Development Alternatives.

Summary of Effects – Alternative 3

Alternative 3 would have effects similar to those under the Economic Development Alternative, with negligible or minor adverse effects to grazing. By requiring less fence maintenance, deemphasizing grazing strategies, and permitting more AUMs of forage for livestock grazing, Alternative 3 would benefit grazing by requiring less labor and allowing more grazing.

Although Alternative 3 would have some benefits to livestock grazing would, it would have other adverse impacts would occur to other resources. Long-term adverse effects to rangeland health goals would be expected as a result of a decrease of grazing management and absence of fence maintenance in riparian areas. Greater use of fuels treatment would allow increased enhancement of forage for livestock through burning under beneficial ecological conditions.

4.8.8 Preferred Alternative

The Preferred Alternative emphasizes adjusting and refining existing and new grazing strategies. Active changes would be implemented to meet or make progress toward meeting land health standards. About 80% of all grazed areas would receive some rest or deferment annually. From 60 to 80% of all allotments would receive some rest. Allotments that would not be rested are generally small allotments with no more than one pasture, which would limit their ability to provide rest.

Many features of the Preferred Alternative are similar to those under the No Action Alternative. About the same authorized or permitted use (52,250 AUMs) would occur. Total use would be subject to seasonal variation from about 75 to 90% of AUMs used annually. Seasonal adjustments have contributed to improved range condition and allow some use to be maintained during poor forage production or drought conditions.

To facilitate improvement, more range improvements would be needed. These improvements include new, rebuilt, and relocated fences built to wildlife specifications, and reconditioned and new water developments. Existing seedings (3,000 to 4,000 acres) would be rehabilitated, allowing more rest on native perennial uplands because the seedings are used in the rotation system.

Many of the effects discussed for the No Action Alternative are identical or similar to those under the Preferred Alternative, with emphasis on actively refining current grazing strategies and making changes as they are identified.

Most of the effects on grazing under the Preferred Alternative would be minor. Many would be beneficial by taking management actions that help meet or make progress toward meeting land health standards. Some resource actions would have minor to moderate adverse effects to grazing.

These actions mainly occur with special recreation activities in special recreation management areas (SRMAs) and areas of critical environmental concern (ACECs).

Designating SRMAs under various alternatives might exclude or highly restrict livestock from designated areas. For example, the Eagle Lake shoreline has been generally restricted to livestock by previous management decisions. New designations would further reduce forage and water availability to livestock. The effect would be moderate to major in specific or localized areas. The following features would be required:

- new fencing,
- new water developments,
- increased fence maintenance by the permittee,
- more labor (herding or handling livestock), and
- an adverse impact on revenue from the grazing operation because of more maintenance and herding.

Special area designations such as ACECs would result in grazing effects that range from minor to moderate. The level of disturbance or effect would depend on the following:

- whether the area is totally restricted to grazing,
- the acreage, and
- how the ACEC would change future grazing operations.

Management actions proposed by the alternatives are listed for each proposed ACEC.

Summary of Effects – Preferred Alternative

The Preferred Alternative is expected to have minor and some moderate adverse effects on grazing in specific areas than for the entire field office area. These effects would be similar to those under the No Action Alternative. Labor requirements would increase for livestock handling, herding, repairing fences, and maintaining other range improvements. Though some permittees might consider these responsibilities burdensome, a certain level of effort is needed to properly graze public lands.

Beneficial effects would be realized as grazing management is refined and adjusted. These benefits would consist of the following:

- increased available forage and residual or persistent vegetation,
- improved watershed conditions (increased infiltration, ground cover, and persistent litter) including bank stabilization, and
- increased riparian vegetation, which increases ground cover, reduces soil erosion, and provides forage for wildlife, livestock, and wild horses and burros.

The following are other effects of management actions under the Preferred Alternative on livestock grazing.

- More than 987,000 acres would remain open to grazing, and grazing levels would remain at 52,250 AUMs.
- Range rehabilitation and juniper treatment would maintain and enhance forage on a substantial number of acres.

- Fire suppression effects would be similar to those under Alternative 2, where applying appropriate management response (AMR) would increase forage over that resulting from the current full suppression strategy.
- The effects of fuels treatment on livestock forage would be similar to those under the No Action Alternative and would provide modest forage benefits.
- Vegetation management effects would be similar to those under Alternative 2, which would enhance forage production for a substantial amount of habitat but might restrict livestock grazing in specific areas.
- Wild horse and burro management would substantially reduce herds, as described for the No Action Alternative, and would restore a balance of forage use among livestock, horses, and wildlife.

Special Management Recreation Areas (SRMA) and Areas of Critical Environmental Concern (ACECs) would adversely affect livestock grazing. Up to 90,000 acres would be managed under new guidelines and would have grazing restrictions. We don't have the specifics to determine site-specific restrictions and corresponding management changes. These areas would moderately disrupt grazing. The overall impact would be reduced or moderated by this disruption's being relatively site specific when compared to the entire grazing area.

4.8.9 Comparative Summary of Impacts

Alternatives would result in substantially different effects on the livestock grazing program. Under all alternatives, livestock would continue to be grazed over most BLM-administered land in the Eagle Lake Field Office area. Grazing would be managed to contribute to meeting land health standards and to making progress toward restoring proper functioning condition (PFC) in all in riparian, wetland, and aquatic systems. Wild horse herds would be reduced to the established appropriate management levels (AMLs), thereby reducing overuse of forage allocated to livestock and wildlife.

By requiring rest from grazing in 2 of 3 years on all BLM-administered lands, Alternative 2 would reduce livestock grazing on BLM-administered lands by at least 67% and thereby reduce livestock production and disrupt the livestock industry. The loss of BLM-permitted forage would likely cause some operations to forfeit grazing permits and to fail as businesses. Other grazing restrictions under Alternative 2 would be substantial but would be somewhat counteracted by the substantial effects of rest restrictions.

Although all remaining alternatives are intended to maintain current grazing levels, they differ in the level of activity to maintain and enhance forage availability for livestock and the extent to which livestock might be restricted from certain uses. The No Action Alternative and Alternative 1 would apply full suppression as a fire management strategy. These alternatives would apply a moderate level of fuels treatment and vegetation enhancement and restoration, which likely would lead to reduced forage availability as a result of juniper encroachment and expanding noxious weeds. Management actions under Alternative 3 and their effects would be similar to those under the No Action Alternative and Alternative 1, except that the extensive use of appropriate management response (AMR) as a fire management strategy would maintain and enhance forage production.

The Preferred Alternative would provide a more balanced approach to public lands grazing. It is expected to meet current and future demands for sustainable forage to support local livestock operations. It requires more labor and management, but the benefits of increased forage production, plant vigor, and residual plant material make these efforts worthwhile. These benefits have made progress in meeting or making progress toward meeting land health standards and would continue to do so.

Clearly more is needed to meet landscape goals, but the progress made during the last 20 years and described for the No Action Alternative has set the stage for continued improvement that would be carried forward by the Preferred Alternative.

4.8.10 Cumulative Effects

The area of analysis for cumulative impacts on livestock grazing is defined as the Eagle Lake Field Office area and the surrounding area within 50 miles of the boundary. Cumulative effects are difficult to quantify, but we have indicators as shown in recent riparian and upland inventories and assessments.

Most riparian and wetland sites were properly functioning or at risk with an upward trend. This is an indication that current management practices are being successful at stabilizing sensitive areas while maintaining livestock grazing and a long-term sustainable resource such as livestock forage. Although many riparian areas are fenced, many are not and are showing signs of stabilization and improvement. Upland health assessment reveals that there have been impacts to many plant communities but there are indications and trends documented through recent assessment that large areas are meeting land health standards.

Areas not meeting standards must be responded to, but we also must explain or describe the element limiting recovery. The main limitations that prevent existing plant communities from reaching their potential are the increase and infestation of invasive annual grasses and weeds. In addition to an increase in annual grasses, which displace, occupy, and severely limit native plant recovery, western juniper has significantly increased in the field office area. Though not totally out of control, increased juniper has decreased desirable understory vegetation and is invading thousands of areas. If aggressive actions are not taken to reduce (not eliminate) juniper, a significant loss of native plant communities would have serious adverse effects on wildlife, livestock, and wild horse and burros.

Most areas not meeting or making progress toward meeting land health standards are not being prevented from meeting them by the presence of livestock grazing and other public land activities such as recreation and wild horse and burros.

4.8.11 Mitigation Measures

None identified.

4.8.12 Unavoidable Adverse Impacts

Alternative 2, the ecosystem Restoration Alternative, would severely affect livestock grazing and seriously limit the ability for most livestock operators to stay in the livestock business while grazing on public lands. None of the other alternatives would substantially restrict livestock grazing over the entire area currently grazed as under Alternative 2. Accordingly, these alternatives would not result in unavoidable adverse impacts to grazing.

4.8.13 Short-Term Uses Versus Long-Term Productivity

Activities that directly disrupt or impact the soil surface (such as mining and facility construction, compaction by grazing animals and vehicles, exposure of soil surfaces to wind and water erosion, and accelerated erosion of meadow soils along riparian corridors) reduce the long-term productivity of vegetation in the disturbed areas.

Activities, such as excessive or inappropriate livestock and wild horse grazing, compaction of heavy clay soils by grazing animals and vehicles, heavy grazing that reduces fine fuels and ladder fuels, and aggressive wild fire suppression contribute to the type conversion of native vegetation communities to non-native species, particularly annual grasses (cheatgrass and medusahead), or to invasive native species, particularly juniper. These type conversions also impact the long term productivity of vegetation in the planning area. Reduction in the productivity of vegetation adversely impacts the long-term productivity for livestock as well.

4.8.14 Irreversible and Irretrievable Impacts

None identified.

4.9 Potential Effects on Recreation Resources

This section analyzes the direct, indirect, and cumulative effects on recreation resources from land use plan decisions under the alternatives.

4.9.1 Methodology and Assumptions

The following analysis compares the impacts of the alternatives on outdoor recreation through changes in recreational opportunities, settings, and access. Changes in the settings would result in a corresponding change in the opportunity to achieve a desired recreation experience in the preferred setting. The following assumptions were used in assessing the impacts of management actions for other resource programs on recreation.

One of the key issues affecting recreation activities is the growth of recreation use in the field office area. A market study prepared in 2002 for the northeastern California area identified non-motorized activities such as day hiking as some of the most popular activities, with vehicular-based activities such as driving and sight seeing also very popular. OHV use, while not high on the list of activities participated in by survey respondents, is a well-established activity on the existing network of rough dirt roads. OHV use occurs primarily as part of hunting access and back-country sightseeing. Recreational quad vehicle (4WD) riding is also growing in popularity. There is demand for play riding areas close to communities, as well as for sightseeing riding on the existing dirt road network. Off-road motorcycle riding is an established use; although user numbers are not high, casual use is increasing at destination riding areas. Providing quality experiences for these activities, maintaining opportunities for high-quality non-motorized experiences, and avoiding user conflicts are key components of recreation resource management actions.

A route network for access and recreation will be designated in this RMP that will be based on a GPS inventory completed in 2002. Approximately 1,900 miles of routes are located in the Eagle Lake Field Office area, excluding highways.

All types of recreation use are likely to increase over the 20-year planning period. Demand would continue to increase from local community residents and groups as Lassen County, California and Washoe County, Nevada continue to grow (the projected annual growth for Lassen County is 0.4% and for Washoe County is 1.43%). Requests for event and commercial recreation permits would increase as more community groups, clubs, and commercial and educational organizations rely on BLM-administered lands that offer easy access on a daily basis.

Recreation management would be accomplished in a phased approach, with priorities to meet immediate demands and minimize resource damage. Implementation plans would be developed for new special recreation management areas (SRMAs) and area of critical environmental concern (ACECs), if proposed. Areas closer to local population centers would be prioritized for project implementation.

A designated route system would provide better route information to visitors, enable higher quality recreation opportunities, and reduce conflicts among users. Potential enhancement in recreation experiences also depends on engineering and maintenance levels. Inadequate design or maintenance could lead to additional user-created roads as visitors bypass closures or poorly maintained roads and trails to access areas that were previously open. The management of areas with separate trails systems for motorized and non-motorized users would require a higher level of management intensity.

Identifiable management areas based on public land blocks, major topographic features, or major road boundaries would result in more effective plan implementation and public understanding of regulations.

The need for non-motorized trails would continue to increase, particularly trail opportunities relatively close to urban or residential areas.

4.9.2 Incomplete or Unavailable Information

Adequate information is available to assess effects on recreation resources at a plan level.

4.9.3 Analysis

For the purposes of this analysis, the levels of effects on recreation are defined as follows:

Negligible: The impact would be barely detectable, affecting the experience of few recreationists in the applicable setting.

Minor: The impact would be detectable, affecting the experience of many recreationists in the applicable setting.

Moderate: The impact would be readily apparent, affecting the experience of most recreationists in the applicable setting.

Major: The impact would be severely adverse or exceptionally beneficial, affecting the experience of nearly all recreationists in the applicable setting.

4.9.4 Impacts Common to All Alternatives

Identified management actions from cultural resources activities, such as inventory, evaluation, and categorization of sites are not anticipated to affect recreation opportunities or activities. Any restrictions to recreation activities, such as area closures, would be site specific and are anticipated to result in only minor, isolated impacts.

Fire management and fuels reduction activities are not anticipated to affect recreation activities, except for temporary localized disruptions because of area closures for prescribed fire or vegetation treatment. This resource program is not addressed further in this section.

Soils management includes implementing management practices, closing and rehabilitating roads where sensitive resources require closure or road realignment, and minimizing new road construction. These activities could disrupt route network connectivity, reduce motorized recreation opportunities, and prevent development of new routes to maintain the route network when others are closed. Other management practices such as grazing rest, maintaining existing enclosures, using prescribed burning, and installing erosion control structures are not anticipated to affect recreation opportunities.

Management actions to protect and restore riparian/wetland areas, vegetation communities and forest health, and wildlife habitats and populations would not affect recreation. Restoration of unhealthy vegetation communities would enhance habitat, which would sustain wildlife for viewing and hunting activities. In some cases, recreation could benefit from these actions by an improved physical setting and enhanced opportunities for recreation activities in a natural setting.

Management to reduce infestations and spread of noxious weeds also could benefit recreation by restoring the natural diversity of the native landscape and wildlife. Management of special-status species could negatively affect recreation if the management requires closures or restrictions on activities. The intensity of the actions required would determine the degree of effects, and specific management actions would be based on monitoring and evaluation.

Management initiated to protect the visual quality of WSAs, scenic trail corridors, recommended suitable Wild and Scenic River segments, and SRMAs would not directly affect recreation activities. Indirect benefits would be realized by protecting the natural setting of much of the Eagle Lake Field Office landscape as VRM Class II and III areas, where the existing landscape character would be retained or partially retained. Undeveloped, natural-appearing landscapes are an important component of why and where people choose to recreate. Those landscapes provide settings for activities and experiences people seek, such as hunting, hiking, camping, trail riding, and wildlife viewing. The VRM Class I designation for all WSAs would further benefit visual resources by maintaining the natural character of the areas and ensuring that any activities are not visible in the landscape.

Closing or relocating roads to enhance water quality in streams and lakes could affect route network connectivity and reduce motorized recreation opportunities if new routes are not constructed to replace closed ones. The potential route closures generally would be the same as those identified to protect soil resources and would not represent additional miles of closures. The total impact of closures cannot be determined until specific sites of soil and water quality degradation are identified. Use of management practices to maintain water quality is not anticipated to adversely affect recreation opportunities or natural settings. This program is not addressed further in this section.

Management of wild horses and burros is not anticipated to adversely affect recreation because the management actions identified do not include restrictions or closures that would alter the existing recreation opportunities or settings. Potential beneficial effects are identified for each alternative as applicable.

Management relating to the extraction of mineral materials, oil and gas exploration and development, and production of locatable minerals are anticipated to result in minimal impacts on recreation resources. There are no active locatable mining operations on the Eagle Lake Field Office lands, and only one split-estate geothermal resource has been developed as part of a cogeneration power plant. No other leasable resources have been developed. Saleable resources are the primary mineral extraction activity in the Eagle Lake Field Office area and consist primarily of gravel pits. All of these activities are site specific and historically have not adversely affected recreation in the Eagle Lake Field Office area. OHV riders utilize the abandoned gravel pits for play riding where the pits are located conveniently for recreation access.

WSAs would remain closed to saleable (such as sand and gravel) and leasable minerals (generally fluids). Although locatable minerals (hard rock minerals) are limited to relatively small sites, impacts on recreation resources could be substantial, depending on where the claims are located. Impacts on recreation resources from mineral development are anticipated to be minimal because BLM would manage WSAs to retain opportunities to experience recreation activities in a primitive setting. In addition, the WSAs in the Eagle Lake Field Office area contain low mineral value. Impacts from mineral development also are not likely because BLM requires that any new locatable mineral claim in a WSA not cause surface disturbance of the WSA.

Impacts on recreation resources from forestry management actions are not anticipated to be significant because management actions generally would improve forest health but are not expected to restrict or alter recreation activities or natural settings.

In areas where recreation occurs, timber harvest would temporarily disrupt recreation activities during timber sale activity. This program is not addressed further in this section.

Current recreation experiences and activities are pursued with livestock grazing occurring on most BLM-administered lands; therefore, continued grazing management is not expected to affect those experiences and activities. Excluding livestock to improve riparian conditions along streams, along lake shores, and around springs has benefited the recreational use of those areas by improving the natural appearance of the landscape, improving wildlife habitat, and eliminating visitor/livestock interactions.

Identified management actions relating to land acquisition could directly benefit recreation resources. New areas would be made available for recreation activities, and permanent legal access would be provided to BLM-administered lands that are currently used for recreation but, in some cases, do not have legal access.

Recreation Opportunity Spectrum

Under the four action alternatives, establishing an ROS setting of roaded natural on 107,000 to 109,000 acres, or about 11% of BLM-administered lands in the field office area, would retain a recreation setting where users can expect to encounter more visitors along well-used travel corridors and activity areas. Under current management, this area is managed to provide recreational experiences consistent with the roaded natural designation.

Special Recreation Management Areas

Three existing SRMAs (Eagle Lake Basin, Bizz Johnson Trail, and Fort Sage) totaling about 65,510 acres would be retained under all alternatives and management of these areas would continue as under present management. Management actions associated with each area generally would benefit recreation by reducing user conflicts and providing appropriate facilities for a variety of activities.

The Bizz Johnson Trail SRMA would continue to be focused on non-motorized activities; prohibiting shooting within the fairly narrow canyon of the Susan River would increase public safety and help retain the naturally quiet setting. Because shooting on other BLM-administered lands would be permitted and hunting within the canyon is limited, the loss of opportunities in this area is not considered substantial. Increased attention on the interpretive and education aspects of the trail would enhance the visitor experience.

The Eagle Lake Basin SRMA would continue to be managed for multiple recreation activities, including provision of accessible fishing areas and wildlife viewing areas, and controlled and monitored camping. These management actions would benefit the recreation experience by continuing to provide primitive camping opportunities close to Eagle Lake, reducing user conflicts, protecting water quality, and limiting vehicle use to designated access and camping areas. Continuing the present management of prohibiting livestock grazing on the lake shore areas that are used for camping, fishing, and swimming also would continue to enhance the recreation experience in those areas by eliminating the waste, vegetation damage, and water quality degradation associated with grazing.

The Fort Sage SRMA would continue to be primarily managed for OHV use. Under alternatives where use would be 'limited to designated routes' as under existing management, existing opportunities for a variety of routes and challenges would be retained. In addition, opportunities for activities such as hiking, horseback riding, and mountain biking would continue to be provided in areas where OHVs are prohibited; these activities would benefit from proposed management actions to provide a quality non-motorized experience.

Travel Management

Closing over 7,000 acres of SRMAs and dispersed use areas to OHV use under all alternatives would directly affect recreation activities by limiting motorized opportunities, reducing user conflicts, and enhancing opportunities for achieving quality non-motorized recreation experiences. Approximately 25 miles of routes within these areas would be 'closed' to OHV use, representing about 1% of the total miles of BLM-administered routes in the field office area. In the Eagle Lake Basin SRMA, vehicle closures have been in place for shoreline areas for over 10 years to maintain roadless shoreline; therefore, maintaining the closures would not affect recreation opportunities. Because Willow Creek Canyon is currently roadless, officially closing the area to vehicle use would not affect recreation uses or opportunities. Managing travel in the Fort Sage SRMA as 'limited to designated roads and trails' would maintain the current route network and is not expected to affect travel or recreation opportunities.

Limiting OHV events to designated roads and trails would preserve opportunities for participation in organized events and help maintain the landscape that attracts participants who enjoy events in a natural setting. Designated event routes could reduce potential conflicts with casual motorized and non-motorized users because the routes would be known event locations and recreation users could pursue opportunities in other areas during events.

Development of new roads and trails to meet RMP objectives in roaded natural and semi-primitive motorized ROS classes could benefit recreation by increasing motorized recreation opportunities and reducing the intensity of use in popular areas.

Development of new roads and trails in semi-primitive non-motorized areas would be limited to resource protection (such as road or trail realignment) or expansion of non-motorized trail opportunities under all alternatives. New trails would directly affect the recreation experience by increasing opportunities for non-motorized trail experiences in a natural setting. New roads developed to protect resources would indirectly benefit the non-motorized recreation experience by focusing motorized use on the new routes in order to maintain the natural setting on adjacent areas.

Boating

Allowing only human-powered boating activities on the Upper Biscar Reservoir would not affect recreation opportunities and would maintain the quiet and natural setting for users of this small walk-in reservoir. Unrestricted boating on Dodge Reservoir would continue to provide the full range of opportunities for water sport activities.

Trails

The existing 13.3 miles of non-motorized BLM-administered trails in the Eagle Lake Field Office area would continue to provide non-motorized trail opportunities, but increased visitor use on the limited trail system could negatively affect recreation by degradation of the trails from overuse and changes in the recreation experience because of a high level of user contact.

Camping

Managing most BLM-administered lands to provide opportunities for self-contained camping would result in the potential for litter, resource damage, and wildfires caused by irresponsible campers. Beneficial impacts of managing these lands as open to self-contained camping include the opportunity for recreationists to enjoy the open space and beauty of public lands and to maintain flexibility in their choice of areas and settings that are not limited to developed facilities.

Hunting and Shooting Sports

Management of most BLM-administered lands as open for hunting and shooting would continue to provide a wide variety of recreational opportunities for hunting and shooting enthusiasts. Closing areas to shooting, such as the Bizz Johnson Trail and Susan River Canyon, would improve visitor safety. Because of the limited area, these closures are not anticipated to affect the overall opportunities for shooting sports.

Closing developed facilities and high-use areas to paintball activities would reduce the potential for injury to non-participants and the vandalized appearance of public land improvements. The closures would not affect paintball opportunities, as most other areas of BLM-administered lands would remain open for use.

As a preventative measure to protect developed facilities and natural areas that are popular for recreation because of their scenic values from damage by paintball play, all developed facilities and certain areas identified as popular for use because of their natural appearance would be closed to discharge of paintball guns.

Interpretation

Developing interpretive materials for the Eagle Lake Field Office area would benefit recreation by expanding visitor understanding and enjoyment of BLM-administered lands through provision of information about the natural and historic resources that BLM manages. Development of interpretive brochures, displays, and presentations would enhance local resident's knowledge of BLM-administered lands and resources. These actions also could contribute to increasing rural tourism and rural economic diversification by providing destination attractions for people seeking education and interpretation experiences as part of visiting public lands.

Areas of Critical Environmental Concern

Management of Pine Dunes ACEC (currently called the Pine Dunes RNA) to exclude OHV use would not affect vehicular access to the area because the area is already closed to OHV use. Excluding OHV use and wild horses and burros also would help to preserve the identified resources that led to the area's designation as RNA and now as an ACEC.

Historic National Trails

Managing the Nobles Trail to protect the historic trail traces and surrounding landscape along the 32 miles of the trail on BLM-administered land would benefit recreation and interpretive opportunities by increasing use of the trail and increasing visitor understanding and enjoyment of the trail. The trail enhancements also could attract additional visitors to the area to participate in trail activities and could lead to seasonal use increases that would change the recreation experience from a more solitary or small-group activity to a more social one. With additional opportunities for interpretation and education, potential resource degradation may be offset by increased public awareness and appreciation gained for these resources.

Implementation of existing trail management plans would continue interpretive development of the Bizz Johnson Trail and increase visitor awareness of the historic resources of this 1911 railroad grade trail. Acquisition of 50 miles of the Modoc Railroad Grade in the Eagle Lake Field Office area for an interpretive trail and clearing 7 miles of the Merriville-Bieber Wagon Road along Eagle Lake for a non-motorized trail would benefit recreation by increasing non-motorized trail opportunities and increasing community and visitor knowledge of these local and regional historic trail routes.

Development of better inventory information on two mid-1800s military patrol routes and two mid-1800s wagon routes, and interpretation of these historic routes would increase visitor understanding and enjoyment of these local and regional historic routes. Development of the interpretive and education aspects of all of these trails is expected to increase public appreciation of the resources and potentially lead to reduced degradation of the resources and facilities. Development of exhibits and a living history presentation at Susanville Depot would increase education and interpretive opportunities, attract local and non-resident visitors, and raise public awareness of other public land resources.

Wilderness Study Areas

Management identified to protect WSAs and maintain their wilderness characteristics would benefit recreation by maintaining opportunities for primitive, unconfined recreation activities and preventing further encroachment into WSAs by unauthorized activities that could degrade their natural settings.

Wild and Scenic Rivers

Management identified to protect the natural-appearing landscape through designation of all segments managed by the Eagle Lake Field Office of the Susan River, Willow Creek, Upper Smoke Creek, and Lower Smoke Creek would benefit recreation by maintaining the natural settings for recreation activities. Additional benefits would result from closing the canyons in each location to sand and gravel removal, and restricting or prohibiting leasable and locatable mineral activities. Preventing livestock grazing in each river location, except for restricted areas and time frames along Willow Creek and Lower Smoke Creek, also would enhance recreation by minimizing conflicts with livestock and reducing the visible impacts along the banks of the waterways. Restricting or prohibiting OHV use in the river segments would not negatively affect recreation because most of the areas are physically inaccessible to motorized travel.

4.9.5 No Action Alternative

The management of 15 cultural resource management areas (CRMAs) encompassing 9,084 acres would benefit recreation by preserving opportunities for discovery and interpretation by future generations. Interpretive and educational opportunities offered by the seven existing interpretive sites would be maintained. The eight existing enclosures encompassing 5,846 acres would continue to protect rare resources for future interpretation and education purposes. CRMPs could restrict future recreation activities in CRMAs, but restrictions would be site specific and are not anticipated to result in major impacts on recreation resources.

Under current management, visual resource management (VRM) classes have been established in portions of the Eagle Lake Field Office jurisdiction. Where no VRM classes have been established, projects are reviewed on a case-by-case basis with respect to visual impacts on the existing landscape as part of the environment assessment (EA) or EIS process. In areas without defined management objectives, the potential exists for projects to negatively affect the natural landscape through visual intrusion, which would diminish the recreation experience because of the degraded natural setting.

All lands in the field office jurisdiction except WSAs are open to all forms of mineral use; therefore, potential mineral development could affect the natural and undeveloped character of areas near mining operations and indirectly diminish the recreation experience for some users. These impacts would be site specific in limited areas, however, and mining stipulations can be used in the permitting process to minimize conflicts with other resources, including recreation.

Mineral development within the Bizz Johnson SRMA, Eagle Lake Basin SRMA, or Fort Sage SRMA, or along Upper Smoke Creek could substantially affect recreation experiences that are based on a relatively undeveloped natural landscape because of the visual disturbance to the natural settings that would result.

Closing about 20,000 acres to grazing could enhance the area's vegetation. The improved habitat would enhance the natural setting for recreation activities and could lead to increased wildlife populations for viewing and hunting activities.

Management relating to disposal or retention of BLM-administered lands is not expected to affect recreation because existing BLM-administered lands would be retained, and current activities could continue. Disposal generally is would be limited to small parcels that are not used for significant recreation. Acquisition of lands could increase the areas available for recreation, but the full impact cannot be determined until specific parcels are identified and acquired.

As described for visual resources, the natural settings would be significantly changed with development of wind energy farms, which would create strong visual contrasts in areas where windmills up to 200 feet high, transmission lines, and service roads would be located.

Recreation Opportunity Spectrum

According to the ROS inventory conducted for the RMP planning effort, approximately 70% of BLM-administered lands in the field office area are considered to have an ROS setting of semi-primitive non-motorized, and 19% are semi-primitive motorized. No areas are considered to be primitive. Approximately 1,900 miles of BLM-administered roads and trails are located throughout the Eagle Lake Field Office area; these are included within all ROS classifications, including semi-primitive non-motorized. Retaining the ROS settings would preserve the emphasis on non-motorized recreation activities in mostly undisturbed settings that occur off the existing network of primitive dirt roads. Increased visitor use could change the social and managerial settings to a higher class along the spectrum and diminish the recreation experience for some users through the higher level of visitor contact and regulations.

Special Management Areas

No new SRMAs are proposed under the No Action Alternative. Effects of managing the three existing SRMAs on recreation resources would be similar to those described under "Impacts Common to All Alternatives."

Travel Management

Currently, 57% of BLM-administered lands in the field office area are considered open, permitting cross-country use by motorized as well as non-motorized users. Nevertheless, most vehicle use remains on existing roads and trails due to the surrounding rocky and brush-covered landscapes in many areas. Cross-country use could lead to additional route development and potential degradation of the natural setting, which could diminish the recreation experience for some users. Open areas also would be subject to user conflicts as motorized activities could encroach into areas generally used for non-motorized uses.

Boating

No impacts related to boating are anticipated under the No Action Alternative, as current recreation opportunities and settings would be maintained.

Trails

New non-motorized trails could be constructed, based on trails already identified in existing management plans or current planning efforts in the Eagle Lake Field Office area. Development of all the trails would result in increase in trail miles (although only 4 miles under Alternative 3) from the existing conditions. This would represent a substantial increase in non-motorized opportunities, especially for hikers, equestrians, and mountain bikers. The additional trails would provide better access for visitors and residents to public land and would increase visitor access to the local communities linked by trails.

Effects of Special Area Designations Management Actions

No new ACECs would be designated under the No Action Alternative. Impacts associated with the existing Pine Dunes ACEC, historic trails, and WSAs would be the same as those described under "Impacts Common to All Alternatives". No river segments are recommended for designation as a Wild and Scenic River under the No Action Alternative.

Summary of Effects – No Action Alternative

The No Action Alternative would result in minor adverse effects and minor beneficial impacts to recreation. There is a risk of potential degradation of the natural character from cross-country OHV use in about 57% of the field office jurisdiction and from wind farm or utility development; however, significant restrictions on recreation activities are not anticipated. Management for fire, wildlife, soils, vegetation, and forestry under the No Action Alternative generally would result in localized and temporary adverse impacts that could disrupt activities or access during implementation of management actions. Most activities associated with these programs, along with VRM, would enhance recreation experiences in the long term by retaining or improving the natural character and settings where recreation occurs. The existing WSAs would continue to provide opportunities for primitive and unconfined recreation. The development of non-motorized trails as outlined in existing plans, along with enhancements to historic trails would result in beneficial effects by providing new recreation opportunities, increasing history-related recreational activities, educating visitors about resources, and increasing community connections and activities for local residents.

4.9.6 Alternative 1. Economic Development

Reducing the number of CRMAs from 15 to 14 and decreasing the area protected from 9,084 to 1,146 acres could negatively affect recreation by reducing future education and interpretation opportunities because fewer sites would be designated for these activities. However, developing interpretive sites within each of the 14 CRMAs would benefit recreation by substantially increasing the interpretive opportunities available in the near term. Inventorying the historic trails could enhance the recreation experience by increasing the interpretive and educational aspects of trail use. As with other management actions relating to interpretation and education, damage to resources may be reduced by increased public awareness and appreciation for the resources.

Compared to the No Action Alternative, VRM Class II acreage would decrease, VRM Class III acreage would increase, and VRM Class IV acreage would decrease under Alternative 1. Impacts on recreation from visual resources management would be similar to those described under "Impacts Common to All Alternatives." Additional indirect benefits from protecting the natural setting of the landscape would result from about 16 miles of river corridors that would be proposed for inclusion in the national Wild and Scenic Rivers program. If wind energy farms are developed, significant visual contrasts would occur where the large wind turbines, transmission lines, and service roads would be located. This infrastructure also would diminish the recreation experiences that rely on the natural landscape setting for enjoyment.

Developing wild horse public viewing and information sites in the field office area and enhancing the Litchfield Corral to accommodate public groups for tours, viewing, and education under Alternative 1 would increase interpretive and wildlife viewing opportunities for local residents and recreation visitors.

Impacts from energy and mineral development on recreation experiences would be similar to those described for the No Action Alternative, except that development of leasable minerals would be restricted. NSO restrictions in the Bizz Johnson SRMA would help retain the key physical and social settings for recreation users. Closing Eagle Lake Basin SRMA to mineral leasing would prevent disturbance to Eagle Lake's fishery and would retain the associated recreation and tourism activities. Closing the Bizz Johnson Trail SRMA to mineral sales and locatable mineral development would retain the natural character of the Susan River Canyon, which is a key aspect of trail-based recreation and tourism in the area. Restrictions to saleable and locatable mineral development in the existing Eagle Lake Basin and Fort Sage SRMAs and in the proposed Antelope/Shaffer/ Bald Mountain and South Dry Valley SRMAs would result in beneficial effects on recreation by helping to retain the natural character of those areas.

An increased emphasis on acquiring lands within and adjacent to WSAs could result in beneficial effects on recreation by expanding primitive or semi-primitive recreation areas and enhancing opportunities for non-motorized activities. In addition, acquiring access to private lands would benefit recreation by ensuring permanent access to BLM-administered land currently used for recreation activities. Acquiring legal access to Honey Lake would benefit recreation by providing opportunities for recreational use of this large and currently unavailable lake by owners of various watercrafts during wet cycles and by various land vehicles during dry cycles.

Recreation Opportunity Spectrum

Compared to the No Action Alternative, Alternative 1 would increase the area managed as semi-primitive motorized from 19% to 41%, and the semi-primitive non-motorized area would decrease from 70% to about 41% of the BLM-administered lands in the field office area. Although semi-primitive settings would be emphasized, more of the area would be managed to accommodate motorized access for activities such as camping, hunting, fishing, and sight seeing—all very popular activities.

Special Recreation Management Areas

Designation of two new SRMAs, the Antelope/Shaffer/Bald Mountain SRMA (61,764 acres) and the South Dry Valley SRMA (46,813 acres), totaling 108,577 acres would provide additional emphasis and priority for management of recreational use of these two popular recreational activity areas.

The Antelope/Shaffer/Bald Mountain SRMA would enhance recreation experiences by preserving the undeveloped landscapes northeast of Susanville and north of Honey Lake Valley's most populated area. Benefits also would be realized from high-quality trail development for rural tourism, as the trails can be expected to become destination attractions for casual and event trail use.

Management of existing small OHV play areas at the mouth of Rice Canyon would continue to provide a play area close to town for motorcycles and quad vehicle riders. Closure of the Rice Canyon OHV play area to target shooting would improve the safety of the area for OHV riders. OHV users who would continue to be able to use the network of existing dirt roads in the area would benefit from the SRMA designation. Hang gliders also would benefit from development of a launch area on Antelope Mountain. Specialty uses of BLM-administered lands for model airplane flying and rifle range operations under special use permits issued by BLM would continue.

Beneficial impacts would include new miles of trails constructed for residents of the most populated area in Lassen County, where the demand for trail experiences continues to grow.

The South Dry Valley SRMA would result in beneficial impacts for motorcycle riders because of continued management of the area for motorcycle trail riding, with emphasis on development of sustainable trail alignments.

Travel Management

For OHV access, nearly all (98%) of the field office jurisdiction would be designated as 'limited to designated' or existing routes. The designation process would maintain near-current levels of access but would reduce user conflicts by prohibiting motorized cross-country travel and by designating routes for certain types of use (i.e., specific routes for ATV or motorcycle use). About 2% of the field office area, containing 25 miles of routes, would be closed to OHV use. This closure is not anticipated to adversely affect recreation activities because of the low number of miles of routes and the limited motorized activity that currently takes place in those areas. The closed areas would be the same as under the No Action Alternative, and they have been closed to OHVs for many years. Alternative 1 also includes designating the Upper Smoke Creek area for non-motorized activities. This area is roadless and includes 0 miles of routes that would be closed to OHV use; therefore, this closure would not affect motorized activities.

Under Alternative 1, several areas (totaling 374 acres) would be designated as 'open' OHV areas and would provide opportunities for cross-country activities. Because the areas are primarily gravel pits that are currently used for OHV activities, no other resource damage is anticipated from allowing this activity to continue. This approach allows for some cross-country use to occur in these areas. Because cross-country vehicle use is not identified as a major activity in the Eagle Lake Field Office area, the 1,900 miles of roads and trails in the areas designated as limited is expected to provide sufficient routes to meet use demands. In addition, to meet motorized activity demands, the management related to the South Dry Valley SRMA would emphasize OHV use but also would include non-motorized use areas. Management of the SRMA would enhance motorized opportunities and reduce user conflicts in a popular recreation area. The development of a management plan for the SRMA within 5 years would identify detailed management and the effects of implementing the plan.

Boating

Management for boating and water sport activities under Alternative 1 would be similar to the No Action Alternative, except that access to Honey Lake, if acquired, would provide new opportunities for various types of watercraft use during wet cycles and dry land sailing during dry cycles. The acquisition would result in beneficial effects on recreation by increasing opportunities for multiple activities; these activities are currently not available to the public because of lack of legal access.

Trails

Non-motorized trail development would include approximately 170 miles of BLM-administered trails, which represents a significant increase beyond trails identified in existing plans and the existing 13.3 miles of trails. The trails would benefit recreation by substantially increasing non-motorized opportunities for walking, hiking, mountain biking, and horse back riding. Trails would include many levels of challenge in a wide variety of settings. The additional trails would enhance opportunities for day hiking, one of the most popular recreation activities in the northeastern California area. Additionally, more mountain biking trails would meet the growing demand for this activity—particularly the strong local interest in development of more high-quality single-track trails, which also would serve as a destination attraction for mountain bikers from throughout northwestern Nevada and northern California.

A substantial increase in community connection to the regional land base would result under Alternative 1, compared to the No Action Alternative. This is important because about one-third of the area residents who recreate on BLM-administered lands do so only within the northeastern California area.

Construction of hiking trails in WSAs would provide users the opportunity to enjoy scenic trail experiences where none currently exist (all existing trail use in WSAs is for cross-country hiking). Such trails are expected to help reduce impacts on resources by concentrating use in sustainable alignments. Trails also would attract visitors to the area, with resultant economic benefits associated with rural tourism.

The Honey Lake Valley Rim Trail would provide numerous opportunities for segmented day trips for local residents and would attract trail riders from throughout the West Coast for high-quality, multi-day trail experiences.

Areas of Critical Environmental Concern

No impacts on recreation resources are associated with ACECs under Alternative 1 because no new ACECs would be designated.

Historic National Trails

Effects of management associated with historic trails under Alternative 1 are the same as those described under "Impacts Common to All Alternatives."

Scenic Byways and Vista Points

Development of scenic byway designations on six road loops through BLM-administered land in the Eagle Lake Field Office jurisdiction and on Highways 139 and 395 would increase public awareness of the scenic resources that can be viewed on BLM-administered lands from these roads. Sightseeing traffic and rural tourism in the area likely would increase as people seek out new areas to explore.

Designation of vista points would result in beneficial effects on recreation by providing visitors with information on scenic high points in the Eagle Lake Field Office area that could be reached by vehicle, by mountain bike, on a horse, or on foot. Development of route-specific maps and interpretive information about the vista points would increase public awareness of these scenic resources and likely would increase public use and enjoyment of these areas.

Wilderness Study Areas

WSAs would be managed according to the Wilderness IMP; effects under Alternative 1 would be similar to those described under "Impacts Common to All Alternatives."

Wild and Scenic Rivers

Under Alternative 1, 24.9 miles of river segments on BLM-administered land would be recommended as suitable for designation as Wild and Scenic Rivers, with 15.4 miles designated as Wild and 9.5 miles designated as Recreational. Management identified to protect the natural-appearing landscape and cultural resources along the Susan River, Willow Creek, Upper Smoke Creek, and Lower Smoke Creek would benefit recreation by maintaining the natural settings for recreation activities.

Additional benefits would be realized from closing the canyons in each location to sand and gravel removal, and restricting or prohibiting leasable and locatable mineral activities. Preventing livestock grazing in each river location, except for a limited number of restricted areas and time frames along Willow Creek and Lower Smoke Creek, also would enhance recreation by minimizing conflicts with livestock and reducing the visible impacts along the banks of the waterways. Restricting or prohibiting OHV use in the designated river segments would not negatively affect recreation because most of the areas are physically inaccessible to motorized travel. The management actions described above are intended to enable BLM to protect the outstandingly remarkable values that led to the recommended designations for these river segments.

Including the river segments in the national WSRS has the potential to attract additional visitors to the area for participation in river-related recreation activities. Impacts on the streams from increased visitor use would include increased noise, litter, and potential user conflicts. These potential impacts would be outweighed by the benefits to the stream ecosystems and related wildlife from retaining those stream segments as free-flowing streams. Local residents and visitors who enjoy experiencing the beauty of these streams also would benefit from the inclusion of these stream segments in the WSRS.

Under Alternative 1, dam construction could occur on segments not included in the recommended Wild and Recreational designations. Areas where dams could be built would be on the Susan River above the recommended Recreation designation and on Willow Creek below the confluence with Pete's Creek. Inundation of the stream segments by water impoundments (dams) would be precluded if these stream segments were designated by Congress as part of the national WSRS. Impounded areas behind the dams would provide a different array of recreational opportunities (e.g., boating, swimming, and warmwater fishing).

Summary of Effects – Alternative 1

Alternative 1 would result in minor adverse effects and moderate to major beneficial impacts to recreation. The effects of many resource programs under Alternative 1, such as fire, soils, wildlife, vegetation, forestry, water, and grazing, would be similar to those described for the No Action Alternative. The natural setting for many recreational activities would be somewhat better protected because of a decrease in VRM Class IV areas and designation of Wild and Scenic River segments. Restrictions on mineral activities would further enhance protection of recreation settings in SRMAs and Wild and Scenic River segments. Designation of SRMAs would improve recreation experiences by focusing management to meet specific needs in each area, which would reduce user conflicts and limit activities that detract from the recreation experience or reduce public safety. Cross-country OHV use would be limited to 374 acres. This substantial reduction in area 'open' to cross-country OHV travel from the No Action Alternative (582,133 acres) would help reduce conflicts and maintain the natural setting for recreation activities. Non-motorized trail development would substantially increase compared to the No Action Alternative, and would provide more new recreation opportunities and disperse visitors over a larger area to reduce overcrowding.

4.9.7 Alternative 2. Ecosystem Restoration

Increasing the CRMAs to 19 areas that cover 13,999 acres would substantially increase the area managed for higher protection of cultural resources (from 15 CRMAs covering 9,084 acres under the No Action Alternative) and would preserve more interpretation and education opportunities for future generations. Because no new interpretive sites would be developed, however, near-term opportunities would remain the same as the current conditions. Surveying 9 areas covering 60,860 acres plus 280,000 acres included in Upland Health Survey could substantially increase the number of cultural sites identified for protection and increase resources available for education and interpretation activities in the future.

Designating the north Dry Valley cultural ACEC and restricting OHV use to existing routes are not anticipated to affect recreation opportunities. Because the area is not heavily used for motorized cross-country travel, the restrictions are not expected to affect motorized users. The recreation experience of non-motorized uses could be slightly enhanced by eliminating the encounters with the occasional motorized cross-country user and increasing the opportunity to enjoy the discovery of cultural resources in a non-motorized setting.

Alternative 2 would provide more area in VRM Class II designation than the No Action Alternative and Alternatives 1 and 3. The impacts on recreation from visual resources management actions would be similar to those described under "Impacts Common to All Alternatives." Compared to Alternative 1, the indirect benefits from protecting the natural setting of the landscape would be extended to include about 29.3 miles of river corridors that would be proposed for inclusion in the national WSRS and about 86,396 acres of areas that would be designated as ACECs.

Restrictions on mineral leasing, saleable minerals, and locatable mineral development in the proposed ACECs would indirectly affect the recreation setting and experience opportunities on over 86,000 acres by maintaining the existing character of the areas and minimizing potential disturbance that could diminish the recreation experience. As in all alternatives, the WSAs would be closed to mineral leasing, and mineral sales and locatable mineral actions would be limited to no surface-disturbing activities (i.e., exploration would be allowed by methods that do not cause surface disturbance, but no development would be allowed).

The substantial reduction of annual livestock grazing would benefit recreation by moderating the impacts to natural and cultural resources and to visual quality, enhancing the recreational experience of visitors.

Compared to Alternative 1, the increased emphasis under Alternative 2 on acquiring lands within or adjacent to WSAs would include ACECs and Wild and Scenic River segments. The beneficial effects on recreation would be increased by expanding primitive or semi-primitive non-motorized areas, enhancing opportunities for non-motorized activities, and maintaining natural settings. This alternative also includes pursuing the acquisition of access over private lands; such acquisitions would benefit recreation by ensuring permanent access to BLM-administered land that is currently used for recreation activities without legal access.

Management eliminating the potential for facilities in WSAs and ACECs and prohibiting new ROWs could result in beneficial effects on recreation, compared to management under Alternatives 1 and 3. The primary benefit would be retaining the natural setting for recreation activities. Large-scale development of a major utility corridor or wind farm would result in the impacts described for the No Action Alternative.

Recreation Opportunity Spectrum

Under Alternative 2, there is an increased emphasis on maintaining primitive landscapes; about 29% of the field office area would be managed as a primitive setting. The primitive areas, coupled with about 41% of the field office area managed as semi-primitive non-motorized, would result in substantial enhancement for opportunities to pursue non-motorized and non-mechanized recreation activities in undisturbed settings. Management of the remainder of the field office area as semi-primitive motorized and roaded natural settings would still retain the natural settings of the area, but would offer a wider variety of recreation opportunities. The overall effect of management actions would be to decrease the level of visitor contact and increase opportunities for solitude and undeveloped and adventure-based recreation experiences.

Special Recreation Management Areas

No new SRMAs are proposed under Alternative 2. Effects of managing the three existing SRMAs on recreation resources would be similar to those described under "Impacts Common to All Alternatives."

Travel Management

Under Alternative 2, no areas would be designated as 'open' for cross-country OHV use. In addition, 29% of public lands in the field office area would be 'closed' to OHV use. Because the closed areas are mostly roadless and contain only about 91 miles of dirt roads, (4.8% of the routes in the field office area), the effects of these closures would not be significant. OHV use in the remaining 71% of the field office area would be 'limited to designated routes' containing approximately 1,808 miles of roads. The route network generally would retain the existing routes and access opportunities. The designated route system would reduce user conflicts without substantially affecting general recreation, except in site-specific areas. Seasonal closures on Cleghorn Access Road, Tablelands, and Horse Lake Road may limit some opportunities and reduce visitor choices, but protection of sensitive species and prevention of soil loss and noxious weed spread would help to maintain the overall natural settings in these areas. The beneficial effects on recreation include retaining the opportunity to participate in activities in a natural setting and reducing resource damage, thereby avoiding the potential need for complete closure.

Boating

Limiting Lower Biscar, Buckhorn, and Round Corral Reservoirs to only human-powered boating under Alternative 2 could negatively affect recreation by the loss of opportunities for using a trolling motor while fishing. Although the use of trolling motors generally is not a high-disturbance use, a minimal benefit would result from prohibiting their use by preserving the quiet setting of the reservoirs. Limiting boating in shoreline tule areas at Eagle Lake to less than 5 mph would reduce disturbance to the aquatic habitat that helps sustain the lake fishery. Impacts on boating from this management action are expected to be minimal because most boating near and through the tules already is conducted at slow speed out of necessity to avoid fouling propellers. The primary benefit of this provision would be to limit the use of jet-propelled watercraft like wave runners and jet skis in order to keep them out of wildlife habitat. Because tule areas comprise approximately 20 to 30 % of the Eagle Lake shoreline, protection of those areas for wildlife is important. The closure would limit some recreation opportunities in these areas.

Trails

Development of 22.5 miles of trails in higher use areas such as Eagle Lake Basin, Susan River Canyon, Willow Creek Canyon, and Biscar Reservoirs under Alternative 2 would benefit trail users in these areas. Such trail development would not increase non-motorized trail opportunities in more primitive settings, such as within the WSAs. Because the trails would be developed only in higher use areas, they would serve a large portion of the recreating public but would not encourage dispersal of recreation activities over a wider area. Such trails therefore could lead to overcrowding on the most popular trails. Compared to Alternative 1, there would be less local community connection to open space and minimal new attraction for visitors to the area who are seeking non-motorized trail experiences.

Areas of Critical Environmental Concern

Designation of 82,566 acres of new ACECs under Alternative 2 would substantially increase the resource protection that would help retain opportunities to experience recreation activities in an undisturbed, natural setting. Recreation also would benefit from reduced user conflicts.

Although creation of these areas could negatively affect dispersed recreation activities in some areas where it has traditionally occurred, the area in ACECs under Alternative 2 is less than 10% of the BLM-administered land in the field office area. Specific management restrictions for the ACECs are identified in Table 2.11-1.

Historic National Trails

Impacts on recreation resources from management of historic trails under Alternative 2 would be similar to those described under "Impacts Common to All Alternatives"; however, stronger emphasis would be placed on historic trails by designation of two historic and scenic ACECs that would be located along scenic portions the Nobles Trail in Lower Smoke Creek Canyon and along the North Fork of Buffalo Creek.

Wilderness Study Areas

Management of WSAs under the Wilderness IMP would result in effects on recreation resources similar to those described under "Impacts Common to All Alternatives." Acquisition of private land inholdings would reduce the risk of disturbance from activities on private lands and help retain the natural settings for recreation. Non-motorized recreation also would benefit from closure of routes in the core primitive areas. This action would reduce the potential of encountering motor vehicles in these core primitive areas, where currently the density of legally open dirt roads allows for vehicle entry deep within areas that non-motorized users seek for such primitive non-motorized recreation activities as hunting, hiking, horseback riding, and wildlife observation. Such closures also would help reduce the potential for new route proliferation off these established routes. Approximately 44.9 total miles of routes would be closed. These road closures would not result in a substantial negative impact on motorized recreation and access into the WSAs because 80% of the existing access roads in the WSAs (242 miles) would remain open for vehicle use. Of these 242 miles, approximately 35 miles of roads in the core primitive areas would remain open to provide access on well-established and popular routes into the core primitive areas.

Wild and Scenic Rivers

The effects of designation of river segments under Alternative 2 would be similar to those described for Alternative 1 and under "Impacts Common to All Alternatives," except that the area would be expanded to include 29.3 miles as eligible for inclusion in the national WSRS—including 18.6 miles designated as Wild and 10.7 miles designated as Recreational. The primary difference between Alternative 2 and Alternative 1 is that, under Alternative 2, no dams could be built on the river segments recommended for designation as a Wild and Scenic River if Congress agrees with these recommendations and passes a law to make these segments part of the WSRS. As a result, designation under Alternative 2 would preclude the recreational opportunities provided by a newly created reservoir (e.g., boating, swimming, and warm water fishing).

Summary of Effects – Alternative 2

Alternative 2 would result in minor adverse effects and moderate to major beneficial impacts to recreation. Alternative 2 would increase the protection of the natural landscape setting for recreation activities by increasing VRM Class II areas, designating a substantial amount of area to the primitive ROS class, designating 82,000 acres of ACECs, and placing more restrictions on mineral development. While increased recreation opportunities would be associated with cultural resources and historic trails, new non-motorized opportunities would be reduced significantly because only one half as many miles of new trails are proposed (15.5 miles compared to 30.5 miles under the No Action Alternative).

Closing 29% of the field office area to OHV use would not significantly affect motorized opportunities because the areas do not contain a large number of routes; however, this restriction could enhance non-motorized experiences and reduce the potential for user conflicts.

4.9.8 Alternative 3. Traditional Uses

Impacts on recreation resources from management of cultural resources, livestock grazing, land acquisition management, recreation opportunity spectrum, and issuance of ROWs, permits, and leases under Alternative 3 would be similar to those described for the No Action Alternative.

VRM management classes under Alternative 3 would be the same as the inventory classes identified for the No Action Alternative; consequently, impacts on recreation resources from visual resources management would be the same as described for the No Action Alternative. Impacts on WSAs from visual resources management would be similar to those described under "Impacts Common to All Alternatives."

Impacts on recreation resources from management actions for wild horses and burros under Alternative 3 would be similar to those described for Alternative 1.

Impacts on recreation resources from management actions for energy and minerals would be similar those under the No Action Alternative, except that the one ACEC under Alternative 3 (the Pine Dunes ACEC [160 acres]) also would have NSO restrictions on mineral leasing and the area would be closed to saleable minerals and locatable minerals. These restrictions would preserve the recreation experiences of those areas by maintaining the natural setting and protecting the rare resources that led to designation of the area as an ACEC.

Special Recreation Management Areas

No new SRMAs are proposed under Alternative 3; effects of the three existing SRMAs on recreation resources would be similar to those described under "Impacts Common to All Alternatives."

Off-Highway Vehicles

Management of OHV recreation under Alternative 3 would be similar to the No Action Alternative, with almost 60% of BLM-administered land in the field office area designated as 'open'. The 2% of the Eagle Lake Field Office area listed under the No Action Alternative in the undesignated category would be designated as 'open' under Alternative 3. Most of the area is located in isolated BLM-administered parcels in the Sierra Valley area and in Plumas County. These are not destination use areas, but area residents may frequent them for OHV use. Although the additional area is small, motorized recreation could benefit from the increased opportunities for cross-country activities on the many isolated parcels that make up this acreage. Negative impacts from this additional 'open' area designation also are expected because the potential would be increased for user conflicts and resource damage that could degrade the natural setting and diminish the non-motorized recreation experience for some users.

Boating

Management of boating and water recreation at Lower Biscar, Buckhorn, and Round Corral Reservoirs under Alternative 3 would be the same as described for the No Action Alternative; consequently, impacts would be similar to those described for the No Action Alternative. Management at Eagle Lake would be the same as Alternative 2 related to protecting the tule areas.

Although no restrictions would apply to the types of watercraft using the Susan River, use of the small, shallow stream is self limiting to mostly inner tubes and some kayaks. No impacts on recreation would result from retaining the current management.

Trails

Development of 4 miles of non-motorized trails under Alternative 3 is only a small increase from current conditions and is slightly less than the total miles of trails that would be developed under Alternative 2. Because the trails would be limited to high-use areas, effects related to the concentration of users and lack of connectivity to communities would be similar to Alternative 2.

Areas of Critical Environmental Concern

No new ACECs would be designated under Alternative 3, except for the Pine Dunes ACEC. Impacts on recreation resources related to ACECs are described under "Impacts Common to All Alternatives."

Historic National Trails

Impacts on recreation resources from management of historic trails would be similar to those under Alternative 1.

Wilderness Study Areas

Effects on recreation resources from management of WSAs under the Wilderness IMP would be similar to those described under "Impacts Common to All Alternatives." Compared to Alternative 2, however, Alternative 3 would not pursue acquisition of inholdings, and the benefits of securing the natural setting from potential disturbance would not be realized.

Wild and Scenic Rivers

No river segments would be designated under Alternative 3; impacts on recreation resources would be similar to those described under "Impacts Common to All Alternatives."

Summary of Effects – Alternative 3

Most effects under Alternative 3 would be similar to those under the No Action Alternative. There are fewer restrictions on mineral development than Alternatives 1 and 2, and impacts such as degrading natural settings and user conflicts could be higher than under those alternatives. The fewest miles of non-motorized trails would be developed under Alternative 3; and the benefits of new opportunities, dispersal of activities, and community connection would not be realized.

4.9.9 Preferred Alternative

Impacts from designating CRMAs under the Preferred Alternative would be similar to those described for Alternative 2, except that developing interpretive sites in 10 CRMAs would increase education and interpretive opportunities over current conditions.

Of all the alternatives, the Preferred Alternative allocates the most acreage to the VRM Class II designation, the second greatest acreage to VRM Class III designation, and the least acreage to VRM Class IV designation.

The VRM classifications under this alternative provide for strong protection of the existing landscape while allowing for visual change, provided that projects affecting the landscape meet the VRM objectives set for each VRM class. Impacts on recreation from visual resources management actions would be similar to those described under "Impacts Common to All Alternatives."

Beneficial effects on recreation would result from protection of the natural setting of the landscape, including recommending approximately 10.6 miles of river corridor for designation as a Wild river, 83,000 acres of ACECs, historic trail segments, and selected vista points. The overall effect under the Preferred Alternative would be a higher level of visual protection of the natural setting than all other alternatives.

Impacts on recreation resources from management actions for wild horses and burros under the Preferred Alternative would be similar to those described for Alternative 1, except that two public use areas would be developed. The seasonal use area at the New Ravendale HMA would provide residents and visitors with increased education and viewing opportunities. Development of Litchfield Corral as an interpretive site would increase the level of education available and open the experience to a large number of visitors because it would accommodate organized groups.

Impacts on recreation resources from the energy and minerals management program under the Preferred Alternative would be similar to those described for Alternative 2.

Because grazing would continue under the current regime and no closures have been identified, no impacts on recreation resources are anticipated under the Preferred Alternative.

Impacts on recreation resources from lands and realty actions under the Preferred Alternative would be similar to those described for Alternative 2. Benefits to recreation would include improved public access to BLM-administered lands. Management associated with the issuance of ROWs, permits, and leases under the Preferred Alternative are not expected to significantly affect recreation. Military personnel maneuvers could affect recreation by restricting access or closing areas to recreation during the activities; however, such activities are limited by restrictions on military use of BLM-administered lands except under specific situations that would require BLM authorization. Although potential impacts cannot be determined until the area for the maneuvers is selected, any restrictions or closures would be short term and potential impacts are anticipated to be minor. Major utility or wind farm development would result in substantial negative impacts on recreation, similar to those described for the No Action Alternative.

Recreation Opportunity Spectrum

The Preferred Alternative would allocate about 23% of the field office area located within the most roadless portions of the WSAs to the primitive setting (core primitive areas). Impacts on recreation resources would be similar to those described for Alternative 2. About 66% of the field office area would be allocated to a back-country designation that combines semi-primitive motorized and semi-primitive non-motorized ROS recreation classes. This allocation would retain the natural setting of the area for a wide variety of recreation opportunities and experiences; motorized vehicle use would be allowed on designated roads and trails within the back-country designation.

Special Recreation Management Areas

Designation of the Antelope/Shaffer/Bald Mountain SRMA and the South Dry Valley SRMA under the Preferred Alternative would result in impacts on recreation resources similar to those described for Alternative 1.

Travel Management

Management of OHV use under the Preferred Alternative includes designating 374 acres as ‘open’. Impacts on recreation resources would be similar to those described for Alternative 1.

Closing about 25% of the BLM-administered lands in the field office area to cross-country vehicle use and approximately 70 miles of dirt roads to motor vehicle use (primarily in primitive core areas of the WSAs and in the Bizz Johnson Trail SRMA) is a slight reduction in area closed compared to Alternative 2. The closures represent a relatively small number of miles of routes in the closed areas (75 miles) compared to the rest of the field office area roads and trails (1,829 miles) that would remain ‘open’ for vehicle use; consequently, recreation opportunities are not expected to be affected. Developing a fully designated route system would maintain a wide range of recreation opportunities, improve customer service by identifying all routes open for use, and reduce user conflicts. Such a system also would provide direction for enforcement of route restrictions because each route would be clearly designated for specific vehicles, seasonal closures, or other use guidelines that would be clearly known and enforceable.

Development of new routes under the Preferred Alternative would provide specific new recreation opportunities and minimize resource damage or conflicts. New routes would enhance recreation by improving looped trail experiences in the Fort Sage and South Dry Valley SRMAs and by improving the access between back-country areas east of Painter Flat. Most impacts would be similar to those described for Alternative 1; site-specific impacts could vary based on other resource management objectives for this alternative. Impacts on recreation associated with new routes would not be significant as the total miles of new routes would be relatively small compared to the 1,899 miles of BLM-administered roads in the Eagle Lake Field Office area. Provision of more sustainable trail alignments and looped trails would benefit OHV enthusiasts. Enhancement of the natural resources through route realignment to provide for more sustainable routes and better resource protection where routes are in soils that are not well suited for vehicle traffic would result in a long-term benefit for motorized recreation experiences. Seasonal route closures would be the same as described for Alternative 2, and the impacts associated with such closures would be similar to those described for Alternative 2.

Boating

Management actions related to boating under the Preferred Alternative would be the same as described for Alternative 3; impacts on recreation would be similar to those described for Alternative 3.

Trails

Development of non-motorized trails would include 264 miles of new trails; this represents a substantial increase in new trails over the current management and the other action alternatives. The beneficial impacts on recreation would include providing a significant number of new recreation opportunities for local residents and visitors, dispersing activities over a larger area to avoid overcrowding, and reducing user conflicts. The expanded trail system would offer the opportunity for day trips as well as extended multi-day experiences in a variety of settings. The network also would provide strong community connection in the areas and could benefit the local economies through increased tourism.

Areas of Critical Environmental Concern

Designating 6 new ACECs totaling 84,426 acres, in addition to the Pine Dunes ACEC, and expanding the Pine Dunes ACEC from 160 to 2,130 acres would result in beneficial impacts by focusing management on protection of the unique resources for which the ACECs are proposed for designation.

The beneficial effects on recreation of preserving the natural setting for a variety of activities would be similar to those under Alternative 2, except that they would occur over a larger area and the increased protection would further enhance recreation experiences. ACEC designations also could negatively affect dispersed recreation through restrictions, which are shown in Table 2.11-1.

Historic National Trails

Management associated with historic trails under the Preferred Alternative would affect recreation as described under "Impacts Common to All Alternatives."

Scenic Byways and Vista Points

The impacts on recreation resources of development of scenic byways and vista points under the Preferred Alternative would be similar to those described for Alternative 1.

Wilderness Study Areas

Effects of management actions associated with WSAs under the Preferred Alternative would be similar to those described for Alternative 2.

Wild and Scenic Rivers

Designating the 10.6 miles of Upper Smoke Creek as a Wild river under the Preferred Alternative would result in similar impacts on recreation to those described under "Impacts Common to All Alternatives" and for Alternative 1. Although the area proposed for designation is smaller compared to Alternatives 1 and 2, no negative impacts on recreation are expected from this designation. Beneficial impacts would include the permanent protection of this segment of Upper Smoke Creek as a free-flowing stream that would remain available for wildlife use, recreational enjoyment of visitors, and protection of cultural resources.

The river segments not recommended for designation as Wild and Scenic Rivers (segments of the Susan River between Susanville and the Lassen National Forest boundary, Willow Creek through the Tunnison WSA, and Lower Smoke Creek within the Dry Valley Rim WSA) would remain available for possible dam construction for water impoundment or diversion projects. Newly created reservoirs would provide a different array of recreational opportunities, including boating, swimming, and warm water fishing.

Summary of Effects- Preferred alternative

Effects of management actions for most resource areas under the Preferred Alternative would be similar to those under Alternative 2. The Preferred Alternative would develop the highest number of miles of non-motorized trails, with 264 miles proposed, and would close about 25% of the field office area to OHV use. The non-motorized trails would provide extensive new recreation opportunities, promote dispersal of activities to minimize crowding, and provide strong community connection to area resources for local residents. OHV use would be 'limited to designated routes' throughout the rest of the field office area, except for 374 acres designated as 'open', and would protect resources and reduce conflicts similar to management actions under Alternative 2. Restrictions on mineral development activities in ACECs, Wild and Scenic Rivers, and WSAs are proposed under the Preferred Alternative, similar to Alternative 2, in order to protect the natural resources and recreation settings in these unique areas.

4.9.10 Comparative Summary of Impacts

Under all alternatives, management actions for fire, wildlife, soils, vegetation, and forestry programs generally would result in localized and temporary adverse impacts that could disrupt recreation activities or access during implementation of the activities. Most activities associated with these programs, along with visual resources management, would enhance recreation experiences by retaining or improving the natural character and settings where recreation occurs.

Under the No Action Alternative, there is a risk of potential degradation of the natural character from cross-country OHV use in about 57% of the field office area and from wind farm or utility development, although significant restrictions on recreation activities are not anticipated. The existing WSAs provide opportunities for primitive and unconfined recreation; under Alternative 3 and the Preferred Alternative, additional routes in WSA core areas would be closed to enhance protection of the natural character of those areas.

Development of non-motorized trails along with enhancements to historic trails is greatest under the Preferred Alternative and would result in beneficial effects by providing new recreation opportunities, increasing history-related recreation activities, educating visitors about resources, and increasing community connections and activities for local residents. Trail development also would be substantial under Alternative 1 but would be greatly reduced under the No Action Alternative and Alternatives 2 and 3.

Alternative 2 has the greatest restrictions on OHV use, while Alternative 3 has the least. Because closures are primarily in roadless or nearly-roadless areas, impacts on motorized uses would not be significant under any alternative. Alternative 2 and the Preferred Alternative would provide the most area protected within special management areas such as ACECs and Wild and Scenic Rivers. Combined with the existing WSAs retained under all alternatives, these two alternatives would result in the most beneficial effects on recreation from maintaining the natural settings and resources that led to designation of these areas as a special management area.

4.9.11 Cumulative Effects

People pursuing recreation experiences historically have used BLM-administered land and adjacent U.S. Forest Service and California Department of Fish and Game lands for a wide variety of activities. Growth and development of local communities, as well as larger nearby population centers such as Reno, Nevada, will continue to increase demand for recreation activities on BLM-administered lands, leading to potential overcrowding and user conflicts. Lassen County and Susanville have recognized the need for access to open space and have developed trails plans in order to provide residents with access to recreation and to connect communities to their regional land base.

Recreation experiences can be diminished if the natural or social setting (the amount of contact with other visitors) of the activity is altered from expectations. Most adverse impacts from activities associated with BLM resource programs would be temporary and limited to the local area where the activities occur. Under the Preferred Alternative, greater consideration of accommodating increased demand through designation of special recreation management areas, development of trails, and limitations on OHV use would result in beneficial effects. The significant increase in trail development, to accommodate anticipated increases in use, would result in beneficial cumulative effects when considered with plans for surrounding land uses.

4.9.12 Mitigation Measures

None of the alternatives would result in a major adverse effect to recreation resources. Therefore, mitigation measures are not needed at this level.

4.9.13 Unavoidable Adverse Impacts

Some mineral development actions would have unavoidable, adverse impacts on recreation resources. Exploration and development would affect hunting areas and impact OHV and non-motorized trails.

4.9.14 Short-Term Uses Versus Long-Term Productivity

Short-term use of recreation resources in the Eagle Lake Field Office area would result in negligible impacts to the long-term productivity of the resource.

4.9.15 Irreversible and Irretrievable Impacts

No irreversible impacts to recreation resources or activities are expected. There would be long-term irretrievable impacts to recreation resources from unmanaged OHV use, and minerals development in areas formerly used for solitary, remote, and unconfined recreation.

4.10 Potential Effects on Social and Economic Conditions

This section describes the potential impacts on social conditions from implementing the resource programs under the alternatives.

4.10.1 Methodology and Assumptions

The analysis of effects on social conditions considers changes in the following issue areas:

- access to resources (e.g. recreation),
- quality of life,
- social relationships and community organization,
- community resiliency,
- attitudes and values, and
- sense of place (e.g. visual resources).

Management actions that could directly or indirectly affect recreational opportunities, tourism, property, aesthetics, and safety were assumed to affect communities in the Eagle Lake Field Office area.

The analysis of the economic impacts of each alternative was based on the following assumptions:

- Quantitative impacts were limited to four management actions: fires and fuels, vegetation management, forestry, and grazing.
- All other management actions either were assumed to be equal among all alternatives or the physical effects of those actions could not be estimated in enough detail to allow for a quantitative evaluation. For management actions that could not be estimated quantitatively, a qualitative evaluation was prepared.
- The economic evaluation for the Eagle Lake Field Office area was limited to Plumas and Lassen, Counties, California, and Washoe County, Nevada.

The following procedure was used to estimate the economic effects of each management action. First, the change in regional spending for each action was estimated. These estimates included increases in spending in the local economy, such as hiring local firms to mechanically harvest juniper. We also estimated decreased spending resulting from actions such as reductions in grazing allotments.

The changes in regional spending that would indirectly affect the local economy included effects on personal income and employment. For example, a local firm hired to harvest juniper would purchase food and supplies in the local economy, indirectly benefiting other businesses. We estimated the indirect and induced effects on the regional economy using the IMPLAN model.

IMPLAN is an economic input-output model that can be used to estimate the economic impacts of a project or program on an individual county or on a regional, multi-county area. A single county represents the smallest economic unit that can be specified within IMPLAN. Portions of counties cannot be selected. The model originally was developed by U.S. Forest Service, and it is widely used throughout the United States to estimate economic impacts (IMPLAN 2004).

To run the IMPLAN model, we had to first specify the counties involved with the project or plan. We assumed the local economy for the Eagle Lake Field Office area to include Plumas, Lassen, and Washoe Counties. Although portions of other counties are included in this field office area, these three counties best represent the area where local impacts would be felt.

After defining the project area, we entered the direct impacts into the model. The model uses a system of multipliers to estimate the indirect and induced effects on the local economy, including the impacts on regional income and employment. IMPLAN defines the direct effects as the impacts of businesses purchasing from other businesses. Induced effects are those resulting from changes in household spending.

The approach used to estimate the economic impacts for the four management actions first involved estimating the direct costs of those actions. We estimated direct costs as described below.
Once we estimated the increase and decrease in spending for each management action, we entered them into the IMPLAN model. We then used the model to estimate the change in regional personal income and employment from each management action for each alternative, including the No Action Alternative.

4.10.2 Incomplete or Unavailable Information

Adequate information is available to analyze the effects on social and economic conditions at the RMP level.

4.10.3 Analysis

For this analysis, we defined the levels of effects on economic conditions as follows:

Negligible: No changes would occur, or changes to socioeconomic indicators (changes in regional spending, income, and/or employment) would be below or at the level of about 3 percent. If detected, effects would be slight and short term.

Minor: The effect would be slight, but detectable, and would impose only minor increases or decreases to socioeconomic indicators, between 4 and 10 percent.

Moderate: The effect would be readily apparent and would impose increases or decreases in socioeconomic indicators between 11 and 25 percent.

Major: The effect would be severely adverse or beneficial changes in regional spending, income, and/or employment. These changes would be greater than 25 percent.

4.10.4 Social Conditions

The resource areas discussed below could affect social conditions. But the effects are so minor that differentiating between the alternatives is difficult and would not be meaningful. These areas and their effects, if any, are discussed below. All actions listed below are common or equivalent across all alternatives, unless noted otherwise noted.

Management actions that result in full fire suppression in the short term would benefit residents and landowners who would otherwise experience the following:

- poor air quality and increased smoke,

- threats of fire to homes and businesses,
- endangerment of life from encroaching wildfires, and
- other impacts of fire.

Management actions involving prescribed burning might result in the harmful effects fire, such as

- poor air quality,
- potential loss of access for firewood cutting, and
- decreased opportunity for residents and tourists to enjoy areas that are in or near wilderness and are being treated by prescribed burning.

Use of heavy equipment and vehicles on local roads, such as detour roads and in staging areas close to communities, could temporarily disrupt daily commute patterns during both prescribed burning and fire suppression. But over the long term, the fuels reduction program would result in more fire-safe communities and decreased risk of wildfire and its impacts, particularly in the wildland-urban interface.

Management actions to remediate soils that do not meet land health standards could result in closing or rehabilitating some roads. Use of heavy equipment and vehicles on local roads and in staging areas close to communities could temporarily disrupt daily commute patterns during these activities.

Temporary closures during soil remediation management actions could limit access for fire suppression vehicles and could remove features that act as fuel breaks. Given the relatively small acreage that could be affected, such effects are considered minor.

Management actions that encourage community residents to participate in educational events, such as treating noxious weeds and managing plant communities, would increase knowledge and appreciation of plants and would benefit for the community.

Management actions to designate and protect native plant communities and woodlands could restrict access to public lands, having adverse social effects from decreased recreational opportunities. In the long-term, all segments of society would benefit from preserving native plants for future generations to enjoy.

Management actions that aesthetically change communities or nearby areas (e.g. fence building, prescribed burning [resulting in the loss of the original viewshed], and protective designation of native plant communities) could benefit or harm a community's sense of place.

Management actions that permit public use along streams and water bodies would have the following benefits:

- increasing recreational resources,
- increased opportunities for water activities (e.g. fishing) for residents and tourists and for enhancing the rural lifestyle.

Land acquisition or disposal might result in the closing or rehabilitating of some roads, which could adversely affect communities by temporarily disrupting daily commute patterns or creating permanent detour roads. Land and realty actions might also provide access to previously inaccessible BLM-administered lands and increased opportunities to use these lands.

Designating a recreational opportunities spectrum (ROS) would permit a diverse range of recreational opportunities on BLM-administered lands. Improvements to recreational facilities (e.g. campground improvements, trail development and maintenance, and interpretive site development) would enhance opportunities for local communities and visitors. Management actions designating off-highway vehicle (OHV) use areas would optimize OHV recreational opportunities for communities and visitors in suitable areas and could enhance opportunities for other recreation activities (e.g. fishing and hunting) in other areas.

Management actions that would protect ACECs, historic national trails, wilderness study areas (WSAs), and wild and scenic rivers would benefit the community and the region by creating public awareness of the natural values of these areas and ensuring the protection of these resources for future generations.

4.10.5 Comparative Summary of Impacts for Social Conditions

The effects of resource management actions on current social conditions are common to all of the alternatives and are more beneficial than adverse. Beneficial effects include increased recreational opportunities and protection of resources that are of critical concern, native to the area, or are valuable to rural lifestyles. Adverse effects generally would be short term or temporary, except for permanent closure of facilities (e.g. roads) or access restrictions to recreation.

4.10.6 Cumulative Effects of Social Conditions

The management actions proposed under all alternatives would not result in any adverse cumulative impacts on local or regional social conditions. But local communities would continue to benefit from multiple-use management of public lands. Overall, the proposed management on BLM-administered lands would not substantially change extractive and other resource uses and would result in better resource protection. Federally and state-managed lands make up more than 68% of the land area in the Eagle Lake Field Office area, with BLM-administered lands comprising 21%. Local communities rely on these public lands to maintain their economic livelihood and sense of place.

In addition to the social benefits accruing from extractive uses of natural resources–grazing, farming, timber, and mining–recreation and wildlife uses are becoming increasingly valuable to the local economy. With increased tourism, protection of natural resources and open space values that attract visitors to the area would become increasingly important as local and regional populations continue to grow.

Increased growth in the field office area would also result in converting open space to residential areas. Public lands would play an important role in maintaining the rural character and quality of life that are often responsible for attracting new residents to the area.

The proposed management actions were developed in anticipation of increasing populations and use of public lands. Ecosystems would be enhanced by protecting watersheds, viewsheds, and other natural values. State and federal agencies can continue to manage lands for uses that are compatible with the goals for economic development and rural lifestyle expressed in the land use plans for counties in the field office area. These agencies can continue to coordinate with local governments in the planning process and in managing public lands for multiple uses.

4.10.7 Economic Conditions

Some of the proposed management actions would only slightly or not change regional economic activity. Small changes might result from one-time spending for labor, equipment, or supplies. Management actions for cultural resources, soil resources, vegetation, listed wildlife and plant species, and visual resources would be similar across all alternatives. Therefore, spending required to meet proposed management objectives would also be similar. In turn, we assumed that any economic effect of implementing the management actions would be similar and a quantitative or qualitative discussion of the differences between the alternatives was not warranted.

We also reviewed special management area actions. But we considered the economic impacts of those areas to be relatively minor, and we did not evaluate them in depth in this economic analysis.

4.10.8 No Action Alternative

Fire and fuels management under the No Action Alternative includes treating up to 500 acres annually by mechanical treatments. Table 4-1 summarizes the direct, indirect, and induced jobs that would result from annual mechanical treatment in the three-county economic study area. The 500 acres of treatments would result in about seven new jobs would be created. These new jobs would increase total personal income in the three-county economic study area by $223,800 annually.

Under the No Action Alternative, 642,000 acres would be open to exploration and possible extraction of leasable and saleable minerals, and 1 million acres would be open for locatable minerals. Although revenues from energy and mineral extraction are not a substantial element of the local economy, allowing entry to extract minerals and encouraging development of renewable energy could benefit local economic activity.

Forest management actions under the No Action Alternative would include annual harvest on 400 acres. Harvesting and processing this material would generate two new jobs and increase personal income by $76,000 (Table 4.10-1). Forest management under the No Action Alternative would not substantially benefit economic activity in the three-county study area.

Under the No Action Alternative, no change in livestock grazing would measurably change economic activity.

Under No Action up to 1,000 acres of public land would be sold or transferred. Lands under federal ownership in Washoe and Lassen Counties totaled 2.9 million and 1.6 million acres, respectively. During fiscal year 2000–2001, in-lieu payments to Washoe and Lassen Counties were estimated to total $1.5 million and $996,000, respectively (BLM 2004, 2004c). The slight reduction in land held in federal ownership would not substantially reduce federal in-lieu payments.

Recreation opportunities in the field office area include camping, hiking, fishing, hunting, and off-highway vehicle (OHV) use. Under the No Action Alternative, three special recreation management areas (SRMAs) totaling 66,000 acres would be managed for specific recreation objectives, and 957,000 acres would be managed for extensive (non-developed) use. In addition, 578,000 acres would be designated as ‘open’, and 9,000 acres would be ‘closed’, and 412,000 acres would be ‘limited to existing roads and trails’. No substantial change in spending for recreation and associated changes in local employment and income in the three-county study area are expected because most recreation activities would continue to be allowed in the field office area.

Summary of Effects – No Action Alternative

Table 4.10-1 summarizes the combined effects on employment and income from management actions proposed by the No Action Alternative. When combined, these actions would generate 9 jobs and $300,000 in annual personal income. Total employment in the three-county study area would increase by 0.004%, and total personal income would increase by 0.002%. Although not quantified, the other management actions discussed above would also slightly increase regional economic activity. The increase in economic activity in the three-county study area from management actions under the No Action Alternative would be small.

The potential reduction of in-lieu payments to the counties from the sale or transfer of federal lands in the Eagle Lake Field Office area would not be substantial, and losses in county revenues might be offset by a potential increase in property tax revenues. The cumulative economic effects under the No Action Alternative would be similar to the effects under the Preferred Alternative.

The total combined effect of management actions to regional economic activity under the No Action Alternative would be negligible.

4.10.9 Alternative 1. Economic Development

Under Alternative 1, fuels reduction treatments would be implemented on up to 2,500 acres per year using mechanical methods. This work would generate 35 new jobs in the three-county study area (Table 4.10-1). The new jobs would increase total personal income in the economic study area by $1.1 million.

About 600,000 acres of the field office area would be open to exploration and possible extraction of leasable and saleable minerals under Alternative 1. One million acres would be open for locatable and saleable mineral extraction. Revenues from energy and minerals are not a substantial element of the local economy. But allowing entry to extract minerals and encouraging development of renewable energy could benefit local economic activity.

Forest management under Alternative 1 would include annual harvest of up 670 acres. Harvesting and processing this material would generate three new jobs and increase personal income by $100,000 (Table 4.10-1). Forest management under Alternative 1 would not substantially benefit economic activity in the three-county study area.

The changes in livestock grazing implemented under Alternative 1 would not measurably change economic activity.

Under Alternative 1, up to 24,041 acres of public land would be sold or transferred. Lands under federal ownership in Washoe and Lassen Counties totaled 2.9 million and 1.6 million acres, respectively. During fiscal year 2000–2001, in-lieu payments to Washoe and Lassen Counties amounted to $1.5 million and $996,000, respectively (BLM 2004, 2004c). The slight reduction in land held in federal ownership would not substantially reduce the federal in-lieu payments received by the counties.

Under Alternative 1, five special recreation management areas (two more than currently exist - one new area with emphasis on OHV trail riding and one new area with emphasis on non-motorized trails) totaling 175,000 acres would be designated, and 848,000 acres would be managed for extensive use. A total of 419 acres would be designated ‘open’, and 262,000 acres would be “closed” to OHV use. 761,000 acres would be ‘limited to designated routes’.

Recreation opportunities and OHV use would potentially increase as a result of designating two more special recreation management areas. Several additional recreation attractions would also increase, including:

- six more scenic byways for sightseeing driving
- 277 miles of non-motorized trails for various combinations of hiking, mountain biking and equestrian uses
- 50 miles of an existing abandoned railroad grade would be part of the designated non-motorized trail routes with some of this route likely to be joint motorized and non-motorized use also).
- portions of four free flowing river segments would be recommend for designation by Congress as Wild or Recreational Rivers under the Wild and Scenic Rivers Act (portions of the Susan River, Willow Creek, upper Smoke Creek and lower Willow Creek).

These additional recreation opportunities would benefit the local economy as a result of increased recreation-related spending on goods and supplies and on expenditures for food and lodging. The extent of such expenditure is not quantified and therefore estimates of impacts area not stated here. However, such expenditures already occur as a result of visitor use to the three existing Special Recreation Management Areas, the Bizz Johnson Trail, Eagle Lake, and Fort Sage OHV area, all of which are destination recreation attractions (see Chapter 3, Recreation for existing visitor use figures).

With more emphasis on special recreation management areas it is expected that more visitors would travel to, and stay in the planning area, while using these new designated recreation areas, byways and trails. Designation of Wild and Recreational River segments may also attract additional visitor use, depending upon river flows, fishery conditions and cultural and historic interpretive opportunities.

The existing destination attractions of the Eagle Lake and the Bizz Johnson Trail and Fort Sage OHV Area already demonstrate that visitors from the metropolitan areas (within 2 to 6 hours driving time) are willing to travel to this area for casual use. In addition, others visitors from even further away also make the trip for casual and special event use of public lands for fishing, hunting and trail uses. The various additional recreation designations in the Preferred Alternative are expected to increase the visitor use of public lands and the associated economic benefit of rural tourism.

Summary of Effects – Alternative 1

Table 4.10-1 summarizes the combined effects on employment and income from the management actions proposed by Alternative 1. When combined, these actions would generate 38 jobs and $1.2 million in annual personal income. Total employment in the three-county study area would increase by 0.001%, and total personal income would increase by 0.01%. Although not quantified, the other management actions discussed above would also slightly increase regional economic activity, particularly those from rural tourism. The increase in economic activity in the three-county study area from management actions under Alternative 1 would be small.

The potential reduction of in-lieu payments to the counties from the sale or transfer of federal lands in the Eagle Lake Field Office area would not be substantial, and losses in county revenues might be offset by a potential increase in property tax revenues.

The total combined effect of management actions to regional economic activity under Alternative 1 would be negligible.

4.10.10 Alternative 2. Ecosystem Restoration

Fire and fuels management under Alternative 2 would focus on applying prescribed fire on 4,500 acres per year, and mechanical treatments of up to 3,500 acres per year. This work would generate 49 new jobs in the three-county study area (Table 4.10-1). The new jobs would increase total personal income in the economic study area by $1.5 million.

Conducting a prescribed fire would most likely include the purchase of equipment and supplies. Total spending would be a function of the total acreage treated. These purchases would result in small economic benefits to the three-county study area.

Alternative 2 proposes the following:

- 605,000 acres open to exploration and possible extraction of leasable minerals,
- 970,000 acres open to locatable minerals exploration and development, and
- 553,000 acres open for saleable minerals.

Although revenues from energy and mineral development are not a substantial element of the local economy, allowing entry to extract minerals and encouraging development of renewable energy sources could benefit local economic activity.

Forestry management under Alternative 2 would include annual harvest of up 1,100 acres. Harvesting and processing this material would generate six new jobs and increase personal income by $200,000 (Table 4.10-1). Forestry management under Alternative 2 would not substantially benefit economic activity in the three-county study area.

Grazing management under Alternative 2 would substantially reduce the amount of forage available for livestock grazing. Table 4.10-1 summarizes the one-time direct plus indirect and induced jobs and resulting loss in personal income that would result from the substantial reduction in livestock grazing. Grazing management under Alternative 2 would result in the loss of 152 jobs and reduced personal income of $2.5 million.

Under Alternative 2, up to 1,000 acres of public land would be sold or transferred. Lands under federal ownership in Washoe and Lassen Counties totaled 2.9 million and 1.6 million acres, respectively. During fiscal year 2000–2001, in-lieu payments to Washoe and Lassen Counties were estimated to total $1.5 million and $996,000, respectively (BLM 2004, 2004c). The slight reduction in land held in federal ownership would not substantially reduce federal in-lieu payments received by the counties.

Recreation management actions under Alternative 2 would be the same as the No Action Alternative. Travel management and OHV use would be changed, as 300,000 acres would be 'closed' to OHV use, and 721,000 acres would be 'limited to designated roads' passing through those acres. OHV use might decrease as a result of restricting access to designated roadways. Limiting recreation opportunities might affect the local economy by decreasing recreation-related spending on goods and supplies.

Summary of Effects – Alternative 2

Table 4.10-1 summarizes the combined effects on employment and income from the management actions proposed under Alternative 2. When combined, these actions would cause a net loss of 97 jobs and a reduction of $760,000 in annual personal income. Although not quantified, the other management actions discussed above would benefit regional economic activity.

Total employment in the three-county study area would be reduced by 0.03%. Total personal income would be reduced by 0.01%. All of the loss in employment and personal income would result from reduced livestock grazing in the Eagle Lake Field Office area. Employment and income would increase as a result of proposed vegetation management and timber harvesting (Table 4.10-1).

The potential reduction of in-lieu payments to the counties as a result of the sale or transfer of federal lands in the Eagle Lake Field Office area would not be substantial, and losses in county revenues might be offset by a potential increase in property tax revenues.

The total combined effect of management actions to regional economic activity under Alternative 2 would be negligible.

4.10.11 Alternative 3. Traditional Uses

Fire and fuels management under Alternative 3 would focus on mechanical treatments up to 2,500 acres annually. This work would generate 35 new jobs in the three-county study area (Table 4.10-1). The new jobs would increase total personal income in the economic study area by $1.1 million.

Alternative 3 proposes 608,000 acres to be open to exploration and possible extraction of leasable minerals, 1 million acres to be open for locatable minerals, and 637,000 acres open to saleable minerals extraction. Although revenues from energy and minerals are not a substantial element of the local economy, allowing entry to extract minerals and encouraging development of renewable energy sources could benefit local economic activity.

Forestry management under Alternative 3 would include annual harvest of up to 300 acres. Harvesting and processing this material would generate two new jobs and increase personal income by $60,000 (Table 4.10-1). Forestry management under Alternative 2 would not substantially benefit economic activity in the three-county study area.

Under Alternative 3, no change in livestock grazing in the field office area would measurably change economic activity.

Up to 1,000 acres of public land would be sold or transferred. Lands under federal ownership in Washoe and Lassen Counties totaled 2.9 million and 1.6 million acres, respectively. During fiscal year 2000–2001, in-lieu payments to Washoe and Lassen Counties were estimated to total $1.5 million and $996,000, respectively (BLM 2004, 2004c). The slight reduction in land held in federal ownership would not substantially reduce the federal in-lieu payments received by the counties.

Recreation and travel management are the same as the No Action Alternative.

Summary of Effects – Alternative 3

Table 4.10-1 summarizes the combined effects on employment and income from management actions proposed by Alternative 3. When combined, these actions would generate 37 jobs and $1.2 million in annual personal income. Total employment in the three-county study area would increase by 0.001%, and total personal income would increase by 0.01%. Although not quantified, the other management actions discussed above would also slightly increase regional economic activity. The increase in economic activity in the three-county study area from management actions under Alternative 3 would be small.

The potential reduction of in-lieu payments to the counties from the sale or transfer of federal lands in the field office area would not be substantial, and losses in county revenues might be offset by a potential increase in property tax revenues.

The total combined effect of management actions to regional economic activity under Alternative 3 would be negligible.

4.10.12 Preferred Alternative

Fire and fuels management under Alternative 2 would focus on applying prescribed fire on 4,500 acres per year, and mechanical treatments of up to 3,500 acres per year. This work would generate 49 new jobs in the three-county study area (Table 4.10-1). The new jobs would increase total personal income in the economic study area by $1.5 million.

Treating with prescribed fire most likely would include purchasing equipment and supplies. Total spending would depend on the total acreage treated. These purchases would result in a small economic benefit to the three-county study area.

Under the Preferred Alternative, 608,000 acres would be open to exploration and possible extraction of leasable minerals, 1 million acres would be open for locatable minerals, and 634,000 acres would be open to saleable minerals extraction. Revenues from energy and minerals are not a substantial element of the local economy. But allowing entry to extract minerals and encouraging development of renewable energy sources could benefit local economic activity.

Forestry management under the Preferred Alternative would include annual harvesting of up 1,100 acres. Harvesting and processing this material would generate six new jobs and increase personal income by $200,000 (Table 4.10-1). Forestry management under the Preferred Alternative would substantially benefit economic activity in the three-county study area.

Livestock grazing improvements would be implemented on an allotment basis, including changes in season of use, grazing periods, and exclusion of small areas containing unique resources. These changes would be localized and affect individual grazing permits. None of these changes would measurably change economic activity under the Preferred Alternative.

Up to 24,041 acres of public land would be sold or transferred. Lands under federal ownership in Washoe and Lassen Counties totaled 2.9 million and 1.6 million acres, respectively. During fiscal year 2000–2001, in-lieu payments to Washoe and Lassen Counties were estimated to total $1.5 million and $996,000, respectively (BLM 2004, 2004c). The slight reduction in land held in federal ownership would not substantially reduce federal in-lieu payments received by the counties

Recreation and travel management are similar to Alternative 1, except more acres would be "closed" to OHV use. The closure of additional routes would provide for more non-motorized experiences in primitive areas in support of non-motorized hunting, hiking and horseback riding. Five special recreation management areas (two more than currently exist - one new area with emphasis on OHV trail riding and one new area with emphasis on non-motorized trails) totaling 175,000 acres would be designated, and 848,000 acres would be managed for extensive use. A total of 419 acres would be designated 'open', and 262,000 acres would be "closed" to OHV use. 761,000 acres would be 'limited to designated routes'.

Summary of Effects – Preferred Alternative

Table 4.10-1 summarizes the combined effects on employment and income from the management actions proposed by the Preferred Alternative. When combined, these actions would generate 55 new jobs and $1.7 million in annual personal income. Total employment in the three-county study area would increase by 0.02%, and total personal income would increase by 0.01%. Although not quantified, the other management actions discussed above would also slightly increase regional economic activity. The increase in economic activity in the three-county study area from management actions under the Preferred Alternative would be small.

The potential reduction of in-lieu payments to the counties from the sale or transfer of federal lands in the field office area would not be substantial, and losses in county revenues might be offset by potential increases in property tax revenues.

The total combined effect of management actions to regional economic activity under the Preferred Alternative would be negligible.

4.10.13 Comparative Summary of Impacts for Economic Conditions

The No Action Alternative would generate 9 jobs and increase personal income by $300,000, resulting in the smallest effect of the proposed alternatives. In contrast, the Preferred Alternative would have the largest positive economic impact, generating 55 jobs and over $1.7 million in personal income. A large part of the economic benefit under the Preferred Alternative would result from fire and fuels management spending needed to support this management action.

Both Alternatives 1 and 3 would benefit the regional economy by generating 37 jobs and increasing personal income by $1.2 million.

Of the four action alternatives, Alternative 2 would inflict the greatest adverse economic effect on the region's economy. Alternative 2 would cause the loss of 97 jobs and would reduce total personal income by almost $761,000. This impact would mainly result from reductions in grazing on lands administered by the Eagle Lake Field Office. The Eagle Lake Field Office area could support only one-third of the existing cattle herd, substantially reducing direct and indirect ranching income and employment.

While these adverse impacts would be potentially devastating to individual operators, the overall combined effect to regional economic activity is less than 1%, hence the affects are considered negligible.

4.10.14 Cumulative Effects of Economic Conditions

Table 4.10-2 summarizes the cumulative effects on employment and income under the Preferred Alternative when combined with the proposed management programs for the Alturas and Surprise Field Office areas. When combined, management actions would result in an increase of 166 jobs and an increase in personal income of $4.7 million. (Although not quantified, the other management actions discussed above also would increase regional economic activity.) This cumulative effect represents an increase in employment of 0.06% and personal income of 0.04%. The combined increase would not substantially reduce economic activity. Jobs and income generated by fire and fuels, vegetation, and forestry management actions in each field office would be responsible for most of the change in economic activity.

Table 4.10-1 Estimated Changes in Employment and Income from Management Actions in the Eagle Lake Field Office Area

Alternative	Management Action	Direct Jobs	Direct Income ($)	Indirect/Induced Jobs	Indirect/Induced Income ($)	Total Jobs	Total Personal Income ($)
No Action	Fire and fuels	4.4	145,470	2.6	78,330	7	223,800
	Forestry	1.3	49,400	0.7	26,600	2	76,000
	Grazing	0.0	0	0.0	0	0	NA
	Totals	5.7	194,870	3.3	104,930	**9**	**299,800**
Alternative 1	Fire and fuels	22.0	727,610	13.0	391,790	35	1,119,400
	Forestry	1.9	65,000	1.1	35,000	3	100,000
	Grazing	0.0	0	0.0	0	0	NA
	Totals	23.9	792,610	14.1	426,790	**38**	**1,219,400**
Alternative 2	Fire and fuels	30.9	1,001,000	18.1	539,000	49	1,540,000
	Forestry	3.8	130,000	2.2	70,000	6	200,000
	Grazing	-95.8	-1,625,293	-56.2	-875,158	(152)	(2,500,451)
	Totals	0.0	-494,293	0.0	-266,158	**(97)**	**(760,451)**
Alternative 3	Fire and fuels	22.0	727,610	13.0	391,790	35	1,119,400
	Forestry	1.3	39,000	0.7	21,000	2	60,000
	Grazing	0.0	0	0.0	0	0	NA
	Totals	23.3	766,610	13.7	412,790	**37**	**1,179,400**
Preferred	Fire and fuels	30.9	1,001,000	18.1	539,000	49	1,540,000
	Forestry	3.8	130,000	2.2	70,000	6	200,000
	Grazing	0.0	0	0.0	0	0	NA
	Totals	34.7	1,131,000	20.3	609,000	**55**	**1,740,000**

Note: NA = Not applicable (because there is no change in jobs and no corresponding change in income).

Source: IMPLAN 2004.

Table 4.10-2 Cumulative Effects on Income and Employment in the Eagle Lake Field Office Region

Field Office – Alternative	Management Action	Total Jobs	Total Personal Income ($)
Eagle Lake – Preferred Alternative	Fuels	49	1,540,000
	Forestry	6	200,000
	Grazing	0	NA
	Totals	**55**	**1,740,000**
Eagle Lake – Alternative 2	Fuels	49	1,540,000
	Forestry	6	200,000
	Grazing	(152)	(2,500,451)
	Totals	**(97)**	**(760,451)**
Surprise – Preferred Alternative	Fuels	17.7	507,031
	Vegetation	7.6	217,239
	Forestry	0.5	15,207
	Grazing	0	NA
	Totals	**25.8**	**739,477**
Alturas – Preferred Alternative	Fuels	68.7	1,840,016
	Vegetation	2.4	63,133
	Forestry	13.5	364,347
	Grazing	0	NA
	Totals	**84.6**	**2,267,496**

Notes: NA = Not applicable (because there is no change in jobs, there is no corresponding change in income).

Total regional cumulative effects would be the sum of either Alternative 2 or the Preferred Alternative for the Eagle Lake Field Office and the totals for the Alturas and Surprise Field Offices.

Source: IMPLAN 2004

4.11 Potential Effects on Soil Resources

This section describes the potential impacts on soils from implementing the resource programs under the alternatives.

4.11.1 Methodology and Assumptions

The following discussion addresses key soil concepts and parameters that are fundamental to understanding the discussions of existing conditions and effects for soils.

The main indicators for evaluating the overall condition of soils are soil/site stability and hydrologic function. These indicators are part of BLM's Land Health Assessment (LHA) and are used to assess soil health in the context of BLM's Standards and Guidelines. Soil/site stability ratings reflect the capacity of a representative site to limit redistribution and loss of soils (including nutrients and organic matter) by wind and water. Hydrologic function reflects the capacity of the site to capture, store, and safely release water from rainfall, runoff, and snowmelt (where relevant). It also includes the ability to resist a reduction in this capacity; and ability to recover this capacity following degradation.

The LHA provides 12 indicators that are used to rank soil/site stability and hydrologic function into five categories:

1. slight to no deviation from what would be expected on a reference site,
2. slight to moderate deviation,
3. moderate deviation,
4. moderate to extreme deviation, and
5. extreme deviation.

For consistency with other assessments, ratings 1 and 2 are considered to be in 'properly functioning condition' (PFC), rating 3 is considered 'functioning at risk', and ratings 4 and 5 are considered 'nonfunctional'.

Soil health is influenced by the following processes:

- ***Soil compaction*** results from vehicles, construction equipment, people, animals, and livestock traveling over trails or land. Compaction can lessen the amount of precipitation that can infiltrate into soil and increase runoff, erosion, and sedimentation—in turn decreasing soil/site stability and hydrologic function, as well as soil productivity and plant vigor and diversity.
- ***Interception of precipitation*** results when precipitation falls on vegetation. When vegetation is removed, precipitation falls directly on the soil, increasing surface erosion and sedimentation, and decreasing the amount of time between initial precipitation arrival and peak surface runoff—in turn decreasing soil/site stability and hydrologic function.
- ***Infiltration*** is the process of precipitation entering and traveling through soil. Infiltration reduces the peak runoff during precipitation events by extending the period of runoff after a precipitation event. Infiltration also filters precipitation and reduces erosion and sedimentation. Most importantly, infiltration provides for moisture availability, which allows for the continued development of the soil profile. If infiltration is reduced, runoff and erosion will increase and soil/site stability and hydrologic function—as well as soil moisture availability, soil productivity, and plant vigor and diversity—will decrease.

- ***Runoff*** can affect the amount of erosion and sedimentation, as well as flooding—both onsite and offsite. If runoff is increased, all of these effects can increase and soil/site stability and hydrologic function—as well as soil moisture availability, soil productivity, and plant vigor and diversity—will decrease.
- ***Erosion and sedimentation*** affect soil/site stability and hydrologic function. Erosion and sedimentation can destabilize the surface and subsurface cohesion of the soil. Increased sediment entering water bodies' increases turbidity, increases width-to-depth ratios, and consequently increases temperature and dissolved oxygen (DO) saturation levels, and creates an adverse habitat for aquatic animals and plants.
- ***Major soil disturbing activities include:***
  - mechanical and hand treatments of vegetation;
  - livestock and wild horse grazing;
  - road building;
  - recreation activities; and
  - construction of structures such as buildings, fences, and exclosures.

If not properly managed, these activities can lead to erosion and sedimentation, with associated degradations in soil/site stability and hydrologic function, as well as soil productivity and plant vigor and diversity.

- ***Instream structures*** present a form of streambed and streambank disturbance that can mobilize sediment and weaken the soil structure. Because of the direct mechanism for exposure to such contaminants, instream work is of particular concern. Long-term effects would be related to increases or decreases in flows and sediment transport, with associated effects on geomorphology and soil/site stability and hydrologic function—as well as riparian function and instream habitat.
- ***Livestock distribution*** can increase or decrease the effect of livestock, depending on their location and density. If livestock are concentrated in small areas or along fencelines, soil disturbance from trampling would be greater than in some other areas, with associated effects related to soil disturbance and compaction. Soil organic matter, root structure, and soil biota can all be compromised. In particular, Vertisols (which exhibit shrink-swell characteristics) are at a high risk for soil degradation. Concentration of livestock and wild horses and burros in riparian areas can destroy streambanks. Such concentration is possible where there are no alternative water supplies or where exclosures are not used.
- ***Altered drainage patterns*** could result from such ground disturbance as building roads, harvesting timber, and installing instream structures. Altered drainage patterns can increase erosion and sedimentation and, in turn, decrease soil productivity.
- ***Increased erosion and sedimentation from roads*** can occur when improperly maintained drainages near roads concentrate runoff from roads and cause erosion and sedimentation. Erosion and sedimentation can also impair soil productivity and stability by removing soil organic matter and other stabilizing components of the soil profile.
- ***Vehicles*** can cause erosion and sedimentation. If vehicles are driven on soils, they compact the soil. If they are driven irresponsibly off roads, they can accelerate erosion and sedimentation and, in turn, decrease soil productivity.

- ***Visitation to interpretive centers*** increases ground-disturbing activities and soil compaction from foot and vehicle traffic in soils beneath and immediately next to interpretive centers and associated trails. Areas of greater disturbance might experience reduced soil productivity.
- ***BLM's ability to manage for the benefit of soils*** could be restricted or improved, depending on which alternative is selected. Different alternatives offer BLM differing levels of control to manage watersheds for the greatest environmental benefit of soils.
- ***Projects could be improperly located*** if visual and soil considerations are not properly balanced. If projects are not sited properly, erosion and sedimentation can increase.

The analysis boundary for considering the effects on soils includes all lands under the jurisdiction of BLM's Eagle Lake Field Office. For analyzing cumulative impacts all lands in the Eagle Lake Field Office area's watersheds, as well as any upland conditions to which the project alternatives could contribute were considered.

Analysis focused on the potential of project alternatives to degrade soils. In analyzing effects, the following was assumed:

- Recreation use of the field office area would continue to increase.
- BLM polices, including the Standards and Guidelines, would be achieved and applied as suitable across all alternatives (see below).
- Adverse effects on soils throughout the Eagle Lake Field Office area would be reduced by management practices and adherence to Standard 1 of the Standards and Guidelines (see below).
- No net loss of soil productivity or fertility would result from any alternative. If soil productivity were decreased in one area, the decrease would be offset by offsite restoration or mitigation.
- BLM will conform to the latest California Department of Transportation (Caltrans) and Uniform Building Code (UBC) building code standards, county general plan seismic safety standards, county grading ordinances, and National Pollutant Discharge Elimination System (NPDES) requirements.
- Effects are quantified by their relationship to Standard 1 (see below). Under the management actions for the project alternatives, Standard 1 would either be readily achieved or not readily achieved. Furthermore, achieving Standard 1 would require either (1) varying degrees of effort (e.g. "the least," "a lesser," "a greater," or "the greatest" amount of effort), where effort is defined as project-specific mitigation or additional time to reach Standard 1 following project implementation. The term "beneficial" denotes that implementing management actions would increase soil/site stability and hydrologic function. The term "adverse" denotes that implementing management actions would decrease soil/site stability and hydrologic function.

The most applicable criteria for determining the extent of effects on soils are listed below. These criteria are set forth in Standard 1of Rangeland Health Standards and Guidelines for Northeastern California and Northwestern Nevada, which states: "Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, and landform, and exhibit functional biological, chemical, and physical characteristics."

This statement means that, "Precipitation is able to enter the soil surface and move through the soil profile at a rate appropriate to soil type, climate, and landform; the soil is adequately protected against human-caused wind or water erosion; and the soil fertility is maintained at, or improved to, the appropriate level."

The criteria to meet the standard include the following:

- Ground cover (vegetation, litter, and other types of ground cover such as rock fragments) is sufficient to protect sites from accelerated erosion.
- Evidence of wind and water erosion, such as rills and gullies, pedestaling, scour or sheet erosion, and deposition of dunes, is either absent or, if present, does not exceed what is natural for the site.
- Vegetation is vigorous, diverse in species composition and age class, and reflects the potential natural vegetation or desired plant community for the site.

Implicit in all of the proposed management actions is BLM's intention to implement management practices to meet this standard or make significant progress toward meeting this standard. As a result, the main findings will be the time it takes to reach land health goals (or how much effort is required to reach land health goals) rather than whether the action would prevent meeting these goals.

4.11.2 Incomplete or Unavailable Information

Adequate information is available to analyze the effects on soils at the plan level.

4.11.3 Analysis

This analysis defined the levels of effects on energy and mineral management as follows:

Negligible: The effects on soil productivity or fertility would be at or below the level of detection.

Minor: The effects on soil productivity or fertility would be small, as would the area affected. If mitigation is needed to offset adverse effects, it would be relatively simple to implement and would likely be successful.

Moderate: The effect on soil productivity or fertility would be readily apparent and would change the soil character over a relatively wide area. Mitigating measures would probably be needed to offset adverse effects and would likely succeed.

Major: The effect on soil productivity or fertility would be readily apparent and long term and would substantially change the character of the soils over a large area. Extensive mitigating measures to offset adverse effects would be needed, and their success could not be guaranteed.

Short Term: The effect is expected to occur within 1 to 5 years of implementing the action.

Long Term: The effect that would occur after the first 5 years of implementation but within the life of the RMP (projected to be 20 years).

4.11.4 Impacts Common to All Alternatives

Major soil-disturbing activities that are expected to occur under all alternatives include the following:

- Grazing by livestock and wild horses,
- recreation and off-highway vehicle (OHV) use,
- wildland fire use and fuels treatments,
- road building and maintenance, and
- juniper treatment and timber harvest.

As a result of soil-disturbing activities in areas having soils with limitations, impacts common to all alternatives include vegetation and soil loss, soil erosion and soil compaction, decreased infiltration, and increased runoff.

Fire use and fuels management would have short-term, adverse impacts to soils through prescribed burning or fuels reduction. Prescribed burning and fuels reduction would increase erosion, runoff, and compaction rates through vegetation loss, use of heavy machinery, and temporary hydrophobic soil conditions following fires. Other post-fire erosion and compaction (i.e., a short-term, direct, adverse impact) would result from fire such suppression activities as the digging of firelines and the bulldozing of roads.

Over the long term, however, these fire management activities would reintroduce the natural fire return interval, thereby decreasing or eliminating the occurrence of catastrophic rangeland fires and promoting more productive rangelands with less soil degradation. Reducing catastrophic fires would limit the aggressive fire suppression needed for wildfire control, thereby reducing indirect impacts to soil and water resources. Moreover, the vegetation component that would become established over the short and long term would improve soil structure and decrease erosion, compaction, and runoff rates. Fire could benefit soil fertility by increasing nutrient cycling. High-intensity wildland fires in localized places could sterilize soil and reduce overall productivity, but the overall adverse effects would be minor.

Livestock grazing and wild horse uses in areas with sensitive soils could degrade soils in both the short and long term through ongoing soil compaction, erosion, sedimentation, and degrading of stream channel condition (Fleischner 1994). Conversely, closing areas to grazing would result in long-term benefits to soils because erosion, sedimentation, and increased runoff from direct trampling would be avoided. Soil compaction or erosion or both would occur in areas where livestock concentrate (e.g. watering areas, salt licks, fencelines, and corrals) and vegetation has been reduced or removed. Other livestock developments could increase such impacts. But some of these developments might mitigate more widespread adverse effects to soils by concentrating livestock use in specific areas. Livestock use could effect or benefit soil fertility and production. The nature of the effects would depend on changes in nutrient cycling (e.g. reduced litter accumulation, incorporating manure), seedbed characteristics, abundance and type of soil biota or soil biological crusts, and soil moisture. Overall, livestock use would result in short- and long-term minor to moderate adverse effects to soils.

Under all proposed alternatives the Eagle Lake Field Office would allow motorized use on approximately 1600 miles of routes. Recreation uses that could degrade soils include the following:

- establishing corridors along existing roads and trails wide enough to allow for road maintenance,
- vehicle pullouts and camping, and
- developing new motorized or non-motorized routes.

These actions could degrade soils in the short term by increasing erosion, sedimentation, and runoff from the ground disturbance of road building and from the use of vehicles in these areas (Snyder and others 1976).

Recreation uses under all alternatives that could benefit soils include closing existing roads in response to harmful ecological impacts and emergency vehicle closures where OHVs are determined to be disturbing or threatening to disturb soils. All of these actions would reduce soil disturbance in areas of existing or future soil degradation, benefiting soils and speeding recovery to proper functioning condition (PFC) in those areas.

Under all alternatives, management of the existing portions of Eagle Lake Basin, Bizz Johnson Trail, and South Dry Valley Special Recreation Management Areas would restrict OHV use and benefit soils. For soils, managing wilderness study areas (WSAs) would be the same under all alternatives, as would effects. Managing WSAs to retain wilderness character would generally reduce erosion, soil compaction, and sedimentation, thereby benefiting soils.

Forestry uses include hand and mechanical harvesting of timber and treatment of juniper, and managing forestlands using a mix of silvicultural practices. Ground disturbance from these activities, through the use of heavy wheeled or tracked vehicles, could disturb the soil in the short and long term, decreasing infiltration and increasing runoff, erosion, sedimentation, and soil compaction (Riekerk 1989). Impacts would be mitigated as timber operations and juniper treatments would be required to implement measures to protect soils.

Direct adverse effects to soils from road maintenance and use would include road edge disturbance, isolated erosion, and compaction. The effects on soils from soil displacement and dust production would be local, minor, and long term. Building and maintaining trails, as well as recreational use of these trails, would involve some soil loss, compaction, and erosion, resulting in site-specific negligible to minor long-term damage to soils.

Weed control employing herbicides or mechanical means would cause negligible to minor short-term disturbance to soil chemistry, structure, productivity, and abundance through herbicide applications, equipment disturbance and compaction, and wind erosion. The long-term benefits of weed control and a restored sagebrush steppe community would include stabilized soils and improved or restored natural fertility, productivity, and function. Such benefits would be long term and moderate.

Summary of Effects – Common to All Alternatives

Many actions under various resource programs would protect soils, such as use of exclosures and closing areas to certain uses. Of these, management actions for soil and water resources are most explicitly aimed at maintaining and improving progress toward proper functioning condition (PFC) and would most benefit soils. Building exclosures and closing areas for protection of vegetation, wildlife and archeological concerns would offer extended benefits to soils as a byproduct. Special management areas with use restrictions (i.e. ACECs and WSAs) would limit adverse effects to soils.

Other resource programs that could degrade soils through ongoing disturbance include livestock grazing, wild horse and burro use, new road building, and OHV use. These actions have a potential for widespread soil disturbance. Actions with similar but smaller adverse effects are related to forestry, issuing rights-of-way and mineral extraction because of the smaller areas those actions would disturb. Fire and fuels management has a great potential to affect soils, and actions that lead to a return of more natural fire cycles would greatly benefit soils.

All activities that could disturb soils would employ best management practices (BMPs) to further reduce the potential for adverse effects. Additionally, these activities would not result in a net loss of soil productivity because an equivalent improvement in soil productivity would be required elsewhere when an activity degrades soil productivity.

4.11.5 No Action Alternative

Under the No Action Alternative, the large area of full fire suppression (1,022,767 acres) would result in catastrophic fire potential over the entire field office area. Catastrophic fires result in widespread increases in erosion rates and losses of soil structure, with both short and long term effects from unnatural fire regimes.

Conversely, the area of fuels treatment (100 acres/year for prescribed fire, 500 acres/year for mechanical treatment) under No Action would mitigate some of the potential damage of catastrophic fires. Over the life of this RMP, 120,000 acres (12% of the field office area) would be treated. Adverse effects of treatments would be major but short term, however, beneficial effects would be major and long term, and would outweigh the adverse effects.

Short-term effects such as decreased infiltration and increased erosion, soil compaction, sedimentation, and runoff could result from the following:

- mechanical harvesting of juniper on 6,907 acres, and
- harvesting timber on 400 acres.

The result would be decreases in soil/site stability and soil productivity. However, timber and juniper operations would be designed to protect soils. In addition, over the long term, artificial regeneration and establishing of the natural sagebrush-steppe community would increase vegetation cover, with corresponding benefits to soil stability.

Extensive public access to the Eagle Lake Field Office area for recreation, except in special management areas, could affect soils by increasing exposure to ground disturbance. Expanding developed and undeveloped recreation sites in response to demand could inflict the adverse effects described under Impacts Common to All Alternatives. The construction of approximately 200 miles of non-motorized trails would have moderate to major long term effects to soils. However, many of these trails would be located in already disturbed areas. Also, no net loss of soil productivity would be allowed, hence impacts are not expected to be significant.

Under the No Action Alternative, 'open' OHV use would be allowed on 57% of BLM administered lands. Soil disturbances from cross-country travel would be moderate to major and long term. OHV use is likely to result in continued degradation of soil resources due to compaction and erosion associated with OHV travel—both on roads and trails and in cross-country areas.

Livestock grazing would occur on 97% of the field office area, and minor to moderate adverse impacts would result as described in Impacts Common to All Alternatives. Livestock grazing is managed to meet land health standards, and approximately 50% of all grazing allotments are rested from grazing during some portion of the year. Additional fencing of up to 30 miles would be constructed to improve livestock distribution, and prevent livestock concentration areas. These actions are designed to decrease direct and indirect adverse impacts to soils from trampling and compaction.

Building exclosures to protect riparian areas and other sensitive plant communities from livestock use would encompass 2,200 acres and would protect soils within and surrounding these areas.

Other exclosures for wildlife or cultural resources would add extended benefits to soil health on a case-by-case basis. Though the exclosures would be protecting a mere 0.2% of the field office area, their value would be amplified because of the amount of biodiversity within these areas and the dependence of wildlife outside of these areas. Soils alone would undergo minor benefits, but the benefits would extend over the short and long term.

Summary of Effects – No Action Alternative

Under current management, impacts on soil resources from most resource programs generally would be temporary and would be limited to specific local areas where activities such as prescribed fires or vegetation treatments occur. Most activities would occur over very limited portions of the field office area. The activities could negatively affect soil resources in the short term but would lead to ecosystem health and, in the long term, would benefit soil resources through improved soil stability afforded by healthy ecosystems. Development of new utilities such as power lines or new mineral activities could negatively affect soil resources on a permanent basis. While most portions of the field office area—except for WSAs, ACECs, and Wild Scenic Rivers—would be open to mineral development, the potential for most large-scale mineral development in the field office is generally low; however, planning projects to maintain soil resource values would ensure that potential impacts were minimized. The program areas with greatest potential to adversely affect soil resources would be those related to fire and fuels management and recreation.

4.11.6 Alternative 1. Economic Development

Impacts from fire management would result in the same impacts as described in the No Action Alternative.

BLM would treat hazardous fuels with prescribed fire on 1,500 acres annually, causing long-term major benefits to soils. Fuels would be mechanically treated on up to 2,500 acres annually with further major long-term benefits. The benefits of these treatments would outweigh any adverse effects, which would be major but short term.

Improperly managed chemical fuels treatments could contaminate soils. Improperly managed biological fuels treatments (e.g. overgrazing by goats) could compact soils and remove too much vegetation. However, biological and chemical treatments on 500 acres each per year are expected to be intensely managed. Therefore, any adverse effects would be minor and short term. Benefits to soils would be moderate with both short and long term effects through enhanced recovery of the natural vegetation community.

In this alternative juniper would be treated as an invasive species regardless of where it occurs. The result would be minor decreases in soil/site stability as well as in soil productivity. Timber and juniper operations would be designed to protect soils. In addition, over the long term, artificial regeneration and enhancement of the natural sagebrush-steppe community would increase vegetation cover, with corresponding benefits to soil stability over a major area.

Alternative 1 would largely limit OHV use to existing and designated roads and trails. OHV closures would occur within approximately 21,000 acres. Such restrictions would substantially reduce soil disturbance from cross-country travel. The benefits to soils from this restriction would be muted somewhat by the exceptions for off-road travel (i.e. for woodcutting and game retrieval). No areas would receive Recreation Opportunity Spectrum (ROS) designations of Primitive, no permanent or seasonal closures of routes would be implemented, and an additional 15 miles of routes would be constructed. The overall impact to soils would be minor to moderate adverse effects.

Developing the following recreation projects would cause minor to moderate short-term soil disturbance:

- creation of two new special recreation management areas, and
- construction of up to 322 miles of new trails.

Visitor use of these areas would result in minor long-term soil disturbance. Prohibitions on camping within 200 feet of water sources, sensitive plant locations, and cultural sites would benefit soils in those areas by reducing trampling and related erosion and soil compaction.

Under this alternative only one ACEC would be designated. The Aspen Groves ACEC, 2745 acres, would be protected from many uses through the use of exclosures. This would result in benefits to soils within these select areas.

Alternative 1 recommends 25 miles of eligible rivers for congressional designation as Wild and Scenic Rivers. These wild and scenic river segments would be managed to protect their natural values and would be withdrawn from mineral entry. OHV use would also be restricted in these areas. The long-term effects of the wild and scenic river designation would be beneficial because the rivers and streams and their adjacent riparian and upland soils would receive more management attention and protection.

Under this alternative, lands open to livestock grazing would increase. No exclosures would be constructed to protect special resources from grazing. Only 25-40% of allotments would be rested part of the year, and additional AUMs would be allowed. These actions are difficult to mitigate because intense management actions–increased herding, fencing, vegetation treatment, and water development–would be required to maintain land health standards. Unless livestock grazing practices are intensely managed, Alternative 1 would result in moderate to major short and long term adverse effects on soil resources, particularly in sensitive areas such as riparian areas. Livestock grazing would not be allowed on 2745 acres of aspen, buffalo berry and oak woodlands, which would protect trampling damage from livestock in these areas.

Summary of Effects – Alternative 1

Under Alternative 1, the impacts on soil resources from most resource programs generally would be temporary and would be limited to specific local areas similar to current management. Some activities would occur over a slightly larger area but still would not represent a significant portion of the field office area. A slight increase in restrictions on mineral development in the form of closures or NSO stipulations would reduce potential impacts on soils in these areas. While most portions of the field office area—except for WSAs, ACECs, and Wild Scenic Rivers—would be open to mineral development, the potential for most large-scale mineral development is generally low in the field office area. In addition, planning projects to maintain soil resource values would ensure that impacts were minimized. Development of new utilities such as power lines would be in designated corridors, which would concentrate soil disturbance in existing affected areas and reduce the potential for impacts in other parts of the field office area. Actions related to grazing would result in the greatest potential for adverse effects on soil resources under Alternative 1.

4.11.7 Alternative 2. Ecosystem Restoration

Under Alternative 2, cultural resource management areas (CRMAs) would occupy the largest area of any of the alternatives, and one cultural ACEC would be designated. Management attention would be focused on the CRMAs and ACEC, which likely would include measures that would indirectly benefit soil resources—such as access restrictions and use of exclosures.

In addition, the ACEC designation would limit OHV use to existing roads, which would greatly benefit soil resources where they are currently being affected by off-road travel. Finally, no new interpretive sites would be developed; consequently, any adverse effects associated with construction and use of interpretive sites under the other alternatives would be avoided.

Alternative 2 would implement appropriate management response (AMR) for wildland fire management on 730,039 acres and wildland fire use on 10,339 acres. These actions would reduce fuel loads and create a natural fire regime with reduced potential for catastrophic fires that could adversely affect soil resources. Fuels treatments would occur on 2,500–10,000 acres annually, which is the largest under any alternative, resulting in the beneficial effects from those treatments. Under Alternative 2, Standard 1 would be most readily achieved with the least amount of effort of any alternative due to the large areas subject to AMR, prescribed fire, and fuels treatment.

Effects of vegetation management actions under Alternative 2 generally would be as described under "Impacts Common to All Alternatives." However, the emphasis on additional fencing of riparian areas and wetlands to accelerate progress toward PFC would result in faster progress toward achieving Standard 1, compared to the other alternatives.

Management actions for energy and minerals would be more restrictive under Alternative 2 than under the No Action Alternative and Alternative 1. Existing pits would not be expanded, no new pits would be excavated, and decorative stone collecting would be prohibited. ACECs would be closed to locatable and saleable minerals, and major constraints would be placed on geothermal leases. Standard lease stipulations would be more restrictive in special management areas than under Alternative 1. These restrictions, and the overall emphasis on maintaining, restoring, or improving components of the ecosystem, would afford soil resources more protection than the other alternatives. Overall, management actions under Alternative 2 for energy and minerals would result in the fastest progress toward attaining land health standards of all alternatives and would result in beneficial effects on soil resources.

Effects of forestry management actions under Alternative 2 generally would be as described for the No Action Alternative. The largest acreage would receive treatment and harvesting than under any other alternative. However, management emphasis will be on restoring wildlife habitat and maintaining late seral stages. Artificial regeneration would occur on a slightly larger area than under other alternatives and would result in slightly larger beneficial effects.

Livestock grazing allotments would be rested every 2 out of every 3 years. These actions would greatly benefit soil resources by eliminating disturbance in sensitive areas and reducing impacts in grazed areas. Additional exclosures would be built on up to 3,000 acres. Overall, in the short term and long term under Alternative 2, Standard 1 would be readily achieved with the least amount of effort of any alternative. Grazing management actions under this alternative would result in the greatest beneficial effects and the least potential to adversely affect soil resources.

Adverse effects on soils from recreation management actions under Alternative 2 would be less than under the No Action Alternative due to the smaller area subject to potentially negative effects. OHV use would be drastically reduced, non-motorized ROS would be emphasized, and a substantially smaller amount of new trails would be constructed. Overall, Alternative 2 would provide a high level of soil resource protection. Standard 1 would be readily achieved with a relatively small amount of effort compared to the other alternatives.

Alternative 2 includes the designation of six additional ACECs totaling 89,397 acres. Development of management plans for these ACECs would benefit soil resources by stipulating protections and mitigation.

Management actions for special management areas under Alternative 2 would offer the greatest protection of soil resources of any alternative because of its ACEC designations and recommendations for 29 miles of Wild and Scenic River designations.

Under Alternative 2, development of new transportation and utility projects would be excluded from sensitive areas such as WSAs and ACECs. These restrictions would benefit soil resources by reducing disturbances in these areas. Co-locating new facilities, minimizing corridor width, and maximizing use of existing communication sites would concentrate potential soil disturbances in existing affected areas, resulting in a benefit to soil resources by reducing the opportunities for soil disturbance in new locations.

Summary of Effects – Alternative 2

Under Alternative 2, the impacts on soil resources from most resource programs generally would be temporary and would be limited to specific local areas. Some activities would occur over a slightly larger area but still would not represent a significant part of the field office area. The significant restrictions on OHV use from multiple resource programs would reduce the potential impacts on soil resources from cross-country travel. Increased restrictions on mineral development in the form of closures or NSO stipulations also would reduce potential impacts on soil resources in these areas. Development of new utilities such as power lines in narrower corridors and in areas with existing facilities would reduce potential soil disturbance in new undisturbed areas. Under many resource programs, measures are proposed that would indirectly protect soil resources; consequently Alternative 2 would result in a moderate to major beneficial effect on soils overall.

Under the Ecosystem Restoration Alternative, off-highway vehicle (OHV) use would be largely 'limited to designated roads and trails', which would eliminate adverse impacts to certain roads and on soils in areas suitable for cross-country travel. Approximately 300,000 acres would have Recreation Opportunity Spectrum (ROS) designations of primitive. These designations would have major short and long term benefits because they would eliminate motor vehicle use.

Grazing reductions up to 70% of the current use would promote achieving Soil Health Standards throughout the field office area through extreme limiting of grazing pressure on soil and vegetation. Two miles of bioengineering, such as felled juniper placement along perennial, intermittent, and ephemeral streams, would stabilize soils in areas along streams and drainage banks and also trap excess sediment and prevent its being transported from upland soils.

4.11.8 Alternative 3. Traditional Uses

Management actions and associated impacts under Alternative 3 are very similar to those described for the No Action Alternative. The area of fuels treatment (500 acres/year for prescribed fire, 2,500 acres/year for mechanical treatment) would help promote the natural fire regime and more productive rangelands with less soil degradation. Over the life of this RMP, 200,000 acres (40% of the field office area) could be treated mechanically or with prescribed fire. Annual biological and chemical treatments on 500 and 1,500 acres, respectively, would be intensely managed. Therefore, any adverse effects would be minor and short term. Combined adverse effects over the life of the plan would be major but short term. Long-term moderate benefits would outweigh any short-term adverse effects.

Timber harvesting on 300 acres would result in short-term adverse effects to soils such as decreased infiltration and increased erosion, sedimentation, runoff, and soil compaction, decreasing soil/site stability and soil productivity. Timber operations would not be designed to enhance wildlife habitat or late seral stages, as in other alternatives.

Alternative 3 would designate only 2,905 acres of new ACECs. Exclosures would protect soils within these areas; however, no new livestock exclosures would be constructed in other areas. Only 30% of all grazing allotments would be rested on an annual basis. Impacts to soils from livestock would be moderate to major and long term. New non-motorized trails would be constructed on only 18 miles. Impacts would be long-term, but minor.

Summary of Effects – Alternative 3

Alternative 3 would result in moderate to major adverse impacts to soil resources, similar to the No Action Alternative, from 'open' OHV use and additional livestock grazing. OHV use is likely to result in continued degradation of soil resources due to compaction and erosion associated with OHV travel—both on roads and trails and in cross-country areas. Grazing actions would be difficult to mitigate without some rest periods required, and intense management actions–increased herding, fencing, vegetation treatment, and water development–would be required to maintain land health standards. Unless livestock grazing practices are intensely managed, Alternative 3 would result in moderate to major short and long term adverse effects on soil resources, particularly in sensitive areas such as riparian areas.

4.11.9 Preferred Alternative

The effects of most program areas on soil resources under the Preferred Alternative are most similar to those described for Alternative 2. Exceptions include certain actions for locatable and salable energy and mineral development, travel management, and livestock grazing. Riparian and wetland improvements would be the same as the No Action Alternative.

Most of the field office area is designated as ROS Primitive or Backcountry to emphasize recreation opportunities in natural settings. OHV use is restricted similar to Alternative 2, and the potential for soil impacts of cross-country use is very low under the Preferred Alternative. Other travel actions would be the same as Alternative 1, including the closure of 59 miles of routes, the constriction of 15 new miles of motorized routes, and 322 miles of non-motorized routes. This alternative would involve the greatest amount of new trail construction, with the correspondingly highest potential for effects from construction and use of trails.

Effects of management actions for special management areas under the Preferred Alternative would be similar to those of Alternative 2. Because more active recreation in WSAs would be encouraged under the Preferred Alternative including the construction of 68 miles of new hiking and equestrian trails, the potential for adverse effects on soil resources in WSAs would be increased. Wild and Scenic River recommendations would be greatly reduced under the Preferred Alternative, losing the potential long-term benefits to soils afforded by such designations.

Livestock grazing management would be aimed at meeting soils and land health standards, to reduce potential adverse impacts to soil resources. Up to 80% of all grazing allotments and 90% of all grazed lands would receive periodic rest from grazing annually. Fencing would be constructed on up to 80 miles to facilitate livestock distribution. Up to 2,500 acres of new exclosures would be built to protect sensitive resources. Areas of critical environmental concern (89,397 acres) would be designated in which livestock grazing would be carefully monitored to protect unique and important resources.

Impacts under the Preferred Alternative from management actions for utilities, transportation, and telecommunications would be similar to Alternative 1, except that use in avoidance areas such as WSAs and ACECs would be minimized and the soils in these sensitive areas would be subject to less disturbance.

Most portions of the field office area—except for WSAs, ACECs, and Wild Scenic Rivers—would be open to mineral development; however, since the potential for large-scale development is generally low in the field office area, impacts on soil resources are not expected to be significant. Utilities also would make use of existing corridors, as under Alternative 1, and possible impacts on undisturbed areas are expected to be reduced.

Summary of Effects – Preferred Alternative

The Preferred Alternative would result in minor adverse impacts to soils, and moderate beneficial effects. The effects of most program areas on soil resources under the Preferred Alternative are most similar to those described for Alternative 2. Exceptions include certain actions for locatable and salable energy and mineral development, travel management, and livestock grazing. Riparian and wetland improvements would be the same as the No Action Alternative.

Minor adverse impacts would result from ground disturbing activities, such as increased public access, livestock and wild horse grazing, and potential minerals development. No net loss of soil productivity would be allowed; hence impacts are not expected to be significant.

Prescribed fire and vegetation treatments would adversely affect soils in the short term but would lead to improved long term ecosystem health. Moderate beneficial impacts would be realized as several enhanced protection measures are put into place.

This alternative has the second highest restrictions to mineral development. Leasable minerals development would be closed within WSAs and the Eagle Lake ACEC. Actions associated with the designation of seven ACECs would reduce soil disturbance associated with ROW development, cross-country travel, and surface disturbance associated with mining.

OHV use within 99% of the field office area would be ‘limited to designated routes’, limiting adverse impacts to soils from cross-country travel. Most of the field office area is designated as ROS Primitive or Backcountry to emphasize recreation opportunities in natural settings. Other travel actions would be the same as Alternative 1, including the closure of 59 miles of routes, the constriction of 15 new miles of motorized routes, and 277 miles of non-motorized routes.

4.11.10 Comparative Summary of Impacts

Overall, Alternative 2 would result in the least adverse impacts on soil resources because management actions under this alternative are restricted to certain areas and most activities that could cause significant impacts are more restricted than under the other alternatives. The effects of the Preferred Alternative are generally similar to Alternative 2, but not as many protective measures would be implemented that would benefit soil resources. Although more areas would be open to mineral development under the Preferred Alternative, the potential for large-scale mineral development is generally low in the field office area, and impacts associated with such development are not expected to be significant.

Most other activities, such as prescribed fire and vegetation treatments, under all alternatives would occur over very limited areas of the field office area. The activities could negatively affect the soils in the short term but would lead to ecosystem health and, in the long term, would benefit soils resources by returning a more natural cycle to the ecosystem. Because the No Action Alternative and Alternative 3 are generally similar and less restrictive in management of programs, the potential effects on soil resources of these alternatives are somewhat greater. The exception is that Alternative 3 is the most restrictive alternative for OHV use. Under Alternative 3, the potential impacts on soil resources from cross-country travel would be reduced compared to all other alternatives.

Alternatives 1 and 2 and the Preferred Alternative would identify utility corridors for developing new utility lines. Use of the corridors would reduce the potential for utilities to be built on multiple routes, which would benefit the soil resources in large portions of the field office area. Compared to the No Action Alternative and Alternative 3, impacts of utilities would be concentrated in specific, previously disturbed areas under Alternatives 1 and 2 and the Preferred Alternative. Under Alternative 2, the corridors would be minimized to further reduce potential impacts compared to Alternative 1 and the Preferred Alternative.

Overall, Alternative 2 would be the least harmful to soils because its management actions would most focus on resource protection and improvement. Activities that could significantly disturb soils would be more restricted than under the other alternatives. The effects of the Preferred Alternative are generally similar to those under Alternative 2, but the Preferred Alternative would not implement as many protective measures that would benefit soils. The No Action Alternative and Alternative 1 would generally have the greatest potential for harming soils because of the lack of protective action (No Action Alternative) or the increased level of development and use (Alternative 1). Alternative 3 offers greater protection of soils. Its management actions would be similar to but somewhat more protective than the Preferred Alternative for most resource programs.

4.11.11 Cumulative Effects

In the area surrounding BLM holdings, agricultural practices include livestock grazing and some dryland farming. These land uses have, in some cases, led to the erosion of soils by disturbing native vegetation and leaving soil surfaces exposed. Other activities outside the field office area that would also contribute to cumulative effects include:

- converting sagebrush and other habitats to agricultural or residential use,
- invasions of noxious weeds,
- juniper treatments,
- logging and road building,
- water development, and
- wildfire.

Cumulative effects would also be expected outside the field office area where recreation, utilities, housing development, or road building actions take place and disturb soil surfaces.

Cumulative effects within BLM-administered lands would be expected mainly where upland soils on BLM-administered lands do not meet land health standards, and from soil disturbing construction projects, such as trail and road building. However, all resource uses with the potential to degrade soils would employ best management practices (BMPs) to reduce potential adverse effects. These actions, in combination with the large amounts of vegetation restoration treatments planned under the Preferred Alternative, would result in overall benefits to soil resources. These actions taken by BLM would help to balance out any small-scale adverse impacts occurring within the area of analysis. Overall, the regional cumulative effects resulting from actions both within BLM and from other land uses would be minor to moderate adverse impacts, and moderate beneficial impacts.

4.11.12 Mitigation Measures

All resource uses with the potential to degrade soils would employ best management practices (BMPs) to reduce potential adverse effects. Where adverse effects cannot be avoided and where they would not naturally recover, BLM would mitigate them by providing improvement equal in value to the area disturbed elsewhere in the field office area.

4.11.13 Unavoidable Adverse Impacts

Resource uses of most concern would be those involved with livestock grazing, wild horses and burros, new road construction, and OHV use, due to the potential for localized and widespread soil disturbance. Actions with similar but smaller adverse effects are related to forestry, issuing rights-of-way, and mineral extraction, because of the smaller areas that would be subject to disturbance from those actions. Fire and fuels management has a great potential to disturb soils, but the benefits of natural recovery of soils after fire and fuels uses would outweigh this adverse effects.

4.11.14 Short-Term Uses Versus Long-Term Productivity

Short-term uses disturbing soils, such as vegetation and juniper treatments, would generate enhanced long-term productivity.

4.11.15 Irreversible and Irretrievable Impacts

Effects to soils such as building permanent roads or campgrounds would result in permanent soil compaction, soil structure modification, and vegetation removal that would be irreversible and irretrievable as long as such areas continue to be used.

4.12 Potential Effects on Areas of Critical Environmental Concern

4.12.1 Methodology and Assumptions

This section describes impacts on areas of critical environmental concern (ACECs) from actions under the different alternatives. Analysis also considers effects according to changes in ACEC numbers, size, location, and use restrictions under alternative management options for ACECs. When assessing the effects of management actions for other resource programs on ACECs, the following assumptions were made:

This resource management plan (RMP) will not provide detailed direction for every aspect of ACEC management. Specific guidelines for each ACEC will be completed after the record of decision is signed. Guidelines will generally be more restrictive than those that apply to the surrounding area.

One of the most important aspects of ACEC management is the growth of recreation. A market study of northeastern California conducted in 2002 identified non-vehicular activities--such as day hiking--as very popular in the region; however vehicle-based activities such as auto-based site-seeing and recreational driving were also very popular. Use of off-highway vehicles (OHVs) is a well-established activity on the existing network of rough dirt roads, primarily for hunting access and backcountry sight-seeing (see the travel management section.) The key management challenge is to provide adequate public access and quality motorized and non-motorized recreational experiences while avoiding user conflicts and protecting resources and the environment.

All types of recreation are likely to increase over the 20-year planning period of this RMP. Demand will continue to increase from individuals and groups as local and neighboring counties (particularly Lassen, Modoc, Plumas and Shasta, in California, and Washoe County, Nevada) continue to grow. Projected annual growth is 0.4% for Lassen County and 1.43% for Washoe County. Requests for special event and commercial recreation permits will increase as more clubs, community groups, commercial, and educational organizations come to rely on BLM-administered lands for easy access on a daily basis.

ACECs require special management. This would be phased in, starting with the most pressing problems in order to arrest, then reverse, resource damage. Implementation plans will be specifically developed for each new ACEC. Priority will focus on those that are most degraded and those that are closest to population centers.

As much as possible, ACECs will be created and managed according to easily identifiable public land blocks, major topographical features, or major road boundaries in order to increase public awareness, understanding, and compliance with identified ACEC values and regulations.

4.12.2 Analysis

For the purpose of this analysis, effects on ACECs are considered 'adverse' if they would introduce or perpetuate any impairment of resources or values that the ACEC is designed to protect. Conversely, effects are considered 'beneficial' if they would introduce changes that support or strengthen public land resources and ACEC values.

Negligible: Changes in ACEC resources and values would occur. However, if measurable, they would have no perceptible influence on recreational opportunities.

Minor: Changes in ACEC resources and values would be measurable and perceptible, but highly localized.

Moderate: Effects on ACEC resources and values would be appreciable and easily perceptible, but somewhat localized.

Major: Effects on ACEC resources and values would be substantial, obvious, and widespread.

4.12.3 Incomplete or Unavailable Information

Adequate information is available to assess effects on ACEC resources and values at the resource management plan level.

4.12.4 Impacts Common to All Alternatives

Management actions such as inventory, evaluation, and categorization of sites are not expected to affect ACEC resources, values, or recreational activities. Restrictions associate with ACEC management—such as area or road closures—would-be site-specific and imposed only when required to preserve or enhance ACEC values and resources. These are expected to have uniformly beneficial effects on ACEC values and resources.

Fuel reduction and fire management activities are not expected to have adverse effects on ACECs beyond temporary and localized disruptions to public access from road closures during prescribed fire or other vegetation treatments. There will be no further discussion of fuel and fire management in this section, except where the size of treated areas are substantial, or where prescribed fire and other fuel treatments are expressly used to enhance ACEC resources and values.

Soil management includes various soil conservation, erosion control, and road maintenance practices. This may include closing and rehabilitating roads were sensitive resources are threatened. It also involves minimizing new road construction and may require some road realignment. These activities will, in certain locations or at certain times, disrupt route network connectivity, reduce recreational access and opportunities, and prevent the development of new routes—including some that would have reestablished previously-existing route connectivity. Road closures or relocations to enhance the quality of stream or lake water could also impair route network connectivity and would reduce OHV recreation within ACECs if new routes are not built to replace those that are closed.

However, road closures are often beneficial for hunting, fishing, hiking, and wildlife-viewing by reducing man-related disturbances, providing a more natural setting, and enhancing natural resources. Also, water-quality closures are generally the same as required to protect soils; therefore, these closures are not expected to affect additional miles of road. The total impact of soil and water-quality road closures cannot be determined until road-related site degradation is properly inventoried and identified. However, soil and water-quality interventions cannot help but have overall positive benefits for ACEC values.

Benefits will accrue to ACECs from measures designed to protect and restore riparian areas, wetlands, forests, and vegetation communities. Restoration of unhealthy vegetation and other conservation measures will enhance habitats and wildlife populations.

Such interventions will generally improve natural and visual characteristics and will have minor to major long-term benefits for ACEC values and resources.

Weed-control interventions are also expected to have minor short and long-term beneficial effects by restoring the native landscape and its natural diversity, and benefiting wildlife. Management interventions for special-status species could have moderate beneficial effects for ACECs by restricting or closing them to practices or activities that are harmful to these species.

Actions would be based on monitoring and evaluation, and benefits would depend on the extent and details of closures and restrictions.

Management interventions that protect the visual integrity of WSAs, scenic trail corridors, historic trails, proposed wild and scenic river segments, and special recreation management areas (SRMAs) will have significant effects on ACEC values and activities. In conformity to BLM national policy, ACECs are designated VRM Class II; however, if created within a wilderness study area, they are managed as Class I because of the wilderness IMP. An undeveloped, natural-appearing landscape is a very important component of the recreational appeal of these areas for hiking, hunting, wildlife-viewing, camping, trail-riding, and other recreational pursuits. For the most part, effects are indirect, but would have minor to major long-term benefits for ACECs by preserving their natural setting, thereby protecting associated values and resources.

Wild horse management is not expected to affect ACECs because actions do not include closures or restrictions that would affect recreation or economic opportunities, or alter the natural setting within any proposed ACEC.

Mineral and energy development--especially extraction of locatable or salable minerals or oil and gas exploration and development--could have minor to major adverse impacts on ACEC values and resources. However, it is highly likely that impacts will be minor because of the low potential for these kinds of development. Also, some proposed ACECs are within WSAs and are therefore closed to salable (decorative rock and cinders) and leasable (oil and gas) mineral exploration and development. Although locatable (hard rock) minerals are limited to relatively small sites, impacts on ACEC values and resources could be substantial, depending on the location of claims.

Impacts on ACECs from forest management practices are expected to have some negligible adverse effects from timber harvesting. However, timber cutting within ACECs would be designed for the *sole* benefit of ACEC resources and values; therefore, adverse effects would be short term. Long-term ACEC benefits would justify timber harvest since enlightened forest management will ultimately improve forest health and support ACEC values. Timber harvest activities that focus on forest health and aesthetics would also be sensitive to site-specific issues associated with old-growth or large trees. Such considerations could temporarily disrupt vehicular access or public use of the ACEC.

Livestock grazing occurs on most BLM-administered lands, including within proposed ACECs. This use is expected to continue with minor to moderate, long-term adverse effects on ACECs. By way of mitigation, mandatory rest from grazing and exclusion of livestock to improve conditions around springs, and along stream banks and lake shores, would have minor to moderate beneficial effects by improving natural appearance, benefiting native plants, improving wildlife habitat, protecting cultural values, and minimizing visitor/livestock interaction.

Management actions identified for land acquisitions under this RMP would have direct benefits for ACECs. Effects could be negligible to major, depending on the size and location of acquisitions. Land acquisitions would be available for recreational activities and would support ACEC values and resources.

Development of new roads and trails in ROS (recreation opportunity spectrum)-designated, semi-primitive non-motorized areas would be limited to resource protection (primarily road or trail realignment) or would support new recreation opportunities by creating trails with non-motorized designations. Road or trail realignment, and judicious new road development, would be designed to protect resources and maintain natural settings by shunting motor vehicle traffic to routes that traverse less vulnerable areas. Overall, this management would have negligible benefits for ACECs.

Managing ACEC lands to provide opportunities for self-contained camping would tend to concentrate use and increase the potential for litter, resource damage, and wildfires caused by irresponsible campers. Campers on BLM lands currently enjoy freedom and flexibility in their choice of areas and settings and are not limited to developed facilities. Managing public lands as 'open' to self-contained camping would have negligible beneficial effects, primarily by dispersing use.

Development of interpretive materials, displays, and presentations would enhance local resident and visitor understanding of natural history, cultural and historic values, and ACEC purposes. This would have minor benefits for ACECs by expanding public understanding and enjoyment of BLM-administered lands, resources and values protected under this program. Such efforts may lead to increased rural tourism and contribute to diversification of the local economy; since ACECs provide an attractive destination and educational efforts would increase awareness and appreciation.

Management decisions and actions protecting WSAs and, therefore, affecting the ACECs proposed within them, would--assuming eventual designation of the WSA--have negligible benefits for ACEC resources and values and no adverse effects. WSA management basically focuses on preventing unauthorized and unsuitable encroachment that could degrade the natural character of the environment. In either case, recreation would be primitive and non-mechanized and an unaltered natural environment would be maintained. However, should any or all of the WSAs containing (proposed) ACECs be denied wilderness status and released from further study, existence of the ACEC would ensure continued protection of ACEC values and resources within the bounds of the ACEC. Under this scenario, major long-term positive benefits would result.

4.12.5 Pine Dunes Research Natural Area/ACEC

Relevance and Importance Criteria: The site is a unique, isolated ponderosa pine grove established in a sand dune complex populated by sagebrush-steppe species from the surrounding area. The closest pine stand is 20 miles north.

5.1 Impacts Common to No Action, Alternative 1. Economic Development, and Alternative 3. Traditional Uses

Management and impact would be the same for all three alternatives. The existing Pine Dunes Research Natural Area (RNA) (160 acres) will protect the current stand of 67 ponderosa pines that are established in a sand dune complex populated by sagebrush-steppe species. The BLM would also seek to acquire (from willing sellers) the remaining pines (24 trees) on adjoining private land, then extend current exclosure fencing to prevent entry by livestock, wild horses, and off-highway vehicles (OHVs). The area would be renamed as the Pine Dunes Research Natural Area/Area of Critical Environmental Concern (abbreviated as the Pine Dunes RNA/ACEC).

There would be no impacts on livestock grazing, timber harvesting or woodcutting from the existence of the Pine Dunes RNA because it has been closed to these uses since 1987.

There would be no further impacts to locatable and saleable mineral development from ACEC designation because the area has been long-closed to mineral (and vehicle) entry and management priorities prohibit such disturbances. The only mineral material of consequence is sand, and this can be obtained elsewhere. In any case, there has been no interest in mineral development.

The Pine Dunes RNA/ACEC would remain open to mineral leasing; however, no surface occupancy (NSO) stipulations would be imposed to protect vegetation, and the dunes themselves, from surface disturbance.

Any exploration or development would be off-site, using diagonal drilling methods. Impacts from leasable mineral exploration or development are very unlikely because the area is not known to contain such minerals.

Right-of-ways would not be issued through the Pine Dunes RNA/ACEC, however, there has been no demand for this and alternative routes around this small area could easily be found.

The area's scenic qualities would be managed under VRM Class III criteria. This requires at least partial retention of the existing character of the landscape. Visual changes could be seen and would attract the attention of a casual observer, but should not dominate the landscape.

5.2 Impacts Common to Alternative 2. Ecosystem Restoration and the Preferred Alternative

Impacts for the current 160 acres of the Pine Dunes RNA/ACEC would be as described for the previous three alternatives. However, under Alternative 2 and the Preferred, the BLM would seek to acquire (from willing sellers) an additional 2,127 acres of adjoining sand dune habitat (including the area containing the other 24 pines.) This acquisition would add further protection for sand dune habitats on the eastern side of the Madeline Planes. The entire area (2,287 acres) would then be renamed as the Madeline Plains-Pine Dunes Complex RNA/ACEC.

Beneficial effects from a greatly enlarged RNA/ACEC would include protecting the majority of the soil/vegetation associations that form this unique dune habitat—not just the area where additional ponderosa pines are located. Management (with the exception of visual resources) and impacts would be the same as the previous three alternatives. However, the enlarged RNA/ACEC would be managed under VRM Class II criteria. This means that the existing character of the landscape must be retained. Visual changes may be seen, but should not attract the attention of the casual observer.

4.12.6 Eagle Lake Basin ACEC

Relevance and Importance Criteria: The area has high cultural resource value derived from a concentration of prehistoric Native American sites, an historic wagon road, and the remnants of three historic water-exportation attempts. It also has great scenic and recreational value (primarily fishing, camping, water sports, and historic trail appreciation). Lastly, the lake contains a unique fishery and the area contains important wildlife habitats. The size of the ACEC would be 34,320 acres.

6.1 Impacts Common to No Action, Alternative 1. Economic Development, and Alternative 3. Traditional Uses

There would be no ACEC designation under these three alternatives. The relevant and important values supporting ACEC designation in Alternative 2 and the Preferred would be managed according to the alternative prescriptions for the various resource programs described in chapter 2 ("Proposed Actions").

Management under these three alternatives would protect the relevant and important values of the Eagle Lake Basin but would not create sufficient management emphasis to secure the additional funding necessary to acquire undeveloped lands, complete habitat restoration projects, or provide public interpretation of the prehistoric and historic resources of the basin.

6.2 No Action Alternative

This alternative would protect cultural resources concentrated along portions of the Eagle Lake shoreline, the Merrillville-Bieber Wagon Road (east of Highway 139 and extending for seven miles along the north shore of Eagle Lake), and remnants of three water-exportation attempts under protocols established by the BLM in consultation with the California State Historic Preservation Officer, and in compliance with section 106 of the National Historic Preservation Act (NHPA). The high scenic value of the area would be managed to retain the existing character of the landscape (VRM Class II) while permitting the restoration of grass and shrub habitats where western juniper has overtaken rangeland. Bald eagle habitat would be protected under the requirements of the Endangered Species Act. Impacts from authorized uses of public lands must comply with water quality standards protecting Eagle Lake--especially the endemic Eagle Lake rainbow trout. Approximately 22.5 miles of trails would non-motorized designations would be built (based on decisions from existing land-use plans) for the use of hikers, horseback riders, and mountain-bikers.

Off-highway vehicles would be limited to existing roads and trails, thus eliminating impacts from cross-country travel. Undeveloped shorelines would remain closed OHVs. Woodcutting would be authorized under permit. Permits would be granted in areas where its visual effects could not be seen from the lake or its shoreline. Timber harvesting would continue with stipulations to improve land health and protect natural, cultural, and wildlife resources.

Recreation would be managed under the provisions of the (current) Eagle Lake Basin Plan (Eagle Lake Field Office, 1991) that provides management prescriptions for the Eagle Lake Basin Special Recreation Management Area (SRMA). Management of the SRMA emphasizes primitive, self-contained camping (on portions of the Eagle Lake shoreline), protecting (Eagle Lake) water quality, and the preservation of scenic resources (VRM Class II).

6.3 Alternative 1. Economic Development

The Economic Development Alternative would protect the relevant and important criteria of the Eagle Lake Basin in a manner similar to No Action. Trail construction would be increased to 31 miles of new trails. Non-motorized designations would apply, in order to increase their value for appreciation of scenic beauty, wildlife-viewing opportunities, and interpretation of nearby historic sites. The Merrillville-Bieber Wagon Road segment (along the Eagle Lake shoreline) would be cleared of brush and rock-fall, thereby opening the trail adjacent to Eagle Lake (where wildlife-viewing opportunities are good and historic trail interpretation would take place). OHVs would be ‘limited to designated roads and trails’ throughout the area, thereby limiting impacts to well-establish routes. There would also be increased emphasis on juniper removal, especially as a biomass fuel. However, scenic quality would still be protected under VRM Class II criteria. This means that visual design principles would be employed to create natural-appearing openings and irregular edges. A few (juniper) trees would be left scattered throughout the thinned areas.

6.4 Alternative 2. Ecosystem Restoration

The Ecosystem Management Alternative would designate 34,320 acres of public land as the Eagle Lake Basin ACEC. This would be done to prioritize BLM management for the protection of its (identified) relevant and important ACEC values (previously enumerated). The (endemic) Eagle Lake rainbow trout fishery and the lakeshore's substantial marshy areas (supporting large numbers of waterfowl, western grebes, ospreys, and bald eagles) especially enhance visitor enjoyment of the area and provide readily-accessible viewing opportunities from the shore and from the water.

ACEC designation would assist the ELFO in competing for scarce funding necessary for the purchase of private in-holdings and adjacent lands. Additional funding is required to prevent development of shoreline areas, provide public access for fishing and wildlife-viewing, protect cultural resources and wildlife habitat, and develop literature and interpretive sites for visitors. OHVs would be 'limited to designated roads and trails' throughout the area and undeveloped shorelines will be closed motor vehicles, thereby limiting impacts to well-establish routes.

With ACEC designation, the entire Eagle Lake Basin would be closed to mineral sales, mineral leasing, and locatable mineral development in order to permanently protect its outstanding scenic qualities, fish and wildlife resources, and its prehistoric and historic cultural resources. A prohibition on sub-surface drilling (for leasable minerals) would help protect the quality and quantity of groundwater crucial to preserving the basins closed hydrology.

6.5 Alternative 3. Traditional Uses

Alternative 3 is identical to No Action.

6.6 Preferred Alternative

Management under the Preferred Alternative would, in most respects, be similar to Alternative 2--including designating the Eagle Lake Basin an ACEC. However, in common with Alternative 1, 31 miles of new trails (with non-motorized designations) would be built (about 8.5 miles more than under No Action). Reserving these trails for non-motorized use increases their value for appreciation of scenic beauty, wildlife-viewing opportunities, and interpretation of nearby historic sites (see Alternative 1 in the "Travel Management" section of this RMP). ACEC designation would assist the ELFO in competing for scarce funding. Additional funding is necessary for the purchase of private in-holdings and adjacent lands required to prevent development of shoreline areas, provide public access for fishing and wildlife-viewing, protect cultural resources and wildlife habitat, and develop literature and interpretive sites for visitors. Management under VRM Class II criteria would preserve the undeveloped character--and extensive and important wildlife habitats--of the Eagle Lake Basin, which form the basis of its appeal to visitors.

Fuel-reduction, timber harvesting and woodcutting would continue—providing such actions were conducted in a manner that would protect or enhance (identified) relevant and important ACEC criteria. Management actions would incorporate stipulations to ensure such protection. Of special concern is the quality and quantity of groundwater, crucial to preserving the basins closed hydrology and Eagle Lake trout fishery.

ACEC designation would not significantly alter grazing practices because changes made within the last 20 years have eliminated grazing from most (publicly owned) shoreline areas, significantly improving these habitats. Other interventions are improving the condition of riparian and upland areas in conformity to the land health standards that now form the basis of BLM grazing management.

Mineral development would be permitted on a limited basis. Salable minerals could be removed—providing ACEC values are sufficiently protected by restrictive stipulations. Recreational mining would also be permitted, but would be limited to hand panning of tributary streams. Otherwise, the ACEC would be closed to locatable and leasable mineral development in order to protect critical sub-surface hydrology.

4.12.7 North Dry Valley ACEC

Relevance and Importance Criteria: There are numerous and varied sites associated with prehistoric lakeshore hunting and habitation areas, as well as quarry sites and caves that are unique to the region. There are also historic gravesites and homestead remnants. A special riparian area exists at Laird Spring that is important to wildlife and significant as an archaeological site. There are unique soils associated with the winterfat shrub. Finally, there are expansive vistas across the Smoke Creek Desert and numerous steep escarpments, which are doubly important as raptor nesting sites.

7.1 Impacts Common to No Action, Alternative 1. Economic Development, and Alternative 3. Traditional Uses

ACEC designation is not recommended under these alternatives. The relevant and important values supporting ACEC designation in Alternative 2 and the Preferred would be managed according to the alternative prescriptions for the various resource programs described in chapter 2 (“Proposed Actions”). Livestock grazing would continue with the proviso that it meets land health standards for riparian and upland areas. However, there is little livestock grazing within most of the area proposed for designation under Alternative 2 and the Preferred Alternative due to limited water and forage. On the other hand, there is significant grazing by wild horses and burros. Current management aims to achieve appropriate management levels (AMLs) by 2008. Herd reduction is necessary to protect native vegetation and achieve numbers that can be sustained by available forage.

Under No Action and Alternative 3, the area would remain ‘open’ to cross-country OHV travel. This is likely to result in moderate adverse impacts to cultural sites and wildlife habitats (especially pronghorn kidding grounds and raptor nesting sites). Motor vehicle users, at present, generally follow existing roads and trails. However, this could change with continued population growth in the Reno/Sparks metropolitan area. For Alternative 1, OHVs would be ‘limited to designated roads and trails’, limiting adverse impacts to these routes. This would have moderate benefits for ACEC values.

The area would also remain open to mineral development. However, there is none at present, and future mineral activity is unlikely due to the volcanic basalt geology that dominates much of the area. If mineral development is proposed, the BLM would impose stipulations to protect or mitigate impacts on natural and cultural resources.

7.2 Alternative 2. Ecosystem Restoration

The Ecosystem Restoration Alternative would designate 10,156 acres as the North Dry Valley ACEC. ACEC designation would focus management emphasis on protecting the (previously enumerated) relevant and important ACEC criteria. The BLM would then develop a management plan to achieve this end.

Livestock grazing would continue, but will be managed to achieve land health standards. Under this alternative, grazing would be conducted one year of every three. Due to the arid nature of the Dry Valley, there is little naturally-occurring water and forage; therefore, grazing is often limited to short seasons of use.

OHVs would be 'limited to designated roads and trails', thereby limiting impacts to well-traveled routes.

The area would also remain open for mineral development. NSO stipulations would be required for mineral leasing, to protect surface resources. However, there is no mining at present, and future mineral activity is unlikely due to the volcanic basalt geology that dominates the area. If mineral development is proposed, stipulations would be imposed to protect the relevant and important ACEC values for which the area was designated.

7.3 Preferred Alternative

The Preferred Alternative would designate 10,156 acres as the North Dry Valley ACEC. ACEC designation would focus management emphasis on protecting the (previously enumerated) relevant and important ACEC criteria. The BLM would then develop a management plan to achieve this end. Impacts would be similar to Alternative 2, except livestock grazing could be permitted annually—subject to the availability of natural forage and water. Compliance with land health standards would be mandatory. This could preclude grazing in dry years.

4.12.8 Buffalo Creek Canyons ACEC

Relevance and Importance Criteria: The ACEC would preserve unique volcanic landforms of the high-desert (4,300 to 5,600 feet). The setting is of special scenic interest because of the large number of side canyons that drain into the North Fork of Buffalo Creek (1,000 feet deep in its lower reaches). The area contains a historic wagon road (the Buffalo Hills Toll Road) that passes through a primitive landscape largely unchanged since the 1800s when the route was in use. The area provides excellent opportunities for scenic and historic sight-seeing in a rugged and primitive landscape. Spring and riparian areas are found in the bottoms of many side canyons and within the main drainage of the North Fork. It is a popular area for upland bird hunting and primitive camping.

8.1 Impacts Common to No Action, Alternative 1. Economic Development, and Alternative 3. Traditional Uses

There would be no ACEC under these alternatives. The historic Buffalo Hills Wagon Road and the rugged, scenic canyons through which it winds, would be managed according to the alternative prescriptions for the various resource programs described in chapter 2 ("Proposed Actions"). Primary management direction is governed by the wilderness IMP, because most of the area falls within the Buffalo Hills and Poodle Mountain WSAs. Riparian and upland areas would be managed to fulfill the BLM's land health standards and scenic qualities would be preserved under VRM Class II objectives. Applicable policies and guidelines would work together to close the area to mineral development and preserve the outstanding and unique values that make this area eligible for ACEC designation under Alternative 2 and the Preferred Alternative. However, the pros and cons of wilderness designation are currently under discussion and conflicting legislative initiatives are being considered. Should the area not receive wilderness designation, protections afforded by the wilderness IMP would no longer apply.

OHVs would be 'limited to existing roads and trails', thereby restricting impacts to establish travel routes. There is also significant impact from wild horses and burros. Current management aims to achieve appropriate management levels (AMLs) by 2008. Herd reduction is necessary to protect native vegetation and achieve numbers that can be sustained by available forage.

8.2 Alternative 2. Ecosystem Restoration

Designation of the Buffalo Creek Canyons ACEC (36,515 acres) is recommended under Alternative 2, in order to protect the imposing, scenic character of this canyon complex and retain the natural setting of the historic Buffalo Hills Toll Road. ACEC designation would focus management efforts toward retaining the areas undeveloped character--largely unchanged since the toll road's construction in the 1870s. It would also aid in promoting the recreational use of the area (primarily hunting and historical sight-seeing).

Designation would lend justification and vital support for BLM efforts to acquire (from willing sellers) and manage numerous springs and riparian areas currently under private ownership and surrounded by publicly-owned uplands. The ability to manage these critical water sources would empower BLM efforts to achieve land health standards through an improved ability to control grazing by wild horses and burros, as well as by domestic stock. Impacts would be the same as under the Preferred Alternative, except for livestock grazing. This would be permitted only one year out of three, in order to rapidly and easily achieve land health standards.

8.3 Preferred Alternative

Designation of the Buffalo Creek Canyons ACEC (36,515 acres) is recommended under the Preferred Alternative, in order to protect the imposing, scenic character of this canyon complex and retain the natural setting of the historic Buffalo Hills Toll Road. ACEC designation would focus management efforts toward retaining the areas undeveloped character--largely unchanged since the toll road's construction in the 1870s. It would also aid in promoting the recreational use of the area (primarily hunting and historical sight-seeing).

Designation would lend justification and vital support for BLM efforts to acquire (from willing sellers) and manage numerous springs and riparian areas currently under private ownership and surrounded by publicly-owned uplands. The ability to manage these critical water sources would empower BLM efforts to achieve land health standards through an improved ability to control grazing by wild horses and burros, as well as by domestic stock.

Lands within the Buffalo Hills and Poodle Mountain WSAs would receive recreation opportunity spectrum (ROS) 'primitive' classification, upon ACEC designation. This would provide long-term protection and preservation of the area's primitive and undeveloped scenic character—with or without wilderness designation. Management under VRM Class II (retention of existing landscape character) will also help in this regard.

OHVs would be 'limited to designated roads and trails', thereby restricting impacts to well-establish travel routes. Existing routes are all "designated"—so this limitation would not impose restrictions on established public access routes for hunters, campers, and site-seers, while protecting the surrounding roadless areas from development of new routes.

Livestock grazing could continue on a yearly basis--subject to compliance with the standards and guidelines for land health. There is also significant adverse impact from wild horses and burros. Current management aims to achieve appropriate management levels (AMLs) by 2008. Herd reduction is necessary to protect native vegetation and achieve numbers that can be sustained by available forage.

Timber harvesting and woodcutting are not an issue, since the ACEC contains no commercial stands and western juniper occurs as scattered trees, mostly outside (proposed) ACEC boundaries.

Mineral development is currently limited by the WSA status of the area. Mining claims can be filed under the wilderness IMP, but no surface-disturbing activities can take place. Salable mineral extraction (decorative rock, sand, and gravel) and locatable mineral development are not permitted. If wilderness designation is denied, provision would be made to preserve the area's primitive and undeveloped scenic character through imposition of restrictive stipulations on locatable (hard rock and placer) and salable mineral activities. The ACEC would also be open to mineral leasing without wilderness designation; however, protection would be afforded by NSO stipulations.

Without wilderness designation, there is a possibility of water-related development within the ACEC--such as groundwater pumping or a dam on Buffalo Creek. Any such proposal would be evaluated according to its effects on the relevant and important criteria for which the ACEC was established, and a decision made on this basis.

4.12.9 Aspen Groves ACEC

***Relevance and Important Criteria*:** Quaking aspen (Populus tremuloides), California black oak (Quercus kelloggii) and silver buffaloberry (Sheperdia argentea) are relatively rare and unique plants that tend to occur in isolated stands within sagebrush-steppe ecosystems. Aspen stands usually occur at higher elevations (6,000 to 8,000 feet), and are usually found as "habitat islands" in a "sagebrush sea." They are crucial for maintaining habitat diversity. Black oak woodlands, though common west of the Sierra crest, are unique and special in the ELFO management area, because there are few stands east of the Sierra. Silver buffaloberry stands are quite rare, only five stands having been found within the ELFO management area. These uncommon plants are important because they fulfill crucial habitat requirements of wildlife that could not otherwise survive in the areas where these plants occur.

9.1 No Action Alternative

An ACEC would not be designated under these this alternative. These special plants--and associated wildlife habitat--would be protected under provisions of the land health standards. The No Action Alternative would result in minor adverse and beneficial impacts to these special plant communities.

9.2 Impacts Common to Alternative 1. and Alternative 3. Traditional Uses

Under Alternatives 1 and 3, an ACEC (2,745 acres) would be designated to protect and improve management of aspen stands (1,407 acres), black oak (1,298 acres), and buffaloberry (40 acres). This would focus management attention on these uncommon but important plants in order to develop healthy stands in a diversity of seral stages, thereby increasing habitat diversity for a variety of wildlife for which these plants are crucial. An ACEC management plan would be developed following approval of this RMP.

Alternative 1 and 3 would result in negligible adverse and moderate beneficial impacts to quaking aspen, California black oak, and silver buffaloberry stands. The ACEC is judged necessary for these alternatives because of their emphasis on forage production and livestock grazing--especially when the effects of past grazing practices are considered. The ACEC management plan would include restrictions on livestock numbers, plus season-of-use restrictions. Other interventions may include livestock herding, exclosure fencing, prescribed fire (to stimulate aspen growth), and timber-harvesting stipulations for black oak stands. All buffaloberry stands would be fenced to exclude livestock as well as wild horses and burros.

As an ACEC, right-of-ways would not be granted within aspen, black oak, or buffaloberry stands, except as a last resort. In that eventuality, stipulations would be applied to protect the relevant and important values for which the ACEC was established.

Mineral development would be permitted—but again, with stipulations to protect ACEC values. Timber harvest and woodcutting would be limited to interventions that would improve the health and structural diversity of these uncommon plants.

9.3 Impacts Common to Alternative 2. Ecosystem Restoration, and the Preferred Alternative

Alternative 2 and the Preferred Alternative would result in negligible adverse and moderate beneficial impacts to quaking aspen, California black oak, and silver buffaloberry stands. No ACEC designation would be applied under these alternatives. However, both alternatives propose several management actions to protect these unique vegetation resources without the ACEC designation. These include:

- Continue monitoring and treatment of aspen stands in cooperation with David Burton, University of California, Davis.
- Fence the remaining buffaloberry stands to determine recovery and manageability for healthy vegetation stands.
- Develop an Implementation plan for management and monitoring of California Black Oak.
- Manage these unique stands in accordance with the following stipulations:
    - Maintain healthy aspen and California black oak stands using science based ecosystem maintenance activities including periodic disturbances to maintain vigor in understory grasses and forbs & retain or replace tree overstory as appropriate. Use functional/ structural groups including biological soil crusts as indicators.
    - Restore healthy/lacking key attributes, at risk, and unhealthy aspen and California black oak stands through the active use of prescribed fire, appropriate wildland fire response, judicious use of herbicides, and conifer removal, as appropriate. Sufficient rest from grazing, and recreation use would be applied to allow newly restored stands to grow to a height that will be out of the reach of domestic livestock and wild horses and burros.
    - Scientists and educators will be consulted to develop a clear understanding of what an ecologically healthy buffaloberry stand is. Until such time as these data can be obtained fence the unfenced buffaloberry stands.

4.12.10 Susan River ACEC

Relevance and Importance Criteria: The Susan River is the largest and longest free-flowing stream east of the Sierra between the Truckee River and the Oregon border. It has high scenic value because of its free-flowing condition and the Susan River Canyon. There is a historic railroad grade with 11 (railroad) bridges and two tunnels. It possesses an outstanding diversity of aquatic, riparian, and upland habitats resulting from its location at the juncture of three geographical provinces (the Sierra Nevada, Cascade Mountains, and Great Basin).

10.1 Impacts Common to All Alternatives

Recreation on the Susan River and (adjacent) Bizz Johnson Trail would continue to be guided by the Bizz Johnson Trail Special Recreation Management Plan (formerly the Susanville – Westwood Trail Plan [1983]).

Lands adjacent to the Susan River would be managed in compliance with the BLM's standards and guidelines for land health and according to 'proper functioning condition' for riparian areas. Public lands adjacent to the Susan River are closed livestock grazing; therefore, there will be no grazing impacts in these areas.

Recreation in the Susan River Canyon and on the (adjacent) Bizz Johnson Trail (an abandoned railroad grade) would continue to be non-motorized.

The scenic quality of the eligible area would be protected under VRM Class II requirements.

Although there have been mineral claims (never developed and allowed to expire) on nearby private lands, the area has low mineral potential and mineral development is not expected.

Right-of-ways would not be issued within the Susan River Canyon—except to benefit the Bizz Johnson Trail. However, 'grandfathered' right-of-ways acquired with canyon lands would continue to be used.

Timber harvesting within the eligible area would be limited to actions which improve forest health and reduce the potential for catastrophic wildfire.

Full suppression would be used to fight wildfires because of proximity to Susanville and homes on the north rim of the Susan River Canyon.

10.2 Impacts Common to No Action and Alternative 3. Traditional Uses

An ACEC would not be designated under No Action and Alternative 3. The eligible area would be managed according to decisions listed under "Management Common to All Alternatives" from chapter 2 of the ACEC section of this RMP and impacts would be those listed above.

10.3 Alternative 1. Economic Development

An ACEC would not be designated under Alternative 1. However, 6 miles of the Susan River (from 0.4 miles downstream from its confluence with Willard and Williams Creeks to about 100 yards upstream of the Ramsey Ditch Diversion below Hobo Camp) is recommended for wild and scenic river status (with a 'recreational' designation) under this alternative. This corresponds to 75% of the area eligible for ACEC designation. Therefore, many of the protections afforded by WSR designation under Alternative 1 would apply to much of the area eligible for ACEC designation.

10.4 Alternative 2. Ecosystem Restoration

An ACEC (2,495 acres) would be designated on 8 miles of the Susan River. WSR designation is also recommended for the same eight-mile stretch under Alternative 2. WSR designation would preserve the three-flowing character of this river segment and preclude construction of a dam or water diversion, adding additional protection for the area's relevant and important ACEC criteria.
With ACEC designation, the area would be withdrawn from mineral entry to prevent damage to the relevant and important ACEC values of the Susan River and adjacent canyonlands. However, it would remain open for recreational mining (hand panning) and for mineral leasing, with NSO stipulations to prevent surface disturbance (diagonal drilling would be permitted beyond the canyon rim).

10.5 Preferred Alternative

An ACEC (2,495 acres) would be designated on 8 miles of the Susan River under the Preferred Alternative. ACEC designation directs management efforts (reinforcing a decision made in this RMP) toward protecting the free-flowing character of the entire eight-mile segment, along with other relevant and important ACEC criteria.

With ACEC designation, the area would be withdrawn from mineral entry to prevent damage to the relevant and important ACEC values of the Susan River and adjacent canyonlands. However, it would remain open for recreational mining (hand panning) and for mineral leasing, with NSO stipulations to prevent surface disturbance (diagonal drilling would be permitted beyond the canyon rim).

10.11 Willow Creek ACEC

Relevance and Importance Criteria: The area has exceptional scenic quality (VRM Class II—Class I while it remains a WSA or if it receives 'wilderness' designation) and abundant cultural resources (NRHP and Native American sites).

11.1 Impacts Common to All Alternatives

The wilderness character and values of the Tunnison WSA will be protected under the wilderness IMP.

Livestock will continue to be excluded from riparian areas through a combination of fencing tied into natural rimrock barriers. However, livestock will continue to have access to water by means of water-gap fencing in appropriate locations. These locations will be carefully monitored to ensure compliance with BLM land health standards.

Timber harvesting and wood cutting would not be permitted; except under conditions that would preserve wilderness values, improve the natural setting, and conform to the requirements of the wilderness IMP. If the area is ultimately denied wilderness designation, timber harvesting and woodcutting would be allowed. However, compliance with BLM land health standards would still be required.

Full suppression would be mandatory for wildfires due to the proximity of homes in the Honey Lake Valley; therefore, a natural fire régime could not be reestablished and fuels must be reduced by other means.

Scenic qualities would be maintained under VRM Class I criteria (preserving the primitive, undeveloped character of the landscape) for BLM management activities and permitted uses (while the area is a WSA or receives 'wilderness' designation). If the area is denied wilderness status, it will be managed under VRM Class II criteria (preserving the natural appearance of the landscape).

The BLM would acquire public access to Willow Creek when land or easements can be purchased from willing sellers.

11.2 Impacts Common to No Action and Alternative 3. Traditional Uses

An ACEC would not be designated under No Action and Alternatives 1 and 3. The eligible area would be managed according to decisions listed under "Management Common to All Alternatives" from chapter 2 of the ACEC section of this RMP and impacts would be those listed above.

11.3 Alternative 1. Economic Development

An ACEC would not be designated under Alternative 1. However, a 4.75-mile stretch of Willow Creek (the segment flowing through the Tunnison WSA) is also recommended for wild and scenic river designation under this alternative. Therefore, protections afforded by WSR designation under Alternative 1 would also apply to the area eligible for ACEC designation (this is important if the Tunnison WSA is denied wilderness status—ACEC and WSR designations become academic if wilderness status is granted). The entire 4.75-mile segment would remain free-flowing and banks would be kept in their natural state. WSR designation--as a secondary effect--would serve to protect (identified) relevant and important ACEC characteristics.

11.4 Alternative 2. Ecosystem Management

An ACEC (2,130 acres) would be designated on 4.75 miles of Willow Creek. WSR designation is also recommended for the same 4.75-mile stretch under Alternative 2. This would preserve the three-flowing character of this river segment and preclude construction of a dam or water diversion if the Tunnison WSA does not receive wilderness designation. WSR designation would (secondarily) protect the area's relevant and important ACEC characteristics in this eventuality.

With ACEC designation, the area would be withdrawn from mineral entry to prevent adverse impacts on Willow Creek, and adjacent canyonlands, from the physical and visual effects of mining. While the Tunnison WSA exists, there would be no mineral leasing. However, if the WSA is denied wilderness status, the area would become available for this activity, with NSO stipulations to prevent surface disturbance; thus protecting the scenic quality, cultural resources, and riparian areas of Willow Creek Canyon (diagonal drilling would be permitted from outside the ACEC). Recreational mining would be limited to hand panning.

11.5 Preferred Alternative

An ACEC (2,495 acres) would be designated on 4.75 miles of Willow Creek under the Preferred Alternative (this coincides with the segment flowing through the Tunnison WSA). ACEC designation directs management efforts (reinforcing a decision made in this RMP) toward protecting the free-flowing character of the entire 4.75-mile segment, along with other relevant and important ACEC criteria. However, if the Tunnison WSA is denied wilderness status, the ACEC designation could be revised if Lassen County (or another entity) proposes a *scientifically viable* reservoir project and can obtain the necessary permits and funding--and sufficient political support. Under these conditions, BLM planning regulations allow amendments to land-use plans.

With ACEC designation, the area would be withdrawn from mineral entry to prevent damage to the relevant and important ACEC values of Willow Creek and adjacent canyonlands. However, it would remain open for recreational mining (hand panning) and for mineral leasing, with NSO stipulations to prevent surface disturbance (diagonal drilling would be permitted beyond the canyon rim).

4.12.12 Lower Smoke Creek ACEC

Relevance and Importance Criteria: The area has exceptional scenic quality (VRM Class II—Class I while it remains a WSA or if it receives 'wilderness' designation), contains a portion of the Noble Emigrant (National Historic) Trail, and has an important (and recovering) riparian area containing a diversity of aquatic and riparian wildlife—notably the Lahontan assemblage of native fish (that require special management consideration).

12.1 Impacts Common to All Alternatives

The wilderness character and values of the Dry Valley Rim WSA will be protected under the wilderness IMP.

The BLM has secured a Nevada water right (1998) for wildlife and recreation on Lower Smoke Creek. As a result, the riparian area will continue to improve from a guaranteed minimum flow of 5 ft.^3 per second (previously not sustainable because of upstream water diversions).

Improved riparian condition will also result from continued exclusion of livestock from the creek during most of the year (using exclosure fencing).

When and where livestock are permitted to graze alongside the creek, the BLM's standards and guidelines for land health will be rigidly enforced, in order to ensure the continued recovery of riparian areas.

Wild horses and burros do not significantly affect lower Smoke Creek because they are excluded by fencing and rimrock.

Timber harvesting and woodcuttings are not issues because of a scarcity of trees (just a few cottonwoods grow along the creek).

Concerning wildfire, the 'appropriate management response' is to allow the area to burn (thus approximating the natural fire régime and benefiting indigenous flora and fauna), subject to prevailing safety considerations.

Smoke Creek Road and Washoe County Road #8 would continue to be maintained by Washoe County—with the understanding that road maintenance work must not result in adverse effects on the riparian area of Lower Smoke Creek and the Dry Valley Rim WSA (directly south of the Smoke Creek Road).

Scenic qualities would be maintained under VRM Class I criteria (preserving the primitive, undeveloped character of the landscape) within the Dry Valley Rim WSA.

VRM Class II criteria (preserving the natural appearance of the landscape) would be designated for the area north of the Smoke Creek Road and adjacent to Smoke Creek. If the Dry Valley Rim WSA is denied wilderness status, the entire area would be managed under VRM Class II criteria for BLM management activities and permitted uses.

The BLM would seek to acquire (from willing sellers) additional segments of Lower Smoke Creek in order to enlarge public ownership of the riparian area and aid its recovery, provide additional public access, and protect sites associated with the Nobles Emigrant Trail.

12.2 Impacts Common to No Action and Alternative 3. Traditional Uses

An ACEC would not be designated under No Action and Alternatives 3. The eligible area would be managed according to decisions listed under "Management Common to All Alternatives" from chapter 2 of the ACEC section of this RMP and impacts would be those listed above.

12.3 Alternative 1. Economic Development

An ACEC would not be designated under Alternative 1. However, a 3.2-mile stretch of Lower Smoke Creek (the segment flowing through the Dry Valley Rim WSA) is also recommended for wild and scenic river status (with a 'recreational' designation) under this alternative. Therefore, protections afforded by WSR designation under Alternative 1 would also apply to the area eligible for ACEC designation (this is important if the Dry Valley Rim WSA is denied wilderness status—ACEC and WSR designations become academic if wilderness status is granted). The entire 3.2-mile segment would remain free-flowing and banks would be kept in their natural state. WSR designation--as a secondary effect--would serve to protect (identified) relevant and important ACEC characteristics.

12.4 Alternative 2. Ecosystem Management

An ACEC would be designated on 3.2 miles of Lower Smoke Creek (primarily the segment flowing through Dry Valley Rim WSA). WSR status (with a 'recreational' designation) is also recommended for the same 3.2-mile stretch under Alternative 2. This would preserve the three-flowing character of this river segment and preclude construction of a dam or water diversion if the Dry Valley Rim WSA does not receive wilderness designation. WSR designation would (secondarily) protect the area's relevant and important ACEC characteristics in this eventuality.

Off-highway vehicles would be 'limited to designated roads and trails': these are primarily short pull-offs (from the Smoke Creek Road) used for parking or camping. This would limit adverse impacts to areas of established use. There are no roads south of Smoke Creek—other than remnants of the Nobles Emigrant Trail—which is managed to preserve trail traces (therefore, off-limits to OHVs.)

With ACEC designation, the area would be withdrawn from mineral entry to prevent adverse impacts on Lower Smoke Creek, and adjacent canyonlands, from the physical and visual effects of mining. While the Dry Valley Rim WSA exists (the WSA includes most of the segment eligible for ACEC designation), there would be no mineral leasing. However, if the WSA is denied wilderness status, the area would become available for mineral activities, with NSO stipulations to prevent surface disturbance; thus protecting the scenic quality, cultural resources, and riparian areas of Lower Smoke Creek Canyon (diagonal drilling would be permitted from outside the ACEC). Recreational mining would be limited to hand panning.

12.5 Preferred Alternative

An ACEC would be designated on 3.2 miles of Lower Smoke Creek under the Preferred Alternative (this segment is mostly contained within the Dry Valley Rim WSA). ACEC designation directs management efforts (reinforcing a decision made in this RMP) toward protecting the free-flowing character of the entire 3.2-mile segment, along with other relevant and important ACEC criteria. However, if the Dry Valley Rim WSA is denied wilderness status, the ACEC designation could be revised if Washoe County (or another entity) proposes a *scientifically viable* reservoir project and can obtain the necessary permits and funding--and sufficient political support. Under these conditions, BLM planning regulations allow amendments to land-use plans.

With ACEC designation, the area would be withdrawn from mineral entry to prevent adverse impacts on Lower Smoke Creek, and adjacent canyonlands, from the physical and visual effects of mining. While the Dry Valley Rim WSA exists (the WSA includes most of the segment eligible for ACEC designation), there would be no mineral leasing.

However, if the WSA is denied wilderness status, the area would become available for mineral activities, with NSO stipulations to prevent surface disturbance; thus protecting the scenic quality, cultural resources, and riparian areas of Lower Smoke Creek Canyon (diagonal drilling would be permitted from outside the ACEC). Recreational mining would be limited to hand panning.

4.12.13 Comparative Summary of Impacts

Alternative 2 and the Preferred Alternative would designate the most amounts of land as ACECs and would also provide the most protection for the relevant and important resources and values therein. Use restrictions (as outlined in Table 2.11-1) would be implemented through ACEC plans to further protect these unique resources.

Alternative 2 would result in negligible adverse impacts, and major benefits to these lands. This alternative requires the most use restrictions on energy and mineral development, OHV use, and livestock grazing. In addition, four rivers within the proposed ACECs would be nominated as suitable for Wild and Scenic River designation, protecting these areas from water impoundments and dams.

The No Action Alternative would result in minor adverse impacts, and the least benefits of any alternative. Only the Pine Dunes RNA would be designated as an ACEC, and the acreage therein would not be expanded as in other alternatives. Alternative 3 is very similar to No Action, except that the Aspen Groves ACEC would also be designated. No Action and Alternative 3 would provide the least amount of protection to relevant and important resources in these areas. Continued 'open' OHV use would be detrimental in some areas from impacts to resources resulting cross-country travel.

Even though Alternative 1 only designates two ACECs, similar to Alternative 3, this alternative affords protection to unique resources from implementing additional use restrictions. OHV travel is 'limited to existing routes', and four rivers within potential ACECs would be nominated as suitable for Wild and Scenic River designation, protecting these areas from water impoundments and dams, similar to Alternative 2. Alternative 1 would result in the third highest benefits to these areas.

The Preferred Alternative is very similar to Alternative 2 in designating and protecting ACECs and their associated values. Negligible adverse impacts and moderate benefits would result from implementation of ACEC management plans to protect unique resources. The Preferred Alternative is slightly less beneficial than Alternative 2, as only one river would be nominated as suitable for Wild and Scenic River designation. However, the ACEC designation would aim to also protect the important values associated with these rivers.

4.12.14 Cumulative Effects

Recreational activities have been pursued on BLM-administered lands (and adjacent USFS lands) since their inception. Growth and development of local communities, as well as larger nearby population centers, such as Reno, Nevada and Redding, California, will increase demand for recreational activities on BLM lands—potentially leading to overcrowding and use conflicts. Recreational experiences, in ACECs and elsewhere, can be preserved or enhanced if addressed during land use planning. When viewed in terms of foreseeable activities and interventions on surrounding lands, adverse cumulative effects on ACEC resources and recreation under the Preferred Alternative are not expected to be significant.

As land-use intensifies and recreational demands increase, the value of maintaining natural settings and preserving natural resources will be correspondingly greater. Cumulative effects would generally be related to factors already discussed under "Impacts Common to All Alternatives."

Most adverse impacts related to activities connected with BLM resource programs would be temporary and limited to the localities where the activities occur. Designation of ACECs, and the protection they afford, will have moderate value in accommodating increasing recreational demand while simultaneously preserving natural settings and ACEC values vital to maintaining quality recreational experiences and protecting sensitive resources. OHV limitations, and restrictions to rights-of-way and mineral and energy development under the Preferred Alternative would have moderate value in protecting natural settings and values that the ACECs are designed to preserve.

4.12.15 Mitigation Measures

There would be no major adverse effects on ACEC resources under the Preferred Alternative; therefore, exceptional mitigation measures would not be required. If livestock grazing would approach major adverse effects; exclosures, reduction in numbers, changes in the grazing system or season of use would be implemented.

4.12.16 Unavoidable Adverse Impacts

Serious unavoidable adverse impacts are not anticipated from the proposed management actions.

4.12.17 Short-Term Uses versus Long-Term Productivity

Short-term uses include fencing to temporarily exclude livestock or protect archaeological resources and some road closures for fire or fuel management interventions or forestry practices. These would have negligible adverse effects on recreational access and ACEC resources and activities. Interventions such as these will have significant, long-term benefits for soils, water, vegetation (including special status plants), wildlife, and culture resources and will enhance recreational activities such as hunting, fishing, wildlife-viewing, and rural tourism generally. Management interventions that enhance ACEC resources and values will generate public confidence in BLM management of public lands.

4.12.18 Irreversible and Irretrievable Actions

There are no irreversible or irretrievable actions.

4.13 Potential Effects on Wild and Scenic Rivers

This section describes the potential impacts from implementing resource management actions specified in each alternative on the outstandingly remarkable values that qualified river segments within the Eagle Lake Field Office as eligible for designation under provisions of the Wild and Scenic Rivers Act.

4.13.1 Methodology and Assumptions

The analysis in this section compares the impacts of each alternative's proposed actions, including impacts of recommending four segments of three rivers as Wild and Scenic River (WSR) designations. These river segments were determined by BLM to be eligible for possible designation under the WSR Act using eligibility criteria specified in the Act (See Appendix L).

The eligible segments are:

- 8 miles of the Susan River from approximately 1.5 miles upstream from Highway 36 at Devil's Corral downstream approximately 8 miles to near the edge of Susanville in the Hobo Camp Area;
- 8 miles of Willow Creek where it flows through the Tunnison Wilderness Study Area;
- 10.6 miles of Upper Smoke Creek above Smoke Creek Reservoir where it flows through both public land and public land within the Twin Peaks Wilderness Study Area, and
- 3.2 miles of Lower Smoke Creek in Smoke Creek Canyon along the Smoke Creek Road where it flows through the Dry Valley Rim Wilderness Study Area (all distances are approximate).

River evaluation procedures established in the WSR Act require that once a river segment is determined to be eligible, the segment is evaluated against three classification (Wild, Scenic, or Recreational) criteria to determine the most applicable classification for each eligible segment. The classifications (See Appendix L) are defined as:

- ***Wild*** – "Those rivers or sections of rivers that are free for impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America."
- ***Scenic*** – "Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads."
- ***Recreational*** – "Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past". (Quotes from WSR Act, Section 2 a (1), (2), (3).

BLM planning regulations require BLM evaluate the impacts of designating all of the eligible river segments as suitable for designation under the WSR Act. BLM also has the flexibility to analyze other alternatives that include mixtures of suitable and non-suitable designations.

The primary effect of designating a river as Wild, Scenic or Recreational under the WSR Act would be that the designated river segment(s) could be legislatively established as a permanent free flowing river segment and no water diversions or water impoundments (dams) would be allowed on the designated river segment in the future. Various other restrictions would apply depending upon whether the river is designated as Wild, Scenic or Recreational.

Management of most river segments would not change significantly under Wild and Scenic River Act designation from present BLM management that is protecting stream and riparian habitat, aquatic and riparian wildlife species, cultural resources, scenic resources and river based recreation. The primary difference between designation and non-designation would be that without designation, all river segments would remain available for possible water diversions and water impoundments (dams), subject to future demand for and economic, social and political support.

Under all alternatives, all eligible segments of the rivers being considered for WSR designation would continue to be managed under interim protective measures required by the WSR Act until such time that the final EIS is completed. At that time all river segments not recommended as suitable for designation would be released from the interim protective requirements. Any river segments recommended as suitable for designation would remain under interim protective management to assure that the values that qualified the river segment as eligible are not adversely affected by future activities. A suitability report will then be prepared by BLM and forwarded to Congress through the Secretary of Interior and the President.

Once Congress receives the suitability report, the rivers remain under interim protective management for up to three years or until Congress acts to designate or not designate the recommended suitable river segments, which ever comes first. If Congress acts and designates the suitable segment, protective provisions of the WSRs Act apply and a management plan is prepared for the designated river segments. If Congress fails to act within three years of receiving the suitability report, management of the river returns to the guidelines established in the land use plan. In all alternatives of this RMP, there would be provisions to protect the river corridors under a mixture of existing plans and policies. Protection would be provided for sensitive habitats, riparian areas, water quality, high scenic values and cultural values and there would be provisions to provide for recreational use of rivers and streams.

4.13.2 Incomplete or Unavailable Information

Adequate information is available to analyze the effects on Wild and Scenic Rivers at the plan level.

4.13.3 Analysis

This analysis defines the levels of effects on rivers designated under the WSR Act as follows:

Negligible: The characteristics of the area that supported designation could change, but the change would be so small that it would not be of any measurable or perceptible consequence.

Minor: The characteristics of the area that supported its designation would change, but the change would be small and, if measurable, would be highly localized.

Moderate: The characteristics of the area that supported its designation would change. The changes would be measurable but would remain localized.

Major: The characteristics of the area that supported its designation would change, and the changes would be perceptible, measurable, and widespread.

4.13.4 Susan River

4.1 Impacts Common to All Alternatives

The Susan River would be managed under provisions of the existing BLM Bizz Johnson Trail Management Plan, USDI BLM, that applies to all of the public lands within the Susan River Canyon. Recreational use of the river would continue with primary uses being fishing, swimming, water uses (i.e. inner tubing and river floating on small paddle craft), sightseeing and nature study. Associated uses that benefit from the free flowing river are non-motorized trail uses of the adjacent Bizz Johnson Trail. The varying flows and seasonal changes along the river greatly enhance the scenic value of a visitor's experience on the trail because of the trail's close proximity to the river.

Cultural resources would be protected through compliance with Section 106 of the Historic Preservation Act. The historic Fernley and Lassen Railroad grade, bridges and tunnels would be managed to protect these historic features and structures as part of the Bizz Johnson Trail, a National Recreation Trail, providing both historic protection and functional use as part of the trail.

Wildfires would be attacked using full suppression methods because of the close proximity of the Susan River canyon to the Susanville urban interface and to residents on portions of the north and south rims of the canyon. Campfires would be limited to designated areas (currently at the Hobo Camp picnic area and at the Cheney Creek campsite where fire rings are available).

Fuel reduction projects (such as understory removal and timber stand thinning in appropriate areas) would occur to improve the effectiveness of fire suppression.

Native and non-native fish and other aquatic species would be managed under criteria of BLM's Land Health Standards for Northeastern California, 2000, Standards 2 and 4 to improve the development of woody riparian and other riparian species to improve streambanks and increase stream shading.

Water quality would be protected through compliance with Best Management Practices (BMPs) to meet BLM and state water quality standards.

Scenic resources would be protected through the management of the Susan River Canyon as a VRM Class II area.

Livestock grazing is not permitted on BLM lands within the Susan River Canyon. A combination of gap fences and non use by livestock permittees on adjacent private lands has kept livestock out of the canyon since the 1980's. However, additional fences are needed to keep livestock from drifting into the canyon from adjacent private lands when grazing is reauthorized on those lands.

Timber harvests would be limited to actions identified to improve the forests ability to withstand wildfires and insect damage so that the trees and other vegetation are not as likely to be consumed in a wildfire. Careful layout and administration of forest thinning projects would improve the forest's ability to withstand fires and improve fire fighters ability to stop wildfires that start within the canyon. Fuels treatment and thinning would help maintain the scenic quality of the canyon by helping to reduce the likelihood that a wildfire would burn up the canyon, adversely impacting scenic resources. All timber harvest activities would be required to meet BLM's VRM Class II. VRM guidelines allow time for ground cover vegetation to become established after a project is completed and therefore, projects may be apparent to casual observers in the short-term but would become less apparent and meet VRM Class II standards in three to five years.

No new rights-of-way would be issued unless no other alternative locations are feasible, and then only if such rights-of- way would not adversely impact the canyon's natural, cultural, historic and scenic resources.

No motor vehicle use would be allowed except for BLM administrative, maintenance and emergency access needs on the Bizz Johnson Trail and existing dirt roads. Quiet low speed motorized wheelchairs and other conveyances for the disabled would be allowed.

Only non-motorized floating craft would be allowed in order to maintain the quiet non-motorized character of the canyon.

Recreational visitor use would continue to be high under all alternatives. The Susan River and adjoining Bizz Johnson Trail receive the highest amount of visitor use on public lands in Northeast California (86,179 visitors in fiscal year 2004). High recreational use is related to the direct and easy accessibility of the Susan River from Susanville via the Bizz Johnson Trail, and access roads to trailheads and the Hobo Camp picnic area at the mouth of the canyon adjacent to Susanville. High use is also related to the river and canyon's high scenic values. Natural and historic resources include many geologic features associated with the Great Basin, Sierra and Cascade ranges, historic structures of the 1913/1914 Fernley and Lassen Railroad grade (includes 11 bridges and two tunnels). This route of the Bizz Johnson Trail contains other pre-railroad historic features found within the Susan River Canyon, including remnants of old hand built wagon roads.

The majority of the 8 miles of land along the eligible segment of the Susan River is in public ownership (BLM). Under all alternatives, ongoing efforts to acquire approximately 0.8 miles of undeveloped land along the streambank on one or both sides of the river would continue under existing provisions of the Bizz Johnson Trail Management Plan. These acquisitions would increase BLM's ability to provide for public access along the majority of the eligible segment of the river.

4.2 No Action Alternative

This alternative would result in both moderate beneficial impacts and possible major adverse impacts on the outstandingly remarkable values of the Susan River if current management continued. Ongoing management actions prescribed in the Bizz Johnson Trail Management Plan and other BLM management policies would protect and enhance river related values and the historic Bizz Johnson Trail. This alternative could also have major adverse impacts on the outstandingly remarkable values of the Susan River if a dam were built on the river flooding a portion of the free flowing segment of the Susan River behind the dam. This impact would be possible under this alternative because it would not preclude a dam in the future.

Any dam on the Susan River above or below Devil's Corral would adversely impact the Susan River's Outstandingly Remarkable Values that qualified it as eligible under the WSR Act – the canyon's high scenic quality, high level of river use and associated Bizz Johnson Trail use, the high quality riparian area along the river, the associated upland habitat adjoining the river, the species dependent upon the riparian and upland habitats and the distinctive geology of the area along the river. Flooding of the river behind a dam would destroy the scenic river corridor and associated riparian habitat and river based aquatic habitat. If a dam were built below Devil's Corral in an area of the Susan River Canyon where the Bizz Johnson Trail was flooded, the historic values of the 1913/1914 railroad grade trail and its railroad bridges and tunnels would also be destroyed. Recreational use of the trail would also be eliminated in the flooded area.

Under the No Action Alternative, the eligible segment of the Susan River would not be recommended as administratively suitable for inclusion in the National WSR System. River management would continue under the provisions of the Bizz Johnson Trail Special Recreation Management Area plan.

This provides for protection of scenic (VRM Class II designation), historic and recreational values of the Susan River and Susan River Canyon. Protection of water quality, riparian areas and wildlife habitat along the river would occur under BLM's Standards and Guides for Land Health, 2000.

Mineral extraction could occur under provisions of the mining laws for leasable, locatable and saleable minerals. Standard stipulations that would be applied to any mining operation would require protection of the area's high scenic quality (VRM Class II), historic resources, water quality and wildlife values, however, there would be some sights and sounds of mining activity if mining claims were filed and a plan of operation were approved by BLM. Mineral values are considered low in the area, however, there have been mining claims filed and held in the past on a segment of the Susan River on Forest Service land at Goumaz upstream of public lands. Under the mining laws, it is possible that future claims could be filed along the river on public land managed by BLM.

While not achieved yet, the existing Bizz Johnson Trail Management Plan includes a decision to withdraw from locatable mineral entry all public lands along the Susan River. Under present management, BLM would continue to seek to implement this existing activity level decision to protect the scenic, wildlife, historic and recreational values of the Susan River. In this same plan, extraction of saleable minerals would only be allowed to occur if such sales benefited management of the Bizz Johnson Trail.

The No Action Alternative would continue present management of the Susan River Canyon under provisions of the existing Bizz Johnson Trail Management Plan and BLM's Land Health Standards. These management plans and policies are expected to have moderate beneficial impacts on management of the Susan River with continued BLM efforts to acquire lands along the river for public access for fishing, river floating and swimming. Moderate beneficial impacts would also occur with continued management of the Bizz Johnson Trail for multiple non-motorized recreational uses; protection of the existing historic railroad grade and structures from eroding into the river; and continued work to improve land health, including riparian and aquatic habitat conditions.

In summary, the No Action Alternative would result in moderate beneficial impacts to the Susan River, but could also result in major adverse impacts if a dam were built on a segment of the Susan River and the impounded storage water behind the dam flooded the river's riparian area upstream of the dam.

4.3 Alternative 1. Economic Development

This alternative combines the economic value of designating six miles of the Susan River west of Susanville as a free flowing river with the possible benefit of a reservoir on the river upstream of the six mile segment. This alternative provides a compromise between free flowing advocates and dam advocates providing space for both types of uses. Impacts of both types of uses are discussed below.

Designation of the Susan River as a Recreational River under the WSR Act would benefit the local economy by assuring continuation of a free flowing river through the Susan River Canyon. It is the year-round free flowing Susan River and associated scenic riparian habitat that is the primary attraction to visitors who seek out the Bizz Johnson Trail along the river for casual and special event use. Visitor use of the Bizz Johnson Trail, Susan River, and associated scenic picnic area at Hobo Camp was estimated to be 86,179 visitors in fiscal year 2004, (USDI, BLM, Eagle Lake Field Office, Recreation Management Information System data, FY 2004). Estimates are based on two light beam trail counters on the trail and on one vehicle traffic counter on the Hobo Camp Road that are checked regularly from April through November. Estimates are considered reliable and are a clear indicator of the popularity of the scenic Susan River Canyon.

This alternative recognizes the economic benefits of the free flowing river adjacent to the nationally designated and nationally recognized Bizz Johnson National Recreation Trail. The free flowing river is the primary natural resource within the Susan River Canyon that significantly enhances a trip along the trail. The free flowing Susan River adds to the quality of life for Susanville and Lassen County residents who enjoy the Bizz Johnson Trail and enjoy the river for fishing, swimming, water play and floating on inner tubes and in small paddle craft. People who move to Susanville and Lassen County have confirmed this quality of life statement by stating that the Bizz Johnson Trail and adjacent Susan River is one of the reasons they decided to relocate to Lassen County. Those who have lived in Lassen County for years also state that the river is one of the best things about living in and around Susanville. Local realtors recognize the economic value of property near the Susan River and Bizz Johnson Trail by stating in advertisements and listings, "on or near the Bizz Johnson Trail".

The Susan River is also a popular fishing destination for local residents and visitors. Each spring, approximately 500 to 800 local youth, ages 3 to 15, participate in the Lassen Sportsmen Club's annual Junior Fishing Derby. The combination of kids and parents assisting the younger kids makes for a great turnout and high use of the river from 1 mile west of Susanville back to Susanville and through town another 1.5 miles. The Junior Fishing Derby uses the eastern most mile of the eligible segment of the Susan River, directly west of Susanville. The following week, many adults also begin fishing on the entire length of the Susan River and fish throughout the spring and summer. Sales of fishing gear and expenditures on travel to and from the river benefit local businesses. And the fishermen who fish the Susan enjoy the beauty of the area and the satisfaction of stream fishing which some consider priceless, especially when fishing with young kids who often get their first experience of stream fishing on the Susan River.

The free flowing Susan River and adjacent Bizz Johnson Trail also provide economic benefits as a regional recreational destination attraction for Susanville and Lassen County attracting casual use and special event visitor use of the Bizz Johnson Trail. Trail users from throughout northern Nevada, California, Oregon and from other parts of the United States and from foreign countries regularly travel to and stay in Susanville so they can bike, hike or ride a horse on the Bizz Johnson Trail along the Susan River (diversity of visitor use documented in Susanville Historic Railroad Depot Visitor Center, voluntary sign in visitor logbooks, 1994 – 2005). In 2004, 486 runners traveled to Susanville from 34 states and from 4 foreign countries to run in the first ever Bizz Johnson Trail Marathon. In 2005, over 900 runners registered to run in the second Bizz Johnson Marathon (including 15 runners from Alaska). The event promoter estimates that marathon runners spend between $500 to $1000 per marathon for equipment, travel, food and lodging expenses (Eric Gould, Redwood Trails, August 25, 2005). Clearly, a portion of that expenditure is made in the community where the event is held. For the 2005 marathon, all hotel rooms in Susanville were sold out more than one month before the event and local restaurants and gas stations will benefit as well.

Designation of the six miles of the Susan River (from approximately 0.4 miles below Willard and Williams Creeks downstream to near Susanville at Hobo Camp) as a Recreational River under the WSR Act would preclude dam construction on this segment of the Susan River and keep this segment as free flowing.

Impacts from a dam on the Susan River above or below Willard and Williams Creeks in the Devil's Corral area are described in the No Action Alternative. The impacts would be the same for this alternative except that the possible area for a dam would be limited to the area approximately 0.4 miles below the confluence of Willard and Williams Creeks with the Susan River. A dam would not be able to be built below this area because in this alternative, downstream of the dam site is recommended as suitable for designation as a Recreational River under the WSR Act. The Bizz Johnson Trail would not be directly affected by a dam built within the area 0.4 miles below Willard and Williams Creeks if the dam were built in the narrow portion of the inner canyon south of the Devil's Corral trailhead and at or below 4650 feet elevation.

If a much larger dam were built in this same area, extending across the canyon above 4660 feet elevation, the Bizz Johnson Trail, Devil's Corral Trailhead, Highway 36 Susan River bridge and approaches would all be flooded.

Under Alternatives 1 and 2 that recommend Recreational River designation under the WSR Act for portions or the entire eligible segment of the Susan River, the following management actions would be allowed:

- Public use of the river could continue to occur under provisions of the existing Bizz Johnson Trail Management Plan, USDI BLM.
- Recreation facilities such as new trails, picnic areas and campgrounds could be established and maintained within the river corridor including the existing Bizz Johnson Trail.
- Forest practices could be allowed such as forest thinning for fire protection. Under the Bizz Johnson Trail plan, such actions would be required to meet visual resource management (VRM) Class II standards (visual changes can be seen but should not attract attention of the casual observer once project rehabilitation is complete).
- Mining is allowed, subject to regulations that may be prescribed to protect the values for which the river segment was designated. However, under the existing Bizz Johnson Trail Management Plan that includes all eight miles of the Susan River, the Susan River and adjoining public lands within the Susan River Canyon would be restricted as follows:
    - mineral leasing would be restricted to no surface occupancy in Alternative 1, and the Susan River Canyon would be closed to mineral leasing in Alternative 2,
    - in both Alternatives 1 and 2, the Susan River Canyon would be closed to locatable (hard rock and placer) mining and the sale of minerals (sand, gravel and other saleable minerals).
- Motorized uses would not be permitted on land or water based on the provisions of the Bizz Johnson Trail Management Plan except for administrative, maintenance, and emergency access along the Bizz Johnson Trail and other existing dirt roads within the Susan River Canyon.

4.4 Alternative 2. Ecosystem Restoration

Alternative 2 recommends all eight miles of the eligible segment of the Susan River as suitable for Recreational designation under the WSR Act. The impacts of a Recreational River designation in this alternative would be the same as listed under Alternative 1 for the six miles recommended for Recreational designation in that alternative. However, the same beneficial impacts of protecting the river's free flowing values and outstandingly remarkable values of the Susan River would extend two additional miles upstream to where the Susan River enters public land directly east of the Bunnel Ranch in Township 29 North, Range 11 East, Section 6 SE 1/4 SW1/4.

The outstandingly remarkable values that qualify the two additional miles as eligible for WSR Act designation would be protected under provisions of the WSR Act:

- high quality scenic values (VRM Class II area) characterized by narrow canyon segments with basalt rims, blocky basalt talus slopes, columnar basalt, statuesque ponderosa and Jeffery pines and colorful riparian areas along the river;
- high quality geologic values associated with the varied volcanic landscape in this area;
- high quality recreational values – primarily fishing and sightseeing in this segment;

- high quality historical and cultural values, particularly the largest and longest railroad bridge on the Bizz Johnson Trail, a 270 foot long steel trestle over 50 feet high; and
- high biologic values associated with the riparian area along the river.

Alternative 2 would preclude dam construction on the entire eight miles of the Susan River determined to be eligible for designation under the WSR Act. Two dam sites described in the No Action Alternative and left available for development in the Alternative 1, would not be available for development of dams and reservoirs in this alternative.

A Recreational classification under the WSR Act of all eight miles of the eligible segment of the Susan River would allow the management actions described under Recreational Classification in Alternative 1, Economic Development.

Recreation users of all eight miles of the eligible segment of the Susan River would benefit from the Recreational designation because the river would remain free flowing providing the variety of river related recreational opportunities and supporting the highly scenic riparian area along the river that enhances recreational use of the river and adjacent Bizz Johnson Trail. Recreational uses of the two miles of eligible river that are added in this alternative consist of fishing, river floating and swimming. Catch and release fishing occurs under a special regulation established by the California Fish and Game Commission on the segment of the river extending from the confluence of the Susan River and Willard Creek down stream approximately five miles. This segment is particularly popular with fly fisherman who primarily fish the upper three miles of this section due to the accessibility available from the Devil's Corral trailhead and from the Bizz Johnson Trail. River floating, primarily tubing with some small paddle craft and kayaking, usually occurs beginning directly below the Highway 36 bridge over the Susan River, and extends through approximately one mile of the two additional eligible river miles in this alternative, and then continues six miles through the entire lower Susan River Canyon to Susanville. Swimming is also a popular use of the highly scenic canyon segment, directly south of the Devil's Corral trailhead, where an old hand built road grade provides a well used foot trail access to the river.

BLM acquisition of undeveloped private parcels in this two mile segment would benefit the recreational outstandingly remarkable values by assuring public access along the banks of the river for fishing, floating access and sight seeing. Developed private parcels located along the river directly downstream of the Susan River Bridge on Highway 36 at Devil's Coral are not being considered for acquisition.

The Bizz Johnson Trail parallels the upper two miles of the eligible river segments on a volcanic bench approximately 100 feet above the river. The trail overlooks approximately half of the upper two miles of the eligible segment of the Susan River. East of Devils Corral Trailhead, the trail grade descends to near river level along the six miles downstream of the Devil's Coral trailhead. The largest railroad trestle on the Bizz Johnson Trail crosses the river west of Devil's Corral approximately 0.4 miles upstream from the Highway 36 Bridge over the Susan River. An abandoned 1923 concrete arch highway bridge also crosses the river directly upstream of the large railroad trestle, and is currently the route of the Bizz Johnson Trail over the river since a wooden segment of the railroad trestle was destroyed in a wildfire in 2000. (BLM plans to rebuild the burned out 90 foot segment; the rest of the bridge, 180 feet, is steel and did not burn in the fire). The Susan River canyon is narrow and highly scenic in this area and views from the trestle and from the old highway bridge are dramatic, enhancing a trip on the trail. A distinctive columnar basalt outcrop west of the trestle and highway bridge also adds high scenic interest to the area as does a largely undisturbed half-mile long segment of the Susan River where the Bizz Johnson Trail overlooks the river from a volcanic bench, approximately 100 feet above and south of the river.

The high scenic appeal of this segment of the Susan River Canyon greatly enhances visitor use and enjoyment of the trail throughout the year. This trail segment is used by hikers, runners, mountain bikers, horseback riders, and cross country skiers.
The segment of the trail west of Highway 36 is particularly well suited for cross country skiing because of the shaded setting of the trail in this area.

In summary, Recreational designation under the WSR Act of all eight miles of the eligible segment of the Susan River would ensure a long-term protection of the Susan River's free flowing values and the river related outstandingly remarkable values identified in the eligibility determination for this segment of the Susan River. Recreational designation would preclude dam construction and reservoir flooding of the river throughout this eight miles segment of the Susan River. Dam construction would not be precluded above this segment of the river on private and Lassen National Forest lands.

4.5 Alternative 3. Traditional Uses

Alternative 3 would have both moderate beneficial impacts and possible major adverse impacts to the outstandingly remarkable values of the Susan River (as identified through the WSR Act study process) if current management continued (the same impacts as described in Alternative 1).

4.6 Preferred Alternative

The Preferred Alternative is the same as the No Action Alternative in regard to impacts to the free flowing values and outstandingly remarkable values that qualified eight miles of the Susan River as eligible under study criteria of the WSR Act. No segment of the Susan River would be recommended as suitable for designation under the WSR Act. The Preferred Alternative would have both moderate beneficial impacts and possible major adverse impacts to the outstandingly remarkable values of the Susan River (as identified through the WSR Act study process) if current management continued.

Outstandingly remarkable values of the eight miles of eligible segment of the Susan River that would be impacted are:

- high amounts of river and non-motorized trail use of the Bizz Johnson Trail adjacent to the river,
- high scenic values throughout the Susan River Canyon,
- high geologic values where three geologic provinces meet – the Sierra, Cascades and Great Basin,
- high historic values of the Fernley and Lassen Railroad grade (now the Bizz Johnson Trail) and its nine bridges and two tunnels along this segment of the river, and
- high diversity of biologic values in the aquatic, riparian and upland areas.

Ongoing management actions prescribed in the Bizz Johnson Trail Management Plan and other BLM management policies would protect and enhance recreational use of the river and the historic Bizz Johnson Trail route and historic railroad structures of the trail, protect high scenic quality of the Susan River Canyon and protect riparian and upland habitat areas. However, this alternative could also have major adverse impact on the outstandingly remarkable values of the Susan River if a dam were built on the river flooding a portion of the free flowing segment of the Susan River behind the dam. These impacts would be possible because this alternative would not preclude a dam in the future.

4.7 Comparative Summary of Impacts

The No Action Alternative, Alternative 3, and the Preferred Alternative would not recommend the Susan River for designation and inclusion in the national WSR system. Alternatives 1and 2 would recommend portions of the Susan River for designation as a Recreational River under the WSR Act.
Under No Action, Alternative 3, and the Preferred Alternative, potential impacts to the Susan River's outstandingly remarkable values could be significant and adverse if water diversion, water impoundment or locatable mineral development occurred within the Susan River Canyon. All of these actions would remain possible under these alternatives even though the Bizz Johnson Trail Management Plan currently is directing management of the Susan River to protect the natural, historic, scenic and wildlife values that are the basis of the outstandingly remarkable values that qualified the Susan River as eligible for designation under the Wild and Scenic River's Act.

Such possibilities are unlikely due to the expense and environmental impacts of dam construction, the lack of surplus water to impound during low to normal run off years, and the low mineral potential within the Susan River Canyon. However, if implemented, all actions would destroy part or all of the riparian area of the Susan River within the impoundment area behind a dam or in the area where mining were to occur. If a dam were built on the eight miles of the Susan River that flows across public land, and if it flooded the Susan River Canyon and Bizz Johnson Trail between Susanville and the Bunnel Ranch one mile west of Devil's Corral, such flooding would completely alter the scenic values of the Susan River Canyon.

Visitor experiences of the flooded area would change from a river based recreation to reservoir based recreation. Visitor experiences of the river and riparian area that are enhanced by opportunities for fishing, swimming, water play and floating, wildlife viewing, observation of geologic features characteristic of the Great Basin, Sierra and Cascades would change to an area where warm water fishing, boating and swimming would occur, provided that there was sufficient water to keep the reservoir filled or partially filled. Because the only water available for a third reservoir on the Susan River (in addition to Hog Flat and McCoy Flat Reservoirs upstream of the Susan River Canyon) is flood flow that exceeds the existing appropriated flows during normal runoff, the utility of the reservoir would be limited to those years when flood flows occur. Flood flows have occurred during the past two decades in only a small percentage of the years. In the majority of years in the past 25 years, Susan River flows have been below projected normal years, limiting the capability of a new reservoir to capture flows not already allocated to existing use and stored in the two reservoirs upstream of the Susan River Canyon.

Management under the provisions of the Bizz Johnson Trail Management Plan would protect the Susan River's Outstandingly Remarkable Values that qualified the river as eligible for designation under the WSR Act with two significant exceptions – future dams and mining claims and mineral development. Under these 3 alternatives the Susan River Canyon would remain available for dam construction if future political support justified such an action and if BLM was then required to change or modify the Bizz Johnson Trail Management Plan to allow for a dam on a portion of the Susan River determined feasible for water impoundment.

In the Preferred Alternative, impacts from mineral leasing would be limited because mineral leasing would be limited to no surface occupancy, allowing drilling to occur only from outside the Susan River Canyon and not along the river or within view of the river or Bizz Johnson Trail.

Impacts from staking and developing locatable mineral claims would continue to be possible unless the river is withdrawn from all mineral entry. Under the preferred alternative, even though the Susan River is not recommended for designation under the WSR Act, the Susan River Canyon would be withdrawn from mineral entry under the general mining laws in support of the Bizz Johnson Trail Management Plan provisions that have included this non-implemented provision since 1983.

Alternative 1 and 2 would recommend the Susan River for designation as a Recreational river in the National WSR System. The protection of the river's free flowing values provided through designation under the WSR Act would provide a major beneficial impact to the Susan River's outstandingly remarkable values.

The No Action Alternative, Alternative 3, and the Preferred Alternative, would protect the Susan River's outstandingly remarkable values through protective management established in the Bizz Johnson Trail Management Plan, BLM Land Health Standards and water quality provisions state and federal law. Protection of the river's free flowing values would not be assured for the long term because BLM land use plans can be amended subject to changing economic and political situations and current protective measures could be changed to allow for a dam on the Susan River. Designation under the WSR Act would ensure the long-term protection of the outstandingly remarkable values by assuring a free flowing river through part or the entire eight mile eligible segment of the Susan River with no possibility for future dams on that segment.

4.8 Cumulative Effects

One dam, McCoy Flat Reservoir is located on the Susan River upstream of the Susan River Canyon. A second dam, Hog Flat Reservoir is located on a tributary to the Susan River approximately two miles from the McCoy Flat. Water releases from these reservoirs are fully controlled by Lassen Irrigation district and augment flows in the Susan River throughout the late spring and summer, benefiting aquatic species in the river and recreational use of the river as long as the flows continue. Maintaining the Susan River as free flowing through the Susan River Canyon would not affect the releases from the two irrigation company reservoirs upstream of the canyon. Maintaining six or eight miles of the Susan River Canyon where BLM administered public land is located as free flowing would also not preclude dam construction upstream of those segments on private or Lassen National Forest land.

4.9 Mitigation Measures

The following measures in the Preferred Alternative would be used to mitigate adverse effects on the Susan River's outstandingly remarkable values:

Mining: Withdraw the Susan River Canyon from mineral entry under the mining laws, require no surface occupancy for mineral leasing (off site diagonal drilling would be allowed from areas out of sight from behind the Susan River Canyon rims) and require no sale of saleable minerals unless such sale would be needed to benefit management of the Bizz Johnson Trail.

Rights-of-way: Avoid issuing rights-of-way through the Susan River Canyon unless no other feasible alternative exists and then only allow such rights-of-way if the proposed project can meet BLM VRM Class II standards and Land Health and water quality standards.

4.10 Unavoidable Adverse Impacts

Under the Preferred Alternative, dams could be built on the Susan River resulting in unavoidable adverse impacts to the Susan River's free flowing values and river related recreational, historical, scenic, geologic, and biological values.

4.11 Short-Term Uses Versus Long-Term Productivity

The Susan River would remain available as a free flowing river in the short term but could be impounded behind a dam in the long term if future economics of water use justified development of a dam and all necessary permits, financing and political support could be secured and all legal obstacles (opposition to a dam) could be overcome.

Long term productivity of a dam could increase available water for irrigation and extend flows of water through the Susan River Canyon benefiting stream fishing, river floating, kayaking and swimming and generate hydroelectric power.

A dam on the Susan River could also substantially alter the scenic quality of the Susan River canyon, reducing the appeal of the Bizz Johnson Trail in the area where the dam was built. Steep sloped bare dirt banks of a low reservoir during low water periods would not appeal to visitors who have in the past enjoyed the seasonal variety, color and wildlife of the lush riparian area along the river. Water flow studies by private engineering firms and the California Department of Water Resources indicate that the firm yield of the proposed reservoirs is far less than the average yield indicating that there would be substantial variation in pool elevations of a reservoir on the Susan River. In addition, because the primary justification for a reservoir on the Susan River would be for irrigation use, water would be drawn down annually leaving little water volume in the reservoir during average to low water years with resulting limited use for reservoir recreation.

4.12 Irreversible and Irretrievable Impacts

If a dam were built on the Susan River there would be irretrievable and irreversible impacts to the river segment that was periodically inundated by seasonal water storage behind the dam. Adverse impacts would occur to the flooded river segment's aquatic species, scenic values of the riparian area along the river, recreational uses of the river for stream fishing, river floating and kayaking, and scenic enjoyment of the river canyon from the Bizz Johnson Trail. If a dam was built below Devil's Corral and impounded water up the drainages of Williams and Willard Creeks and the Susan River, three year round residences would have to be relocated or they would be flooded.

4.13.5 Lower Smoke Creek

5.1 Incomplete or Unavailable Information

Lower Smoke Creek is affected by water use on Upper Smoke Creek. BLM Eagle Lake Field Office was unable to locate a California water use decree (Superior Court decree) governing water use on Upper Smoke Creek. The California Department of Water Resources, Water Rights Division, Sacramento (Nesmith, September 29, 2005) did state that although no water right is on record for Upper Smoke Creek, a water use permit, # 021019, has been issued to Rock Springs Ranches in the early 1990's to impound and store up to 1,300 acre feet of water annually in Smoke Creek Reservoir for irrigation use downstream on irrigated meadows in Nevada owned by Rock Springs Ranches (this ranch was formerly called Smoke Creek Ranch, and was owned by Holland Livestock/John J. Casey). Rock Springs Ranches has until December 31, 2008 to perfect their water storage permit and get a certificate or final water right (Nesmith, September 29, 2005).

The Smoke Creek Reservoir, located in California just upstream of the Nevada line, was built in 1947. The current owner has applied for and received a water storage permit and is working to perfect a water right for water storage and use of Upper Smoke Creek water.

Calls to the Washoe County Water Rights Manager indicated that water rights have been established on Smoke Creek in Nevada for generations (Behmaran, September 9, 2005). However, Nevada does not maintain water right records for Upper Smoke Creek in California; it only maintains records for the area of Smoke Creek in Nevada downstream of Smoke Creek Reservoir where the impounded water is distributed for irrigation on a systems of meadows on private property.

Smoke Creek Reservoir is backed up behind a 28 foot high, 1,500 foot long earthen dam that spans an open meadow area of Smoke Creek. The dam impounds up to 980 acre feet of water located mostly on private property in California, approximately 9 miles upstream of the eligible segment of lower Smoke Creek in Nevada. All of the impounded water is used for irrigation upstream of the eligible segment of Lower Smoke Creek in Nevada except for 5 cubic feet per second water right established by BLM on July 13, 1998, through Nevada Division of Water Resources certificate #14970. BLM's water right was established to provide for a sustained minimum 5 cfs flow for wildlife and recreation use of Lower Smoke Creek. There are no records of past, present or future plans for dams on Lower Smoke Creek in Nevada below Smoke Creek Reservoir. Water rights have been established on Smoke Creek for generations. Smoke Creek water rights in Nevada are likely to be fully appropriated through establishment of vested water rights established prior to 1905 and that any further use of water in Smoke Creek would require a determination by the Nevada State Engineer as to whether there is any surplus water in the basin (Smoke Creek watershed, an interstate watershed) that would be available for use beyond that already established by Smoke Creek Ranch and acquired by Rock Creek Ranches in the 1990s.

There is limited visitor use data for Lower Smoke Creek due to the remote location of and lack of BLM field staff to collect visitor use data. Visitor use figures are based on Washoe County Road Department average daily traffic estimates for the adjacent Smoke Creek Road and on known types of uses that occur along Lower Smoke Creek. Much of the visitor use is related to through traffic and sightseeing along Smoke Creek Road, hunting, and to a smaller extent, historic trail viewing. The timing of much of the visitor use is related to hunting seasons set by the state of Nevada. All visitor uses are limited by the distance from population centers and the accessibility of the area based on weather. Most of Washoe County's 383,453 residents live within the Reno/Sparks area, which is 75 to 100 miles from Lower Smoke Creek, and accessible by paved and gravel roads. Much of the use of Lower Smoke Creek comes from the Reno/Sparks area and from visitors passing through Lower Smoke Creek Canyon on the way to Gerlach, Nevada, a small town of a few hundred people. Gerlach is host to various events on the adjacent Black Rock Desert that attract people from all over including some who pass through Lower Smoke Creek. The largest event, Burning Man Festival, attracts over 30,000 people each Labor Day Weekend and some pass through Lower Smoke Creek Canyon and camp in the area also.

The Washoe County Road Department maintenance foreman in Gerlach, Nevada estimated average daily traffic on Smoke Creek Road at 20 vehicles per day (Minto, November 20, 2003). This figure may seem high during low use periods however, the figure is higher during hunting season and on popular weekends when there are many people sightseeing in the desert.

5.2 Impacts Common to All Alternatives

Transportation and recreational use of the Smoke Creek Road would continue. Primary uses are for traffic from California Highway 395 to Washoe County's Sand Pass Road and on to Gerlach, Nevada. Other than through traffic, much use in the spring and fall is vehicle based sightseeing, and in the fall, camping in association with upland bird hunting for dove, quail and chukar and to a lesser extent, for antelope and deer. A small amount of fishing also occurs. Historic trail enthusiasts also travel the route of the Nobles Emigrant Trail and stop at the historic sign post markers (one historic sign marker is within the 3.2 mile eligible segment of Lower Smoke Creek and two markers are upstream and down stream of the eligible segment along Smoke Creek Road).

Native Americans would be consulted in all BLM management actions affecting cultural resources. Cultural resources would be protected through compliance with section 106 of the Historic Preservation Act.

Wildfire suppression would be handled using appropriate management response. Suppression could range from wildland fire use to full suppression subject to conditions at the time of a wildfire.

Native and non-native fish and other aquatic species would be managed under criteria of BLM's Land Health Standards for Northeastern California, Standard 2 and 4 to improve development of woody riparian and other riparian species to improve stream banks and increase stream shading.

Water quality would be protected through compliance with best management practices to meet BLM and state water quality standards.

Scenic resources would be protected through management of the Dry Valley Rim Wilderness Study Area (WSA), surrounding Lower Smoke Creek. The WSA would be managed as VRM Class I to preserve the existing scenic quality of the area and the area outside the WSA would be managed as a VRM Class II area (management actions may be seen but should not attract attention of the casual observer).

There would be no impact to livestock and wild horse grazing because most of Lower Smoke Creek is physically closed to livestock grazing through a combination of fencing and impassable rock rims. Most livestock grazing is excluded from Lower Smoke Creek to enable continuing progress to be made toward riparian goals, desired future condition and objectives established to meet land health standards. Livestock and wild horses are allowed to access the creek in areas above and below the fenced out area.

BLM would seek to acquire undeveloped private lands from willing sellers upstream and downstream of the eligible segment of Lower Smoke Creek in all alternatives of this RMP. If acquired, these lands would provide recreational access along Smoke Creek and would be managed to improve aquatic, riparian, and upland habitats along the creek.

5.3 No Action Alternative

This alternative would have both moderate beneficial impacts and a slight chance of major adverse impacts to the outstandingly remarkable values of Lower Smoke Creek as identified through the Wild and Scenic Rivers Act. Ongoing management actions would protect and enhance river related values of Lower Smoke Creek to maintain the high scenic quality that occurs along the immediate foreground area within Lower Smoke Creek Canyon, improve the fishery of Lower Smoke Creek, improve riparian and upland habitat areas, and protect the historic trail resources of Nobles Emigrant Trail. This alternative would also leave the possibility open for a dam on Lower Smoke Creek that would have major adverse impacts on the outstandingly remarkable values of Lower Smoke Creek if a dam flooded a portion Lower Smoke Creek.

The No Action Alternative would continue many existing BLM policies and legal responsibilities that protect Lower Smoke Creek's outstandingly remarkable values identified in the eligibility evaluation of the Wild and Scenic Rivers Act (BLM Manual 8351.3, 31). BLM management actions would include:

- managing the area as a Visual Resource Management (VRM) Class I area to protect the high scenic values (as long as Lower Smoke Creek is within the Dry Valley Rim WSA) and as a VRM Class II area if the area is released from WSA status by Act of Congress;
- applying BLM Land Health Standards that require BLM manage for healthy riparian and upland habitats which includes keeping livestock and wild horses out of the creek most of the year through a combination of fences tied into natural rock rim barriers;

- complying with the requirements of the Historic Preservation Act to protect historic and cultural resources; and
- upholding BLM's Wilderness Study Area interim management policies to preserve the wilderness values within Dry Valley Rim WSA until Congress Acts to designate part or all of the area as Wilderness or release it back to multiple use management.

Many existing BLM policies and legal requirements are protecting Lower Smoke Creek's outstandingly remarkable values.

However, these management policies and laws may not prevent construction of a dam on Lower Smoke Creek if future efforts by proponents of an additional reservoir were successful, and BLM amended its land use plan to accommodate a dam and reservoir.
BLM land use planning regulations provide for land use plan amendments to accommodate changing physical, social and political conditions.

While this alternative leaves the possibility open for a dam and reservoir on Lower Smoke Creek, a new dam and reservoir is not likely to occur because there is little if any surplus water that is not already appropriated by upstream use for irrigation of meadows below Smoke Creek Reservoir. Flows in Lower Smoke Creek, estimated to be between 2 to 10 cfs during most of the year, are releases from water that is captured and stored in Smoke Creek Reservoir for irrigation use on meadows below the reservoir. The upstream user is permitted storage and use of up to 1,300 acre feet per year (California water use permit 012019). With this amount of use from Upper Smoke Creek, a low flow stream that enters Smoke Creek Reservoir and a minimum flow water right granted to the BLM by the State of Nevada through Lower Smoke Creek of only 5 cfs, there would be little, if any, water available for another reservoir. A new dam for another reservoir would require thorough analysis of all available water in the watershed. Such an action would affect an interstate water basin/watershed and would involve both California and Nevada in a complex process.

Current efforts to secure ground water from the Smoke Creek watershed in Nevada are underway by Granite Fox Power, LLC, a part of SEMPRA Corporation, that is planning to develop a large coal fired power plant (Granite Fox Power Plant) west of Gerlach, NV near Squaw Creek. This power plant would rely on a network of ground water wells drilled on private land at the mouth of Smoke Creek, in addition to wells at the mouth of Buffalo Creek and Squaw Creek, to provide 16,000 acre feet of water annually for power plant use (SEMPRA has filed for 24,000 acre feet per year from these three watersheds). Granite Fox Power LLC has filed for water rights to 14,779 acre feet of water annually to be pumped out of the proposed wells on property along the edge of the Smoke Creek Desert at the lower end of Lower Smoke Creek Canyon.

Proposed wildlife actions in Chapter 2 of this RMP include construction of new waterfowl nesting islands through impoundment of waters where appropriate. (See Wildlife, Goal 5: "Maintain waterfowl nesting islands at Biscar Reservoir, Round Corral Reservoir, Pilgrim Lake, and Snowstorm wetlands. Evaluate these and other sites for new island construction and additional nesting structures."). Although Lower Smoke Creek is not specifically identified for water impoundment, wildlife actions under Goal 5 would allow the possibility for a new wetland on Lower Smoke Creek if future efforts by BLM or others initiated analysis of a wetlands project on Lower Smoke Creek. Many beaver ponds on Lower Smoke Creek are providing wetland habitat for a variety of wetland species but are not providing nesting islands. Although there have been past wetlands projects in the Eagle Lake Field Office jurisdiction, there is no record of any proposed wetlands/waterfowl projects on Lower Smoke Creek (Don Wannebo, BLM Engineering Technician, September 14, 2005).

If there is interest for a wetlands project in the future and a suitable site is located, the No Action Alternative leaves the option open for dam construction on Lower Smoke Creek if all requirements for water impoundment were satisfied, and a decision was made based on NEPA analysis to authorize the project.

A dam constructed on Lower Smoke Creek for irrigation or wetlands use would adversely impact the outstandingly remarkable values that qualified the 3.2 mile segment of the creek as eligible under the Wild and Scenic Rivers Act.

These values include:

- high geologic, scenic, riparian, and biologic values
- a historic trail along Lower Smoke Creek, and
- recreational uses associated with the free flowing stream - wildlife viewing, camping and hunting along the creek and to a limited extent, stream fishing.

Flooding a segment of Lower Smoke Creek behind a dam would destroy the small scenic river corridor, the stream's aquatic habitat, and associated riparian habitat, and replace it with a reservoir bordered by rock and dirt banks that would be eroded by fluctuating reservoir levels and wave action. If the primary use of the reservoir was for water storage and release of water to downstream users, reservoir levels would drop each year. During periods of low reservoir volume and following water release for irrigation use, there would be little water left for recreational use. Large areas of bare dirt banks and water ringed rocks would become exposed in place of the scenic canyon walls. Recreational use of the canyon bottom would be eliminated in the flooded area. Historic trail traces and associated resources would be destroyed in the flooded area. If a wetland reservoir was constructed, water levels would not fluctuate as much as with an irrigation reservoir but there would still be water loss to evaporation during the hot summer months and subsequent lower water levels.

In years of low runoff a constructed reservoir would only partially fill up. This would result in the reservoir having low pool elevations. Growth of annual grasses and forbs on the exposed reservoir banks would occur subject to slope and aspect of the reservoir banks. Scenic quality would change with the elimination of the seasonal color variations of the riparian area and the scenic interest associated with the flows of the river. River dependent fish and associated flowing water dependent species would be replaced by reservoir adapted species. Stream fishing would be replaced by reservoir fishing.

Construction of a reservoir would provide additional types of recreation within the Lower Smoke Creek Canyon – reservoir fishing, waterfowl hunting, a small amount of swimming, and a small amount of small craft boating. Vehicle access over long approaches on gravel roads would limit the size, type, and number of boats brought in on trailers--with most boats likely to be carried on roof racks.

Mineral values are considered low in the area of Lower Smoke Creek due to the volcanic geology throughout the area (andesite and lahar layers on the south side of the creek and andesite and basalt layers to the north). No past evidence or record of hard rock or placer mining has occurred along Lower Smoke Creek and it is unlikely that such mining would occur in the future due to the basalt geology of the area. Some sand and gravel mining has occurred for local road work to the north and south of Lower Smoke Creek along ancient Lake Lahontan terraces.

Mineral extraction along all 3.2 miles of Lower Smoke Creek would not occur because it is within the Dry Valley Rim WSA. These restrictions would continue as long as the WSA designation remains in place and the WSA is not designated as Wilderness.

If Dry Valley Rim is designated as Wilderness, no mining would occur. If it is not designated as Wilderness, Lower Smoke Creek Canyon would be released back to multiple use management and would be available for mining claims and mineral development under provisions of the mining laws for leasable, locatable, and saleable minerals. Standard stipulations that would be applied to any mining operation would require protection of the area's high scenic quality (VRM Class II), cultural resources, water quality, and wildlife values. However, there would be some sights and sounds of mining activity if mining claims were filed and a plan of operation were approved by BLM.

There would be no impact from timber harvest because there are no commercial timber resources along Lower Smoke Creek.

The current land use provisions used to manage Dry Valley Rim WSA and to protect its wilderness values will have beneficial impacts on Lower Smoke Creek. BLM will continue efforts to acquire lands from willing sellers along the creek for public access for hiking, sightseeing, cultural resource viewing, wildlife viewing, hunting, and fishing.

Beneficial impacts would also result from management actions to improve land health including riparian and aquatic habitat conditions. Livestock are excluded from the eligible segment of the creek most of the year and are closely monitored when grazing does occur to ensure sure that grazing practices meet land health standards and guidelines for riparian and upland areas.

In summary, the No Action Alternative would continue present management, resulting in mostly beneficial impacts to Lower Smoke Creek. However, there is a slight possibility of adverse impacts to the outstandingly remarkable values of Lower Smoke Creek if a dam were built and the impounded storage water behind the dam flooded the creek's riparian area, aquatic habitat, the Noble Emigrant Trail, and recreation resources upstream of the dam.

5.4 Alternative 1. Economic Development

Alternative 1 recommends all 3.2 miles of the eligible segment of Lower Smoke Creek as suitable for Recreational River designation under the Wild and Scenic Rivers Act. This alternative would preclude dam construction on the entire 3.2 miles of Lower Smoke Creek determined to be eligible for designation under the Wild and Scenic Rivers Act.

A Recreational River designation under the Wild and Scenic Rivers Act would allow the following management actions:

- Existing valid water rights are not affected by federal designation as a Recreational River. Jurisdiction over water is determined by established principles of law. Water flow through the Recreational River segment would continue with unimpeded flows passing through the Recreational River segment. A five cubic feet per second Nevada water right established by BLM in 1998 for wildlife and recreation uses would assure a minimum flow of 5 cfs through the eligible segment of Lower Smoke Creek recommended as suitable for designation as a Recreational River. There are no current irrigation uses of the creek below the eligible segment. The creek flows through a mixture of undeveloped private and public land to the edge of the Smoke Creek Desert. Here the creek seasonally dries up as it spreads out across the edge of the broad flat desert playa.
- Public use and enjoyment of the river would continue with public access allowed to the river on a walk-in basis from the adjacent Smoke Creek Road and from spur roads off Smoke Creek Road.

- Motor vehicle use would be 'limited to designated roads and trails', primarily Smoke Creek Road and other spur roads.
- Recreation facilities such as new trails, picnic areas, and campgrounds would be established and maintained within the river corridor if determined to be needed.
- Land management practices to improve land health would be allowed to occur provided that such actions would be meet VRM Class II standards (visual changes can be seen but should not attract attention of the casual observer once project rehabilitation is complete).
- Mining is allowed under the Recreational designation of the Wild and Scenic Rivers Act subject to regulations that may be prescribed to protect the values for which the river segment was designated as a Recreational River. However, under the two alternatives that recommend Recreational River Designation, Lower Smoke Creek would be closed to locatable (hard rock and placer mining), closed to saleable mineral removal, and mineral leasing would be limited to no surface occupancy.

  These restrictions would be established in order to protect the outstandingly remarkable values for which the Recreational River designation is recommended in these alternatives – high geologic, scenic and biologic values; and a segment of a historic trail, all of which support recreational use and enjoyment of the area that would be impacted by mining along the creek.
- Closure to mineral development of Lower Smoke Creek would be accomplished by withdrawal of the river corridor from mineral entry for an average distance of ¼ mile on each side of the creek. Mineral withdrawal means the area would be closed to mining and removal of saleable minerals (sand, gravel, flat rock or any other saleable minerals). Mineral withdrawal could be less than ¼ mile away from the creek in areas where the creek is confined within a canyon and more than ¼ mile from the creek in areas where the creek is surrounded by more open space with a total closure area along the length of the creek averaging ½ mile wide).
- As long as the Dry Valley Rim WSA designation remains in place, no rights-of-way would be issued. If the WSA designation were removed by Act of Congress, no rights-of-way would be issued within the Lower Smoke Creek canyon in order to protect the natural, historic, and scenic quality of the area unless there was no alternative location. Rights-of-way would then be issued only if the geologic, scenic, biologic and historic trail values of Lower Smoke Creek Canyon were protected.
- Wilderness qualities along and adjacent to the 3.2 miles of Lower Smoke Creek that flows through the Dry Valley Rim WSA would be protected through application of BLM's interim management policy guidelines for all management activities within the WSA until such time as an Act of Congress either designates the area as Wilderness or returns the area to multiple use management.
- Management of walk-in use along Smoke Creek would be monitored to evaluate impacts to the Nobles Emigrant Trail. If adverse impacts occur to the trail and associated cultural resources, increased monitoring of visitor use and law enforcement patrols may occur to better protect cultural resources.
- Camping would be monitored, and changes required, if camping use is causing significant adverse impacts to soils, wildlife habitat, and cultural resources.
- Livestock grazing would continue to be excluded for most of the season and limited to short periods of use and closely monitored to meet land health standards.

Recreation users of all 3.2 miles of the eligible segment of Lower Smoke Creek would benefit from the Recreational River designation because of the scenic value and visual interest created and maintained by the free flowing river. The minimum 5 cfs Nevada State water right secured by BLM in 1998 for wildlife and recreation uses would continue to provide a free flowing stream in an arid desert setting. This stream would continue to support the reestablishment of a lush riparian area along Lower Smoke Creek with beaver ponds, willow thickets, and developing stands of cottonwood trees. (Prior to granting this water right in 1998, Nevada had allowed Lower Smoke Creek to periodically dry up when upstream water diversions consumed all of the limited water flow in Smoke Creek. Years of intermittent flows and past grazing practices had devastated much of the riparian area adjacent Lower Smoke Creek; however, the creek and associated vegetation are now recovering well and are a showcase for what sustained free flows and improved livestock management can do for a desert stream.

The primary recreational users that would benefit from the Recreational River designation are those who enjoy vehicle- based sightseeing and camping during drives to and through Smoke Creek Canyon on Smoke Creek Road. Other benefits for recreational users of the area would be the opportunity to observe wildlife, particularly riparian and aquatic dependent species. Historic trail enthusiasts would also benefit by experiencing the free flowing creek as it likely appeared when pioneers traveled the Nobles Emigrant Trail through the rugged Smoke Creek Canyon. The area has had little physical change since the days when the pioneers traveled the wagon trail. Hunters seeking upland game birds that depend upon the waters of Lower Smoke Creek and to a limited extent, fishermen seeking a desert fishing experience would also benefit.

Total visitor use is estimated be approximately 7,300 visitors per year, including sightseeing visitors driving along Smoke Creek Road; people viewing wildlife and the Nobles Trail; and hunters and fishermen. This estimate of visitor use is based on Washoe County Road Department, Gerlach Division Foreman's average daily traffic estimate for Smoke Creek Road (Minto, September 20, 2003).

Free flowing streams in a desert are the focal point for wildlife and visitors. Riparian areas provide wildlife habitat for a high percentage of species inhabiting the area and those areas in turn attract wildlife sightseers as well as hunters. Lower Smoke Creek has high scenic interest due to the lush green riparian area, numerous beaver ponds, and associated waterfowl and wildlife. The scenic and historic intrigue of Lower Smoke Creek induces many sightseers to pause and watch the wildlife, photograph the scenic riparian corridor and historic trail traces, stop for a picnic or camp near the creek. These natural and historic features of Lower Smoke Creek serve as destination attractions for some Washoe County residents, hunters and historic trails enthusiasts following Nobles Trail. Continuing the opportunity for recreational users of Lower Smoke Creek to enjoy the free flowing creek would provide economic benefits to Washoe County through sales of recreation related vehicle gas, food, sightseeing, hunting and camping supplies associated with visitors trips to the area.

A small but dedicated group of historic trails enthusiasts from all over the United States also travel through the Lower Smoke Creek Canyon when following the Nobles Trail. Nobles Trail is a branch of the California Trail; a 1992 congressionally designated National Historic Trail. Historic trails enthusiasts who follow the Nobles Emigrant Trail through Lower Smoke Creek often travel from outside the Washoe County area and pass through both Washoe County, Nevada and Lassen County, California communities and buy food, meals, gas and supplies in local businesses and in some cases, stay in local hotels.

Recreation research indicates that American's interest in heritage tourism is growing (Sheffield, March 2004) and protection and interpretation of heritage resources like Nobles Trail can be expected to increase in popularity as the more Americans retire and explore their American heritage. Heritage tourism benefits local economies through increased expenditures of tourism related dollars on local goods, services and supplies.

Lower Smoke Creek not only attracts visitors to the creek itself, Lower Smoke Creek is the basis of visitor use throughout much of the Lower Smoke Creek drainage because it provides the water and habitat that supports the wildlife that live throughout out the area and it is the wildlife that attracts much of the visitor use to the area. Hunters from throughout Washoe County and beyond have traveled to this area for years for upland game hunting, particularly dove and chukar. Deer hunters in Washoe County Zone 015 apply for hunts in this area despite 5 to 1 odds against being drawn for a permit because so many hunters want the opportunity to hunt in this region of which Lower Smoke Creek is a key area (Nevada Division of Wildlife Mule Deer Hunt and Draw Odds Statistics, 2000 – 2002 hunting information).

Desert enthusiasts who love to get away from their urban worlds and enjoy the wide open spaces seek out the Lower Smoke Creek Canyon because of its remote setting and scenic, cultural and wildlife viewing opportunities. It is for these reasons that Recreational River designation is considered a benefit under Alternative 1. This designation would preserve the center piece of the Lower Smoke Creek Canyon, Smoke Creek itself, as a primitive recreation destination attraction for many different kinds of outdoor enthusiasts who choose this area over many other areas to sightsee, hunt, traverse the scenic Smoke Creek Canyon section of the Nobles Emigrant Trail and try a little desert stream fishing along Lower Smoke Creek.

Recreational River designation may or may not increase visitor use of Lower Smoke Creek. Factors such as water volume, river characteristics, travel distance and road conditions to Lower Smoke Creek will likely influence any changes in visitor use as much as Recreational River designation (Interagency Wild and Scenic Rivers Coordinating Council, May 1997).

In summary, designating 3.2 miles of the eligible segment of Lower Smoke Creek as a Recreational River under the Wild and Scenic Rivers Act would ensure long-term protection of Lower Smoke Creek's free flowing values and related outstandingly remarkable values of high geologic, scenic, and biologic resources, and the Nobles Emigrant Trail. Recreational River designation would also benefit Washoe County's economy by protecting the centerpiece of the Lower Smoke Creek canyon, Smoke Creek itself. Smoke Creek is also the site of the historic Nobles Emigrant Trail that attracts visitors to the Lower Smoke Creek Canyon. Washoe County's economy benefits from the many different visitors who seek out Lower Smoke Creek for outdoor recreation.

5.5 Alternative 2. Ecosystem Restoration

The Ecosystem Alternative recommends all 3.2 miles of the eligible segment of Lower Smoke Creek as suitable for Recreational designation under the Wild and Scenic Rivers Act. Impacts from this alternative are the same as Alternative 1.

5.6. Alternative 3. Traditional Uses

Impacts would be the same as the No Action Alternative.

5.7 Preferred Alternative

For Wild and Scenic River designation analysis, the Preferred Alternative is the same as the No Action Alternative. None of Lower Smoke Creek would be recommended as suitable for designation under the Wild and Scenic Rivers Act. Impacts would be the same as the No Action Alternative.

5.8 Comparative Summary of Impacts

Alternatives 1and 2 would recommend 3.2 miles of Lower Smoke Creek (the entire eligible segment) for designation as a Recreational River under the Wild and Scenic Rivers Act. The No Action Alternative, Alternative 3, and the Preferred Alternative would not recommend Lower Smoke Creek for designation and inclusion in the national Wild and Scenic Rivers system.

Under the No Action Alternative, Alternative 3, and the Preferred Alternative potential impacts to Lower Smoke Creek's outstandingly remarkable values would be adverse if water diversion, water impoundment, or mineral development occurred along Lower Smoke Creek. If the Dry Valley Rim WSA status was removed from this area by Act of Congress, water impoundments, water diversions, and mineral development could occur. Although unlikely due to the low volume of water available along Lower Smoke Creek, a new dam would remain possible under these alternatives.

Water impoundment behind a dam would destroy part or all of the riparian area within the impoundment area. If a dam were built that flooded Lower Smoke Creek Canyon, such flooding would completely alter the scenic values of the flooded segment of Lower Smoke Creek. Visitor experiences of the flooded area would change from river-based recreation to reservoir-based recreation. Visitor experiences that are currently enhanced by opportunities for wildlife viewing and desert stream fishing would change to warm water fishing, and a limited amount of boating, swimming and waterfowl hunting, provided there was sufficient water to keep the reservoir filled.

A dam constructed on Lower Smoke Creek would also have an effect on the adjacent Smoke Creek Road. If the dam were for a small wetland project, it might be able to be located in an area that would not flood the road. However, if a larger dam were constructed along the 3.2 miles of eligible segment of Lower Smoke Creek, the Smoke Creek Road would be flooded and require relocation. Road relocation would not be possible to the immediate north of the current road because of steep rock cliffs and could not occur to the south due to the Dry Valley Rim WSA (unless the WSA status was removed by an Act of Congress). The Burro Mountain Road, a few miles to the north would provide a steeper and less direct alternative route.

Under the No Action Alternative, Alternative 3, and the Preferred Alternative, Lower Smoke Creek would remain available to mineral development outside Dry Valley Rim WSA, and would remain open to establishment of mining claims within the WSA if no surface disturbing activities occurred. If the WSA status was removed by Act of Congress in the future, the segment of Lower Smoke Creek within the WSA would also become available for mineral entry and development. Any mineral development would be subject to application of standard stipulations under the mining laws to protect natural, cultural and historic resources in the area. Mineral development is not expected to occur because the Lower Smoke Creek area is comprised of various types of volcanic geology that do not contain minerals of economic value. The only mineral development has been for sand and gravel associated with ancient Lake Lahontan deposits located in areas away from Smoke Creek.

The No Action Alternative, Alternative 3, and the Preferred Alternative would protect Lower Smoke Creek's outstandingly remarkable values through protective management actions established in those alternatives:

- VRM Class II designation,
- BLM Land Health Standards and Livestock Grazing Guidelines,
- Water quality provisions of state and federal law,
- Cultural resource protection through compliance with section 106 of the Historic Preservation Act, and

- Compliance with Wilderness Study Area interim management policies to protect Dry Valley Rim WSA and wilderness values.

However, protection of the river's free flowing values would not be assured for the long term because BLM land use plans can be amended subject to changing economic and political situations, and current protective measures could be changed to allow for a dam on Lower Smoke Creek.

Alternatives 1 and 2 would recommend the entire 3.2 mile eligible segment of Lower Smoke Creek as suitable for designation as a Recreational River. Protection of Lower Smoke Creek's free flowing values would be provided through designation under the Wild and Scenic Rivers Act, and result in beneficial impacts to Lower Smoke Creek's outstandingly remarkable values – high geologic, scenic, biologic, and historic trail values, and associated recreational opportunities.

The area would be closed to mineral entry, saleable mineral development, and would limit drilling for leasable minerals to no surface occupancy (drilling would be allowed outside an area approximately ¼ mile wide on each side of the river corridor). These restrictions are not expected to have a significant impact, however, as there is no record of past or present mineral development in this area, and the potential for future development is low.

5.9 Cumulative Effects

Lower Smoke Creek has been altered above the eligible segment by Smoke Creek Reservoir (approximately 1.5 miles long) and along approximately seven miles of the creek that flows through meadows where agricultural diversions occur below Smoke Creek Reservoir. Smoke Creek was also impacted by past grazing practices for over 100 years beginning in the mid 1800's. Beginning in the 1980's, a healthy and functioning riparian area became reestablished along Smoke Creek, as a result of BLM removal, through court action, of grazing privileges from a livestock permittee who had historically violated the season of use provisions of his grazing permit and significantly impacted the habitat along Smoke Creek. Since the mid 1980's livestock have been excluded from most of Lower Smoke Creek through fencing tied into natural rock rims, and riparian area recovery and associated aquatic habitat improvement has occurred. Flows in Lower Smoke Creek also periodically dried up due to water diversions upstream on the former livestock permittee's lands. By designating Lower Smoke Creek as a Recreational River, the continued recovery of Lower Smoke Creek from past grazing practices would continue. BLM's 5 cfs water right established in 1998 would continue to provide a minimum flow needed to support the riparian area and wildlife habitat along Lower Smoke Creek and assurance would be provided by an Act of Congress that no future dams or water diversions would be built to alter the creek.

Lower Smoke Creek Canyon is a rugged primitive area that is sought out by current day visitors for sightseeing from Smoke Creek road, wildlife viewing, historic trail viewing, hunting and desert stream fishing. Man's past impacts have been mainly historic and are still evident in the remnants of the Nobles Emigrant trail and the contemporary Smoke Creek Road. Livestock grazing impacts were significant and averse to Lower Smoke Creek's riparian and aquatic habitat beginning in the mid 1800's. Current grazing however is not affecting most of the eligible segment of Lower Smoke Creek because livestock are fenced out of the creek and riparian area during most of the year, and monitored carefully when allowed to graze.

If the 3.2 mile segment of Lower Smoke Creek were designated as a Recreational River, approximately 9% of Smoke Creek's 36 mile length would be permanently protected as a free flowing stream. Benefits would occur to riparian and aquatic habitat, wildlife, and recreational users of the river corridor. The primitive values that attract visitors to the creek would be assured of continuing. Benefits to the native wildlife would also occur as the free flowing stream would continue to provide important aquatic, riparian, and associated upland habitats for a wide variety of species that rely on Lower Smoke Creek.

5.10 Mitigation Measures

No mitigation measures would be required under the Preferred Alternative because BLM management actions would protect the scenic, geologic, biologic, and historic resources of Lower Smoke Creek unless a dam were proposed for construction on Lower Smoke Creek. If a dam were proposed, the appropriate environmental analyses would be required, evaluation of the impacts of a dam would occur, and applicable mitigation measures would be required based on the size, location and impacts of the proposed dam on affected resources.

5.11 Unavoidable Adverse Impacts

A dam or dams could be built on Lower Smoke Creek, resulting in unavoidable adverse impacts to the Lower Smoke Creek's free flowing values and river related geologic, scenic, biologic, historic, and recreational values.

5.12 Short-Term Uses Versus Long-Term Productivity

Lower Smoke Creek would remain available as a free flowing river in the short term but could be impounded behind a dam in the long term if future economics of water use justified development of a dam. Long term productivity of a dam could increase available water for irrigation or domestic use and extend flows of water through the Lower Smoke Creek Canyon, however, the amount of water available is expected to very limited due to low average annual flows and only periodic storm flows in this desert environment.

A dam on the Lower Smoke Creek could also substantially alter the scenic quality of the Lower Smoke Creek canyon, reducing the appeal of the canyon where the dam was built. Steep sloped bare dirt banks and water stained rocks visible during low water periods would not appeal to visitors who have in the past enjoyed the seasonal variety, color, and wildlife of the lush riparian area along the river. Justification for a reservoir on the Lower Smoke Creek would be expected to be for irrigation or domestic use and water would be drawn down annually leaving little water volume in the reservoir during average-to-low water years with resulting limited use for reservoir recreation.

If a wetland reservoir were developed, water would not be expected to be drawn down but would be lost to evaporation during the summer and fall. Wildlife could be expected to benefit from a wetland reservoir, particularly if nesting islands were constructed. However, multiple beaver dams on Lower Smoke Creek already provide substantial surface area for wildlife and the thick riparian area provides large nesting areas for some species of birds and waterfowl.

5.13 Irreversible and Irretrievable Impacts

If a dam were built on Lower Smoke Creek there would be irretrievable and irreversible impacts to the river segment that was periodically inundated by seasonal water storage behind the dam. Adverse impacts would occur to the flooded river segment's aquatic species, scenic, and historic resources within the flooded area, including remnant traces of the Nobles Emigrant Trail.

4.13.6 Upper Smoke Creek

6.1 Incomplete or Unavailable Information

Adequate information is available to analyze the effects of wild and scenic river designation for the eligible segment of Upper Smoke Creek (at the RMP level of analysis.) There are no stream gages on the upper portion of Smoke Creek, so readings are not available to accurately determine stream flow. However, by comparing water flows in Upper Smoke Creek with flows in (similar) streams having stream gages, plus review of flow data from one gauge on Lower Smoke Creek (about 12 miles downstream from the lower end of the eligible segment of Upper Smoke Creek), a basis for estimating water flows and evaluating impacts was established. This was used to evaluate impacts of current and contemplated resource uses on Upper Smoke Creek.

A California water use decree (Superior Court decree) governing water use on Upper Smoke Creek could not be located. However, water rights have been established on the Nevada portion of Smoke Creek for generations (Behmaran, 9-9-05.) The Water Rights Division of the California Department of Water Resources has records showing that Rock Springs Ranches (formerly Smoke Creek Ranch) has a water storage permit (# 021019) for 1,300 acre feet in Smoke Creek Reservoir (Nesmith, 9-29-05) and is in the process of perfecting that storage permit and associated water diversion permits from Smoke Creek. Water storage rights were established by the original owners of Smoke Creek Ranch when they developed Smoke Creek Reservoir. The water rights and ranch were acquired by Rock Springs Ranches in the 1990s.

Smoke Creek Reservoir is formed by an earthen dam 1,500 feet in length that crosses an open meadow and impounds (up to) 1,300 acre feet of water on (mostly) private property in California below the eligible segment of Upper Smoke Creek. The reservoir is adjacent to the California/Nevada state line and about two miles above Smoke Creek Ranch and its associated irrigated meadows.

There are no records of past, present or future plans for dams on Upper or Lower Smoke Creek above or below Smoke Creek Reservoir. Smoke Creek water rights (in Nevada) are likely to be fully appropriated through vested water rights prior to 1905 and any additional use of water from Smoke Creek would require a determination by the Nevada state engineer (Smoke Creek is an interstate watershed) as to the possibility of surplus of water (beyond that established by Smoke Creek Ranch and acquired by Rock Creek Ranches) (Widmer, 9-20-05.)

There is limited visitor-use data for Smoke Creek due to its remote location and the difficulty of procuring visitor used data by BLM staff. Visitor use figures are based on BLM and California Department of Fish and Game (CDFG) estimates based on known uses on Upper Smoke Creek (Bales, 9-22-05). Most visitor use is related to hunting and, to a smaller extent, stream fishing and cultural resource appreciation. Therefore, visitation is primarily occurs during California hunting and fishing seasons. Visitation is limited by distance from population centers and road conditions (generally muddy or snow-covered from November through March.) Susanville (population 12,000) is the nearest population center and the largest city in Lassen County but is more than 60 miles distant. However, many users come from outside Lassen County.

6.2 Impacts Common to All Alternatives

The river and adjacent lands will continue to be used for big-game and upland bird hunting, hiking, cultural resource appreciation, wildlife viewing, sightseeing, and a small amount of fishing.
Cultural resources will be protected through compliance with section 106 of the National Historic Preservation Act (NHPA.)

As established in a 2005 memorandum of understanding (between the BLM-Eagle Lake Field office, Lassen National Forest, and the Susanville Indian Rancheria), Native Americans will be consulted for management actions related to cultural resources.

Wildfires would be managed according to 'appropriate management response' (AMR.) AMR encompasses the full range of response from monitoring to full suppression, according to prevailing conditions and identified resource objectives.

Native and non-native fish and other aquatic wildlife will be managed according to the BLM's Land Health Standards for Northeastern California and Northwestern Nevada, in particular standards 2 and 4. Restoration and enhancement of riparian vegetation (particularly woody varieties) would be emphasized in order to stabilize streambanks and increase shading.

Water quality would be protected through compliance with (BLM) 'best management practices' to satisfy BLM and state water quality standards.

The scenic resources of Upper Smoke Creek would be manage under visual resource management (VRM) class II criteria (i.e. management interventions are visible but should not attract the attention of a casual observer.)

There would be no significant impacts from livestock or wild horse grazing because the upper reaches of Smoke Creek are inaccessible to livestock due to a combination of fencing and rimrock barriers. The area has been closed to grazing so that significant progress can be made toward riparian goals in order to meet land health standards and achieve the desired future condition. However, judiciously placed water gaps are present to allow livestock and wild horses to water at the creek.

Thinning of western juniper in the upper 3 miles of the watershed would take place if it is needed to meet land health standards. However, this must be done in such a way that the outstanding and unique values of the creek (scenic quality, cultural resources, and recreation) are not compromised. It must also meet VRM Class II standards. For trees, this means total removal of above-ground portions of cut or girdled trees using the most feasible method (including burning.)

The BLM would seek to acquire undeveloped private lands from willing sellers throughout the length of Upper Smoke Creek (above Smoke Creek Reservoir) for all alternatives in order to provide recreation access and harmonize management with adjacent public lands in order to improve aquatic, riparian, and upland habitats along the creek.

6.3 No Action Alternative

This alternative presents moderate beneficial impacts--and a slight chance of major adverse effects--for the outstanding and unique values of Upper Smoke Creek if current management continues (wild and scenic river designation is not recommended under No Action and Alternative 3). Current management involves actions to protect and enhance the riverine character of Upper Smoke Creek, protecting its scenic quality and improving its fishery. It is also designed to benefit riparian and upland vegetation and safeguard cultural resources. However, dam construction is still a possibility on the upper portions of the creek. If this is allowed, it would have major adverse impacts on its outstanding and unique characteristics.

Many BLM policies and legal protections for Upper Smoke Creek's outstanding and unique WSR values would continue under No Action. These include: 1) management under VRM Class II (to protect its high scenic value); 2) application of BLM land health standards (promoting healthy riparian and upland habitats--including exclusion of livestock and wild horses); 3) compliance with the NHPA (protecting cultural and historic resources); and 4) compliance with the BLM's WSA interim management policy (IMP) to preserve its wilderness character as part of the Twin Peaks WSA (until such time as Congress chooses to act and render a ruling.)

Upper Smoke Creek is not identify for water impoundment in this RMP However, BLM wildlife policy (as expressed in this RMP) supports construction of waterfowl nesting islands through impoundment of waters *where appropriate*. Construction of a small dam and reservoir in the middle portion of Upper Smoke Creek might be feasible to create more wetlands for waterfowl nesting. A small dam in the middle segment of Upper Smoke Creek (where there are broad open areas adjacent to the creek) could provide a suitable reservoir site for waterfowl nesting habitat if nesting islands were built. This is below the area where cultural sites and artifacts are concentrated and above the deeper portion of Smoke Creek Canyon [less suitable for wetland development].

The native river-dependent fish and other aquatic wildlife that require flowing water would be replaced by reservoir-adapted species. Such development would threaten the outstanding and unique properties of this river segment and are not proposed for that reason.

Mineral extraction on six miles of Upper Smoke Creek is not permitted because of the Twin Peaks WSA and the wilderness IMP. However, if Twin Peaks is ultimately denied wilderness status and released from wilderness study by Congress, it will revert to multiple-use management and become available for mineral exploration and development. In this eventuality, standard stipulations that apply to any mining operation would require protection of the area's high scenic quality (VRM Class II), cultural resources, water quality, and wildlife values. However, the sights and sounds of mining activity would be evident. On the other hand, mineral potential is low (due to predominance of volcanic basalt flows) and there is no physical evidence or record of mining in this area.

There are no timber resources in Upper Smoke Creek; therefore, timber harvesting is not an issue. However, there is scattered juniper along Upper Smoke Creek that could be thinned; if thinning could be conducted in compliance with BLM VRM Class II standards and other applicable resource protection requirements. VRM Class II standards are established to retain the natural appearance of the existing landscape. "Management actions may be seen but should not attract the attention of the casual observer." (BLM VRM Manual 8410-1, p. 6). In evaluating the impacts of a proposed project under BLM VRM guidelines, time is allowed for reestablishment of ground cover following project completion to determine if the project will meet VRM objectives established for the affected area. In this case, viewing distances would be very close, because the prime visitor use area (along the creek) would also be the treatment area.

If juniper were removed, grass growth would be stimulated, within one year and shrubs would become reestablished in three to five years, thereby reducing the visual impact of juniper removal with a high likelihood of fulfilling VRM Class II objectives. Actual analysis would require completion of a BLM visual contrast rating as part of a project-specific NEPA analysis.

Current management of the Twin Peaks WSA (protected under the wilderness IMP) would have moderate beneficial effects for Upper Smoke Creek. Land acquisition efforts along the river would continue in order to improve public access for hunting, wildlife-viewing, hiking, cultural resource appreciation, fishing, and sight-seeing.

Moderate benefits would also result from restrictions on livestock grazing and other land-use decisions designed to improve land health—especially riparian and aquatic habitats—under the Northeastern California Resource Advisory Council's (RAC) standards and guidelines for land health.

Summary of Effects – No Action Alternative

This alternative presents moderate beneficial impacts--and a slight chance of major adverse effects--if a dam were built on a portion of Upper Smoke Creek and impounded waters flood the creek's aquatic habitats, riparian areas, and cultural and recreational resources upstream from the dam.

6.4 Alternative 1. Economic Development

The entire eligible segment (10.6 miles) of Upper Smoke Creek would be recommended suitable for a 'wild' designation under the Wild and Scenic Rivers Act for Alternatives 1, 2, and the Preferred (where management and effects are identical). These alternatives would preclude dam construction within this segment. WSR designation would bring greater economic benefits than the small amount of water available for impoundment (see the Preferred Alternative discussion).

6.5 Alternative 2. Ecosystem Restoration

Management and effects under the Ecosystem Restoration Alternative would be the same as Alternative 1 and the Preferred. However, in addition to the recreational and economic benefits described in the Preferred Alternative, there would be many ecological benefits from preserving Upper Smoke Creek as a free-flowing stream. These primarily relate to continued improvements to riparian conditions (begun in the 1980s with exclusion of livestock from most of Upper Smoke Creek), improved aquatic habitats for the native assemblage of Lahontan species, and protection of cultural (and other) resources by eliminating the possibility of dam construction, thereby preventing flooding of archaeological sites.

6.6 Alternative 3. Traditional Uses

Management and effects under Traditional Uses would be the same as No Action.

6.7 Preferred Alternative

Under the Preferred Alternative, the entire eligible segment (10.6 miles) of Upper Smoke Creek would be recommended suitable for a 'wild' designation under the Wild and Scenic Rivers Act (this also applies to Alternatives 1 and 2, which have identical management and effects.) Protecting the scenic qualities, high cultural resource value, and free-flowing character of this river segment will greatly enhance the recreational value of the creek, as well as the entire Upper Smoke Creek basin. Dam construction would not be permitted within this river segment. The substantial recreational and economic benefits this would bring far outweigh the limited benefit of additional water storage. Upper Smoke Creek has little water and a high percentage of the flow has long since been appropriated by down-stream users.
The following management actions and resource uses would be allowed:

- Valid existing water rights are not affected by federal WSR designations. Jurisdiction over water is determined by specific legislation dealing with that issue. The course of water through the WSR segment would be unimpeded as it passes through the designated segment to downstream users.
- Wilderness qualities will be protected under the wilderness IMP, along the 6 mile portion flowing through the Twin Peaks WSA, until such time as Congress either designates the area as wilderness or returns it to multiple-use management.

- The area would be managed for non-mechanized (no mountain bikes or OHVs) recreation in a primitive setting, with little or no on-site facilities, including trails (unless these become necessary to mitigate visitor-caused resource damage), in order to retain its primitive recreational character for current uses such as hunting, wildlife-viewing, hiking, sight-seeing, cultural resource appreciation, and fishing.
- Recreation in the upper Smoke Creek drainage would be monitored to determine impacts on cultural resources. Closer attention to visitor use and activities--plus increased law-enforcement patrols--may be necessary to adequately protect cultural resources.
- OHVs would not be permitted. In any case, there is no motor vehicle access or trails along the entire 10.6 miles of Upper Smoke Creek (except for one rough access route to and across Upper Smoke Creek) due to the rough, rocky terrain. Another rough dirt road provides nearby (but out of sight) access on a volcanic bench above Smoke Creek Canyon between Shinn Ranch and Smoke Creek Reservoir.
- Vehicular access on the (only) dirt road crossing Upper Smoke Creek (in T 33 N R 16 E section 25) would remain available for motorized public access—subject to continued willingness on the part of the private landowner to allow its continued use.
- Vehicle access (on a rough dirt road) to the upper end of the Smoke Creek drainage (at Big Spring) would remain open to the public, as the BLM has secured an easement through this area.
- Walk-in pubic access across private land along the first 1.2 miles of Upper Smoke Creek (below Big Springs and along the private section midway along the creek) would be subject to the willingness of the landowners to allow public access along the creek.
- Vehicular access south of Smoke Creek (along the boundary road between the Twin Peaks and Five Springs WSAs) would remain open for public use. This rough, rocky dirt road provides the nearest access to Smoke Creek from south of the Smoke Creek Canyon south rim.
- Upper Smoke Creek would be withdrawn from mineral entry for an average distance of ¼ mile on either side of the creek. This means the area would be closed to mining, mineral leasing, and removal of saleable minerals (e.g. sand, gravel, decorative rock). However, mineral withdrawal could be less than ¼ mile in areas where the creek is confined within a canyon and more than this where the creek is flanked by more open areas. Mineral closure along the creek would average ½ mile on either side of the creek.
- In a similar manner, right-of-ways would not be issued for ¼ mile on either side of the creek with the actual widths subject to the same constraints previously discussed for mineral closures. Right-of-way closure would also average ½ mile on either side of the creek.
- Livestock grazing would continue where it is currently authorized. However, most of Smoke Creek is physically closed to grazing through a combination of fencing (located above and behind canyon rims) tied into natural rock outcroppings. Fencing was installed in order to protect and enhance cultural resources, riparian areas, wildlife, and scenic values.
- In areas where grazing would continue (i.e. fenced water-gaps along Smoke Creek providing watering access for livestock and wild horses and on uplands away from the creek and outside the fenced area), it would be managed to maintain identified WSR values.

A wide variety of (previously mentioned) popular recreational activities will benefit from WSR designation by retaining the free-flowing nature and unaltered natural surroundings of this pristine creek.

Smoke Creek supports a small rainbow trout fishery and Lahontan assemblage of native species in an arid setting. Visitor use is estimated at 1,000 to 3,000 visitors yearly; especially hunters, fishermen, hikers, and those viewing cultural resources and wildlife. Figures are based on BLM and CDFG estimates (Bales, 9-22-05).

Recreational use of Upper Smoke Creek has economic benefits for Lassen County because it attracts visitors from throughout California and beyond—usually for multi-day visits. Visitors pass through various communities in Lassen County, patronizing local businesses for food, fuel, lodging, and supplies.

Upper Smoke Creek attract visitors not only to the creek; but to its upland basin--because the creek provides water and the surrounding uplands provide habitat for wildlife. It is the wildlife that attracts much of the visitor use. Hunters from throughout California have traveled to this area for years for one or two-day sage grouse hunts (with one or two bird season limits.) Similarly, antelope and deer hunters apply for annual hunts in the area (Lassen, Zone 4 and deer hunters in Zone X5b)--despite overwhelming odds against drawing permits--because so many hunters seek the opportunity to hunt in this region, particularly its centerpiece, Upper Smoke Creek. Desert enthusiasts and those seeking solitude in wide-open spaces cherish Upper Smoke Creek basin for its remote setting, spectacular scenery, wildlife-viewing opportunities, and archaeological sites. It is for these reasons that WSR designation is considered a benefit under the Economic Development Alternative.

It is difficult to determine whether WSR designation will increase visitor use of Upper Smoke Creek. Factors such as water volume and other river characteristics, travel distance, and road conditions will likely determine visitor use as much as WSR designation (Interagency Wild and Scenic Rivers Coordinating Council, May 1997).

Summary of Effects – Preferred Alternative

Wild and scenic river designation for 10.6 miles of Upper Smoke Creek would ensure long-term protection of its free-flowing character, natural setting, and the outstanding and unique values identified in the eligibility determination. It would also have economic benefits for Lassen County. This would occur through sales of food, gas, lodging, and supplies to outdoor recreation visitors.

6.8 Comparative Summary of Impacts

The Preferred Alternative, Alternatives 1, and Alternative 2 would recommend the entire eligible segment (10.6 miles) of Upper Smoke Creek for WSR designation. The No Action Alternative and Alternative 3 do not recommend designation.

Under No Action and Alternative 3, there could be major adverse impacts to Upper Smoke Creek's outstanding and unique values from water diversion, water impoundment, or locatable mineral development on Upper Smoke Creek. If Twin Peaks WSA is denied wilderness status and the area reverts to multiple-use management water divergence, impoundments, and locatable mineral development could occur under No Action and Alternative 3. Although unlikely (due to low water flow and poor mineral prospects), a new dam and/or mineral development is possible under these alternatives.

However, there would still be many provisions under No Action and Alternative 3 that would protect scenic, recreational, and cultural values that form the basis of the outstanding and unique values that qualify this 10.6 mile segment for WSR eligibility.

Under No Action and Alternative 3, Upper Smoke Creek would remain open to mineral development outside Twin Peaks WSA; and would be open within the WSA if no surface-disturbing activities occurred. If WSA status is removed by Congress, the segment of Upper Smoke Creek within the WSA would then become available for mineral entry and development. However, mineral development would be subject to standard stipulations under the mining laws (protecting natural and cultural resources.) On the other hand, mineral development is unlikely because the area is composed of Pleistocene basalt flows that do not usually contain minerals of economic value.
Under Alternative 1, 2, and the Preferred, Upper Smoke Creek would be withdrawn from all forms of mineral entry for about ¼ mile or more (average ½ mile) on either side of the creek.

The Preferred Alternative, as well as Alternatives 1 and 2, recommend incorporating Upper Smoke Creek into the National Wild and Scenic Rivers System. Protection of the creek's free-flowing character is assured under the Wild and Scenic Rivers Act and would provide major, long-term benefits for its outstanding and unique values--primarily exceptional scenic values adjacent to the creek, and an abundance of cultural resources and high-quality recreation. No Action and Alternative 3 would not recommend WSR designation, but would protect Upper Smoke Creek's outstanding and unique values through a combination of protective measures established within those alternatives (e.g. VRM Class II designation, compliance with BLM land health standards, compliance with the water quality provisions of state and federal laws, cultural resource protection through compliance with section 106 of the NHPA, and compliance with the wilderness IMP that protect the wilderness character of the Twin Peaks WSA).

However, *permanent* protection of the river's free flowing character would not be assured--because BLM land-use plans can be amended. Plans are subject to changing economic and political pressures and (current) protective measures could be altered to permit construction of a dam on Upper Smoke Creek. Designation under the WSR Act would ensure long-term protection throughout the 10.6 mile segment, without the possibility of future dam construction.

6.9 Cumulative Effects

Upper Smoke Creek has been altered below the eligible segment by Smoke Creek Reservoir (approximately 1.5 miles long, with 98 surface acres, 980 acre-feet capacity and annual storage of up to 1,300 acre-feet) and along seven miles of the creek flowing through meadows and agricultural diversions below Smoke Creek Reservoir. Smoke Creek has also been affected by livestock grazing for more than 100 years. The BLM was forced to remove (through court action) grazing privileges from a long-time livestock permittee who had consistently violated the season-of-use provisions of his grazing permit and badly degraded habitats along Smoke Creek. Since this time (1980s), livestock have been excluded from most of Upper Smoke Creek using fencing tied into rimrock. A healthy and functioning riparian area is becoming reestablishing along Smoke Creek, together with associated aquatic habitat improvements. Continued recovery from past grazing abuse would be assured by WSR designation—and it would be permanently protected from water diversions and dams.

Upper Smoke Creek Canyon is rugged, primitive, and scenic. For these reasons it is highly valued by current-day visitors for hunting, hiking, wildlife-viewing, cultural resource appreciation and desert stream fishing. There is abundant evidence of prehistoric humanity and impacts are still evident in cultural resources seen along the creek. Severe livestock grazing impacts have occurred, but are now eliminate it from most of the creek.

If Upper Smoke Creek were designated a WSR, about 30 % of Smoke Creek's 36 miles would be permanently protected as a free-flowing stream and the primitive characteristics that attract visitors would be permanently protected.

Native wildlife would benefit from a natural, free-flowing stream that would continue to provide healthy and productive aquatic, riparian, and upland habitats for a wide variety of sagebrush-steppe species that rely on its waters.

6.10 Mitigation Measures

Mitigation measures would not be necessary for the eligible segment of Upper Smoke Creek if it receives WSR protection, since there would be no adverse impacts requiring mitigation.

6.11 Unavoidable Adverse Impacts

There are no unavoidable adverse impacts.

6.12 Short-Term Uses Versus Long-Term Productivity

Long-term preservation of the free-flowing character of the entire eligible segment (10.6 miles) of Upper Smoke Creek would be assured by WSR designation under Alternatives 1, 2, and the Preferred. Its waters would flow unimpeded through this segment with most of the flow being appropriated by (existing) down-stream water-right holders. The area's wildlife and cultural resources, and its outstanding recreational opportunities and unique characteristics would be permanently protected.

Under No Action and Alternative 3, Upper Smoke Creek's free-flowing character would be protected in the short-term, as it is at present. However, in the long-term, its waters would be vulnerable to diversion or impoundment behind another dam if future economic considerations or the politics of water use could justify development of a dam and overcome political and legal opposition. Conceptually, a dam could supply additional water for irrigation and regulate the flow of water through Upper Smoke Creek Canyon, thereby improving stream fishing below the dam and generating some hydroelectric power. However, benefits from these uses, though unknown, are likely to be negligible because the small volume of water flowing in the creek is mostly appropriated and stored behind Smoke Creek Reservoir for down-stream irrigation. Therefore, little is available for additional storage behind another dam.

An irrigation dam on Upper Smoke Creek would greatly impair its scenic qualities in the area of the reservoir and dam, substantially reducing the appeal of the canyon. Riparian vegetation would be eliminated and replaced by mud banks. Following annual irrigation draw-down, 'bathtub ring' staining would be obvious on canyon walls beneath the high-water level. Wildlife relying on creekside riparian habitats would also be displaced.

An analysis of 39 years of river flow data (from 1951 to 1990) on the Susan River and Willow Creek was conducted by the California Department of Water Resources as part of a study of surface water storage potential (i.e. reservoirs) in Lassen County. This study found that the *firm* yield of proposed reservoirs is *far less* than the average yield because of the large variation in runoff from year to year (Lassen County Water Resources Assessment Study, 1992). This would result in substantial variations in pool depth for Lassen County reservoirs--including Upper Smoke Creek--resulting in the bare dirt banks and 'bath-tub ringed' rocks and canyon walls described above. It is noteworthy that this study, which analyzed all major watersheds in Lassen County, did not analyze Upper Smoke Creek--due to its low flow volume and storage potential.

However, if it were determined that enough water is available for a wetland reservoir on Upper Smoke Creek, nesting islands would be built to provide habitat for waterfowl production.

Such a reservoir would not fluctuate as much as a one built for irrigation and substantially less variation in water pool depth would be less harmful to aquatic and terrestrial wildlife since water loss would result from evaporation and mandatory release for down-stream water-right holders. Recreational users would also be able to fish, hunt, boat, swim, and view wildlife on the reservoir.

6.13 Irreversible and Irretrievable Impacts

If Upper Smoke Creek were designated a wild and scenic river (under Alternatives 1, 2, or the Preferred), water diversions and dams could not be built and the area would be closed to mineral development. However, this possibility seems more conceptual than realistic because of the limited supply of water and low storage potential.
Mineral development is also very unlikely due to the basalt geology of the area and low potential for minerals of economic value.

If a dam was built on Upper Smoke Creek (as possible under No Action and Alternative 3), there would be irretrievable and irreversible impacts to the creek in the segment periodically inundated for seasonal water storage. This would have major adverse impacts for riparian vegetation, terrestrial and aquatic wildlife, and scenic values—and for recreational uses of the river (especially stream fishing and cultural resources).

4.13.7 Willow Creek

7.1 Incomplete or Unavailable Information

Adequate information is available to analyze the effects of wild and scenic river designation for the eligible segment of Willow Creek (at the RMP level of analysis.)

7.2 Impacts Common to All Alternatives:

Recreational use of the river would continue with primary uses being fishing, hiking, sightseeing, rock art appreciation, upland bird hunting, wildlife viewing and nature study.

Rock art appreciation by individuals, and small and large (school) groups, would continue at the Belfast Petroglyphs and other locations along Willow Creek. Its use as a special heritage area by Native Americans would also continue.

Cultural resources would be protected (in compliance with section 106 of the National Historic Preservation Act).

Full suppression would be the appropriate management response for wildfires, because of the proximity of the Honey Lake Valley wildland/urban interface.

Native and non-native fish (and other aquatic wildlife) would be managed according to criteria established in the BLM's Land Health Standards for Northeastern California and Northwestern Nevada, particularly standards 2 and 4. Efforts would focus on improving the condition of riparian (especially woody) vegetation to stabilize stream banks and increase shading.

Water quality would be protected through employment of the BLM's 'best management practices' in order to meet BLM and state water quality standards.

Scenic resources would be protected through VRM Class II management of Willow Creek Canyon (i.e. management actions would be visible, but should not attract the attention of casual observers).

Most livestock grazing would be excluded from Willow Creek to allow progress toward riparian goals, desired future condition, and objectives specified in the land health standards. However, livestock would be allowed access to the creek at water gaps established for this purpose.

Timber harvesting would not be permitted within the WSR area. In any case, timber is very limited in the area proposed for WSR designation, so this would not effect timber production.

Most of the land (8 miles) along the eligible segment is in public (BLM) ownership.
Under all alternatives, efforts to acquire approximately 1.25 miles of undeveloped land spanning Willow Creek would continue.

These acquisitions would increase the Bureau's ability to provide legal public access along the entire eligible segment to meet the needs of recreational uses and protect aquatic, riparian, and upland habitats.

7.3 No Action Alternative

This alternative presents moderate beneficial impacts--and the possibility of major adverse effects--for the outstanding and unique values of Willow Creek if current management continues (wild and scenic river designation is not recommended.) Current management involves actions to protect and enhance the riverine character of Willow Creek; thus protecting its scenic quality and improving its fishery.
It is also designed to benefit riparian and upland vegetation and safeguard cultural resources. However, dam construction is a possibility on the upper portions of the creek. If this is allowed, it would have major adverse impacts on WSR values.

Many BLM policies and legal protections for Willow Creek's outstanding and unique WSR values would continue under No Action. These include: 1) management under VRM Class II (to protect its high scenic value); 2) application of BLM land health standards (promoting healthy riparian and upland habitats--including exclusion of livestock and wild horses); 3) compliance with the NHPA (protecting cultural and historic resources); and 4) compliance with the BLM's WSA interim management policy (IMP) to preserve its wilderness character as part of the Tunnison Mountain WSA (until such time as Congress chooses to act and render a ruling on wilderness designation.)

A dam on Willow Creek would adversely impact the creeks outstanding and unique values that qualify it for eligibility under the Wild and Scenic Rivers Act. These features include the canyon's remarkable scenic quality, outstanding recreation opportunities based on its free-flowing character (e.g. fishing, streamside hiking, and nature study by local school groups), and some archaeological sites within the canyon. Flooding of the segment behind a dam would destroy the scenic river corridor and associated river-based aquatic and riparian habitats; replacing this with a reservoir bordered by bare rocks and mud banks eroded by fluctuating water levels and wave action.

Because the primary use would be for storage of irrigation water for the Honey Lake Valley, pool depths would drop precipitously each year, heightening these effects. During draw-down, and periods of low reservoir volume, there would be little water left for recreation and formerly scenic canyon walls would lack vegetation and show obvious 'bathtub ring' stains. The native, river-dependent fish and other aquatic wildlife that require flowing water would be replaced by reservoir-adapted species. Canyon-bottom recreation would be eliminated in the flooded area. Rock art and other cultural resources would be destroyed.

BLM planning policies provide for amendment of current and future land use plans in response to changing physical, social and political conditions. Future changes in demand for domestic water and power generation, combined with the ever-increasing value of (limited) water resources will exert economic and political pressure to modify established land use plans and BLM policies and provide justification for water diversion or dam construction.

Under No Action, the eligible segment of Willow Creek would not be recommended as administratively suitable for inclusion in the National WSR System. Management of the creek would continue under the provisions of the current BLM land-use plan which protects the scenic (VRM Class II), cultural, and recreational values of Willow Creek and Willow Creek Canyon. The current plan also protects wilderness values in the entire Willow Creek Canyon because of the Tunnison Mountain WSA. Protection of water quality, as well as riparian vegetation and wildlife habitats, follow the standards and guidelines for land health of the BLM's Northeastern California Resource Advisory Council (RAC). Mineral extraction is not a possibility while the Tunnison Mountain WSA exists (or if designated a wilderness area.) However, if Congress decides against wilderness designation it will revert to multiple-use management. The canyon would then become available for mining claims and mineral development. The sights, sounds, and physical presence of mining activity would then be evident if mining claims are filed and mineral extraction proceeds. However, the volcanic basalt generally contains low-value minerals and there is no evidence or record of previous mining activity. Also, standard mining stipulations would require protection of the area's high scenic quality (mandatory VRM Class II), cultural resources, water quality, and wildlife habitats.

Provisions of the present land-use plan protecting wilderness values of the Tunnison Mountain WSA are moderately beneficial for Willow Creek. The BLM would attempt to acquire lands along the river for public recreation access. Moderate beneficial impacts would also result from livestock exclusion and other land-use decisions designed to improve land health (especially riparian and aquatic habitats) under provisions of the land health standards.

Summary of Effects – No Action Alternative

Management under No Action is likely to have moderate beneficial impacts on Willow Creek—but could also have major adverse effects if water diversions, or especially a dam, were built on a segment of Willow Creek, thereby flooding upstream riparian areas.

7.4 Alternative 1. Economic Development

This alternative combines the economic benefits of WSR designation for two segments of Willow Creek (totaling 4.75 miles), preserving their free-flowing character and leaving an intervening segment of 3.25 miles available for possible reservoir development. The upstream (WSR) segment would be 3 miles in length and the downstream segment 1.75. Both segments would be classified 'wild'.

Under Alternatives 1 and 2 (the alternatives recommending WSR designation) the following management actions and resource uses would be allowed:

- Willow Creek would continue to be available for fishing, hunting, hiking, petroglyph and wildlife-viewing, nature study and sightseeing via walk-in access along the creek.
- Vehicular access would be maintained to upper Willow Creek Canyon near the old sheep bridge (T30N R13E section 4), with parking ¼ mile from the creek in an area suitable for vehicle parking and turn-around.

- Vehicular access to "the crossing" at its confluence with Petes Creek would be maintained with parking ¼ mile from the creek in an area suitable for vehicle parking and turn-around.
- Vehicular access would be maintained to the Belfast Petroglyphs trailhead parking area (¼ mile from the rim of lower Willow Creek Canyon).
- A new hiking trail could be established and maintained within the river corridor.
- OHVs would not be permitted within the WSR section(s) of Willow Creek (there is no motor vehicle access along Willow Creek and only one rough access route to the confluence with Petes Creek).
- No surface occupancy (NSO) stipulations would apply to mineral leasing for Alternatives 1 and 2 (including Willow Creek Canyon for Alternative 2).
- For Alternatives 1 and 2, WSR segments would be closed to locatable (hard rock and placer) mining and saleable mineral extraction (sand, gravel, and decorative rock).
- Right-of-ways would not be issued within the Willow Creek canyon to protect its natural, cultural, and scenic values.

There have been no studies to determine economic benefits specifically derived from Willow Creek. Visitor use is estimated at 500 to 1,000 persons annually (Bales, 9-10-05). WSR designation would benefit a small portion of the local economy; primarily through sale of items for fishing, hiking and sightseeing, photography and wildlife-viewing.

Of greater significance is the year-round accessibility of the free-flowing portion of the creek and adjacent riparian areas that attracts visitors and local residents seeking primitive stream fishing, hiking, and sightseeing. By protecting these riverine values through WSR designation, present and future outdoor enthusiasts will be attracted to the area to enjoy recreational activities in a primitive and beautiful desert canyon containing a perennial stream and supporting a viable trout fishery.

Summary of Effects – Alternative 1

Alternative 1 would protect the free-flowing character and WSR values on 4.75 miles (in 2 segments) of Willow Creek, thus safeguarding recreational and cultural resources in these segments. However, the ability to develop a reservoir on Willow Creek is provided in this alternative (if the Tunnison Mountain WSA is denied wilderness status and returned to multiple-use management). Reservoir development would have major adverse impacts to the free-flowing character and outstanding and unique natural values of the creek (previously described for No Action) and some beneficial economic impacts from storage of irrigation water and reservoir recreation (boating, swimming, some waterfowl hunting, reservoir fishing, and limited down-stream benefits for stream fishing [increased flows when water is available for down-stream release]). There may also be some value for power generation. However, no studies have been done to estimate the possible monetary value of such development on Willow Creek.

7.5 Alternative 2. Ecosystem Restoration

The entire eligible segment (8 miles) is recommended for WSR designation with a 'wild' classification. Impacts would be similar to Alternative 1, except that the middle portion would also be protected from the possibility of water diversion or impoundment behind a dam. This portion (3.25 miles) includes two distinct areas of Willow Creek Canyon. In the upper area, the creek becomes shallower, opening into a meadow near its confluence with Petes Creek. In the lower portion, the meadow is gradually constrained within narrow canyon walls.

Designation of the entire eligible segment would have great value for recreation, since maintenance of its free-flowing character and WSR values could not be compromised and interrupted by dam and reservoir construction.

There are no developed private parcels along Willow Creek. This alternative favors acquisition of such parcels to assure adequate public access to river banks for fishing, hiking, sight-seeing and other recreational activities, and to maintain its outstanding and unique recreational value.

Summary of Effects – Alternative 2

Designation of the entire segment (8 miles), would assure *consistent*, long-term protection of the free-flowing character, and outstanding and unique values, of the eligible segment by precluding the possibility of dam construction and reservoir formation that would compromise the very characteristics WSR legislation is designed to preserve.

7.6 Alternative 3. Traditional Uses

Management under this alternative would be identical to No Action, and impacts would be similar.

7.7 Preferred Alternative

The Preferred Alternative is identical to No Action and Alternative 3. This alternative presents moderate beneficial impacts--and the possibility of major adverse effects--for the outstanding and unique values of Willow Creek (wild and scenic river designation is not recommended.)

Management actions would protect and enhance the riverine character of Willow Creek, preserving its scenic quality and improving its fishery. Management interventions would also benefit riparian and upland vegetation and safeguard cultural resources. Nonetheless, a dam would still be possible on the upper portions of the creek. If this is permitted, it would have major adverse impacts on (identified) WSR values (i.e. outstanding and unique scenic, recreational, and cultural values).

Many BLM policies and legal protections for Willow Creek's outstanding and unique WSR values would continue. These include: 1) management under VRM Class II (to protect its high scenic value); 2) application of BLM land health standards (promoting healthy riparian and upland habitats--including exclusion of livestock and wild horses); 3) compliance with the NHPA (protecting cultural and historic resources); and 4) compliance with the BLM's WSA interim management policy (IMP) to preserve its wilderness character as part of the Tunnison Mountain WSA (until such time as Congress chooses to act and render a ruling on wilderness designation.)

A dam on Willow Creek would adversely impact the creeks outstanding and unique values that (presently) qualify it for eligibility under the Wild and Scenic Rivers Act. These features include the canyon's remarkable scenic quality, outstanding recreation opportunities based on its free-flowing character (e.g. fishing, streamside hiking, and nature study by local school groups), and archaeological sites within the canyon. Flooding of the segment behind a dam would destroy the scenic river corridor and associated river-based aquatic and riparian habitats; replacing this with a reservoir bordered by bare rocks and mud banks eroded by fluctuating water levels and wave action.

Because the primary use would be for storage of irrigation water for the Honey Lake Valley, pool depths would drop precipitously each year, heightening these effects. During draw-down, and periods of low reservoir volume, there would be little water left for recreation and formerly scenic canyon walls would lack vegetation and show obvious 'bathtub ring' stains.

The native, river-dependent fish and other aquatic wildlife that require flowing water would be replaced by reservoir-adapted species. Canyon-bottom recreation would be eliminated in the flooded area. Rock art and other cultural resources would be destroyed.

BLM planning policies provide for amendment of current and future land use plans in response to changing physical, social and political conditions. Future changes in demand for domestic water and power generation needs, combined with the ever-increasing value of (limited) water resources will exert economic and political pressure to modify established land use plans and BLM policies and provide justification for water diversion or dam construction.

Under the Preferred Alternative, the eligible segment of Willow Creek would not be recommended as administratively suitable for inclusion in the National WSR System. Management of the creek would continue under provisions of the current BLM land-use plan which protects the scenic (VRM Class II), cultural, and recreational values of Willow Creek and Willow Creek Canyon. The current plan also protects wilderness values in the entire Willow Creek Canyon because of the Tunnison Mountain WSA. Protection of water quality, as well as riparian vegetation and wildlife habitats, follow the standards and guidelines for land health of the BLM's Northeastern California Resource Advisory Council (RAC).

Mineral extraction would not occur while the Tunnison Mountain WSA exists (or if designated a wilderness area.) However, if Congress decides against wilderness designation it will revert to multiple-use management. The canyon would then become available for mining claims and mineral development. The sights, sounds, and physical presence of mining activity would then be evident if mining claims are filed and mineral extraction proceeds. However, the volcanic basalt generally contains low-value minerals and there is no evidence or record of previous mining activity. Also, standard mining stipulations would require protection of the area's high scenic quality (mandatory VRM Class II), cultural resources, water quality, and wildlife habitats.

Provisions of the present land-use plan protecting wilderness values under the wilderness IMP are moderately beneficial for Willow Creek. The BLM will attempt to acquire lands along the river for public recreation access. Moderate beneficial impacts would also result from livestock exclusion and other land-use decisions designed to improve land health (especially riparian and aquatic habitats) under provisions of the land health standards.

Summary of Effects – Preferred Alternative

Management of Willow Creek under the Preferred Alternative (as well as No Action and Alternative 3), would protect and enhance the high scenic, recreational, and cultural values of the canyon and adjacent uplands. This is likely to have moderate beneficial impacts on Willow Creek—but could also have major adverse effects if water diversions, or especially a dam, were built on a segment of Willow Creek, thereby flooding upstream riparian areas.

7.8 Comparative Summary of Impacts

No Action, Alternative 3, and the Preferred Alternative would not recommend Willow Creek for designation and inclusion in the national wild and scenic rivers system. Alternatives 1 and 2 would recommend portions of the creek for designation.

No Action, Alternative 3 and the Preferred Alternative would protect Willow Creek's outstanding and unique values through protective measures established in those alternatives (VRM Class II designation, compliance with BLM land health standards, compliance with state and federal water quality standards, cultural resource protection [under section 106 of the National Historic Preservation Act], and protection of the Tunnison WSAs [under the wilderness IMP]).

However, under these same alternatives, potential impacts to Willow Creek's (identified) outstanding and unique WSR values could be significantly adverse if water diversion, water impoundment, or locatable mineral development were to occur within Willow Creek Canyon. If the Tunnison WSA does not receive wilderness designation, water impoundments, water diversions, and locatable mineral development--though unlikely--could take place because WSR designation is not sought under these alternatives. Such development would remain a possibility, despite the fact that these alternatives contain provisions for the protection of scenic, recreational, and cultural values (that qualified this 8 mile creek segment for eligibility under the Wild and Scenic Rivers Act) mentioned above.

On the other hand, a dam, water diversion, or mineral development are not likely due to the expense and environmental consequences of dam construction, lack of surplus water (during low-to-normal run-off years), and low mineral potential within the canyon. Development would destroy or greatly alter, all or a portion, of riparian lands within the impounded area (behind a dam) or in the vicinity of mineral development. Visitor experience within the flooded area would change from natural river-based recreation to reservoir-based recreation. Visitor opportunities and experiences would change from stream fishing, hiking, wildlife viewing, and rock art appreciation to warm-water fishing, boating, and swimming--providing there is sufficient water to keep the reservoir at least partially filled.

Alternatives 1 and 2 recommend Willow Creek for WSR designation to protect the creek's free-flowing character and identified WSR values. Designation under Alternative 2 would ensure the long-term protection of the entire eight-mile eligible segment. This would have major beneficial impacts for WSR values. Under Alternative 1, there would be *partial* long-term protection because two segments would receive WSR designation--with the future possibility of a dam between (designated) segments. This would have moderate to major beneficial effects for WSR values.

Regardless of alternative, livestock grazing is not permitted on most public lands along Willow Creek or within the canyon. Livestock are allowed access to water in a few areas, but impacts from grazing are negligible to minor.

In the Preferred Alternative mineral leasing would have limited adverse effects because of requirements to protect the Tunnison WSA, and the Willow Creek ACEC. Drilling could only occur outside Willow Creek Canyon and would not be permitted alongside or within view of the river elsewhere in the eligible segment. Although WSR designation is not recommended under this alternative, the Willow Creek Canyon would be withdrawn from mineral entry under the general mining laws to protect its high scenic and cultural resource value and maintain its primitive, non-vehicular setting for walk-in recreation.

7.9 Cumulative Effects

If a dam were built on Willow Creek, another segment of free-flowing river would be lost to the State of California (where free-flowing river segments are short and limited in number and free-flowing rivers virtually non-existent.) Each incremental loss of a free-flowing section to yet another dam and reservoir destroys miles of scarce habitat for river-dependent species, radically alters the natural landscape, and eliminates river-based recreation. Willow Creek has already been altered for agriculture (upstream) in the Willow Creek Valley. The Willow Creek Canyon, however, is a rugged, primitive area that has not been significantly altered by man's activities. If the entire eligible segment were to be designated under Alternative 2, 25% of its 32 plus miles would be permanently protected as a free-flowing stream.

7.10 Mitigation Measures

The following measures would be used to mitigate adverse effects on Willow Creek's outstanding and unique WSR values under the Preferred Alternative:

Mining: Close Willow Creek Canyon from locatable and saleable mineral development under the mining laws. Apply no surface occupancy requirements for mineral leasing (although diagonal drilling would be allowed from off-site areas not visible from canyon rims.)

Rights-of-way: Avoid issuing rights-of-way through Willow Creek Canyon, unless no feasible alternative exists. Even so, an approved right-of-way must satisfy VRM Class II standards, as well as land health and water quality standards.

7.11 Unavoidable Adverse Impacts

Dams and water diversions could be built on Willow Creek under the Preferred Alternative. This would result in unavoidable adverse impacts to Willow Creek's free-flowing character destroying cultural resources and significantly impairing its scenic and recreational value.

7.12 Short-Term Uses Versus Long-Term Productivity

Willow Creek would be protected as a free-flowing river in the short term. In the long-term, however, it could be subject to impoundment behind a dam--if future economic pressures can justify a dam and the necessary permits, financing, and political support could be secured. A dam could increase water availability for irrigation and extend its flow through Willow Creek Canyon, benefiting stream fishing below the dam and generating hydroelectric power.

A dam and reservoir would radically alter the scenic quality of Willow Creek canyon, greatly reducing its appeal. Steeply sloped; muddy banks and horizontally stained rocks would be highly visible during low water. This would not appeal to visitors—especially those who cherish the seasonal variety, color, and wildlife of the exuberant riparian area, (formerly existing) adjacent to the river. Flow studies (by the California Department of Water Resources) indicate that the firm yield from a reservoir on this site would be far less than the average yield. This means that there would be large variations in pool depths. In addition--because the primary justification would be for irrigation--annual draw-down would leave little water in the reservoir during years of average-to-low water, thus limiting its value for reservoir-based recreation.

7.13 Irreversible and Irretrievable Impacts

If a dam were built on Willow Creek there would be irretrievable and irreversible impacts to the river segment periodically inundated for seasonal water storage. Adverse impacts would apply to the flooded segment's aquatic and riparian species, scenic qualities, stream-based recreation (especially stream fishing), and would destroy cultural resources within the flooded area (petroglyphs, pictographs, and other cultural features).

4.14 Potential Effects on Wilderness Study Areas

The Eagle Lake Field Office administers the Tunnison, Skedaddle Mountain, Dry Valley Rim, Five Springs, Twin Peaks, Buffalo Hills, and Poodle Mountain WSAs (WSAs). Portions of the Buffalo Hills and Poodle Mountain WSAs are managed by the BLM Surprise and Winnemucca Field Offices, respectively. This section describes the direct, indirect, and cumulative effects of land use decisions under the alternatives on the WSAs administered by the Eagle Lake Field Office.

4.14.1 Methodology and Assumptions

The wilderness values of roadlessness, naturalness, and solitude characterize the WSAs and support their designation as wilderness. These characteristics were inventoried for each WSA and are described in detail in the California Statewide Wilderness Study Report (BLM 1990) and the Nevada BLM Statewide Wilderness Report (BLM 1991a). Since these reports were published, the WSAs have been managed under the BLM Interim Management Policy for Lands under Wilderness Review (IMP) (BLM 1995). The management guidelines included therein are designed to protect the wilderness values in each WSA and to ensure that Congress's prerogative to designate these areas as wilderness is not impaired.

In determining potential effects to the WSAs, we used the baseline of the inventories detailed in the California Statewide Wilderness Study Report (BLM 1990) and the Nevada BLM Statewide Wilderness Report (BLM 1991a). We then evaluated all resource management decisions for each of the alternatives to determine if they would affect the WSAs' characteristics.

In evaluating the effects of the resource management decisions, we made the following assumptions:

- The analysis considered effects on the WSAs as adverse if they would harm or eliminate the wilderness characteristics that would support designation as wilderness.
- The analysis considered effects on the WSAs as beneficial if they would add to or improved the wilderness characteristics that would support designation as wilderness.

4.14.2 Incomplete or Unavailable Information

We had all the information we need to analyze the effects of resource management decisions at the RMP level.

4.14.3 Analysis

This analysis began with a careful examination of the land use decisions under the alternatives in each resource category. We separated out the decisions that would result in any level of effect on wilderness characteristics of the WSAs. Then we analyzed these decisions to determine what level of effect to WSAs they represented. The levels of effects used in this analysis are defined as follows:

Negligible: Wilderness characteristics that support wilderness designation would change, but the change would be too small to be measurable or of any perceptible consequence.

Minor: Wilderness characteristics that support wilderness designation would change, but the change would be small and, if measurable, would be localized.

Moderate: Wilderness characteristics that support wilderness designation would measurably change, but the change would remain localized.

Major: Wilderness characteristics that support wilderness designation would substantially change, and the changes would be perceptible, measurable, and widespread.

4.14.4 Impacts Common to All Alternatives

WSAs would be managed under BLM's Interim Management Policy (IMP), which protects their wilderness values pending congressional action, subject to valid existing rights.

All proposals for uses or facilities within WSAs would be reviewed to determine whether the proposal meets the nonimpairment criteria. The nonimpairment criteria are as follows.

The use, facility, or activity must be temporary. Therefore, a temporary use that does not disturb the land's surface or permanently place facilities may be allowed if such use can easily and immediately be terminated upon wilderness designation.

When the use, activity, or facility is terminated, the wilderness values must not have been degraded so far as to significantly constrain the area's wilderness suitability for preservation as wilderness.

The only permitted exceptions to the nonimpairment criteria are the following

- wildfire or search and rescue emergencies,
- reclamation to minimize impacts of violations and emergencies,
- uses and facilities that are considered grandfathered or valid existing rights under the IMP,
- uses and facilities that clearly protect or enhance the land's wilderness values or are the least needed for public health and safety, and
- reclamation of pre-FLPMA impacts.

The minimum tool concept would be applied to any approved actions within WSAs. Any actions would be accomplished using methods and equipment that have the least impact on the quality of a person's or group's wilderness experience, as well as on the physical, biological, and cultural resources within the WSA.

Pre-FLPMA developments may continue to be used and maintained in WSAs to keep them in an effective, usable condition. But developments cannot be modified to where they exceed the physical and visual impacts existing at the time FLPMA passed (1976). New, temporary developments would need to satisfy the nonimpairment criteria and truly enhance wilderness values. New, permanent developments must satisfy the nonimpairment criteria, enhance wilderness values, and not require motorized access if the area were designated as wilderness. Because pre-FLPMA facilities such as waterholes, spring developments, guzzlers, and fences are considered grandfathered, they may be maintained periodically using motorized equipment, if through analysis, that method is found to be the minimum tool needed for maintenance.

Management of the WSAs under the Interim Management Policy prevents moderate to major adverse effects and provides minor to moderate benefits to the wilderness characteristics in each WSA.

Management actions proposed under all of the alternatives for land use authorizations, vegetation management, livestock grazing, and fuels treatments would potentially affect lands within WSAs. But the specific location and extent of these actions cannot now be specified, so the impacts are indeterminate. Using the WSA inventories and the Interim Management Policy, implementation planning for these actions would determine the probable effects to the wilderness characteristics. A determination would be made as to whether the effects are significant. If so, an evaluation would determine if the short-term effects to the wilderness characteristics would be worth the project's long-term benefits. The proposed action could also be modified in response to IMP guidance to ensure that the action complies with the Interim Management Policy's nonimpairment criteria and minimum tool requirement.

A total of 1,167 acres of Willow Creek Canyon, mostly in Tunnison WSA, would be closed to off-highway vehicle (OHV) use. BLM policy provides that the OHV area designation for lands within WSAs be 'limited to existing roads and trails'. This closure protects wilderness characteristics because it prevents negligible to minor adverse impacts from indiscriminate OHV use (which is slight because of the rocky terrain) and would result in minor benefits to the visual resources as existing roads and trails revegetate.

Visual resource management (VRM) Class I objectives would apply to all WSAs until Congress designates them as wilderness or releases them from BLM's Interim Management Policy requirements. VRM Class I status protects the WSAs' visual wilderness characteristics. VRM principles applied during the implementation planning phase of proposed projects prevents adverse effects and increases the benefits of projects designed to improve wilderness characteristics.

BLM would gather wild horses in the following WSAs:

- Twin Peaks (2 sites),
- Five Springs (1 site),
- Skedaddle Mountain (1 site),
- Dry Valley Rim (1 site), and
- Poodle Mountain (2 sites).

Five of these sites were in use during the original inventories. The two new sites, in Twin Peaks WSA, were used successfully to gather wild horses as part of wildland fire restoration and rehabilitation efforts within the past 3 years. All gather sites are on or next to roads that provide access for trucks pulling stock trailers. The sites are also where geographic features aid in the herding of the animals into the trap site and to avoid undue stress on the horses, especially the young.

During a gather, portable panels would be set up at the gather site for about 10 days. The surface disturbance, which would be limited to trampled vegetation, would amount to up to 1 acre at each site. Each site would be used for 1 out of 3 years, depending on such factors as the number of horses to be removed, the location of the horses, and the number of young horses subject to gathering. Wild horse gathers would result in minor adverse impacts to wilderness characteristics in the form of trampled and crushed vegetation by vehicles removing horses and by the horses themselves as they approach the trap site. On the other hand, removing wild horses from the range slightly (minor) benefits wilderness characteristics because fewer horses on the range reduce the impacts on the vegetation and water sources.

That all WSAs would be closed to mineral leasing would prevent minor to major disturbance to wilderness characteristics such as from new roads, facility construction, and significant ground disturbance.

All WSAs would be open to exploration for and development of locatable minerals but would be limited to activities that do not require reclamation, unless the operation had established grandfathered uses or valid existing rights on October 21, 1976. The grandfathered uses and valid existing rights are protected under the Interim Management Policy. Closing the WSAs to non-grandfathered mining requiring reclamation would prevent minor to major adverse effects to wilderness characteristics. Such effects could include new roads, facility construction, and significant ground disturbance.

All WSAs are closed to saleable mineral disposal. This action would prevent minor to major adverse effects to the wilderness characteristics such as new roads, facility construction, and significant ground disturbance.

Under all alternatives, BLM would acquire private lands with unique characteristics of the geographic area (e.g. historic resources, ecologically critical areas, abandoned railroad alignments). This action would include acquiring private lands within the WSAs and would result in minor to moderate benefits to wilderness characteristics. Not only would more wilderness characteristics be acquired, but also they would be protected from potential disturbance by construction.

WSAs, areas of critical environmental concern (ACECs), wild and scenic rivers (WSRs), and other special management areas would be designated for retention in federal ownership. This action would prevent the loss of wilderness characteristics.

Lands surrounding Willow Creek Canyon, Lower Smoke Creek, and Buffalo Creek Canyons would not be designated as ACECs. If these lands were designated as ACECs, as in the Ecosystem Restoration and Preferred Alternatives, the designation would prevent minor to major adverse impacts and would result in some minor benefits. But if these lands are not designated wilderness, the adverse impacts would not be prevented and the minor benefits would not be realized.

Lands acquired within WSA boundaries are not subject to the Interim Management Policy but would be managed to protect their wilderness characteristics. This action would have minor to major benefits because more acres of wilderness characteristics would be secured and the land would be managed to protect these values.

Lands acquired next to the WSAs for their wilderness characteristics would be managed to protect these characteristics. This action would have minor to major benefits because more acres of wilderness characteristics would be secured and the land would be managed to protect these values.

The action to prevent, locate, and obliterate unauthorized routes in WSAs as required under the Interim Management Policy would have minor to moderate benefits to the WSAs' vegetation and visual resources when native vegetation recovers on the unauthorized routes.

Management to meet land health standards would continue, where allowed under IMP guidelines, to restore areas to more natural conditions than currently exist. These actions would improve wilderness characteristics. In the short term they might degrade wilderness characteristics by damaging or charring vegetation and leaving indications of mechanical plantings. But in the long term they would benefit the WSAs' vegetation and visual resources.

In summary, under all alternatives, some actions might affect the wilderness characteristics of the WSAs. But these effects would be determined during implementation-level planning. All actions would be held to the Interim Management Policy's nonimpairment criteria and minimum tool requirements, which would avoid moderate to major adverse effects. In addition, some projects might result in short–term adverse impacts to the wilderness characteristics.

But the goal of the project would be to benefit wilderness characteristics in the long term. The interdisciplinary National Environmental Policy Act (NEPA) analysis would determine if these short-term effects are justified. Over all, RMP-level decisions would have minor benefits to the WSAs.

4.14.5 No Action Alternative

Under the no action Alternative six miles of wide non-motorized, nonmechanized trails within the Tunnison WSA would be implemented. Implementation level planning would determine the specific location, the method of construction, and the level of construction for these trails to ensure that the project complies with the Interim Management Policy's non-impairment criteria and minimum tool requirement. Compliance with the IMP will ensure that the installation of the trails will only result in a negligible or minor adverse effect to the WSA while providing a slight (minor) benefit by providing an experience for people who prefer to follow designated trails.

WSAs would be within the 'limited to existing roads and trails' OHV area designation required under the Interim Management Policy. This designation requires that all motorized vehicles remain on existing routes. Although a route inventory can track proliferating routes within the WSAs, OHV riders have no idea if the route they're on is the inventory or was created illegally. Therefore, managing OHV use within this category is difficult because the public doesn't know which routes are usable. Nevertheless, restricting OHV use to existing roads has the minor benefit of reducing off-road disturbances to natural features.

Under No Action, lands surrounding Willow Creek Canyon, Lower Smoke Creek, and the Buffalo Creek Canyons would not be designated ACECs. Designating these lands as ACECs, as in the Ecosystem and Preferred Alternatives, would prevent minor to major adverse impacts and have some minor benefits. If these lands are not designated, the adverse impacts would not be prevented, and the minor benefits would not be realized.

By *not* recommending Willow Creek, Upper Smoke Creek, and Lower Smoke Creek as suitable for wild or scenic river designation, No Action could have minor to major adverse effects, such as impoundments, to the neighboring WSAs.

All non-BLM lands within Tunnison, Skedaddle Mountain, Dry Valley Rim, and Twin Peaks WSAs would be prioritized for land acquisition from willing sellers. This action would have minor to major benefits because more acres of wilderness characteristics would be secured and the land would be managed to protect these values.

About 98% (987,779 acres) of the field office area would be open for grazing, and 20,160 acres would be closed to grazing. Livestock management would continue where it currently exists. Presently unallocated lands might be considered for grazing. Under this alternative from 75 to 85% of acres (or 48% of all allotments grazed) would receive either rest or deferment from grazing. Minor to major benefits would result to the vegetation and, thus the visual resources, in the WSAs in those areas rested from grazing because the vegetation, assuming it was native, would recover to a more natural ecological condition.

ROS primitive areas would not be established within each WSA. About 45 miles of existing roads and ways within these ROS primitive areas would not be closed. The benefits identified in the Ecosystem Alternative would not be realized.

In summary, some proposed actions might affect the wilderness characteristics of the WSAs, but these effects would be determined during implementation-level planning. All actions would be held to the nonimpairment criteria and minimum tool requirements in the Interim Management Policy, thus avoiding moderate to major adverse impacts.

In addition, some projects might result in short–term adverse impacts to wilderness characteristics. But the goal of the project would be to bring long-term benefits. The interdisciplinary National Environmental Policy Act (NEPA) analysis will determine if these short-term effects are justified. Over all, the RMP-level decisions under the No Action Alternative would slightly (minor) benefit the WSAs.

4.14.6 Alternative 1. Economic Development

The following are actions proposed in WSAs by the Economic Development Alternative.

- Applying fuel reduction treatments on the 1,734 forested acres of Tunnison WSA.
- Considering building or rebuilding 60 to 90 miles of fencing.

The following are actions proposed in WSAs by the Economic Development Alternative.

- Installing 6 miles of non-motorized, nonmechanized trails within Tunnison WSA.
- Installing 19 miles of non-motorized, nonmechanized trails within the Skedaddle Mountain WSA.
- Installing 37 miles of non-motorized, nonmechanized trails within Dry Valley Rim WSA.
- Installing 6 miles of non-motorized, nonmechanized trails within the Twin Peaks WSA.

Implementation level planning would determine the specific location, the method of construction, and the level of construction for these trails to ensure that the project complies with the Interim Management Policy's non-impairment criteria and minimum tool requirement. Compliance with the IMP will ensure that the installation of the trails will only result in a negligible or minor adverse effect to the WSA while providing a slight (minor) benefit by providing an experience for people who prefer to follow designated trails.

About 99% (997,858 to 1,007,938 acres) of the field office area would be open to grazing. Up to 10,080 acres would be closed to grazing. This alternative would require Minimal livestock rest or deferment on 40-60% of acres and 25-40% of allotments. Permitted use (AUMs) would increase from 52,250 to 60,000 AUMs where land health standards are being met or progress is being made toward meeting the standards. Compared to the No Action and Preferred Alternatives, there would be fewer acres of land rested from grazing. The benefits to vegetation identified in the No Action and Preferred Alternatives would not be realized.

Under the Economic Development Alternative, 2,130 acres of Willow Creek Canyon, mostly in Tunnison WSA, would be closed to OHV use. This closure would better protect wilderness characteristics than would the No Action Alternative by increasing the closed area by 963 acres. Minor benefits would result.

The WSAs would be within the 'limited to existing roads and trails' off-highway vehicle (OHV) area designation. The effects would be similar to those under No Action.

Under Alternative 1, lands surrounding Willow Creek Canyon, Lower Smoke Creek, and Buffalo Creek Canyons would not be designated ACECs. The effects would be similar to those under No Action.

Two segments of Willow Creek would be recommended as suitable as a wild river. The upper wild segment would begin from where Willow Creek enters BLM-administered land in Tunnison WSA and extend downstream 3 miles to the beginning of a possible inundation area from a proposed dam site 1.5 miles below the confluence of Willow and Pete's Creeks. The lower wild segment, below the proposed dam site, would consist of 1.75 miles of the remainder of Willow Creek through BLM land.

In addition, the lands within the 'seen' area of Willow Creek Canyon as viewed from the center line of Willow Creek would be withdrawn from mineral entry. The Economic Development Alternative would not provide more protection for wilderness characteristics along Willow Creek than No Action because it would still allow an impoundment. But the Economic Development Alternative provides more protection than the Preferred Alternative. Protection from mineral entry within the WSAs and the view area from the river would be greater than under No Action but less than under the Preferred Alternative.

A total of 10.6 miles of Upper Smoke Creek, beginning on BLM land below Big Spring to the where the creek leaves BLM land 1.2 miles above Smoke Creek Reservoir would be recommended as suitable for wild and scenic river designation. Lands within 1 mile of Upper Smoke Creek would be withdrawn from mineral entry under the mining laws. This action would provide greater protection from minor to major adverse effects to the Twin Peaks WSA such as impoundments or locatable mineral mining than the No Action Alternative but the same level of protection as the Preferred Alternative.

Lower Smoke Creek, from where it passes through BLM lands within Lower Smoke Creek Canyon (3.2 miles) would be recommended as suitable for wild and scenic river designation. This action would provide greater protection from minor to major adverse effects to the Dry Valley Rim WSA, such as impoundments and locatable mineral mining, than the No Action Alternative but the same level as the Preferred Alternative.

All non-BLM lands within Tunnison, Skedaddle Mountain, Dry Valley Rim, and Twin Peaks WSAs would be prioritized for land acquisition from willing sellers. This action would have minor to major benefits because more acres of wilderness characteristics would be secured and the land would be managed to protect these values.

Under the Economic Development Alternative, Recreation Opportunity Spectrum (ROS) Primitive areas would not be established within each WSA. About 45 miles of existing roads and ways within these ROS Primitive areas would not be closed. The benefits to wilderness characteristics associated with the closures as detailed under the Ecosystem Restoration and Preferred Alternatives would not be realized.

Summary of Effects – Alternative 1

In summary, proposed management actions under the Economic Development Alternative would result in minor benefits to the WSAs. Some proposed actions might affect the wilderness characteristics of the WSAs, but these effects would be determined during implementation-level planning. All actions would be held to the nonimpairment criteria and minimum tool requirements in the Interim Management Policy, which would avoid moderate to major adverse effects. In addition, some projects might result in short-term adverse impacts to wilderness characteristics. But the goal of the project would be long-term benefits to wilderness characteristics. The interdisciplinary National Environmental Policy Act (NEPA) analysis would determine if these short-term effects are justified.

4.14.7 Alternative 2. Ecosystem Restoration

The following are actions proposed in WSAs by the Ecosystem Restoration Alternative.

- Fuels treatment projects would include:
    - Mechanical treatments – 500 - 3,500 acres;
    - Prescribed burning treatments – 0 - 4,500 acres;
    - Chemical treatments – 50 - 500 acres;
    - Biological treatments – 50 - 1,500 acres.

- 15,000 to 20,000 acres of western juniper treatments utilizing mechanical treatments or prescribed burning.
- Fuel reduction treatments would occur on the 1,734 forested acres of the Tunnison WSA.
- Upper Smoke Creek, in the Twin Peaks WSA would be managed to emphasize fisheries based on its biological potential and habitat capabilities.

The following are actions proposed in WSAs by the Ecosystem Restoration Alternative.

- Installation of 6 miles of non-motorized, non-mechanized trails within the Tunnison WSA.
- Installation of 4 miles of non-motorized, non-mechanized trails within the Skedaddle Mountain WSA.

Implementation level planning would determine the specific location, the method of construction, and the level of construction for these trails to ensure that the project complies with the Interim Management Policy's non-impairment criteria and minimum tool requirement. Compliance with the IMP will ensure that the installation of the trails will only result in a negligible or minor adverse effect to the WSA while providing a slight (minor) benefit by providing an experience for people who prefer to follow designated trails.

Under the Ecosystem Restoration Alternative, WSAs would be within the 'limited to designated routes' off-highway vehicle (OHV) area designation. The Interim Management Policy requires that WSAs be managed in the OHV area designation "Limited to Existing Roads and Trails," under which all motorized vehicles must remain on existing routes. An existing route inventory allows the tracking of proliferating routes within the WSAs. But OHV riders have no idea if a route is on the inventory or was previously created at by illegal riding off existing routes. The 'limited to designated routes' OHV area designation requires that routes within these areas be designated for use and that the public remain on routes that are designated on the ground through signing or on a map. The Ecosystem Restoration Alternative's managing within the 'limited to designated routes' designation would better protect WSAs from adverse effects of off-route riding than would the No Action Alternative.

Under the Ecosystem Restoration Alternative, Recreation Opportunity Spectrum (ROS) Primitive areas would be established within each WSA. About 45 miles of existing roads and ways within these ROS Primitive areas would be closed. The following miles of roads would be closed:

• Tunnison WSA	1.0 mile
• Skedaddle Mountain WSA	19.3 miles
• Dry Valley Rim WSA	4.6 miles
• Five Springs WSA	3.2 miles

Twin Peaks WSA	7.8 miles
Buffalo Hills WSA	8.0 miles
Poodle Mountain	1.0 mile

Minor to moderate benefits would result from the closure of routes within the WSAs. Not only would the adverse effects to visual resources from roads be eliminated, but the land would be returned to a more natural ecological condition as the vegetation, assuming its native, recovers.

A total of 2,130 acres of Willow Creek Canyon, mostly in Tunnison WSA, would be closed to OHV use. The effects of this action would be similar to those under the No Action Alternative.

Lands surrounding Willow Creek Canyon, Lower Smoke Creek, and Buffalo Creek Canyons would be designated areas of critical environmental concern following acres of lands within the detailed WSAs: (ACECs). These ACECs would include the

Tunnison WSA	1,825 acres
Dry Valley Rim WSA	630 acres
Buffalo Hills WSA	12,500 acres
Poodle Mountain WSA	23,000 acres

If designated as an ACEC, Willow Creek Canyon would be closed to off-highway vehicles, and all three ACECs would be closed to mineral entry. Tunnison WSA, which would contain most of Willow Creek Canyon ACEC, is currently open to OHV use. The vehicle closure would better protect wilderness characteristics because it would prevent negligible adverse impacts from indiscriminate OHV use, which is minimal due to the rocky terrain. The result would be minor benefits to visual resources as the existing roads and trails revegetate.

All four WSAs are now open to exploration for and development of locatable minerals. But mining is limited to activities that do not require reclamation, unless the operation had established grandfathered uses or valid existing rights on October 21, 1976. The withdrawal of the lands within the three ACECs would result in the closure of the WSA lands within the three ACECs. This closure would result prevent minor to moderate adverse impacts from locatable mining. The Ecosystem Restoration Alternative would better protect wilderness characteristics than would the No Action Alternative.

Willow Creek, from where it enters BLM land in T30N R13E Section 5 to the where it leaves BLM land in T30N R14E Section 18 (7 miles), would be recommended as suitable for wild or scenic river designation. The Ecosystem Restoration Alternative would not provide for any impoundments on Willow Creek within the Eagle Lake Field Office area. This action would better protect Tunnison WSA from minor to major adverse impacts, such as impoundments or mineral entry than would the No Action Alternative.

Under the Ecosystem Restoration Alternative, Upper Smoke Creek, as described for Alternative 1, would be recommended as suitable for wild or scenic river designation. The effects would be similar to those under Alternative 1. This action better protects wilderness characteristics than would the No Action Alternative.

Lower Smoke Creek, as described for Alternative 1, would be recommended as suitable for wild or scenic river designation. The effects would be similar to those under No Action, but this action would better protect wilderness characteristics than that alternative.

The Ecosystem Restoration Alternative would recommend to the lands and realty program that all non-BLM lands in all WSAs be acquired on a willing-seller basis. The benefits would be greater than under the No Action Alternative.

Summary of Effects – Alternative 2

In summary, some proposed actions might affect the wilderness characteristics of the WSAs. But these effects would be determined during implementation-level planning.

All actions would be held to the nonimpairment criteria and minimum tool requirements in the Interim Management Policy, which would prevent moderate to major adverse impacts. In addition, some projects might result in short-term adverse effects to the wilderness characteristics. But the goal of the project would be long-term benefits to wilderness characteristics. Interdisciplinary National Environmental Policy Act (NEPA) analysis will determine if these short-term effects are justified. Over all, the RMP-level decisions under the Ecosystem Restoration Alternative would have minor to moderate benefits to the WSAs.

4.14.8 Alternative 3. Traditional Uses

Fuel-reduction treatments on the 1,734 forested acres of Tunnison WSA.

About 99% (987,779 acres) of the field office area would be open to grazing. A few isolated and scattered parcels of public land are unallocated for grazing but would be considered for grazing use. Up to 20,160 acres would be closed to livestock grazing. A total of 52,250 AUMs would be allocated for grazing. This alternative calls for only minimal livestock rest or deferment on only 30-40% of acres or 20-30% of allotments. About 5000-10,000 acres of present riparian exclosures would be opened to livestock grazing. The effects of this action would be similar to the No Action and Preferred Alternatives.

Under the Traditional Uses Alternative, 1,167 acres of Willow Creek Canyon, mostly in Tunnison WSA, would be closed to off-highway vehicle (OHV) use. The effects of this action would be similar to those under No Action.

WSAs would be within the “Limited to Existing Roads and Trails” OHV area designation category. The effects of this action would be similar to No Action.

Lands surrounding Willow Creek Canyon, Lower Smoke Creek, and Buffalo Creek Canyons would not be designated areas of critical environmental concern (ACECs). The effects of this action would be similar to those under the No Action Alternative.

Willow Creek, Upper Smoke Creek, and Lower Smoke Creeks would not be recommended as suitable for wild or scenic river designation. The effects of this action would be similar to those under No Action.

Under Alternative 3, no lands within WSAs would be recommended for acquisition. The benefits of the acquisition of lands within the WSAs, as proposed under the No Action and Preferred Alternatives, would not be achieved.

Summary of Effects – Alternative 3

In summary, some proposed actions might affect the wilderness characteristics of the WSAs. But these effects would be determined during implementation-level planning.

All actions would be held to the nonimpairment criteria and minimum tool requirements of the Interim Management Policy, which would avoid moderate or major adverse effects. In addition, some projects might result in short-term adverse impacts to wilderness characteristics. But the goal of the project would be long-term benefits to wilderness characteristics. The interdisciplinary NEPA analysis would determine if these short-term effects are justified. Over all, the RMP-level decisions under this alternative would result in minor benefits to the WSAs.

4.14.9 Preferred Alternative

The Preferred Alternative would manage Upper Smoke Creek in the Twin Peaks WSA to emphasize fisheries because of the creek's biological potential and habitat capabilities. Other actions under this alternative affecting wilderness characteristics include the following:

- Conducting fuel-reduction treatments on the 1,734 forested acres of Tunnison WSA;
- Building or rebuilding 60 to 80 miles of fencing to improve livestock distribution to maintain and enhance land health;
- Fencing riparian/wetland areas (springs and seeps) and creeks where current livestock management is not meeting or making progress toward meeting properly functioning condition or the land health standards; and

The following are actions proposed in WSAs by the Preferred Alternative:

- Installation of 6 miles of non-motorized, non-mechanized trails within the Tunnison WSA.
- Installation of 19 miles of non-motorized, non-mechanized trails within the Skedaddle Mountain WSA.
- Installation of 37 miles of non-motorized, non-mechanized trails within the Dry Valley Rim WSA.
- Installation of 19 miles of non-motorized, non-mechanized trails within the Twin Peaks WSA.

Implementation level planning would determine the specific location, the method of construction, and the level of construction for these trails to ensure that the project complies with the Interim Management Policy's non-impairment criteria and minimum tool requirement. Compliance with the IMP will ensure that the installation of the trails will only result in a negligible or minor adverse effect to the WSA while providing a slight (minor) benefit by providing an experience for people who prefer to follow designated trails.

WSAs would be within the 'limited to designated routes' off-highway vehicle (OHV) area designation. BLM's Interim Management Policy requires that WSAs be managed, at a minimum, in the OHV area designation "Limited to Existing Roads and Trails." This designation requires that all motorized vehicles remain on existing routes. An existing route inventory can be used to track proliferating routes within the WSAs. But OHV riders have no idea if a route is on the inventory or if it was created at a previous time by illegal riding off existing routes. The 'limited to designated routes' OHV area designation requires that routes within these areas be designated for use and that the public remain on routes that are designated on the ground through signing or on a map.

Management of the WSAs within the 'limited to designated routes' designation would better protect WSAs from the adverse impacts of off-route riding than would the No Action, Economic Development, or Traditional Uses Alternatives. But the Preferred and Ecosystem Restoration Alternatives would provide the same protection.

Recreation Opportunity Spectrum (ROS) Primitive areas would be established within each WSA. About 45 miles of existing roads and ways within these Primitive areas would be closed as shown below:

Tunnison WSA	1.0 mile
Skedaddle Mountain WSA	19.3 miles
Dry Valley Rim WSA	4.6 miles
Five Springs WSA	3.2 miles
Twin Peaks WSA	7.8 miles
Buffalo Hills WSA	8.0 miles
Poodle Mountain	1.0 mile

Minor to moderate benefits would result from the closure of routes within the WSAs. Closure would eliminate adverse effects to visual resources from the roads. And the land would return to a more natural ecological condition as the vegetation, assuming its native, recovers. This action would more benefit wilderness characteristics than would the No Action, Economic Development, or Traditional Uses Alternatives, but it would provide the same benefits as the Ecosystem Restoration Alternative.

The Preferred Alternative would close to off-highway vehicle (OHV) use 2,130 acres of Willow Creek Canyon, mostly in Tunnison WSA. This closure, which amounts to 963 more acres than under No Action, would better protect wilderness characteristics because it would prevent negligible adverse impacts from indiscriminate OHV use. Such adverse impacts would be minimal because of the rocky terrain. The result would be minor benefits to the visual resources as existing roads and trails revegetate. This action provides the same benefits as the Economic Development and Ecosystem Restoration Alternatives but greater benefits than the No Action and Traditional Uses Alternatives.

Lands surrounding Willow Creek Canyon, Lower Smoke Creek, and Buffalo Creek Canyons would be designated areas of critical environmental concern (ACECs). These ACECs would include the following acres of lands within the detailed WSAs:

Tunnison WSA	1,825 acres
Dry Valley Rim WSA	630 acres
Buffalo Hills WSA	12,500 acres
Poodle Mountain WSA	23,000 acres

If designated, Willow Creek Canyon would be closed to off-highway vehicles, and all three ACECs would be closed to mineral entry. Tunnison WSA, which would contain most of the Willow Creek Canyon ACEC, is currently open to OHV use. The vehicle closure would better protect wilderness characteristics because it would prevent negligible adverse effects from indiscriminate OHV use, which is minimal due to the rocky terrain. The result would be minor benefits to the visual resources as existing roads and trails revegetate.

All four WSAs are open to exploration for development of locatable minerals. But these areas are limited to activities that do not require reclamation, unless an operation had established grandfathered uses or valid existing rights on October 21, 1976.

The withdrawal of the lands within the three ACECs would close the WSA lands within the four ACECs. This closure would prevent minor to moderate adverse impacts from locatable mining. The Preferred Alternative better protects wilderness characteristics than the No Action, Economic Development, and Traditional Uses Alternatives and provides the same protection as the Ecosystem Restoration Alternative.

Upper Smoke Creek, from BLM land below Big Spring to the where it leaves BLM land 1.2 miles above Smoke Creek Reservoir (10.6 miles), would be recommended as suitable for wild river designation. Lands within 1 mile of Upper Smoke Creek would be withdrawn from mineral entry. This action would protect wilderness characteristics within Twin Peaks WSA from minor to major adverse effects, such as those of impoundments or locatable mining. This action provides greater protection than the No Action and Traditional Use Alternatives but less than the Economic Development and Ecosystem Restoration Alternatives.

Under the Preferred Alternative, Willow Creek and Lower Smoke Creek would not be recommended as suitable for wild river designation and would not be protected from the damage of impoundments and locatable mineral mining. The level of protection for lands within the Tunnison and Dry Valley Rim WSAs next to the creeks would be similar to that proposed by the No Action and Traditional Uses Alternatives but less than the Economic Development and Ecosystem Restoration Alternatives.

The Preferred Alternative would recommend to the lands and realty program that all non-BLM lands in all WSAs be acquired on a willing-seller basis. This action would have minor to major benefits. More acres of wilderness characteristics would be secured, and the land would be managed to protect these values. The benefits of this action would be greater than the actions proposed by the No Action, Economic Development, and Traditional Uses Alternatives. Benefits would be similar to those under the Ecosystem Restoration Alternative.

Summary of Effects – Preferred Alternative

In summary, some proposed actions might affect the wilderness characteristics of the WSAs. But these effects would be determined during implementation-level planning. All actions would be held to the nonimpairment criteria and minimum tool requirements in BLM's Interim Management Policy, which would avoid moderate or major adverse impacts. In addition, some projects might have short-term adverse effects to the wilderness characteristics. But the goal of the project would be long-term benefits to wilderness characteristics. The interdisciplinary National Environmental Policy Act (NEPA) analysis will determine if these short-term effects are justified. Over all, the RMP-level decisions under the Preferred Alternative would result in minor to moderate benefits to the WSAs.

4.14.10 Comparative Summary of Impacts

The highest levels of benefits to wilderness characteristics would result from proposed actions under the Ecosystem Restoration and Preferred Alternatives because these alternatives propose the following:

- areas of critical environmental concern (ACECs) within WSAs,
- 'limited to designated routes' designation for lands within WSAs,
- route closures in the Recreation Opportunity Spectrum (ROS) Primitive areas within WSAs,
- wild and scenic river designations within or next to WSAs, and
- land acquisitions in WSAs.

Although the combination of proposed actions under the No Action, Economic Development, and Traditional Uses Alternatives would not result in any moderate or major effects to wilderness characteristics because of the Interim Management Policy, they propose the fewest actions to protect or prevent adverse effects to wilderness characteristics. Therefore, the highest levels of adverse effects to wilderness characteristics, although minor, would result from the No Action, Economic Development, and Traditional Uses Alternatives.

4.14.11 Cumulative Effects

The area of analysis for cumulative effects to the WSAs includes the land areas within the WSAs. The baseline for analysis consists of the inventories detailed in the California Statewide Wilderness Study Report (BLM 1990) and the Nevada BLM Statewide Wilderness Report (BLM 1991a).

Management under the Interim Management Policy for Lands under Wilderness Review (IMP) has avoided any past actions that would have a cumulative effect on the wilderness characteristics of the WSAs.

No present actions under any of the proposed alternatives would moderately affect the WSAs when the implementation-level planning includes an interdisciplinary approach. The interdisciplinary approach would use the Interim Management Policy to analyze all proposed actions and their potential effects to ensure that wilderness characteristics are not adversely affected. Considering this approach, no present actions would cumulatively affect wilderness characteristics within the WSAs.

Future actions would be analyzed by an interdisciplinary team using the Interim Management Policy to ensure that wilderness characteristics are not harmed by any proposed actions.

4.14.12 Mitigation Measures

None of the alternatives would have a major adverse effect on the wilderness characteristics that would support the designation of the WSAs as wilderness. Therefore, mitigation measures are not needed at this level.

4.14.13 Unavoidable Adverse Impacts

Unavoidable adverse impacts could result from illegal off-highway vehicle use, which destroys or disturbs wilderness characteristics.

4.14.14 Short-Term Uses Versus Long-Term Productivity

None of the alternatives would result in short term or long term major adverse effect to the wilderness characteristics that would support the designation of the WSAs as wilderness.

4.14.15 Irreversible and Irretrievable Actions

No irreversible or irretrievable actions included in the alternatives would affect WSAs.

4.15 Potential Effects on Travel Management

BLM administers motorized and non-motorized travel access on lands in the field office area. This section describes the direct, indirect, and cumulative effects of land use decisions on this travel access under the alternatives.

4.15.1 Methodology and Assumptions

The modes of travel considered in this analysis included the following:

- 4-wheel drives vehicles,
- all-terrain vehicles (ATVs),
- motorcycles,
- snowmobiles,
- watercraft,
- foot,
- bicycles, and
- livestock.

The travel route network consists of

- state highways,
- county roads,
- 4-wheel drive roads,
- non-motorized trails,
- lakes, and
- reservoirs.

In determining potential effects to the travel route network, the baseline is the road inventory that was conducted in 2002. All resource management decisions under each of the alternatives were evaluated to determine if they would affect this travel route network. Some routes aren't supposed to be there.

In evaluating the effects of the resource management decisions, the following assumptions were made:

- The analysis considered effects on the travel access adverse if they would restrict or eliminate public access.
- The analysis considered effects on the travel access beneficial if they would increase or establish public access.

4.15.2 Incomplete or Unavailable Information

All the information required to analyze the effects of resource management decisions at the RMP level was available.

4.15.3 Analysis

Analysis began with a careful examination of the land use criteria under the alternatives in each resource category. The components that would result in any level of beneficial or adverse effect on public access were separated out. Then determinations were made as to what level of effect to the network they represented. The levels of effects used in this analysis are defined as follows.

Negligible: The extent of public access would change, but the change would be so small that it would not be of any measurable or perceptible consequence.

Minor: The extent of public access would change, but the change would be small and, if measurable, would be highly localized.

Moderate: The extent of public access would change, and the change would be measurable but would remain localized.

Major: The extent of public access would change, and the change would be perceptible, measurable, and widespread.

4.15.4 Impacts Common to All Alternatives

The field office area would build exclosures and enclosures to protect cultural resources, improve wildlife habitat improvement, and restore riparian areas. These actions would eliminate public access into the fenced areas except by foot and would inflict minor adverse impacts if any exclosures or exclosures are in areas open to off-highway vehicle (OHV) use. But these actions would only negligibly effect access in areas where motorized travel is limited to designated or existing routes because such travel would already be limited to the roads. If the fenced areas include existing or designated routes, public access would be maintained.

Road closures during prescribed fires or wildland fire suppression would only negligibly impair travel access.

All alternatives would highly restrict management activities–except where mandated by law–in all perennial and intermittent drainages, where these activities would disturb watershed function or processes. Activities that compact and damage soils (e.g. grazing, OHV use, maintenance activities) would be limited to periods when soils are dry and firm enough to mechanically support the activity and resist compaction damage. Negligible to minor adverse effects would result from these restrictions in areas designated as 'open'. Travel access would not be affected in areas designated as 'closed' or 'limited to existing or designated routes'.

Lockable vehicle barriers would be installed in accord with the Cleghorn Nesting Territory HMP (Hawks 1982) on roads providing access to the area near the Cleghorn bald eagle nest. The barriers would restrict public access from January 1 to August 31. This action would negligibly block access because other roads going to the same area would not be closed.

OHV use in the habitat of *Loeflingia squarrosa* var. *artemisiarum* would be 'limited to existing or designated roads'. This action would eliminate motorized travel access into these areas. It would negligibly impair access if these plants are in designated 'open' areas. But this action would not affect areas 'limited to designated or existing routes' because motorized travel is already limited to roads or trails. Non-motorized travel would not be affected.

Over-the-snow vehicle travel would be open to the entire field office area except for areas designated as closed. This decision affirms the over-the-snow motorized travel in the Eagle Lake Field Office area and would not affect travel access.

Modifications to the travel route network such as route building and re-routes and hill climb development would be subject to visual resources management (VRM) considerations in the planning process. VRM restrictions would disrupt the travel network from a negligible to a minor extent by possibly requiring that the route or hill climb be located in a less desirable place.

All land ownership adjustment transactions, including acquisitions and disposals, would maintain or improve public access. This decision would have negligible to major benefits, depending on the transaction. Acquiring easements from willing landowners to gain access to public lands would have negligible to major benefits, depending on the easement acquired.

Issuing new right-of-way authorizations might have negligible benefits to public access if new roads are built, or major benefits to public access if BLM authorizes the county to build a new highway.

Up to 129,000 acres would be designated as areas of critical environmental concern (ACECs). With a few exceptions where motorized travel is allowed on designated routes, this action would eliminate motorized travel access within these areas. This effect would be moderately adverse if the ACEC is located in designated 'open' areas under the No Action Alternative. But the effect would be negligible if the ACEC is in an area where motorized travel is 'limited to designated or existing routes' under the other alternatives because OHV use is already limited to the roads in those areas.

Acquiring private lands from willing sellers along two creeks would have a minor benefit to public access at these sites.

- Willow Creek (along the creek, especially at the sheep bridge site)
- Lower Smoke Creek (above and below the BLM lands)

The Interim Management Policy for Land Under Wilderness Review (BLM 1995) requires that unauthorized routes in wilderness study areas (WSAs) be obliterated. This decision reaffirms congressional direction and BLM policy to restrict motorized and mechanized uses to existing roads and ways within WSAs. Eliminating motorized public access to these areas would impair motorized access to a minor degree. Maintaining areas for non-motorized travel would have minor benefits

Securing public title or access to abandoned railroad grades within the field office area would have minor to major benefits. Securing an easement on a short section of a railroad grade would be a minor benefit. The acquisition of key parcels of land upon which the significant railroad grades are located would be a major benefit to public access.

Summary of Effects – Common to All Alternatives

The effects to travel access from decisions common to all alternatives include negligible to minor adverse impacts from actions inherent to managing livestock grazing, riparian areas, cultural resources, wildlife habitat, visual resources, and sensitive and endangered species management as well as moderately adverse effects from designating ACECs. Land and easement acquisitions would provide negligible to major benefits to both motorized and non-motorized travel depending on the land adjustment. Adverse impacts to non-motorized travel would be negligible.

4.15.5 No Action Alternative

The No Action Alternative would require that damage to soils from management activities (e.g. OHV recreation areas) be offset by measures to recover or enhance soil productivity elsewhere in the field office area. Negligible adverse impacts would result from this decision because the required mitigation actions could be designed to be applied throughout the field office area. This provision would allow mitigation actions in areas that do not restrict public access or without incurring costs that would prohibit the completion of the initial project.

Soils with the most suitable characteristics as a foundation material would be used for roads and trails. Negligible to moderate adverse impacts would result from the decision because locating the road or trail on suitable soils might increase the cost of the project to the point that it is not feasible. Negligible to minor benefits would result from decreased maintenance costs for trails on suitable soils.

5.1 Motorized Uses

Under the No Action Alternative, 55% of the field office area would remain 'open' to cross-country travel, allowing motorized vehicles to cross any BLM-administered lands within these areas. A total of 40% of the field office area would be within the 'limited to existing roads and trails' designation. Lands under this designation include the wilderness study areas (WSAs) and the Eagle Lake Basin. This designation allows motorized use on existing roads and trails but cross-country (off-road or off-trail) travel is not allowed.

The Fort Sage OHV area, consisting of 2% of the field office area, would remain in the 'limited to designated routes' category. Under this designation, motorized vehicle would be allowed only on routes (roads and trails) designated for use and marked on the ground or on a map. Less than 1% of the field office area would be 'closed' to motorized use, and 1.5% of the field office area would remain undesignated. These areas, therefore, would also be 'open' to off-road and off-trail motorized travel. In summary, under No Action, all roads would be 'open' to motorized travel, and in 57% of the field office area, motorized vehicles would be allowed anywhere.

These area designations would not restrict non-motorized travel access. They apply only to motorized use. Mechanized use in wilderness study areas (WSAs) is 'limited to existing roads and ways' under BLM policy. This decision affirms the existing motorized travel access within the field office area. Therefore, no adverse impacts or benefits would result.

Within the field office area, all of the roads and trails located during the 2002 route inventory would remain in use, and BLM would make no specific use designations.

5.2 Non-motorized Uses

Sixteen miles of non-motorized trails would be maintained under No Action. This decision affirms existing non-motorized travel access within the field office area. No adverse impacts or benefits would result.

A total of 80.5 miles of new non-motorized trails would be built or maintained. Building new trails would be a minor to moderate benefit, depending on the trail and its location. New trails create new non-motorized travel access for people who prefer to travel on trails rather than cross country. In addition, developing the Modoc Line as a trail would be a moderate to major benefit because it would create non-motorized travel access between significant population centers in Lassen and Modoc Counties.

Non-motorized travel between Susanville and Alturas, California is now limited to the shoulder of a state highway.

5.3 Other Uses

Watercraft travel would not be restricted on the Susan River or Dodge Reservoir. Only human-powered watercraft and electric trolling motors would be allowed on Buckhorn and Round Corral reservoirs. Travel on Upper and Lower Biscar Reservoirs would be limited to human-powered watercraft. This decision would result in minor adverse effects to motorized travel on the restricted reservoirs.

Recreation Opportunity Spectrum (ROS) decisions would affect the field office area at the following levels.

Primitive – 0%: Within the Primitive areas, motorized vehicle travel would not be allowed. No effects would result from this decision.

Semi-Primitive Non-Motorized – 70%: Within the Semi-Primitive Non-Motorized areas, motor vehicle travel would be allowed only on existing or designated routes. This decision would eliminate motorized travel access on 298,000 acres of designated 'open' areas. This restriction would be a major adverse effect. No adverse effect to motorized travel access would result for Semi-Primitive Non-Motorized areas overlapping with 'limited to existing or designated routes' areas because the No Action Alternative would not allow travel off designated routes there.

Semi-Primitive Motorized – 19%: Within the Semi-Primitive Motorized areas, motorized, travel would be allowed off existing or designated travel routes with a permit. This decision would eliminate motorized travel access on 160,000 acres of designated 'open' areas. This is a major adverse effect. No adverse effect to motorized travel access would result from this decision for areas of Semi-Primitive Motorized overlapping with designated 'limited to existing or designated routes' because the No Action Alternative would not allow travel off designated routes in these areas.

Roaded Natural – 11%: In Roaded Natural areas, motorized travel is limited to corridors along the existing or designated routes. The ROS would not affect public access in these areas.

Summary of Effects – No Action Alternative

In summary, minor to moderate benefits to non-motorized travel would result from building new non-motorized trails under No Action. But major adverse effects would result from implementing the Recreation Opportunity Spectrum (ROS) Semi-Primitive Non-Motorized and Semi-Primitive Motorized areas, which would limit motorized travel to existing or designated travel routes.

4.15.6 Alternative 1. Economic Development

Proposed management actions under the Economic Development Alternative designed to protect soil resources would affect potential modifications to the travel route network much as would the No Action Alternative, except in the following cases. Building new roads for recreational use and administrative access would be encouraged. Negligible to moderate benefits would result from the increase of public access.

Road building would be restricted to locations where building and maintenance costs would be the lowest, while using suitable soils. Negligible to minor benefits would result from this decision because building and maintenance costs would be reduced.

6.1 Motorized Uses

Under the Economic Alternative, 419 acres would be designated as 'open'. Motorized travel in 40% of the field office area would be 'limited to existing roads and trails' and in 57% would be 'limited to designated routes'.

About 2% of the field office area would be closed to motorized vehicle use, and all of it would be designated. (See the No Action Alternative in Chapter 2 for explanations of area designations.)

In summary, under the Economic Development Alternative, motor vehicle travel in 97% of the field office area would be limited to established travel routes. A total of 419 acres would be 'open' to cross-country travel, and 2% of the field office would be 'closed' to all motor vehicle use. This decision would restrict or eliminate motorized travel access and therefore inflict moderate adverse impacts. This level of effect would be greater than under the No Action Alternative because Alternative 1 would restrict motorized travel in a greater percentage of the field office area. The level of effect would be similar to that under the Preferred Alternative. But the Preferred Alternative would designate no areas as 'limited to existing roads and trails' and would designate all routes.

Within the field office area, all roads and trails that were found during the 2002 route inventory would be designated for use by 4-wheel drive vehicles, motorcycles, all-terrain vehicles, or some combination of all three types. The designations would be based on their current use and design. Negligible adverse impacts would result from this decision because once a travel route is designated for a specific type of vehicle; other types of vehicles cannot use the road or trail. This designation would restrict some types of motor vehicles from certain roads or trails, but the adverse impacts would only be negligible because the terrain and the road and trail design usually restrict the use.

About 15 miles of road and trails would be built for motorized use. This decision would have a minor benefit to motorized travel. The benefits of this decision would be greater than under the No Action Alternative, which would build no roads or trails, but similar to those of the Preferred Alternative, which would build the same number of roads and trails.

6.2 Non-motorized Uses

A total of 277 miles of new non-motorized trails would be built and maintained. Building new trails would have a minor to major benefit, depending on the trail location. New trails would create new opportunities for non-motorized enthusiasts who prefer to travel on trails rather than cross country. In addition, developing the Modoc Line would be a moderate to major benefit because it would create non-motorized travel opportunities between population centers in Lassen and Modoc Counties. Non-motorized travel between Susanville and Alturas, California, is now limited to the shoulder of a state highway. The benefits of this decision would be similar to those under the Preferred Alternative but greater than those under the No Action Alternative, which would build only 80.5 miles of new trails.

6.3 Other Uses

Travel by watercraft under the Economic Development Alternative would be restricted the same as under the Ecosystem Restoration Alternative. This decision would result in minor adverse impacts to motorized travel on the restricted reservoirs.

The Recreation Opportunity Spectrum (ROS) decisions would affect motorized travel at the following levels:

Primitive – 0%: Within Primitive areas, motorized vehicle travel would not be allowed. No effects would result from this decision.

Backcountry – 89%: Backcountry under this alternative would combine the Semi-Primitive Non-Motorized and the Semi-Primitive Motorized categories used under the No Action Alternative. Within Backcountry areas, motorized vehicle travel would not be allowed except by permit.
The level of adverse effects from this decision would be less than under No Action.
Even though the ROS category would restrict motorized travel to existing or designated routes, travel management decisions would also restrict motorized travel to existing or designated routes. This decision, therefore, would have no adverse effects, much as would the Preferred Alternative.

Roaded Natural – 11%: In Roaded Natural areas, motorized travel would be limited to corridors along existing or designated routes. The ROS would not affect public access in these areas.

Summary of Effects – Alternative 1

Minor to major benefits to motorized and non-motorized travel would result from building new roads and trails under Alternative 1. But major adverse impacts would result from the switch to a designated travel route system that provides motorized access to the entire field office area but does not allow cross-country travel. The ROS decisions would be the same as under the No Action Alternative. But these decisions would not have the same effect because no areas would be designated 'open' under Alternative 1.

4.15.7 Alternative 2. Ecosystem Restoration

Under the Ecosystem Restoration Alternative, proposed management actions to protect soil would affect potential modifications to the travel route network similarly to the No Action Alternative, except in the following cases. Road building would be restricted to locations where it would least degrade soil productivity. Negligible to moderate adverse effects would result from this decision because locating the road or trail on suitable soils might increase the cost of the project to the point that the project is no longer feasible. Negligible to minor benefits would result from decreased building and maintenance costs on the trail if it is located on suitable soils.

Damage to soils due to management activities (e.g. OHV recreation areas) would be offset by measures to ensure no net loss of soil productivity at the sixth-level watershed (conceptually 10,000 to 40,000 acres). Negligible to moderate disturbance would result from this decision because mitigation would be required within the sixth-level watershed. This requirement could potentially restrict public access in other locations or incur costs that would prohibit completing the initial project.

The adverse impact to travel from the Ecosystem Restoration Alternative would be greater than under the No Action, Economic and Traditional Alternatives because Ecosystem Restoration would require that the mitigation occur within a smaller radius of the original project.

7.1 Motorized Uses

Under the Ecosystem Restoration Alternative, motor vehicle use in field office area would be limited to established travel routes. No acres would be designated as 'open' or 'limited to existing roads and trails' for motorized travel. About 70% of the field office area would be 'limited to designated routes'. About 29% would be 'closed' to motorized vehicle use. And all of the field office area would be designated. This decision would restrict motorized travel, resulting in moderate to major adverse impacts. The level of adverse effect would be greater than under the No Action Alternative because Ecosystem Restoration would not open any areas to cross-country motorized travel.

The level of adverse effect would also be greater than under the Preferred Alternative, which would designate 419 acres 'open' to cross-country motorized travel.

All of the roads and trails located in the field office area during the 2002 route inventory would be designated for use by 4-wheel drive vehicles, motorcycles, all-terrain vehicles, or some combination of all three types. The designations would be based on their current use and design.
Negligible effects would result from this decision because once a travel route is designated for a specific type of vehicle, other types of vehicles cannot use the road or trail. This designation would restrict some types of motor vehicles from certain roads or trails but the adverse impact would only be negligible because the design of the roads and trails and the terrain usually restricts the use.

Under the Ecosystem Restoration Alternative, 35 miles of roads designed for motorized use would be seasonally closed. This decision would slightly (minor impact) impair motorized travel. The adverse effects of this decision would be similar to those under the Preferred Alternative but greater than those under the No Action Alternative, which proposes no seasonal closures.

A total of 58 miles of roads and trails designed for motorized use would be permanently closed within the ROS Primitive areas designated under Alternative 2. This decision would have a moderately adverse effect on motorized travel. The closures proposed are dead-end roads extending into wilderness study areas (WSAs). The adverse effects of this decision would be similar to those under the Preferred Alternative, in which the same number of closures are proposed. But the adverse effects would exceed those under the No Action Alternative, which proposes no permanent closures,

7.2 Non-motorized Uses

Under the Ecosystem Restoration Alternative, 22 miles of new non-motorized trails would be built or maintained. The building of new trails would be a minor to moderate benefit, depending on the trail location, because it would create new opportunities for enthusiasts who prefer to travel on trails than cross country. The benefits of this decision would be greater than the No Action Alternative because new non-motorized trails would be built but less than under the Preferred Alternative, which would build more non-motorized trails.

7.3 Other Uses

Travel by watercraft would not be restricted on Eagle Lake and Dodge Reservoir. Only human-powered watercraft and electric trolling motors would be allowed on Round Corral and Buckhorn reservoirs. Travel on Upper and Lower Biscar Reservoirs and the Susan River would be limited to human-powered watercraft. This decision would only slightly (minor impacts) impair motorized travel on the restricted reservoirs.

The ROS decisions would affect motorized travel at the following levels.

Primitive – 29%: Within Primitive areas, motorized vehicle travel would not allowed. About 58 miles of roads would be closed as a result of this decision. (See effects to motorized travel under this alternative.) The level of effects from this decision would be greater than under the No Action, Economic Development, and Traditional Uses Alternatives because these alternatives do not propose establishing Primitive areas.

Backcountry – 60%: Backcountry, under Alternative 2 combines the Semi-Primitive Non-Motorized and the Semi-Primitive Motorized categories used under the No Action Alternative. Within the Backcountry areas, motorized vehicle travel would not be allowed except by permit.

The level of effects from this decision would be less than under the No Action Alternative because, even though the ROS category restricts motorized travel to the existing or designated routes, travel management decisions under the Ecosystem Restoration Alternative would also restrict motorized travel to existing or designated routes. No adverse effects would result from this decision, which is similar to that under the Preferred Alternative.

Roaded Natural – 11%: In Roaded Natural areas, motorized travel is limited to corridors along the existing or designated routes. The ROS would not affect public access in these areas.

Summary of Effects – Alternative 2

The effects to motorized travel access under the Ecosystem Restoration Alternative would be minor to major as a result of the following:

- temporarily and permanently closing routes,
- requiring that route building be mitigated in the same sixth-level watershed,
- switching to a designated travel route network and,
- eliminating cross-country motorized travel.

Building new trails would slightly (minor impacts) to moderately benefit non-motorized travel.

4.15.8 Alternative 3. Traditional Uses

Soil resource management decisions and effects under the Traditional Uses Alternative would be similar to those under the No Action Alternative.

8.1 Motorized Uses

Under the Traditional Uses Alternative, all roads would be open to motorized vehicle travel, and 56% of the field office area would be designated as ‘open’ to motorized vehicle use, with travel allowed anywhere. Motorized travel on 40%t of the field office area would be ‘limited to existing roads and trails’. The Fort Sage OHV area,–2% of the field office area–would remain in the ‘limited to designated routes’ category. About 1% of the field office area would be ‘closed’ to motorized vehicle use, and all of the field office area would be designated.

Within the field office area, all of the roads and trails that were found during the 2002 route inventory would be designated for use by 4-wheel drive vehicles, motorcycles, all-terrain vehicles, or some combination of all three types. The designations would be based on their current use and design. Negligible adverse impacts would result from this decision because once a travel route is designated for a specific type of vehicle; other types of vehicles cannot use the road or trail. These designations would restrict some types of motor vehicles from certain roads or trails. But the effects would be negligible because road and trail design and terrain usually restrict uses.

The level of adverse effects from this decision would be similar to that under No Action but less than that under the Preferred Alternative because motorized travel off designated routes would be allowed in ‘open’ areas.

8.2 Non-motorized Uses

About 18 miles of new non-motorized trails would be built or maintained. These trails would have a minor to moderate benefit, depending on the trail and its location. Such trails would create new non-motorized trail opportunities for people who prefer to travel on trails rather than cross country. Non-motorized travel would less benefit from this decision than from those under the No Action or Preferred Alternatives because fewer non-motorized trails would be built under Alternative 3.

8.3 Other Uses

Travel by watercraft would not be restricted on the Susan River, Dodge Reservoir, or Eagle Lake. Only human-powered watercraft and electric trolling motors would be allowed on Round Corral and Buckhorn and reservoirs. Travel on Upper and Lower Biscar Reservoirs would be limited to human-powered watercraft. This decision would have minor adverse effects to motorized travel on the restricted reservoirs.

The Recreation Opportunity Spectrum (ROS) decisions would affect motorized travel at the following levels.

Primitive – 0%: Within Primitive areas, motorized vehicle travel would not be allowed. No effects would result from this decision.

Backcountry – 89%: Backcountry under the Traditional Uses Alternative combines the No Action Semi-Primitive Non-Motorized and the Semi-Primitive Motorized categories used under the No Action Alternative. Within Backcountry areas, motorized vehicle travel would not be allowed except by permit. The level of adverse effects from this decision would be similar to that under the No Action Alternative but greater than that under the Preferred Alternative. Under the Traditional Uses Alternative, areas designated as 'open' and the ROS category would restrict motorized travel to the existing or designated routes within these open areas. The Preferred Alternative has no 'open' areas.

Roaded Natural – 11%: In Roaded Natural areas, motorized travel is limited to corridors along the existing or designated routes. The ROS would not affect public access in these areas.

Summary of Effects – Alternative 3

Minor to moderate benefits to non-motorized travel would result from building new non-motorized trails under Alternative 3. But major adverse impacts would result from implementing the Recreation Opportunity Spectrum (ROS) Semi-Primitive Non-Motorized and Semi-Primitive Motorized areas, which would limit motorized travel to existing or designated travel routes.

4.15.9 Preferred Alternative

Soil resource management decisions and effects to travel under the Preferred Alternative would be the same as under the Ecosystem Restoration Alternative.

9.1 Motorized Uses

Under the Preferred Alternative, 419 acres would be designated as 'open' to motorized travel, and no acres would be designated as 'limited to existing roads and trails'. About 72% of the field office area would be 'limited to designated routes', 24% would be 'closed' to motorized vehicle use, and all of the field office area would be designated.

Motor vehicle use in the field office area would be 'limited to designated' travel routes except in the 'open' areas. These area designations would not restrict non-motorized travel but apply only to motorized use.

Mechanized use in wilderness study areas (WSAs) is 'limited to existing roads and ways' under BLM policy. This decision would restrict motorized travel and would have a moderately adverse effect. This level of adverse effect would be greater than under the No Action and Traditional uses Alternatives because the Preferred Alternative–a combination of the Economic Development and Ecosystem Restoration Alternatives–proposes only 419 'open' acres and a designated route system.

Within the field office area, all of the roads and trails that were located during the 2002 route inventory would be designated for use by 4-wheel drive vehicles, motorcycles, all-terrain vehicles, or some combination of all three types. The designations would be based on their current use and design. Negligible adverse impacts would result from this decision because once a travel route is designated for a specific type of vehicle; other types of vehicles cannot use the road or trail. This designation would restrict some types of motor vehicles from certain roads or trails. But effects would only be negligible because the road or trail design usually restricts the use.

About 15 of miles road and trails designed for motorized use would be built. This decision would have a minor benefit to motorized travel. Benefits of this decision would be similar to those under the Economic Development Alternative but greater than under the No Action, Ecosystem Restoration, and Traditional Uses Alternatives, which propose no roads or trails for motorized use.

The Preferred Alternative would seasonally close 35 miles of roads designed for motorized use. This decision would have a minor adverse effect on motorized travel. The adverse effects would be similar to those under the Ecosystem Restoration Alternative but greater than under the No Action, Economic Development, and Traditional Uses Alternatives, which propose no seasonal closures.

About 58 miles road and trails designed for motorized use would be permanently closed within the ROS Primitive areas designated under the Preferred Alternative. This decision would have a moderately adverse effect on motorized travel. The closures proposed are dead-end roads extending into wilderness study areas (WSAs). The adverse effects of this decision would be greater than under the No Action, Economic Development, and Traditional Uses Alternatives, which propose no permanent closures. But the adverse impacts under the Preferred Alternative would be similar to those under the Ecosystem Restoration Alternative, which proposes the same number of closures.

The Preferred Alternative would allow snowmobiles to cross the Susan River on the Bizz Johnson Trail where the trail crosses the river west of the Devil's Corral Trailhead. This decision would moderately benefit snowmobile travel by providing access across the Susan River. None of the other alternatives propose this action.

9.2 Non-motorized Uses

The Preferred Alternative proposes the building or maintaining of 277 miles of new non-motorized trails. Building new trails would be a minor to major benefit, depending on the trail location, because it would create new travel access for enthusiasts who prefer to travel on trails rather than cross country. In addition, the development of the Modoc Line would be a moderate to major benefit because it would create non-motorized travel opportunities between population centers in Lassen and Modoc Counties. Non-motorized travel between Susanville and Alturas, California, is now limited to the shoulder of a state highway.

The benefits of this decision would be greater than under the No Action, Economic Development, and Traditional Uses Alternatives because more miles of non-motorized trails would be built. The effects would be similar to those under the Preferred Alternative.

9.3 Other Uses

Travel by watercraft would not be restricted on Eagle Lake and Dodge Reservoir. Only human-powered watercraft and electric trolling motors would be allowed on Buckhorn and Round Corral reservoirs. Travel on Upper and Lower Biscar Reservoirs and the Susan River would be limited to human-powered watercraft. This decision would result in minor adverse effects to motorized travel on the restricted reservoirs.

The Recreation Opportunity Spectrum (ROS) decisions would affect motorized travel at the following levels:

Primitive – 23%: Within Primitive areas, motorized vehicle travel is not allowed. About 58 miles of roads would be closed as a result of this decision. (See effects to motorized travel under this alternative.) The level of adverse effects from this decision would be greater than under the No Action, Economic Development, and Traditional Uses Alternatives because these alternatives do not propose to establish Primitive areas.

Backcountry – 66%: Backcountry under the Preferred Alternative combines the No Action Semi-Primitive Non-Motorized and the Semi-Primitive Motorized categories used under the No Action Alternative. Within the Backcountry areas, motorized vehicle travel would not be allowed except by permit. The level of effects from this decision would be less than under the No Action Alternative. The ROS category restricts motorized travel to the existing or designated routes. But so do the travel management decisions under this alternative. Therefore, this decision would have no adverse effects.

Roaded Natural – 11%: In Roaded Natural areas, motorized travel would be limited to corridors along the existing or designated routes. The ROS would not affect public access in these areas.

The effects from ROS decisions under the Preferred Alternative would be similar to those under the Ecosystem Restoration Alternative. But the Preferred Alternative's effects on motorized travel would be greater than under the No Action, Economic Development, and the Traditional Uses Alternatives because the Preferred Alternative proposes roads for temporary or permanent closure.

Summary of Effects – Preferred Alternative

The effects of the Preferred Alternative to motorized travel would be minor to major because of the following:

- temporarily and permanently closing routes,
- requiring that route building be mitigated in the same sixth-level watershed,
- switching to a designated travel route network, and
- eliminating cross-country motorized vehicle access.

Building new trails would have minor to moderate benefits on non-motorized travel.

4.15.10 Comparative Summary of Impacts

The highest level of benefits to the travel network would result from proposed actions under the Economic Development and Preferred Alternatives because these alternatives would allow for the greatest amount of new construction.

The highest level of adverse effects would result from proposed actions under the Ecosystem Development and Preferred Alternatives because these alternatives would temporarily or permanently close the most roads.

Restrictions from exclosures, areas of critical environmental concern (ACECs), and wild and scenic river (WSR) designations are proposed throughout the alternatives. These decisions would have moderate adverse effects to all modes of travel within the designated 'open' areas under the No Action and Traditional Uses Alternatives because existing travel would be eliminated.

But under the Economic Development, Ecosystem Restoration, and Preferred Alternatives, the restrictions would be located mainly off the designated route network and would negligibly affect the travel network beyond the moderate to major adverse effect of the decision to manage motorized travel under a designated route system.

4.15.11 Cumulative Effects

For cumulative effects to the travel route network, the baseline is the road inventory conducted in 2002 and includes private- and national forest-administered land adjoining BLM-administered land in field office area.

No past actions since the 2002 inventory have cumulatively affected the travel route network. Also, no known present actions on private land would adversely affect travel opportunities.

Lassen and Plumas National Forests are engaged in travel management planning, which would change the motorized travel area designations on most of the land administered by these two forests from 'open' to 'limited to designated routes'.

The proposed decisions which would cumulatively affect travel access in this planning effort are the following.

The change in motorized travel area designations from 'open' to 'limited to designated routes' on BLM land in the field office area. This change is proposed by all alternatives except No Action. Under the No Action Alternative, 580,000 acres would be open to motorized travel. Under the Ecosystem Restoration Alternative, roughly 1,648 acres (acres affected by 1,700 miles of roads) would be open to motorized travel. In the Preferred Alternative, 2,067 acres (1,648 acres plus 419 acres designated open) would be open to motorized travel.

A total of 58 miles of roads would be closed within the proposed ROS Primitive areas. Up to 277 miles of non-motorized trails would be built in the field office area. Up to 129,000 acres would be designated as areas of critical environmental concern (ACECs).

No reasonably foreseeable future actions would cumulatively affect travel access.

4.15.12 Mitigation Measures

None of the alternatives would result in a major adverse effect to travel access. Therefore, mitigation measures are not needed at this level.

4.15.13 Unavoidable Adverse Impacts

There are no unavoidable adverse impacts.

4.15.14 Short-Term Uses Versus Long-Term Productivity

No short-term uses of the travel network would affect long-term productivity.

4.15.15 Irreversible and Irretrievable Actions

There are no irreversible or irretrievable actions.

4.16 Potential Effects on Vegetation

This section describes the direct, indirect, and cumulative effects on terrestrial vegetation from land use decisions and implementing those decisions under the alternatives. Terrestrial vegetation is the most obvious resource managed on the land base. A complex interplay of climate, geology, landform, soils, microbes, animals, and human use and management activities determine

- species present,
- distribution,
- density patterns,
- seral stages,
- alliances and associations, and
- vegetation health.

4.16.1 Methodology and Assumptions

Impacts to terrestrial vegetation and biodiversity are most simply defined using a combination of biotic features such as

- structure and function,
- stable states of vegetation alliances, associations and ecological sites, and
- abiotic factors such as soil and climate that influence those features.

Elevation/Precipitation: Precipitation zones within the area follow elevational changes. Impacts occurring above 5,500 feet elevation are mitigated (minor to moderate impacts) by the 10 + inches of precipitation. Those impacts that occur below 5,500 feet are normally more severe (moderate to major impacts) because the 6 to 8 inches of precipitation do not allow vegetation to quickly recover, or is success guaranteed for recovery efforts.

Soil: Soil depth, texture, and mineral composition influence the function and structure of alliances and associations. These soil features most directly influence the function, structure, production, and potential of ecological sites. Impacts to vegetation on deep loamy soils in a high precipitation zone normally have a less adverse impact (minor to moderate) than adverse (moderate to major) impacts to vegetation in shallow, more clay-based soils. Adherence to a policy of "no net loss of soil productivity" also influences impacts to vegetation. With a "no net loss of soil productivity" policy in place and being followed, there should be no net loss of terrestrial vegetation across the landscape.

Structure: Multi-layered native perennial vegetation such as a tree or shrub overstory with multiple understories of deep rooted shrubs, perennial forbs, and grasses provides the greatest vegetation diversity and resilience to impacts. A mountain big sagebrush/perennial forb/perennial grass association or ecological site on deep loamy soils within a high precipitation zone is less adversely affected (minor to moderate) than a Wyoming big sagebrush association with a mid- to shallow-rooted perennial forb/perennial grass understory (moderate to major). Replacing the perennial grass understory with shallow-rooted annual grasses normally increases the severity of potential impacts from one level to the next. A moderate impact becomes a major impact, and a minor impact increases to a moderate impact.

Function: Terrestrial vegetation performs functions beyond providing cover for wildlife. Several forb species provide nitrogen fixing in the soils where they grow, increasing the health of the vegetation association and ecological site.

Biological soil crusts, dominated by mosses in this area, perform several functions, including soil surface protection, increasing moisture infiltration, and nitrogen fixing. A healthy mountain big sagebrush association with a deep-rooted perennial forb and grass understory normally has such great diversity of species that litter replaces biological soil crusts functions.

A Wyoming big sagebrush association with mid - to shallow-rooted perennial forbs and grasses requires biological soil crusts to retain the soil surface, aid in nitrogen fixing, and provide an increased infiltration of moisture. Within lower elevation and precipitation areas biological soil crusts are important features whose presence, absence, or removal is a critical factor in evaluating impacts.

Stable States: Conversion of perennial vegetation alliances, associations, and ecological sites to annual vegetation or an annual vegetation understory is most often found in lower elevation and precipitation sites. These annual vegetation sites have crossed an ecological threshold. Within this scenario, impacts that perpetuate annual vegetation domination or increase are considered a major impact. In higher elevation and precipitation sites the influence of annual vegetation is more easily corrected naturally or with human intervention. The vegetation alliance, association, and ecological sites would normally function dynamically as it shifts within normal ecological stability.

Effects on vegetation resources can be direct (i.e., the immediate removal of vegetation or communities) or indirect (i.e., effects become evident in the future because of slow changes). In addition, direct and indirect effects can be short term (i.e., effects have immediately observable changes) or long term (i.e., changes occur over many months or years and are not immediately observable).

Direct effects on vegetation resources can occur as a result of ground disturbance implemented to achieve a desired action. Indirect effects on vegetation communities can occur as a result of a multitude of factors relating to a management action, environmental conditions, or both. When describing effects on vegetation resources, existing data may allow only a qualitative assessment of the effects of a particular action because the effects occur on a landscape level and are not easily measured (e.g., in terms of acreages affected). Where possible, this document describes effects quantitatively or provides a relative description of effects.

A number of BLM policies relate to the management of vegetation resources at a landscape level on BLM-administered lands. In practice, these policies and guidelines are often implemented on a project level to minimize or eliminate the effects of a particular action on vegetation resources. These policies and guidelines are described briefly below.

4.16.2 Vegetation Communities

The Federal Land Policy and Management Act (FLPMA) and the Public Rangelands Improvement Act direct BLM to "… manage public lands according to the principles of multiple use and sustained yield …" and to "… manage the public lands to prevent unnecessary degradation … so they become as productive as feasible." All resource management actions would adhere to the Standards and Guidelines (43 CFR 4180). The objective of rangeland resources planning and the Standards and Guidelines is to integrate BLM resources with other resources in order to achieve the mandate of multiple-use and sustained yield management of renewable resources in an environmentally sound and cost-effective manner.

The land health standards are expressions of physical and biological conditions or degree of function required for healthy, sustainable rangelands. The land health standards are applied on a landscape scale and always relate to the capability or potential of a specific site.

The guidelines for grazing management are the types of grazing management methods and practices determined to be appropriate to ensure that standards can be met or that significant progress can be made toward meeting the standards.

Appendix C of the BLM Handbook directs vegetation management on BLM-administered lands:

> Identify desired future conditions for vegetative resources, including the desired mix of vegetative types, structural stages and landscape and riparian functions, and provide for native plant, fish, and wildlife habitats. Designate priority plant species and habitats, including special-status species and populations of plant species recognized as significant for at least one factor such as density, diversity, size, public interest, remnant character, or age. Identify the actions and area wide use restrictions needed to achieve desired vegetative conditions. Identify site-specific vegetation management practices such as allotment grazing systems, vegetation treatments, or manipulation methods, including fuels treatments to achieve desired plant communities, as well as integrated vegetation management techniques to rehabilitate weed infestations or otherwise control noxious and invasive weeds.

Beyond biological vegetation issues are laws, regulations, and policies that must be considered. The main factors are as follows:

- Federal Land Management Policy Act (FLPMA): "…the public lands be managed in a manner that would protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values; that, where appropriate, would preserve and protect certain lands in their natural condition;"…
- 43 CFR 4180.1 and 4180.2: As applied to land management within the Eagle Lake Field Office area the Regulation means: "All terrestrial vegetation within the ELFO management area shall meet—or be making significant progress toward meeting—the standards for land health, including healthy biotic integrity and other associated standards, while supporting appropriate uses of the land."
- 'Appropriate uses' of the land are those found to be so through the National Environmental Policy Act (NEPA) process. Such uses do not adversely affect conservation of terrestrial vegetation."…

4.16.3 Terrestrial Vegetation

Terrestrial vegetation within the Eagle Lake Field Office area is classified into four levels of health:

- 'Healthy' terrestrial vegetation alliances, associations, and ecological sites. These lands are to be maintained.
- 'Healthy, but lacking key attributes' terrestrial vegetation alliances, associations, and ecological sites.
- 'At-risk' alliances, associations, and ecological sites. These lands are to be restored to healthy status and maintained through perpetuity.
- 'Unhealthy' alliances, associations, and ecological sites are to be recovered to healthy and maintained through perpetuity.

4.16.4 Assumptions

Data collected as part of BLM's Land Health Assessment (LHA) indicates that function/structural groups and invasive plants (nonnative invasive species, predominantly cheatgrass and medusa-head, as well as natives such as juniper) are "at risk of becoming unhealthy."

Plant mortality/decadence, litter amount, annual production, and reproductive capability of perennial plants are "healthy but trending away from healthy toward an 'at risk' state". Surface disturbances associated with all the resource management action alternatives have the potential to remove or substantially disturb and change the species composition in vegetation communities, directly affect special-status plants and their habitat, and promote the introduction or spread of noxious weeds. Depending on the extent of these actions and the ability of BLM to implement and monitor resource protection and reclamation activities, they could contribute to the further decline in these land health indicators.

Management objectives for uses such as livestock grazing, fish and wildlife development and use, mineral exploration and production, rights-of-way, outdoor recreation, and timber production might sometimes conflict with the physical and biological requirements of native and desirable non-native terrestrial vegetation. These conflicts would be resolved through one of five means:

- managing uses to benefit terrestrial vegetation,
- adhering to the "no net loss of soil productivity" policy,
- stabilizing and rehabilitating vegetation disturbance,
- closing disturbed areas to use until they have recovered to a healthy condition, or
- mitigating BLM and permitted projects, activities, and leases.

When assessing for this RMP/EIS whether a management action would affect vegetation resources, the application of these policies and guidelines were considered first to determine whether the action would affect a vegetation resource and the extent of effects.

4.16.5 Incomplete or Unavailable Information

Land health assessments have been completed for more than 200,000 acres of the Eagle Lake Field Office area. The data collected and health assessment ratings reached provide valuable information about the specific area the data was collected in. The exact land health rating (healthy, healthy/lacking key attributes, at-risk, and unhealthy) of all areas within the field office has not been verified. As more land health assessments, watershed-based implementation plans, and specific project clearances are completed, site-specific data gaps will be filled in. There is enough information to analyze impacts to terrestrial vegetation within the scope of this RMP.

4.16.6 Analysis

This analysis defined the levels of effects on terrestrial vegetation management as follows:

Negligible: No native vegetation would be affected, or some individual native plants could be affected as a result of the alternative, but native plant communities would not be affected. The effects would be on a small scale.

Minor: The action would affect some individual native plants and also affect a relatively minor portion of the plant community. The use of standard operating procedures to offset adverse impacts, including special measures to avoid affecting terrestrial vegetation, would be required and would be effective.

Moderate: The action would affect many individual native plants and would also affect a sizeable segment of the plant community over a relatively large area. The use of standard operating procedures to offset adverse effects could be extensive, but the procedures probably would be successful.

Major: The action would have a considerable effect on native plant populations, and the effects would cover a relatively large area. The extensive use of standard operating procedures would be needed to offset the adverse effects, and their success would not be guaranteed.

Activities carried out during the average life of an RMP (20 years) are considered short term because of the vegetation ecosystem functions found in the Eagle Lake Field Office area.

4.16.7 Impacts Common to All Alternatives

Management actions for the following resource programs would result in substantial effects on vegetation resources that differ between alternatives: vegetation; cultural resources; fire and fuels; soil resources; water resources; forestry; grazing; utilities, transportation, and telecommunications; and recreation resources.

Cultural resource management actions associated with all of the alternatives could result in varying degrees of loss or short-term disturbance of vegetation communities. These communities could be affected by the following proposed cultural resources management actions associated with the alternatives:

- Construction and public use of cultural resources interpretive sites could result in direct and indirect disturbance or loss of sensitive native communities (riparian and wetland communities) that occur in or adjacent to the interpretive sites. Vegetation could be affected directly during construction of the interpretive facilities, by public use of these areas (trampling of vegetation) and by surface disturbances resulting in the spread of existing or introduction of new noxious weeds that could degrade the community.
- Cultural data collection and recovery efforts in areas that contain wetland or riparian vegetation could result in direct or indirect impacts on these resources (including disturbances that may introduce noxious weed species).
- Establishment of trails that are planned for interpretive and tourism development could result in the loss or disturbance of vegetation communities-.
- Construction of exclosures could result in both adverse and beneficial effects on vegetation communities by protecting resources that may co-occur with cultural resources sites.

The potential effects of cultural resources management actions are expected to be negligible to minor and short term because the actions would involve the protection of sensitive vegetation communities and implementation of noxious weed prevention guidelines. Additionally, potential conflicts with other resource uses would be identified through an interdisciplinary process and appropriate actions would be taken to monitor, avoid, protect, or mitigate potential effects on sensitive resources from cultural resources management actions.

Many of the sensitive cultural resources in the field office area are located adjacent to water sources, such as streams, springs, and riparian areas. Although no direct effects on wetland and riparian areas are anticipated as a result of cultural resources management actions, indirect benefits may accrue under all alternatives from protection (i.e., fencing) of sensitive cultural resource sites.

All vegetation management actions are designed to provide long-term beneficial effects on vegetation communities. Effects on vegetation communities from proposed management actions are directly related to the goals set for vegetation management. The objective of vegetation management actions proposed under each of the alternatives is to support viable, healthy, productive and diverse populations of native and desired plant and animal species—including special-status species.

Vegetation management under all the alternatives would result in long-term beneficial effects on vegetation communities in the Eagle Lake Field Office area through the following actions:

- Maintaining approximately 300,000 acres of Healthy terrestrial vegetation sub-types, communities, and ecological sites at their potential.
- Restoring approximately 330,000 acres of Healthy/Lacking Key Attributes, approximately 275,000 acres of At Risk, and approximately 90,000 acres of Unhealthy terrestrial vegetation types, sub-types, communities, and ecological sites to their potential to be in compliance with the Biodiversity Standard for Land Health.

These actions generally would provide short-term and long-term benefits to the vegetation communities in the Eagle Lake Field Office area—particularly for At Risk and Unhealthy vegetation communities—because they would focus on restoring, improving, and maintaining native vegetation communities. These management actions would result in native and other desirable plant and animal populations that are diverse, vigorous, and cable of reproducing, and would support nutrient cycles and energy flows. Ongoing data collection efforts in the Eagle Lake Field Office area would benefit the vegetation management program by contributing to an increased knowledge base and allowing activity plan-level decisions to be made with the best information available.

Under all alternatives, installation of fences to exclude cattle grazing, development of water improvements to alleviate grazing pressures in riparian areas, and management of wild horses and burros would result in beneficial, long-term effects on riparian and wetland communities in the Eagle Lake Field Office area. Although there may be some effects on vegetation communities during construction of the fences and during construction and cattle use of water improvement areas, these effects would be minor and short term.

Beneficial effects on riparian and wetland communities also would occur through determination of proper functioning condition (PFC) and ecological status. Determination of PFC in conjunction with determination of ecological status would allow development of management objectives that take into account a variety of other factors influencing riparian and wetland communities, such as soils and landform and hydrologic regime. This integrated approach to the management of riparian and wetland communities is considered a beneficial effect under all alternatives because it would enable a complete assessment of a particular community, while taking into account a variety of complex site-specific factors.

Under all alternatives, the Eagle Lake Field Office would manage sage-grouse habitat under the guidelines of the Sage-grouse Conservation Strategy (Armentrout 2004) (see the "Wildlife and Fisheries" section for more information on these guidelines). Generally, this management would be similar to the management proposed for all other shrub communities (i.e., vegetation manipulation, habitat restoration, and protection of appropriate stands).

Beneficial effects on sagebrush steppe and shrub communities are expected as a result of this management approach because it would prevent fragmentation of communities and would provide for their frequency, distribution, and ecological integrity across the landscape.

Under all alternatives, beneficial effects on aspen communities would occur as a result of the Eagle Lake Field Office's proposed management actions to maintain the 15 acres of Healthy aspen stands and restore 1,317 acres of Healthy/Lacking Key Attributes, and At Risk aspen communities.

This would be accomplished through assessments and case-by-case treatment or a mix of treatments. The increased assessment of aspen stands is expected to benefit aspen communities by contributing to an increased knowledge base and allowing activity plan-level decisions (including treatment methods) to be made with the best information available.

Using case-by-case treatments is expected to result in beneficial effects on aspen communities by tailoring the appropriate treatment used to soil properties (taxonomy, pH, exchangeable potassium, organic matter, and nutrients), stand type (i.e., non-regenerating, conifer encroached, regenerating clones), and condition of the aspen stand. Generally, treatment of aspen communities to aid in regeneration is considered a beneficial effect of the vegetation management program.

Juniper encroachment continues to affect public lands in the Eagle Lake Field Office area. Rangeland health, productivity, and diversity are now at serious risk because of juniper encroachment. Juniper stands are currently treated by hand and mechanical methods, using prescribed fire, and by establishment of public fuelwood cutting areas.

Juniper resource management would focus on mechanical and prescribed fire treatments, with operations designed to improve ecosystem health and to protect water quality and wildlife values. These management actions would result in short-term disturbance to vegetation with net beneficial effects of restoring the native plant community over time. Construction of roads for juniper management, if required, would result in short-term effects on vegetation communities. However, the temporary roads would be restored following the juniper woodland treatment.

It is widely accepted that a sensible reduction in the current levels of juniper encroachment, in addition to the potential economic benefits, can improve wildlife habitat, increase water quality and available soil moisture, and result in more productive grazing lands—creating a beneficial effect on land health. Management of juniper communities under all alternatives to reduce encroachment is therefore considered a beneficial effect.

Actions associated with the fire and fuels management program would result in relatively substantial effects on vegetation communities. Effects can be adverse and beneficial in the short term and long term. A more in-depth discussion of fire ecology and its relation to vegetation health, diversity, and fire return interval is included in the "Fire and Fuels" section of this document. Although the general methods for fire suppression; fuels management; and fire rehabilitation, stabilization, and restoration would be similar under all the alternatives; the scope of each management tool (or tools) varies between each of the alternatives.

Prescribed fire is proposed for all alternatives although it is not emphasized under the No Action Alternative to the extent that it is under the other alternatives. This type of management action would result in some long-term beneficial effects on vegetation communities by increasing age and species diversity of vegetation communities, promoting thicker vegetation growth, enhancing nutrient cycling, and resulting in fewer decadent stands of trees and shrub communities.

Potential adverse effects associated with prescribed burns include a long-term decrease in sagebrush species, a short-term increase in annual weeds, and a long-term increase in grass species (especially cheatgrass).

The Review and Update of the 1995 Federal Wildland Fire Management Policy (USDA/USDI 2001) states that fire is a natural process and that it must be reintroduced into the ecosystem on a landscape scale. Reintroduction of fire (or treatments that mimic fire) on the landscape generally is considered to result in a beneficial effect on fire-adapted vegetation communities in the long-term. The long-term goal of the fire management program is to maintain a variety of seral stages across all vegetation communities on the landscape.

Wildfires typically result in more adverse effects than prescribed burns, because wildfires generally cover larger areas, remove more vegetation, and burn hotter than controlled burns. High-heat burns also can affect soil organisms, microbiotic crusts, and plant root systems. This could result in long-term adverse effects on vegetation communities by compromising future plant recruitment and growth rates.

Full suppression would be implemented to varying degrees under all the alternatives; full suppression would favor later successional, non-fire-dependent communities and could lead to greater potential for future high-heat fires. In some cheatgrass-invaded sagebrush communities, wildfire can result in type conversion, when newly burned areas are colonized from adjacent areas already invaded by cheatgrass. However, rehabilitation efforts that would be implemented following the wildfire would minimize invasion by cheatgrass.

Rehabilitation, stabilization, and restoration of burned lands are considered beneficial actions that reestablish vegetation communities, protect soils, and minimize the potential for noxious weed invasion.

Because soils support vegetation, maintenance of healthy productive soil is required to meet management goals for vegetation. The goals of the soil resources management program are to promote long-term soil health and productivity, and to provide earth materials for activities (i.e., roads, trails, and livestock water, facilities). To meet these goals, a variety of standard management measures would be applied to all activities on a case-by-case basis under all alternatives.

The standard management measures that would affect native plant communities include incorporation of livestock grazing rest in pastures or use areas in accordance with new projects such as prescribed burning or seeding, decrease in hot season-of-use in riparian areas, intensive woody riparian plantings, vegetation manipulation, upland erosion control structures, and installation of drainage structures. In addition, gathering wild horses or adjustment of AML numbers, maintenance of existing exclosures, prescribed burning or mechanical vegetation treatment, soil treatment or seeding, installation and maintenance of existing erosion control structures, closure and rehabilitation of selected roads, minimizing new road construction, and minimizing ground-disturbing activities (such as heavy machinery operation near perennial and intermittent drainages or where soils are not in PFC) could affect vegetation communities.

Although some standard management measures may result in minor, direct, short-term effects on vegetation resources through surface disturbance and subsequent vegetation removal, the long-term result of these actions would be an increase in soil productivity and site stability. Increased soil productivity and site stability would benefit vegetation resources through maintaining or improving hydrologic function, chemical and biological soil development processes, and nutrient cycling.

Habitat management actions identified in Wildlife and Fisheries overlap with many actions identified for the vegetation management program. Actions focus on protecting, enhancing, and restoring the diversity and distribution of desirable communities; providing for their continued existence and normal function; and restoring degraded landscapes and decadent communities. In most cases, the desired habitat qualities for special-status and native wildlife species are identical to the qualities desired for healthy vegetation communities. Management of vegetation communities for the benefit of wildlife habitat is therefore considered a beneficial effect on vegetation communities. Although small differences among the alternatives may result in substantial effects on wildlife habitat and species, all the alternatives are similar with respect to their beneficial effects on vegetation communities.

Water resources management actions under all alternatives involve managing and protecting streams (and associated riparian and wetland communities), wetlands, and springs by implementing a variety of measures (including implementing management practices, adjusting current grazing management strategies, and road closure activities).

These management actions would result in long-term benefits to selected riparian and wetland systems in the Eagle Lake Field Office area by allowing vegetation diversity and structure to redevelop in selected systems. The increased availability of water along normally dry stream channels could result in an increase in the extent of riparian and wetland vegetation along the stream banks. Increases in levels of water and rates of flow through stream corridors also may benefit shrub associations located along the upland border of riparian areas.

In summary, water resources management actions would increase infiltration on upland sites, increase groundwater recharge, increase spring flow, reduce peak flows during flood events, and increase the stability of base flows during late summer and winter. Although some of the water resources management actions (particularly bioengineering measures) would result in direct short-term effects through surface disturbance or vegetation removal, the long-term result would be an increase in hydrologic function and sediment regime for water-dependent ecosystems. Therefore, the long-term effect of water resources management actions on vegetation, particularly riparian and wetland communities, is expected to be beneficial.

The wild horse and burro management actions common to all alternatives relevant to vegetation resources include occupation of BLM-administered land by wild horses and burros, and elimination or minimization of new fence construction that would serve as barriers to wild horses and burros movement. Continued use of BLM-administered land by wild horses and burros would result in continued ongoing soil compaction, erosion, sedimentation, and degradation of stream channel condition where exclosures are not implemented. Wild horses and burros can cause a relatively large effect on vegetation communities if the herds are not managed. They typically congregate around riparian areas, wetlands, and springs. Because they are onsite all year, they can over-utilize these sites, creating adverse effects on vegetation resources.

Generally, management actions that are intended to prevent potential effects of wild horses and burros (i.e., fencing off springs and riparian areas) are identified under standard management measures for other resource management programs. These actions would reduce or prevent effects of wild horses and burros in certain habitats and locations (such as springs and riparian areas), but effects would persist in other areas in spite of the application of standard management measures. Although most existing horse herds are currently above the existing AML, management actions are provided under all alternatives to manage herds at or below AML. By definition, maintaining horses within the established AML range will cause no net beneficial or adverse effect on vegetation resources.

Energy and minerals management actions under all the alternatives could result in short-term and long-term effects on vegetation communities. These effects would result from direct removal of vegetation and indirect disturbances (e.g., the introduction or spread of noxious weeds).

Energy and minerals management actions could result in the following potential effects on vegetation communities (the extent of the effects would vary for each alternative):

- Expansion of existing or creation of new community pits could result in the disturbance or loss of native vegetation communities, including sensitive vegetation communities. This action also could result in the introduction or spread of existing noxious weeds that could further degrade the surrounding land health.
- Public collection of decorative rock (flat rock) in remote areas may involve driving vehicles outside designated roads. The surface disturbance associated with vehicles driving across open areas could result in the introduction or spread of existing noxious weeds. However, BLM monitors collection activities and closes areas that are progressing toward flat rock depletion and over collection. Impacts of flat rock collecting on vegetation are considered minor and can be managed through the permit issuance process, based on monitoring of collection sites.
- Mineral exploration and development activities could result in the long-tern disturbance or loss of vegetation communities. Although actions would require that exploration and development activities be consistent with other environmental and resource values, the potential remains for adverse effects on vegetation communities. Mineral rights management actions have the potential for long-term effects on vegetation resources if reclamation efforts are not implemented and monitored to ensure successful revegetation. These effects include direct loss of vegetation (including special-status plants), alteration of site conditions (including hydrology) that could result in type conversions, and introduction of noxious weeds.
- Overall, the severity of the effects on vegetation resources depends on the amount of the mineral extraction action, the location of the action, and the success of the reclamation efforts. Specific mineral extraction activities would require individual permitting and NEPA analysis, which would identify appropriate measures to minimize effects and reclaim conditions following mining completion.
- All existing WSAs would be closed to leasable minerals. Withdrawal of WSAs from mineral extraction would maintain existing conditions and encourage recovery of areas to meet land health standards. This is considered a beneficial effect on vegetation communities.

Under all alternatives, the Eagle Lake Field Office would continue to manage 22,000 acres of forestlands for multiple resources through a variety of silvicultural practices. The forestry program is intended to manage for healthy forests while providing adequate, sustainable supplies of forest products. The operations would be designed to protect water quality, improve and protect wildlife values, and improve forest health.

Although the silvicultural practices used for forest management may result in short-term direct effects on vegetation through disturbance, removal, or alteration of community structure, the long-term effects are likely to benefit vegetation community health. Beneficial effects on vegetation communities would result from management of forested riparian areas, control of noxious weed species, restoration of selected roads to avoid future indirect effects on adjacent communities (e.g., erosional effects), and restoration and management of selected aspen stands.

Two events in the last century have significantly altered the vegetation composition and fire frequency in the Great Basin: introduction of domestic livestock and introduction of noxious weeds.

Introduction of livestock in the Great Basin resulted in the overgrazing of rangelands, which weakened native plants and degraded rangelands. Degradation of the rangelands subsequently favored the spread of noxious weeds adapted to shorter duration disturbance regimes.

Grazing management actions associated with all the alternatives primarily would affect sagebrush associations, grassland associations, and riparian and wetland associations. The remaining vegetation associations in the Eagle Lake Field Office area may be minimally affected by grazing management actions. Some localized overuse of forage would occur under all the alternatives, primarily in riparian and wetland areas and around watering holes. When forage is overused, desirable native species can be replaced by less desirable species that produce little or no forage value.

A decline in soil condition, plant cover, and species composition also can encourage the invasion and growth of noxious weeds. Early spring grazing also would adversely affect vegetation resources by the trampling of wet soils, uprooting of seedlings, and damage to mature plants. In some areas, juniper reduction activities could raise the groundwater table in riparian/wetland areas and cause a shift from juniper-dominated woodlands to a shrub association.

Implementation of the Standards and Guidelines would ensure the viability of vegetation resources that occur within grazing allotments. Additionally, each of the alternatives includes construction of new fencing to restrict livestock grazing in areas (e.g., selected wetland and riparian areas) and to improve forage and habitat conditions in upland and stream/wetland areas.

Implementation of land health standards and construction of many miles of fencing is expected to result in long-term benefits to areas that have been identified at risk.

Surface disturbance activities associated with recreation resources management actions are likely to substantially affect vegetation resources. The extent of surface-disturbing activities varies under each of the alternatives, depending on the amount of OHV and public uses.

Under all alternatives, existing conditions would be maintained or beneficial effects would result on vegetation communities by limiting direct disturbance of vegetation from OHV use, limiting soil disturbance (thereby decreasing erosion), and limiting indirect disturbance caused by increased human presence (i.e., limiting the potential for the introduction or spread of noxious weeds).

Limitations on recreation activities (i.e., limits on OHV use) as part of special recreation management areas or within other special designations are anticipated to benefit vegetation communities by limiting potential ground disturbance.

Summary of Effects – Common to All Alternatives

Under all alternatives, vegetation resources would continue to be managed to achieve land health standards, using site-specific management techniques. Juniper encroachment has been identified as a barrier to achieving land health standards. All alternatives include measures to reduce the current amount of juniper on the landscape in order to reduce or eliminate the rate of encroachment. Under all alternatives, some treatment is proposed in vegetation communities (including juniper communities) under the fire and fuels program, although the approach and scale of treatment are significantly different among the alternatives. Grazing, often identified as a significant impact on vegetation communities, would be maintained on the current number of allotments. All grazing alternatives are similar with respect to the use of site-specific management measures to reduce impacts, except that Alternative 2 is significantly different with respect to the intensity of grazing.

4.16.8 No Action Alternative

The No Action Alternative results in varying levels of impacts on terrestrial vegetation. Management activities would focus on implementing land health standards as described in Common to All Alternatives. These management actions would generally result in native and other desirable plant populations that are diverse, vigorous, and able to reproduce—and would support nutrient cycles and energy flows. Ongoing data collection efforts in the Eagle Lake Field Office area would result in beneficial effects on the vegetation management program by contributing to an increased knowledge base, which would allow activity plan-level decisions to be made with the best information available. The No Action Alternative would result in beneficial effects on native vegetation communities.

The No Action Alternative would result in short-term and long-term beneficial effects on riparian and wetland communities that have been classified At Risk. Under this alternative, the Eagle Lake Field Office would focus on At Risk areas with an upward or static trend in functioning condition, and accelerate identification of DFC with associated vegetation communities.

Management actions that would benefit riparian and wetland communities under this alternative include maintaining current fencing and considering new fence proposals, assessing riparian areas, and managing wild horses at the low end of the AML and considering fencing in areas of year-round use.

The No Action Alternative includes maintaining the existing 987,779 acres open to grazing; constructing 20 to 30 miles of fence; closing 20,160 acres to grazing; constructing exclosures on 2,200 acres; restoring seedings on 3,000 to 4,000 acres; and conducting juniper reduction. This would result in a small potential to adversely affect vegetation resources in both the short term and long term. This would occur through the restricted degree of ground-disturbing actions such as fence construction that could result in adverse effects. However, any effects would be outweighed by the long-term beneficial effects where fences are used to protect riparian and upland areas. Closing 20,160 acres to grazing would result in long-term beneficial effects on vegetation resources because effects related to overgrazing and trampling would be avoided.

Current grazing management, though working toward land improvement, does not specifically manage to preserve biological soil crusts, and does not include management for specific vegetation species requirements as a goal. Lower elevation/precipitation areas have no guarantee of recovery under the No Action Alternative. Recent research shows that current management of wild horses and burros, at above desired AMLs, would continue adverse impacts to vegetation, including biological soil crusts, greatly limiting the ability for recovery of degraded ecosystems (Beever and Brussard 2004; Beever, Tausch, and Brussard 2003). The No Action Alternative would focus on maintaining wild horses at appropriate management levels, to reduce these impacts.

Under the No Action Alternative, the Eagle Lake Field Office would use mechanical and prescribed fire treatments to reduce hazardous fuels (including juniper) cover on up to 600 acres per year. On a landscape level, prescribed burning is considered to result in beneficial effects on fire-adapted native plant communities by increasing the age and species diversity of vegetation communities, promoting thicker vegetation growth, enhancing nutrient cycling, and resulting in fewer decadent stands of trees and shrub communities. Juniper management actions would be designed to improve ecosystem health and to protect water quality and wildlife values. The management actions proposed under the No Action Alternative would result in short-term disturbance of vegetation with net beneficial effects of restoring the native plant community over time. Construction of roads for juniper management, if required, would result in short-term effects on vegetation communities. However, the temporary roads would be restored following the juniper woodland treatment. The long-term effects on vegetation communities from removal of encroaching juniper are considered beneficial.

Full suppression efforts associated with this alternative (1,022,767 acres) would favor later successional, non-fire-dependent communities. Continued accrual of fuels under full suppression could lead to greater potential for damaging fires in the future. Full suppression would result in the largest effect on vegetation communities under the No Action Alternative, and Alternatives 1 and 3, because these alternatives include the largest suppression efforts. The effects from wildfires are typically difficult to quantify because of the complex interaction between fire and the environment. Wildfires generally are recognized as causing more adverse effects on vegetation communities than prescribed burns. Wildfires generally cover larger areas, remove more vegetation, and burn hotter than controlled burns. High-heat (catastrophic) burns are known to affect soil organisms, microbiotic crusts, and plant root systems—which can inhibit the recovery of vegetation communities. Under this alternative, full suppression with no wildland fire use (WFU) likely would favor later successional, non-fire-adapted communities and could lead to greater potential for future catastrophic fires and a general decrease in vegetation community health—creating an adverse effect on native plant communities.

The soil resources management actions under the No Action Alternative would focus on stabilizing and minimizing effects (road construction) in areas that are not meeting land health standards. Management actions under this alternative would be implemented on an "as-needed basis." For this reason, the No Action Alternative has a lesser potential to affect vegetation resources in the short term because most of the management actions would be implemented on an as-needed basis.

The water resources management actions associated with the No Action Alternative include closure or relocation of roads; exclosures to protect springs, wetlands, streams, and uplands as needed; erosion control and instream structures; and restriction of recreation activities. Public use along water quality-limited streams would be allowed as long as there is no effect on restoration, and other area uses would be allowed if progress is made toward attainment of water quality standards and PFC. This alternative has a relatively small potential to affect upland and stream-side vegetation resources in the short term because few ground-disturbing activities would be undertaken in association with construction of roads, exclosures, and erosion control and instream structures.

The beneficial effects associated with water resources management actions under the No Action Alternative would be the same as described under "Impacts Common to All Alternatives."

The No Action Alternative includes several recreation resources management actions that could substantially affect vegetation communities. These actions include construction and maintenance of 80.5 miles of trails; maintenance of 578,708 acres for 'open' OHV use; and maintenance of 16,511 acres to undesignated OHV use. The surface disturbance activities associated with these types of recreation resources management actions could result in localized decline in land health (through the direct removal of vegetation and habitat fragmentation during trail construction; introduction of noxious weeds during trail construction and maintenance, and from public use; and increased wildfire hazards associated with OHV use).

Conversion of the Pine Dunes Research Natural Area (RNA) to an ACEC managed as an RNA would provide impetus for expansion and ecosystem-based management of the RNA.

Summary of Effects – No Action Alternative

Overall, the No Action Alternative would result in minor to moderate adverse effects, and minor to moderate beneficial effects, and does not appear to provide a net beneficial or adverse effect on vegetation communities. Generally, under the No Action Alternative, management changes would be made following an observable negative change in the resource.

While management conducted under this alternative can result in beneficial effects, it is largely reactive. Other alternatives discussed in this RMP would provide a more proactive approach to vegetation resource management.

4.16.9 Alternative 1. Economic Development

Alternative 1 emphasizes commodity production from resources, including terrestrial vegetation. Converting the Pine Dunes Research Natural Area (RNA) to an ACEC managed as a RNA would provide impetus for expanding the ecosystem-based management of the RNA. Establishing ACECs for Aspen, Black Oak, and Buffaloberry communities would provide additional benefits to these communities.

Under Alternative 1, the Eagle Lake Field Office would emphasize restoration and maintenance of several native vegetation communities for wildlife and livestock. This action would include restoration of approximately 426,000 acres of vegetation communities for wildlife. This acreage includes the restoration of Great Basin mixed shrub types and mountain big sagebrush types for mule deer; low sagebrush, Lahontan low sagebrush, and Wyoming big sagebrush for pronghorn; and aspen and mountain mahogany for mule deer.

Vegetation management actions would result in native and other desirable plant and animal populations that are diverse, vigorous, and able to reproduce—and would support nutrient cycles and energy flows.

Ongoing data collection efforts in the Eagle Lake Field Office area would benefit the vegetation management program by contributing to an increased knowledge base and allowing activity plan-level decisions to be made with the best information available. Alternative 1 would result in beneficial effects on native vegetation communities.

Under Alternative 1, the Eagle Lake Field Office would focus on using riparian and wetland areas for forage production. Additional fencing and increasing livestock distribution would be de-emphasized to minimize impacts on riparian vegetation. This alternative also includes managing at the lowest AML and adjusting AMLs, as needed, in areas of year-round use.

Although Alternative 1 includes managing wild horses at the lowest AML and adjusting as needed in areas of year-round use, the riparian communities would still sustain effects from livestock use (especially during summer months when livestock would gather along stream and riparian corridors). Potential effects include a direct loss of riparian and wetland vegetation from potential overgrazing (particularly in areas of year-round use) and potential indirect effects on vegetation from stream degradation.

Alternative 1 includes the use of prescribed fire, herbicides, and native reseeding to manage shrub steppe and other shrub communities. The mix of shrub versus grass species in restoration efforts would vary with habitat goals. This alternative gives a higher priority to habitats for big game and emphasizes the use of competitive native species and desirable nonnative species in sites that are susceptible to degradation. Generally, the long-term effects on shrub steppe and shrub communities under this alternative are expected to be beneficial.

Under Alternative 1, full suppression would continue over a very large area (1,022,767 acres), and a fuels treatment plan would be implemented on less than 1,500 to 5,000 acres a year. The emphasis would be on commodity uses and would involve more mechanical treatments, less fire treatments, and chemical use on less than 10% of the target acreage. Chemical treatments would be applied according to the guidelines established in the Vegetation Treatment EIS (BLM 1991). Similar to the No Action Alternative, Alternative 1 would use suppression efforts on a large area.

Therefore, the greatest potential effects on vegetation communities could result from wildfires. The potential effects on vegetation communities under Alternative 1 would be the same as described for the No Action Alternative.

Soil resources management actions that would be implemented as part of Alternative 1 would involve construction of temporary livestock exclosures, installation of erosion control structures, and implementation of appropriate management practices to promote long-term stabilization of 113,236 acres of lands that are not meeting land health standards. These actions are expected to provide the greatest benefit for wetland and riparian communities because livestock would be restricted from degraded areas and erosion control structures would be installed to prevent further degradation of the systems. Road closure and rehabilitation actions that are proposed as part of Alternative 1 also would benefit both upland and aquatic communities in the long term.

Alternative 1 would maximize new road construction and would result in potential adverse effects on vegetation communities. However, the Eagle Lake Field Office would implement management practices and measures to minimize and avoid long-term disturbance of the surrounding vegetation communities.

As described for "Effects of Vegetation Management Actions," Alternative 1 focuses on habitats for big game and emphasizes the use of competitive native species and desirable nonnative species in sites that are susceptible to degradation. The de-emphasis on use of fencing under this alternative could result in degradation of stream channel condition and associated riparian and wetland communities—which would be of particular concern in areas already impaired. Generally, the long-term effects on shrub steppe and shrub communities under this alternative are expected to be beneficial.

Overall, terrestrial and aquatic wildlife management actions under Alternative 1 would result in long-term beneficial effects on vegetation communities.

Water resources management actions associated with Alternative 1 emphasize bioengineering. Implementation of these types of aggressive measures has the potential for short-term adverse effects on vegetation communities (primarily riparian and wetland communities along streams). However, the long-term effects would be considered beneficial if water quality standards, PFC, and riparian management objectives are achieved. Potential beneficial effects would be similar to those under the No Action Alternative.

The energy and minerals management actions proposed under Alternative 1 are expected to result in the greatest potential adverse effects on vegetation communities. The entire field office area would be open to mineral exploration, except for within WSAs and two ACECs, when the activities are compatible or mitigable with other high-value resources.

Under Alternative 1, the Eagle Lake Field Office would harvest timber and biomass on 670 acres per year, and use non-mechanical methods for fuels to enhance wilderness values on 1,734 acres in the Tunnison WSA, and use commercial and pre-commercial thinning and hazard reduction on 1,332 acres adjacent to the Bizz Johnson Trail. This alternative focuses on creating a commercial forest. Mechanical harvest and hand thinning activities would affect the forest community by altering species composition and cover. Effects on forest and woodland communities of forestry management actions under Alternative 1 would be similar to effects expected under the No Action Alternative, except additional benefits to forestlands would occur within the Tunnison WSA.

Alternative 1 management actions include opening 997,858–1,007,938 acres to grazing; constructing 90 miles of fence; closing up to 10,080 acres to grazing; and seeding 8,000 acres with native perennials and crested wheatgrass.

The amount of lands rested from grazing each year would be reduced from 85% to 60%. The beneficial effects on vegetation resources would be less under Alternative 1 than the other alternatives because the largest amount of land would be open to grazing under this alternative and a relatively smaller area would be closed to grazing. Although more lands would be opened to grazing, the general types of effects that would occur under this alternative are the same as those described for the No Action Alternative. With a stronger emphasis on meeting forage demands, and less emphasis on improving plant communities, grazing actions under this alternative would result in moderate adverse effects to vegetation.

Alternative 1 restricts OHV use to existing and designated routes on 97% of the field office area, which would result in long-term beneficial effects on vegetation communities by limiting surface disturbance activities. This would substantially reduce impacts to vegetation from cross-country travel. Alternative 1 includes several other recreation actions that could substantially affect vegetation communities. These actions include construction and maintenance of 277 miles of trails (the highest number of miles of all the alternatives), and maintenance of 419 acres for 'open' OHV use.

As described for the No Action Alternative, the surface disturbance activities associated with these types of recreation resources management actions could result in a localized decline in land health (through direct removal of vegetation and habitat fragmentation during trail construction; introduction of noxious weeds during trail construction and maintenance, and from public use; and increased wildfire hazards associated with OHV use).

Summary of Effects – Alternative 1

Overall, Alternative 1 emphasizes utilization of all resources to the maximum extent possible while still meeting land health standards. Alternative 1 is expected to result in moderate adverse impacts to vegetation. Livestock grazing would be allowed on additional acres, and rest periods reduced in some allotments.

Alternative 1 would also result in minor beneficial impacts to vegetation communities from the reduction of hazardous fuels on 5,000 acres per year. Designating the Pine Dunes and Aspen Groves ACECs would assure that a management plan is implemented to protect vegetation in these areas. OHV travel would be limited to driving on routes, which would reduce the impacts to vegetation from cross-country use.

4.16.10 Alternative 2. Ecosystem Restoration

Alternative 2 management activities would focus on maintaining 340,423 acres of healthy vegetation by using periodic disturbances, including fire, natural seeding, reseeding, grazing management, herbicides, and brush beating. Under this alternative, the Eagle Lake Field Office also would restore 330,376 acres of vegetation types that are Healthy/Lacking Key Attributes but are not meeting biodiversity standards and 271, 683 acres of At Risk vegetation types; and restoring 93,078 acres of Unhealthy vegetation communities when special funds are available. All techniques would be used, and keystone species would be preserved to prevent type conversion.

Under Alternative 2, black oak communities (1,300 acres) would be restored using fire, and buffalo berry stands would be fenced until more information is available on the most effective restoration practices. Collectively, these actions would result in a greater beneficial effect on native vegetation communities than the other alternatives.

Alternative 2 would result in the greatest beneficial effects on riparian and wetland communities, particularly for areas identified as being At Risk or areas with a downward trend in functioning condition. Beneficial effects would be directly related to exclusion of cattle from degraded riparian areas.

Under Alternative 2, the Eagle Lake Field Office would accelerate identification of desired future condition (DFC) within riparian and wetland and adjacent plant communities, with special focus on sites with downward or static trend in functioning condition. This alternative would emphasize fencing for livestock exclusion to accelerate recovery of proper functioning condition (PFC). All At Risk areas with a static or downward trend would be fenced. Similar to Alternative 1, this alternative also includes managing at the lowest wild horse AML and adjusting AMLs, as needed, in areas of year-round use.

Alternative 2 would result in the greatest beneficial effects on vegetation communities because it focuses on ecosystem restoration. Under Alternative 2, full suppression would be implemented on 229,586 acres. AMR would be used on 79,700 acres, and prescribed use of fire would occur on 10,399 acres. Wildfire use on its own and as AMR could result in the temporary loss of vegetation in some areas and may tend to favor early successional fire-dependent community types. WFU as an ecological tool could result in fewer decadent stands of trees and shrub communities, and could produce patterns of vegetation on the landscape that would be less conducive to spreading large wildfires in the future.

In some cheatgrass-invaded sagebrush communities, wildfire can result in type conversion when newly burned areas are colonized from adjacent areas that have already been invaded by cheatgrass.

A fuels treatment plan would be implemented on 2,500 to 10,000 acres a year (a maximum of 200,000 acres during the 20 year life of the RMP), with an emphasis on prescribed fire. Chemicals would be used on less than 10% of the target acreage.

These fuels reduction programs have the potential to reduce the probability of damage from future fires; reduce competition with communities; and, where fire is used, favor fire-adapted species.

Soil resources management actions that would be implemented as part of Alternative 2 would promote stabilization of 113,236 acres of lands that are not meeting land health standards. Alternative 2 would focus on promoting vegetative cover through prescribed burning, mechanical treatment, soil treatment, seeding, installing erosion control structures, establishing buffers around sensitive areas, and minimizing management activities near drainages on lands that are not meeting standards.

Alternative 2 grazing management actions would result in less adverse effects and more beneficial effects on vegetation communities compared to the other alternatives. Beneficial effects on vegetation communities would result from fewer acres open to grazing than the other alternatives, closure of 30,238 acres to grazing, voluntary retirement of grazing permits, and a higher number of acres of juniper reduction than under the other alternatives. Grazing management actions would be significantly different under this alternative because BLM would allow grazing only during 1 year out of each 3.

As discussed under other alternatives, grazing has been shown to produce both beneficial and adverse effects, depending on site-specific conditions and management. Under Alternative 2, resting of allotments is expected to increase grass and shrub vigor and aid in recovery of vegetative components of land health. In addition, resting allotments may decrease the potential for establishment of invasive grasses and juniper, and may result in establishment of native grasses, forbs, and shrubs. Overall, resting of allotments under Alternative 2 is expected to be beneficial to most Healthy vegetation communities and adverse to those communities At Risk and dominated by annual grasses.

Water resources management actions under Alternative 2 emphasize exclusion of grazing, road construction, recreation, and other activities that result in impacts on stream, riparian, and wetland systems. These exclusion measures, along with bioengineering measures, would protect sensitive vegetation communities.

The effects on vegetation communities of energy and minerals management actions under Alternative 2 would be less than the effects expected under the other alternatives. This alternative provides the most protection for vegetation resources because it includes closure of 89,397 acres of special management areas and actions to protect special areas (e.g., sage grouse leks, winter ranges, and kidding grounds and their associated habitats). Vegetation communities in these special management areas and special habitats would benefit in the long term from these closure actions.

Under Alternative 2, the Eagle Lake Field Office would treat 1,100 acres per year, with a focus on thinning stands for future fire resiliency and managing for old-growth characteristics. Given the large acreage proposed for treatment and protection of old-growth legacy trees, this alternative has the highest potential to result in beneficial effects on forest communities.

Alternative 2 includes more recreation actions than the other alternatives to minimize effects and protect vegetation resources, this alternative would result in less effect on vegetation communities than the other alternatives. Alternative 2 would offer the second greatest short-term protection of vegetation resources because it includes the second lowest quantity of new trail construction.

In the long term, Alternative 2 would result in the most restricted boat (protecting shoreline riparian and wetland vegetation) and OHV use, and therefore would provide the highest level of vegetation resource protection.

Alternative 2 includes designating 89,397 acres within seven areas as an ACEC. Vegetation communities in these areas could be adversely affected by increased public visitations.

However, because ACECs would be managed to protect vegetation and other natural resources, this affect is expected to be minimal. Alternative 2 would result in the greatest long-term benefits on vegetation resources (compared to the other alternatives) because it includes management of the largest area.

Nevertheless, some adverse affects of recreation resources management actions still would occur under this alternative. As described for the No Action Alternative, the surface disturbance activities associated with these types of recreation resources management actions could result in a localized decline in land health (through the direct removal of vegetation and habitat fragmentation during trail construction, introduction of noxious weeds during trail construction and maintenance, and from public use; and increased wildfire hazards associated with OHV use).

Summary of Effects – Alternative 2

Alternative 2 is expected to have minor adverse impacts to vegetation, and moderate to major beneficial impacts. Overall this is the least adverse and most beneficial alternative for managing the vegetation resource. Similar to other alternatives, beneficial impacts on vegetation communities are expected to result through the site-specific management of resources under Alternative 2. Additionally, inventories and studies proposed under this alternative are expected to result in indirect beneficial effects on vegetation resources in the long term. The largest amount of fuels and juniper treatment is proposed using prescribed fire. A large amount of WFU and AMR also is proposed under this alternative. Reintroduction of fire to the landscape on a large scale is considered a beneficial effect under this alternative.

Alternative 2 provides a different grazing management approach by resting allotments every 2 out of 3 years. Generally, resting of allotments is considered to result in beneficial impacts on vegetation communities by accelerating progress toward meeting land health standards and proper functioning condition.

Under Alternative 2, resting of allotments is expected to increase grass and shrub vigor and aid in recovery of vegetative components of land health. In addition, resting allotments may decrease the potential for establishment of invasive grasses and juniper, and may result in establishment of native grasses, forbs, and shrubs. Overall, resting of allotments under Alternative 2 is expected to be beneficial to most Healthy vegetation communities and adverse to those communities At Risk and dominated by annual grasses.

4.16.11 Alternative 3. Traditional Uses

Impacts to vegetation under Alternative 3 would be very similar to those listed under Alternative 1, except for the following. Alternative 3 includes the least amount of forestry management among the alternatives, with less emphasis on ecosystem restoration. Ground disturbance would be minimized under this alternative, resulting in less direct short-term effects on vegetation communities. The long-term effect of forestry management actions on vegetation resources could be an increase in fuels and potential for subsequent catastrophic wildfires.

Livestock grazing would be allowed at similar levels as the No Action Alternative, however, required rest periods would be reduced on some grazing allotments, no exclosures would be constructed to prevent sensitive resources, and up to 60 miles of fence would be constructed. These actions would result in increased adverse impacts to vegetation.

Wildlife actions to improve habitat by removing western juniper from important habitat areas would not be a priority under this alternative.

For recreation actions, in the short term, Alternative 3 would result in fewer adverse effects on vegetation resources because it includes the lowest quantity of new trail construction (construction and maintenance of 18 miles of trails). Alternative 3 would involve similar OHV use as Alternative 1 and would offer less long-term restrictions on recreational activities (particularly OHV use) than Alternative 2, and the Preferred Alternative.

Summary of Effects- Alternative 3

Similar to Alternative 1, overall, Alternative 3 emphasizes utilization of all resources to the maximum extent possible while still meeting land health standards. Alternative 1 is expected to result in moderate adverse impacts to vegetation. Livestock grazing would be allowed on additional acres, rest periods reduced in some allotments, and no exclosures would protect sensitive resources.

Alternative 1 would also result in minor beneficial impacts to vegetation communities from the reduction of hazardous fuels on 5,000 acres per year. Designating the Pine Dunes and Aspen Groves ACECs would assure that a management plan is implemented to protect vegetation in these areas. OHV travel would be limited to driving on routes, which would reduce the impacts to vegetation from cross-country use.

4.16.12 Preferred Alternative

The general types of effects on vegetation communities that would result from management actions under the Preferred Alternative would be similar to those described for Alternative 2.

The potential effects on vegetation communities of fire and fuels management actions under the Preferred Alternative would be similar to those expected under Alternative 2. One exception is that the fuels treatment plan under the Preferred Alternative would include a variety of treatment types.

The variety of treatments would result in beneficial effects on vegetation communities by creating a mosaic of disturbance regimes, seral stages, and stand structures. Also, the emphasis on monitoring under the Preferred Alternative would result in greater long-term benefits to vegetation resources as the effects of fire were better understood and adaptive management was implemented.

The beneficial effects of soil resources management actions under the Preferred Alternative would be similar to but greater than those under the other alternatives. Multiple actions proposed under this alternative are anticipated to reduce effects on vegetation resources to the greatest extent. These actions include restrictions on activities in perennial and intermittent drainages, restricting development to appropriate soil types, and establishment of buffer zones.

The water resources management actions under the Preferred Alternative may result in the greatest beneficial effects on vegetation communities, particularly riparian and wetland communities. Beneficial effects would result from changes in grazing strategies where livestock is affecting water quality, and use of active bioengineering projects to obtain PFC or DFC.

Additional benefits would result from withdrawal of all water right permits/licenses on sources that are not waters of the state, emphasizing wildlife uses associated with water developments, protection of aquifers beneath BLM-administered lands, and protection of the entire riparian system as part of spring development actions. These actions would provide more protection to riparian and wetland systems in the long term than the other alternatives.

The Preferred Alternative has the second least potential to adversely affect vegetation resources in the short term from energy and minerals management actions. Some of these activities could adversely affect vegetation resources if mining actions are not properly conducted and standard measures are not implemented.

Grazing management actions under the Preferred Alternative would be similar to those under the No Action Alternative, except that the Preferred Alternative includes stronger actions to improve land health through improved grazing strategies. Grazing rest would be required on 60-80% of all allotments, and 80 – 90% of all grazed lands, assuring that plants and communities are allowed time to recover from grazing stresses. Providing annual rest periods within allotments is expected to increase grass and shrub vigor and aid in recovery of vegetative components of land health. In addition, resting allotments may decrease the potential for establishment of invasive grasses and juniper, and may result in establishment of native grasses, forbs, and shrubs. Overall, the type of rest for allotments under Alternative 2 is expected to be beneficial to most Healthy vegetation communities and also to those communities At Risk and dominated by annual grasses.

Up to 90 miles of additional fence would be constructed to improve livestock distribution. Closure of 20,160 acres of lands to grazing, and protecting 2,500 acres of sensitive resources would provide benefits to Healthy vegetation in these areas.

Summary of Effects – Preferred Alternative

The Preferred Alternative is expected to have minor to moderate adverse impacts to vegetation, and moderate beneficial effects. Similar to Alternative 2, this is the second least adverse and most beneficial alternative for managing the vegetation resource. Impacts from livestock and wild horse grazing, and recreation and travel activities would continue as described under Impacts Common to All Alternatives, but would be mitigated on a site-specific basis.

The largest amount of fuels and juniper treatment is proposed using prescribed fire, similar to Alternative 2. A large amount of WFU and AMR also is proposed under this alternative. Reintroduction of fire to the landscape on a large scale is considered a beneficial effect under this alternative. The Preferred Alternative requires rest periods from livestock grazing on 80 to 90% of all grazed lands annually. Generally, resting of allotments is considered to result in beneficial impacts on vegetation communities by accelerating progress toward meeting land health standards and proper functioning condition. Overall, the type of rest for allotments under Alternative 2 is expected to be beneficial to most Healthy vegetation communities and also to those communities At Risk and dominated by annual grasses.

OHV use would be restricted to designated routes, with several closures to protect vegetation and other resources. The designation of seven ACECs would benefit vegetation in the long run, as management plans are implemented to improve vegetation resources.

4.16.13 Comparative Summary of Impacts

Under all alternatives, several resource management programs could substantially affect vegetation resources, both directly through removal or disturbance and indirectly through modification of one or more ecosystem parameters, resulting in a long-term change in the resource. The interaction between resource management actions and ecosystem parameters is highly complex and is difficult to discern within the context of a large-scale planning effort such as this RMP. Adding to this complexity are management actions that occurred historically, that affect ecosystem parameters (both directly and indirectly), and that are still an evident and active process on the current landscape (i.e., the introduction of grazing and noxious weeds).

All alternatives, except for the No Action Alternative, include management actions that involve natural disturbance regimes, such as fire, on a larger portion of the landscape than currently exists. The reintroduction and use of fire and natural disturbance regimes on the landscape are considered beneficial because the ecosystem is adapted to these disturbance regimes and, in many cases, requires them for the establishment of healthy communities.

Generally, resource management actions under the No Action Alternative and under Alternatives 1 and 3 would provide less protection and enhancement of vegetation resources than management actions under the other alternatives.

On an ecosystem level, Alternatives 2 and the Preferred Alternative would provide the most benefits to ecosystem processes by potentially reintroducing fire (both WFU and prescribed fire) to the landscape on a substantial level. Generally, these alternatives also would provide additional restrictions or protections from other disturbance regimes compared to the other alternatives.

Management actions with potential substantial effects on vegetation resources include those for recreation resources; energy and minerals; and utilities, transportation, and telecommunications. By many accounts, the spread and invasion of noxious weeds pose risks to the ecosystem second only to direct habitat loss from development.

Generally, all alternatives would result in long-term beneficial effects on vegetation resources through the management and protection of sensitive vegetation resources from excessive disturbance regimes that are considered counterproductive to healthy ecosystems, although the timeframe and extent of benefits are substantially different between most of the alternatives.

4.16.14 Cumulative Effects

A variety of environmental processes and management actions occurring on private, USFS, and CDFG lands surrounding the Eagle Lake Field Office area may result in cumulative effects on vegetation resources when considered in context with any of the proposed alternatives. A number of actions or activities occurring on lands adjacent to BLM-administered lands have been identified as affecting vegetation resources. These actions or activities include conversion of lands to agricultural use (e.g., alfalfa), conversion of lands to residential use, invasion of lands by noxious weeds, juniper treatment, logging, road construction, water use, and fire (both wildfire and prescribed fire).

The area of analysis for cumulative impacts on vegetation resources is defined as the Eagle Lake Field Office area boundary. Major uses over the next 20 years are likely to continue and in some cases increase for the following reasons:

- Domestic livestock grazing would continue to affect 98%, or less of the areas, with actual grazing use differing depending by grazing system.
- Fish and wildlife development and use would continue at its current or an increased rate depending on the condition of habitat, which is influenced by terrestrial vegetation health.
- Mineral exploration and production are not expected to increase because of the lack of mineral resources except for sand and gravel.
- Outdoor recreation would increase as more people want to recreate away from metropolitan crowds find the area.
- Timber production would continue at its current or lower level, perhaps becoming a fuels management activity more than commercial enterprise.
- Wild horses and burros would be maintained at viable population levels.
- Wildland fires would continue to change the vegetation landscape, requiring, in some cases, human-driven emergency stabilization and rehabilitation.

The continued management and protection of large tracts of land as open space is considered a beneficial cumulative effect to vegetation because it offsets the conversion of lands from agricultural or residential use and maintains large contiguous patches of native plant communities. Lands adjacent to BLM-administered lands are being invaded by noxious weeds at a similar rate, or higher rate, to the rates occurring on BLM-administered lands.

The continued coordination across administrative boundaries with private and public agencies throughout the region as part of the BLM's Integrated Weed Management Program considered a beneficial cumulative effect.

In addition to juniper encroachment on BLM-administered lands, encroachment is also occurring on adjacent public and private lands. Harvesting of juniper (both for fuelwood and biomass) is occurring on public and private lands at some level. While the harvest results in additional ground disturbance and the potential for the introduction of noxious weeds, the BLM's focus on reduction in juniper in the region is considered a major beneficial cumulative effect.

The effects of logging, road construction, and water use on vegetation resources are difficult to describe and quantify, however they are not expected to result in significant cumulative effects on vegetation resources. Fire management on private and USFS lands can result in cumulative effects on vegetation resources.

Although fire generally is considered beneficial to vegetation resources, airshed concerns are growing and may result in less prescribed burning on private and USFS lands. In addition, a lack of CDF involvement in prescribed burns on private lands may lead to fuel buildups and the potential for more extreme wildfires.

There would be moderate cumulative impacts on the vegetation resources within the Eagle Lake Field Office area. Most of these impacts would be beneficial as BLM promotes management to maintain and make significant progress toward meeting land health standards.

4.16.15 Mitigation Measures

All allowable land uses could potentially effect vegetation resources. Mitigation measures would be required to ensure the continued health of the land. The primary actions that are necessary to mitigate impacts on vegetation include:

- Ensuring that livestock grazing is managed to meet the Rangeland Health Standards for upland soils, streams, water quality, riparian/wetland, or biodiversity.
- This would be accomplished by adjusting livestock season of use, intensity of use, and duration of use through livestock allotment management plans.
- Wild horse appropriate management levels would be established to ensure that wild horse grazing is part of a thriving natural ecological balance. Wild horse intensity of use would be controlled by maintaining wild horses within appropriate management levels.
- Impacts from recreational use would be reduced by controlling the timing and areas ‘open’ to OHVs.
- Unnecessary and redundant roads, particularly those that impact special habitat areas, would be closed and rehabilitated.
- Disturbance associated with water development (reservoirs, wells, and springs), wild fire suppression, commercial woodcutting, vegetation restoration, fences, roads, campgrounds, interpretive sites, bioengineering projects, and mineral extraction sites would be limited to the smallest practical area.

4.16.16 Unavoidable Adverse Impacts

Livestock and wild horse grazing, recreation, fuels management, wood harvesting, and mineral exploration and extraction would continue to occur, at some level, under all of the alternatives. All of these activities have short term adverse impacts on vegetation, regardless of the level of use. Therefore, under all of the alternatives, there will be isolated areas and times that vegetation within the planning area receives minor to moderate adverse impacts as a result of authorized activities.

4.16.17 Short-Term Uses versus Long-Term Productivity

Activities that directly disrupt the soil surface (such as mining and facility construction) reduce the long-term productivity of vegetation in the disturbed areas. Even with careful rehabilitation, soils in the Great Basin are very slow to recover from disturbance and it is frequently impossible to restore the native vegetation communities on rehabilitated sites, even in the extended term (20-50 years). Similarly, activities that impact soils (such as compaction by grazing animals and vehicles, exposure of soil surfaces to wind and water erosion, and accelerated erosion of meadow soils along riparian corridors) reduce long term productivity.

If the lower elevation/precipitation areas are allowed to degrade across thresholds, particularly into non-native annual grasslands, long-term productivity (100+ years) would be impaired. Within the higher elevation/precipitation areas the adverse impacts should be short-term (40+ years). Any use that would cause a vegetation alliance, association, or ecological site to regress across a threshold must be adjusted immediately to ensure continued stable-state vegetation dynamics.

4.16.18 Irreversible and Irretrievable Impacts

The type conversion of native vegetation communities to non-native species, particularly annual grasses (cheatgrass and medusahead) may not be reversible. Restoration of vegetation communities on sites in which the soil has been disrupted, compacted, or subjected to accelerated erosion may not be possible.

4.17 Potential Effects on Noxious Weeds

The introducing and spread of noxious weeds and undesirable plants on BLM-administered lands contribute to the following:

- loss of rangeland productivity,
- increased soil erosion,
- reduced species and structural diversity, and
- loss of wildlife habitat.

In some instances, noxious weeds may even threaten human health and welfare from increased fire danger.

The Carson-Foley Act (Public Law 90-583) and the Federal Noxious Weed Act (Public Law 93-629) direct weed control on public lands. To reduce and prevent the spread of noxious weeds while all management actions are being implemented, the Eagle Lake Field Office implements the goals and actions described in *Partners Against Weeds* (BLM 1996b) and The National Invasive Species Management Plan (National Invasive Species Council 2001). The goals and actions include the following:

- Prevention and detection—Develop a prevention and early detection program.
- Education and awareness—Generate internal and external support for noxious weed control.
- Inventory—Ensure that adequate baseline data are available on the distribution of weeds.
- Planning—Include provisions for noxious weed management in all BLM-funded or authorized actions.
- Integrated weed management—Determine the best methods for an integrated approach to weed management and implement on-the-ground operations. Noxious weed management tools will include a combination of biocontrol, manual, mechanical, and chemical control methods.
- Coordination—Ensure that noxious weeds are managed efficiently and consistently across jurisdictional and political boundaries.
- Monitoring, evaluation, research, and technology transfer—Ensure that sufficient data are available to
    - evaluate management actions,
    - provide a basis for making informed decisions,
    - assess progress toward management objectives,
    - develop new and more effective management methods.

In addition to agency wide BLM policy on noxious weed management, the Eagle Lake Field Office has developed standard management measures for noxious weeds (see the Eagle Lake Field Office's Noxious Weed Prevention Schedule in Appendix F). BLM applies this prevention schedule for all actions with the potential to introduce or spread noxious weeds on lands it administers in the Eagle Lake Field Office area.

4.17.1 Methodology and Assumptions

This analysis uses information from existing literature, data from the Eagle Lake Field Office, and the documents/policy/laws provided for managing noxious and invasive weeds from state and federal agencies. Also used to assess impacts are field data, existing plans, and the professional judgment of BLM botanists and cooperating agency weed specialists.

Data collected as part of BLM's Land Health Assessment (LHA) found that many functional/structural plant communities are at risk of becoming unhealthy because of nonnative invasive species, predominantly cheatgrass and medusahead, as well as natives such as juniper. Plant mortality/decadence, litter amount, annual production, and reproductive capability of most perennial plant communities are generally healthy but trending away from healthy toward an "at risk" state. Surface disturbances under all the resource management action alternatives could

- remove or substantially disturb and change the species composition in vegetation communities
- or, directly promote the introducing or spread of noxious weeds.

Depending on the extent of these actions and BLM's ability to implement and monitor resource protection and reclamation, surface disturbances could contribute to the further decline in these land health indicators.

4.17.2 Incomplete or Unavailable Information

Information is limited for population status, trends, and distribution of some noxious weed species in the lands managed by the Eagle Lake Field Office. Noxious weeds are continuing to spread through many avenues. As a result, in certain cases the planning approach to the noxious weed management issues is to determine where and how other resources might conflict or spread seeds or plant parts, and management issues will consider mitigation to minimize or eliminate actual or potential conflicts. But adequate information exists on the following:

- general populations,
- habitat requirements,
- areas of likely spread, and
- physiology of plant species and consequences of management actions.

4.17.3 Analysis

This analysis defined the levels of effects on noxious weeds as follows.

Negligible: The effects on native vegetation would be at or below the level of detection. Effects would be so slight as to not be of any measurable or perceptible consequence to the population of native plant species, and would be generally be temporary or short term (last less that a single year or season).

Minor: The effects on native vegetation would be detectable but localized, and of little consequence to the population. Effects would generally be temporary or short term, but in some cases might be long term. Mitigation measures, if needed to offset adverse effects, would be simple and successful.

Moderate: The effects on native vegetation would be readily detectable and localized with consequences at the population level. Effects may be short term or long term. Mitigation measures, if needed to offset adverse effects, would be extensive and would probably be successful.

Major: The effects on native vegetation would be obvious and would result in substantial consequences to species populations in the field office area or region. Effects may be short term, but would likely be long term. Extensive mitigation measures would be needed to offset adverse effects, and their success would not be guaranteed.

Short Term: Lasting less than a single year or season.

Long Term: Lasting longer than a single year or season.

4.17.4 Impacts Common to All Alternatives

Actions for managing air resources, visual resources, and lands and realty would not substantially affect vegetation resources (i.e. vegetation communities, noxious weeds, and special-status plants) and therefore are not discussed further in this section.

Effects of certain other resource management actions are common to all alternatives, but the effects on vegetation resources do not significantly differ between any of the alternatives. The effects of these resource management actions are discussed in this section and are not addressed further in the document unless they are relevant to the cumulative effects discussion under each alternative. These resource programs include energy and minerals, terrestrial and aquatic wildlife, wild horses and burros, and special management areas.

Management actions for the following resource programs would substantially affect noxious weeds, but effects would differ among alternatives:

- terrestrial and aquatic wildlife,
- water resources,
- soil resources, vegetation;
- cultural resources;
- fire and fuels;
- soil resources;
- water resources;
- forestry;
- grazing;
- utilities,
- transportation, and telecommunications; and
- recreation.

For all soil-disturbing activities, BLM will follow the Eagle Lake Field Office's Noxious Weed Prevention Schedule (Appendix F). BLM applies this prevention schedule for all actions with the potential to introduce or spread noxious weeds on lands administered by the Eagle Lake Field Office.

The Eagle Lake Field Office would minimize and prevent the spread of noxious weeds while implementing certain management actions by following the general measures described in the Eagle Lake Field Office Noxious Weed Prevention Schedule (Appendix F), Partners against Weeds (BLM 1996b), and The National Invasive Species Management Plan (National Invasive Species Council 2001). In this analysis, effects that would reduce the introduction or spread of noxious weeds on the landscape are considered beneficial to native vegetation, whereas effects that would result in the introduction or spread of noxious weeds are considered adverse to native vegetation.

Disturbances from the construction and use of cultural resource facilities could introduce or spread noxious weeds around a local area. As stated in BLM's (1996b) action plan Partners against Weeds, one of the greatest obstacles to maintaining healthy ecosystems and restoring impaired ecosystems is the rapid expansion of noxious weeds because these invasive plants can dominate many sites and often cause permanent damage to plant communities.

Infestations of some species can reduce the carrying capacity for livestock (e.g. medusahead grass). Monotypic occurrences of one species of weed can affect the multi-structure of native plant communities, leading to a reduction or possible elimination of use by wildlife (e.g. yellow star thistle).

The extent of potential invasive species occurrences and infestations with the implementing of cultural resources management actions is difficult to predict and would be influenced by many factors:

- extent of disturbance,
- extent of existing weed infestations that would provide a source of seed material,
- movement of equipment into and out of weed-infested areas,
- effectiveness of measures to prevent infestations, and
- amount of time between the disturbance and site restoration.

To minimize and prevent the spread of noxious weeds during implementation of cultural resources management actions, the Eagle Lake Field Office would implement the following general measures that are described in Partners against Weeds (BLM 1996b) and The National Invasive Species Management Plan (National Invasive Species Council 2001):

- Prevent new species from being established by managing the pathways of dispersal (vehicles, people, gravel and fill material, and seed material).
- Support early detection of new infestations or individual occurrences.
- Implement control and management strategies to prevent spread or lessen effects of the infestation. Depending on the species and degree of infestation, the Eagle Lake Field Office may implement an integrated west management (IWM) approach that involves eradication, population suppression, or limiting dispersal of an invasive species. Selection of an IWM strategy for a particular area would depend on the species and environmental effects of available control methods. These treatments may include a combination of manual, chemical, biological, and cultural methods.
- Restore disturbed areas to keep invasive species from spreading or causing greater environmental disturbances. Restoration would involve the use of locally suitable native species. Ideally, the seed mix would be certified weed free and would consist of locally collected plant material.
- Educate contractors and other persons on construction projects on noxious weed issues and methods that should be implemented to avoid seed or plant part dispersal. These methods may include
    - reducing the extent of disturbances,
    - cleaning vehicles after leaving a known infestation (and, in some cases, before construction), and
    - restoring areas immediately after construction.

The items listed in the Eagle Lake Field Office Noxious Weed Prevention Schedule (Appendix F) would also be implemented to minimize the potential for introducing new noxious weeds and the spread of existing noxious weeds in the Eagle Lake Field Office area.

Under all alternatives, prevention and control of noxious weeds would continue to be a priority. BLM's integrated weed management program (IWM) applies a variety of control methods and uses, including restoration and rehabilitation. Because effects from noxious weed invasion have far-reaching ecological implications for many other resources, management actions that guide the control and elimination of these species from the landscape are considered beneficial.

Invasive plants and fire are closely interrelated. Wildland fires are widely recognized as the cause of noxious weed introduction, invasion, and spread. This invasion results from the interaction of complex factors, including the

- level of infestation before the fire,
- presence of noxious weeds on adjacent lands, and
- introduction of noxious weed seed and plant parts from fire suppression equipment.

In many cases, sagebrush and other shrub communities become infested with noxious weeds such as medusahead and cheatgrass following fires. Changes in invasive plant dominance can affect landscape flammability, and changes in fire frequency can affect landscape invisibility (Brooks and Pyke 2001).

Invasive grasses such as cheatgrass and medusahead, which are found on Eagle Lake Field Office lands, can create large amounts of continuous fine fuels where little previously existed. These fine fuels increase the spread rate and frequency of fire, especially in years of higher than average rainfall. Although these shrub communities can often recover from a single burn, the introducing of invasive species creates more dry fuels and biomass, which increases the burn interval and intensity of fires in the community. The result of this repetitive burning is typically a type conversion to an annual plant community with a short fire return interval. In some areas, early seral-stage perennial grass would dominate, with some shrubs slowly returning.

Although full suppression does not directly result in an adverse short-term effect on noxious weeds, the long-term consequences of this management action would likely be adverse because of an increase in noxious weeds on the landscape. Appropriate management response is similar to full suppression in methods. But allowing communities to burn naturally under appropriate conditions might result in slightly less adverse effects on noxious weeds than full suppression.

The relation of noxious weeds and fire is complex and depends on the species in question, the time of year the burn occurs, and the intensity of the burn, among other factors. Other actions relating to fuels management and rehabilitation, stabilization, and restoration of burned areas also may affect noxious weeds. These effects typically would be reduced and avoided by using the Eagle Lake Field Office's Noxious Weed Prevention Schedule (Appendix F) and other standard management measures.

The building of firelines, fuel breaks, and temporary access roads under all alternatives could introduce noxious weeds species into previously uninfested areas. These potential effects would be reduced and avoided by using the Eagle Lake Field Office's Noxious Weed Prevention Schedule and other standard management measures.

Under all alternatives, BLM would use standard management measures to achieve desired results for soil stability and productivity. Several of these measures could affect noxious weed invasion and encroachment following treatments by direct removal (vegetation manipulation) or indirect removal (seeding, closure and rehabilitation of roads, minimizing new road building, and limiting grazing). Although soils management actions involve ground disturbance, which could introduce or spread noxious weeds, standard management measures used to restore stability and productivity are considered benefits to vegetation communities. Actions that promote healthy vegetation communities also benefit native vegetation because healthy vegetation communities better resist noxious weed invasion and encroachment.

Managing vegetation communities to benefit wildlife habitat would also benefit native vegetation.

All alternatives would apply standard management measures on a case-by-case basis to achieve desired results for restoring and maintaining hydrologic processes. Although water resources management actions involve ground disturbance, which could introduce or spread noxious weeds, standard management measures to restore and maintain hydrologic processes are considered beneficial effects because intact and functioning hydrological processes promote healthy native vegetation communities, which resist noxious weed invasion and encroachment.

Under all alternatives, closing sensitive areas to grazing and managing rangelands using the Standards and Guidelines would benefit native vegetation and the control of noxious weeds. Differences in specific management (i.e. limitations on grazing because of resource goals or objectives) and their effects on vegetation are detailed under other resource management actions where suitable. Other resources with grazing-related management actions that could affect native vegetation and noxious weeds include vegetation, soil resources, and water resources.

Similar to management actions for cultural resources, grazing, and fire and fuels (actions with significant disturbance mechanisms), recreation management actions could substantially disturb vegetation resources in the Eagle Lake Field Office area. Increased human presence as a result of recreation is known to result in the introducing and spread of noxious weeds. The main vectors of noxious weed introduction and spread include off-highway vehicle (OHV) use and dispersed recreation activities. Actions undertaken in the Eagle Lake Field Office area by BLM and independent contractors must adhere to the Noxious Weed Prevention Schedule, but not private citizens.

Public education is a goal of integrated weed management (IWM) and would reduce the effects of recreation on noxious weeds. But recreation activities generally lead to an increase in noxious weeds on the landscape.

Limits on OHV use under all alternatives would likely benefit vegetation communities by limiting direct disturbance to vegetation from OHV use, soil disturbance (thereby decreasing erosion), and indirect disturbance caused by increased human presence, limiting the potential for introducing or spreading noxious weeds). But generally, for most vegetation communities OHV use presents a disturbance regime that is counteractive to natural disturbance regimes and processes.

Building and maintaining utilities, transportation, and telecommunications corridors are known to be the principal vectors for noxious weed introduction and spread in the field office area. Although implementing the Eagle Lake Field Office's Noxious Weed Prevention Schedule would reduce the introducing and spread of noxious weeds, this schedule is not 100% effective.

All future utilities, transportation, and telecommunications projects would be subject to a National Environmental Policy Act (NEPA) analysis. The NEPA documents would require implementing the general measures described in the Eagle Lake Field Office Noxious Weed Prevention Schedule (Appendix F), Partners against Weeds (BLM 1996b), and The National Invasive Species Management Plan (National Invasive Species Council 2001).

Under all alternatives, BLM's Eagle Lake Field Office would aim to reduce or eliminate the introducing or spread of noxious weeds using an integrated weed management (IWM). The management of noxious weeds using an IWM approach has been shown to benefit native vegetation.

4.17.5 No Action Alternative

The No Action Alternative would have the same beneficial effects on native vegetation as described for Impacts Common to All Alternatives.

Under the No Action Alternative, full suppression would be implemented on 1,022,682 acres in the field office area. As discussed under Impacts Common to all Alternatives, although full suppression would directly affect noxious weeds in the short term, the long-term effects of this management action on native vegetation would likely be adverse–an increase in noxious weeds.

As described under Impacts Common to All Alternatives, construction, use, and maintenance in utility, transportation, and telecommunications corridors are known to result in the introducing and spread of noxious weeds in the Eagle Lake Field Office area. Although implementing the Eagle Lake Field Office's Noxious Weed Prevention Schedule (Appendix F) would reduce the introduction and spread of noxious weeds, it is not 100% effective. Management actions involving these corridors are expected to result in the continued introduction and spread of noxious weeds–an adverse effect on native vegetation.

Generally, under the No Action Alternative, management would change after an observable adverse change in the resource. Although management under the No Action Alternative could benefit native vegetation, this alternative is largely reactive. The other alternatives would provide a more proactive approach to vegetation management and are therefore considered superior to the No Action in that respect. Benefits to native vegetation are expected to result from integrated weed management (IWM) and site-specific management measures of various resource programs. Overall, the No Action Alternative appears neither to provide a net beneficial or adverse effect to native vegetation.

4.17.6 Alternative 1. Economic Development

The Economic Development Alternative would implement full suppression on 1,022,682 acres in the field office area. The potential effects would be the same as under the No Action Alternative. Although full suppression would not directly effect native vegetation in the short term, in the long term it would likely increase noxious weeds in the landscape and therefore harms native vegetation.

The following are other effects on native vegetation of management action under the Economic Development Alternative.

- Alternative 1 would maximize road construction and result in a higher potential for noxious weeds to be introduced into the Eagle Lake Field Office area, resulting in adverse effects to native vegetation.
- Terrestrial and aquatic wildlife management actions would help control noxious weeds and benefit native vegetation.

- Water resource management would be the same as under the No Action Alternative.
- Energy and minerals management would disturb more land under the Economic Development Alternative than under No Action because more lands would be open to mineral extraction.
- Forestry management actions would affect forest and woodland communities the same as under the No Action Alternative.
- More areas would be opened to livestock grazing, resulting in the introduction of noxious weed species into areas that were not previously infested.
- A total of 263.5 miles of trails would be built and maintained, having the highest potential of actions under all the alternatives for introducing noxious weeds into the Eagle Lake Field Office area.
- The effects of utility, transportation, and telecommunications management actions would be the same as under the No Action Alternative.
- The Eagle Lake Field Office would implement integrated weed management (IWM), with more emphasis on treating noxious weeds than under any other alternative. Overall, Alternative 1 would benefit native vegetation

4.17.7 Alternative 2. Ecosystem Restoration

Under all the Alternative 2 resource management actions except for grazing, the potential effects of introducing or spread of noxious weeds would be similar to those expected under the No Action Alternative.

Although the Ecosystem Restoration Alternative is expected to benefit vegetation communities, noxious weeds would inflict adverse impacts on native vegetation. Resting of annual grasslands could increase the cover of exotic annuals, increasing the potential for fire and the fire return interval. An increase in fire frequency could harm healthy communities next to those dominated by annual grasslands by converting them to annual grass-dominated communities.

The Ecosystem Restoration Alternative would continue to treat noxious weeds using integrated weed management (IWM), which would benefit native vegetation.

4.17.8 Alternative 3. Traditional Uses

For all the resource management actions under the Traditional Uses Alternative, the potential effects of the introducing or spread of noxious weeds would be similar to those expected under the No Action and Economic Development Alternatives. The Eagle Lake Field Office would implement integrated weed management (IWM) similar to that under the other alternatives. IWM would benefit native vegetation as under the No Action Alternative.

4.17.9 Preferred Alternative

For all the resource management actions under the Preferred Alternative, the potential effects of the introduction or spread of noxious weeds would be similar to those under the No Action and Economic Development Alternatives.

Under the Preferred Alternative, vegetation resources would continue to be managed to achieve land health standards using site-specific management techniques. These site-specific techniques vary, but typically would be used on a case-by-case basis to minimize the effects or potential effects of an action. The continued use of these techniques would benefit native vegetation.

Under all alternatives, the Eagle Lake Field Office would aim to reduce or eliminate the introduction and spread of noxious weeds using integrated weed management (IWM). The management of noxious weeds using an IWM approach has been shown to provide beneficial effects.

4.17.10 Comparative Summary of Impacts

Under all alternatives, several resource management programs could substantially affect vegetation resources, both directly through removal or disturbance and indirectly through modification of one or more ecosystem parameters. The result would be a long-term change in the resource. The interaction between resource management actions and ecosystem parameters is highly complex and is difficult to discern within the context of a large-scale planning effort such as this RMP. Adding to this complexity are management actions that

- occurred historically,
- affect ecosystem parameters (both directly and indirectly), and
- are still an evident and active process on the current landscape (i.e. the introducing of grazing and noxious weeds).

All alternatives, except for the No Action Alternative, include management actions that involve natural disturbance regimes, such as fire, on a larger portion of the landscape than currently exists. The reintroducing and use of fire and natural disturbance regimes on the landscape are considered beneficial because the ecosystem is adapted to these disturbance regimes and, in many cases, requires them for the establishing healthy communities.

Generally, effects from resource management programs would be minimized on a case-by-case basis, using standard management measures under other management programs. All alternatives would be similar in the use of these standard management measures.

Management actions with potential substantial effects on vegetation resources include those for recreation; energy and minerals; and utilities, transportation, and telecommunications. By many accounts, the spread and invasion of noxious weeds pose risks to the ecosystem second only to direct habitat loss from development. The use and maintenance of utility corridors are emphasized the most under the No Action Alternative, Alternative 1, and the Preferred Alternative. Alternatives 2 and 3 propose the most restrictions on these uses. As discussed throughout this section, these corridors are some of the principal vectors for noxious weed introduction and spread in the Eagle Lake Field Office area. All alternatives would implement noxious weed control. The Ecosystem Restoration and Preferred Alternatives would most emphasize control and eradication.

Despite substantially different timeframes and extent of benefits, all alternatives would benefit native vegetation over the long term by managing and protecting sensitive vegetation from excessive disturbance regimes that are considered counterproductive to healthy ecosystems.

4.17.11 Cumulative Effects

Under the National Environmental Policy Act (NEPA), cumulative effects consist of the impact on the environment that results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions.

A variety of environmental processes and management actions occurring on private, U.S. Forest Service, and California Department of Fish and Game lands surrounding the Eagle Lake Field Office area may result in cumulative effects on native vegetation when considered in context with any of the proposed alternatives. Essentially, all vegetation resources have the potential to be affected by other environmental processes and management actions occurring outside BLM's influence.

The continued coordination across administrative boundaries with private and public agencies throughout the region as part of the BLM's integrated weed management (IWM) is considered a beneficial cumulative effect of the No Action Alternative. Similar to juniper encroachment on BLM-administered lands, encroachment is occurring on adjacent public and private lands. Juniper is being harvested (both for fuelwood and biomass) on public and private lands. While the harvest results in more ground disturbance and the potential for introducing noxious weeds, the reduction in juniper in the region is considered a beneficial cumulative effect of the No Action Alternative. Cumulative effects of all alternatives would be as described for the No Action Alternative. These effects are not addressed further in this section.

4.17.12 Mitigation Measures

All proposed Eagle Lake Field Office projects will have a noxious weed clearance before being implemented. If an infestation is detected, measures will be taken to provide an integrated weed management (IWM) plan. The Eagle Lake Field Office Prevention Schedule will be incorporated into the project to prevent the introduction and spread of noxious weeds.

4.17.13 Unavoidable Adverse Impacts

Recreation and OHV use might result in unavoidable adverse impacts due to public participation. Education on the spread of noxious weeds will help prevent such, but monitoring will also be necessary.

4.17.14 Short-Term Uses Versus Long-Term Productivity

None

4.17.15 Irreversible and Irretrievable Impacts

Noxious weed infestations would not result in any irreversible and irretrievable impacts to native vegetation on lands managed by BLM's Eagle Lake Field Office because BLM would apply integrated weed management and preventative measures of the Noxious Weed Prevention Schedule.

4.18 Potential Effects on Special Status Plants

In determining the potential effects of resource management actions on special status plants, an understanding of how the resource management policy, goals, standards, and guidelines BLM implements for all actions could affect special status plants. BLM is directed to maintain viable populations of threatened, endangered, and BLM special status (i.e. BLM sensitive) species. BLM reviews all project proposals before implementing them to determine whether they would affect BLM special status species. Project recommendations are incorporated into the project in accord with the California BLM's Special Status Plant Policy (CA BLM Manual Supplement H-6840-1, Special Status Plant Management). The intent of this management approach is to prevent actions that would contribute to the listing of species under the Endangered Species Act.

4.18.1 Methodology and Assumptions

This analysis uses information from existing literature, data from BLM's Eagle Lake Field Office, and the documents/policy/laws provided for managing sensitive plant species from state and federal agencies. Also used to assess impacts are the professional judgment of BLM and cooperating agency botanists and existing plans and field data.

This analysis considers an effect **adverse** if an action

- reduces population density or size or
- harms natural habitat quality.

This analysis considers an effect **beneficial** if an action

- maintains or increases individuals of a species or populations and
- protects existing populations.

4.18.2 Incomplete or Unavailable Information

Information is limited for population status, trends, and distribution of some special status plant species in the Eagle Lake Field Office area. As a result, in certain cases the planning approach to special status plant management is to determine where and how other resource management and uses might conflict with sensitive plant populations and consider mitigation to reduce or eliminate actual or potential conflicts. Adequate information exists on the following:

- general potential for occurrence of plant species,
- habitat requirements,
- physiology of plant species, and
- consequences of management actions.

4.18.3 Analysis

This analysis defined the levels of effects on special status plants as follows:

Negligible: The effects on special status plant species would be at or below the level of detection. Effects would be so slight as not to be of any measurable or perceptible consequence to the population of the sensitive plant species, and would be generally be temporary or short term (last less that a single year or season).

Minor: The effects on special status plant species would be detectable but localized, and of little consequence to the population. Effects would generally be temporary or short term, but in some cases might be long term. Mitigation measures, if needed to offset adverse effects, would be simple and successful.

Moderate: The effects on special status plant species would be readily detectable and localized with consequences at the population level. Effects might be short or long term. Mitigation measures, if needed to offset adverse effects, would be extensive and would probably be successful.

Major: The effects on special status plant species would be obvious and would result in substantial consequences to species populations in the field office area or region. Effects might be short term, but would likely be long term. Extensive mitigation measures would be needed to offset adverse effects, and their success would not be guaranteed.

Short Term: Lasting less than a single year or season.

Long Term: Lasting longer than a single year or season.

4.18.4 Impacts Common to all Alternatives

Under all alternatives, BLM would review all project proposals before implementing them to determine whether they would affect special status plant species. BLM would incorporate project recommendations into the project if needed to avoid or minimize impacts on these species. Under these guidelines, the following resources management programs are not expected to substantially affect special status plants: cultural resources, soil resources, terrestrial and aquatic wildlife, water resources, wild horses and burros, forestry, energy and minerals, and special management areas.

Management for special status plants is oriented toward providing habitat conditions that meet individual species' requirements. Under all alternatives, BLM would develop conservation agreements or species management guides as needed to protect and monitor special status plants. Consistent with BLM policy on special status plants, the Eagle Lake Field Office would ensure that management actions do not contribute to the decline of a special status plant. All alternatives would maintain and encourage viable populations of threatened, endangered, and BLM sensitive species known to occur on lands administered by the field office.

The continued management of special status plants to ensure that they do not decline in abundance and distribution is considered a beneficial effect of vegetation management actions. Continued monitoring of special status plants would also provide indirect benefits. Added knowledge on the status, distribution, and ecology of special status plants would be useful for guiding future management efforts.

Little information exists on the effects (adverse or beneficial) of fire on special status plants. The Eagle Lake Field Office has determined the effect of fire on one special status plant: Baker's globe mallow (*Iliamna bakeri*). This species occurs in sagebrush, juniper, and mountain mahogany-dominated communities and responds positively to fire by increasing in prevalence after fire.

Research is needed to determine whether prescribed burns, under site-specific resource/ecological guidelines, would enhance special status plant habitat. The results of this research would be used to guide management of these habitats and their associated species in the future.

Generally, the analysis assumed that a special status plant within a community adapted to periodic fire (such as sagebrush steppe) would benefit from periodic burning, while a special status plant in a community that is not as adapted to periodic fire (such as a sparse low sagebrush community) would experience an adverse effect. This assumption is somewhat misleading, however, because other factors unrelated to the fire management actions–such as a noxious weed invasion–may influence the frequency of burns within a particular community not adapted to periodic fires and alter the community having the special status plant habitat. Detailed information on the effect of fire on special status plants is lacking, therefore this section provides a general analysis of the effects of the fire and fuels management actions under each alternative. Fire suppression can also effect special status plants. (See Vegetation Communities and Noxious Weeds for discussions of the potential effects of fire suppression.)

Little information is known about the effects of grazing on special status plants. Although the grazing of some plant species by native ungulates is thought to be part of their natural ecology, the large-scale introduction of livestock 150 years ago has changed the duration, intensity, and season-of-use with which many species may have evolved. The effects of these changes are unknown.

Livestock use can adversely affect occurrences of special status plants in several ways. Grazing removes plant material and may prevent flowering and fruiting. Trampling can damage or destroy plants. Trampling can also effect the habitats of special status plants, for example, by compacting the soil or damaging streambanks. Although most effects of grazing on special status plants would be harmful, grazing might benefit some plants by removing or reducing the vigor of competing plants and preventing the establishing of shrub cover in open herbaceous habitats.

Impacts from livestock use, including both grazing and trampling, have been recognized as a threat or potential threat (as described below) to the following special status plants:

- Astragalus agrestis: The species could be affected by grazing.
- Astragalus argophyllus var. argophyllus: Sites are not grazed; consequently, this plant may be out-competed by saltgrass.
- Astragalus geyeri var. geyeri: The species is threatened by livestock trampling in spring and early summer.
- Dalea ornata: Impacts of livestock are unknown.
- Iliamna bakeri: The species is grazed and browsed by livestock and wildlife but is threatened by competitive shrubs.
- Ivesia aperta var. aperta: The species is adversely affected by grazing, although grazing is light on BLM-administered land.
- Ivesia webberi: The species is not currently grazed by livestock, but trampling would adversely affect it.
- Loeflingia squarrosa var. artemisiarum: The species is likely to be affected by trampling. Especially in spring or early summer; trampling could cause moisture regime changes that could harm this plant.
- Mimulus evanescens: Trampling is a threat; the species occurs at edges of open water and moist areas where livestock use is concentrated.
- Oryzopsis exigua: One site is not noticeably grazed but could be affected by livestock.
- Phacelia inundata: The species is threatened by livestock trampling.

- Polyctenium williamsiae: The species is threatened by livestock grazing.
- Rorippa columbiae: The species is threatened by trampling; it occurs in vernally wet flats where livestock use could be concentrated.
- Thelypodium howellii var. howellii: The species could be affected by grazing; one site is fenced.

Differences in specific management (i.e. limitations on grazing because of specific resource goals or objectives) and their effects on special status plants are detailed under other resource management actions where appropriate. Other resources with grazing-related management actions that could affect special status plants include vegetation, soil resources, and water resources.

Recreation management actions could affect special status plants in the field office area. Although several special status plants are thought to be in the area of OHV use, recreation management is not expected to substantially affect special status plants under any of the alternatives. The recreation management actions under all alternatives do not significantly differ in their effects on special status plants, and they therefore are not discussed further.

Although direct effects on special status plants are not expected as a result of management actions for utilities, transportation, and telecommunications activities, indirect effects on special status plants could result under all alternatives. As described for the Potential Effects on Noxious Weeds, building and maintaining utility, transportation, and telecommunications corridors are known to be the main vectors for noxious weed introduction and spread in the Eagle Lake Field Office area. Although implementation of the Eagle Lake Field Office's Noxious Weed Prevention Schedule would reduce the introduction and spread of noxious weeds, it would be not 100% effective. Non-native invasive plant species or noxious weeds are known to outcompete and replace native plants (including special status plants) following invasion. For this reason, effects related to building and maintaining utilities, transportation, and telecommunication corridors are considered adverse.

Competition or habitat change resulting from the spread of noxious and invasive weeds is recognized as a specific threat to the following species in the Eagle Lake Field Office area (the competing noxious weed is shown in parentheses).

- Astragalus anxius (medusahead). The level of impact is unknown.
- Dalea ornata (medusahead) – The impact is unknown, but D. ornata grows in areas of dense medusahead infestation.

Under all alternatives, vegetation resources would continue to be managed to achieve land health standards, using site-specific management techniques. Juniper encroachment has been recognized as a barrier to achieving land health standards. All alternatives include measures to reduce the current amount of juniper on the landscape to reduce or eliminate the rate of encroachment. Under all alternatives, some treatment is proposed in vegetation communities (including juniper communities) under the fire and fuels program, although the approach and scale of treatment significantly differ among the alternatives. Grazing, often named as a significant impact on vegetation communities, would be maintained on the current number of allotments. Livestock grazing under all alternatives would apply site-specific management measures to reduce impacts. But the Ecosystem Restoration Alternative significantly differs in its intensity of grazing.

Under all alternatives, the Eagle Lake Field Office would aim to reduce or eliminate the introduction and spread of noxious weeds using an integrated weed management plan (IWMP). An IWMP approach to managing noxious weeds has been shown to provide benefits.

Management of special status plants under all alternatives would continue to avoid listing of plants as endangered or threatened.

4.18.5 No Action Alternative

Under the No Action Alternative, the Eagle Lake Field Office would use mechanical and manual treatments to reduce juniper cover on 100 acres per year. Before all projects are implemented, special status plant inventories and clearances would be completed. Special status plant populations would be avoided, and juniper management actions would be designed to improve ecosystem health and to protect water quality and wildlife values. The management actions proposed under the No Action Alternative would disturb vegetation in the short term but would result in the net beneficial effects of restoring the native plant community over time.

Building roads for juniper management, if needed, would result in short-term effects on vegetation communities. But the temporary roads would be restored after juniper woodland treatment. The long-term effects on vegetation communities from the removal of encroaching juniper would be beneficial.

Although specific information on the fire ecology of special status plants is lacking for the field office area (except for *Iliamna bakeri*), the amount of full suppression proposed under this alternative is not considered a desirable action for maintaining vegetation communities and the ecosystem as a whole. Therefore, this alternative would likely result in few beneficial effects on special status plants.

Overall, the No Action Alternative does not appear to provide a net beneficial or adverse effect on special status plants.

4.18.6 Alternative 1. Economic Development

Under Alternative 1 Eagle Lake Field Office management actions would involve protecting sensitive vegetation communities. The potential for adverse effects would be negligible because of the limited acres of ground disturbance under this alternative.

The potential effects on special status plants of all the Alternative 1 management actions would be similar to those expected under the No Action Alternative. Four resource management action areas (soil resources, energy and minerals, grazing, and recreation) contain elements (e.g. building roads and trails and more areas open for grazing and mineral extraction) that could add effects to special status plants. The general types of effects and the species that could be affected are described in Effects under the No Action Alternative and Impacts Common to All Alternatives.

Alternative 1 emphasizes using all resources to the greatest extent possible while still meeting land health standards. Site-specific management measures intended to help lands meet land health standards would result in beneficial impacts to vegetation communities. Alternative 1 provides for juniper treatment. The aggressive reduction of juniper would be a beneficial effect under this alternative. No appropriate management response or wildland fire use, generally considered beneficial to vegetation communities, is proposed under Alternative 1. Grazing management under Alternative 1 would be similar to that under the No Action, Traditional Uses, and the Preferred Alternatives. Generally, effects of the grazing program under Alternative 1 are not considered beneficial or adverse when compared to existing conditions.

Special status plant management under Alternative 1 would be similar to that under the No Action Alternative.

4.18.7 Alternative 2. Ecosystem Restoration

Alternative 2 would maintain and encourage viable populations of threatened, endangered, and BLM sensitive species known to occur on lands administered by the Eagle Lake Field Office. The continued management of special status plants under Alternative 2 to ensure that they do not decline in abundance and distribution is considered a beneficial effect of vegetation management actions. Continued monitoring of special status plants would provide indirect benefits. Added knowledge on the status, distribution, and ecology of special status plants would also be useful for guiding future management.

Under Alternative 2, the Eagle Lake Field Office would implement vegetation management actions that would provide more protection and long-term benefits to special status plants. The following management actions would result in long-term benefits to special status plants:

- Develop and implement habitat management plans, genetic studies, and biological evaluations.
- Prevent the disposal of parcels <160 acres if it would result in eliminating species or listing them under the federal Endangered Species Act.
- If a species is in decline, adopt management to stop all activities that could contribute to its decline and prepare a biological evaluation, if needed.
- Establish long-term monitoring studies of rare plants and habitats.

Although the effects of grazing on special status plants are largely unknown, management proposed under Alternative 2 is expected to result in an increased rate of progress toward meeting land health standards. Management that results in healthy vegetation communities is also expected to result in beneficial impacts on the special status plants in those communities.

Similar to other alternatives, beneficial impacts on vegetation communities are expected to result from the site-specific management of resources under Alternative 2. Inventories and studies proposed under this alternative are also expected to result in indirect beneficial effects to special status plants in the long term. Under Alternative 2, the most juniper treatment is proposed using prescribed fire. Large amounts of wildland fire use and appropriate management response are also proposed under this alternative. Reintroducing fire to the landscape on a large scale is considered a beneficial effect.

By resting allotments, the Ecosystem Restoration Alternative provides a different grazing management approach. Generally, resting allotments is considered to benefit vegetation communities by accelerating progress toward meeting land health standards and proper functioning condition. Alternative 2 proposes aggressive measures for restoring and enhancing populations and communities. These measures would benefit special status plants

4.18.8 Alternative 3. Traditional Uses

The potential adverse and beneficial effects on special status plants of all resource management actions under Alternative 3 (except for vegetation management) would be similar to those under the No Action Alternative. Like the vegetation management actions described for Alternative 2, vegetation management actions under Alternative 3 would provide more protection and long-term benefits to special status plants:

- Develop and implement habitat management plans, genetic studies, and biological evaluations (same as Alternative 2).

- Prevent disposal of parcels with special status plants if it would result in eliminating species or their listing under the federal Endangered Species Act.
- Establish studies to determine the effects of fire on special status plants.
- Establish long-term monitoring studies in areas with adverse impacts or showing signs of recovery.
- Limit OHV use in Loeflingia squarrose var. artemisiarum habitat to existing roads and limit OHV use before seed set (maturity).

These actions would result in long-term beneficial effects on special status plants and would contribute to understanding the effects of fire on special status plants.

Little information exists on the effects (either adverse or beneficial) of fire on special status plants. Research is needed to determine whether prescribed burns under site-specific resource/ecological guidelines would enhance special status plant habitat. Alternative 3 would benefit special status plants by contributing to a better understanding of the role and effects of fire on certain special status plants and their habitats.

Alternative 3 emphasizes the use of all resources as long as land health standards are still being met. As under other alternatives, site-specific management measures would be implemented where needed to ensure that land health standards are met. Although reducing juniper is still considered to be a beneficial effect, the effects would be less under Alternative 3 than other alternatives. Under Alternative 3, the use of appropriate management response and wildland fire use would be similar to the level proposed under Alternative 2. Generally, introducing a natural or semi-natural fire regime expected under these types of management methods is considered to benefit vegetation resources. Grazing management actions and expected effects would be identical to those described for the No Action, Economic Development, and the Preferred Alternatives. Effects of management for special status plants would also be similar to those described for the No Action Alternative.

4.18.9 Preferred Alternative

The potential effects on special status plants from management actions under the Preferred Alternative would be similar to those under Alternative 1.

Under the Preferred Alternative, the Eagle Lake Field Office would continue to manage vegetation resources to meet land health standards using site-specific management techniques. These site-specific techniques would vary but typically would be used on a case-by-case basis to minimize the effects or potential effects of an action. The continued use of these techniques is considered a beneficial effect under the Preferred Alternative.

All alternatives, including the Preferred Alternative, also include measures to reduce the current amount of juniper on the landscape to reduce or eliminate the rate of encroachment. The level of treatment proposed under the Preferred Alternative would be similar to the level proposed under Alternatives 2 and 3. The use and reintroduction of fire on the landscape (appropriate management response, wildland fire use, and prescribed burning), described as beneficial throughout this document, are proposed at a level similar to that proposed under Alternatives 2 and 3. All grazing alternatives, except for Alternative 2, would have similar effects and would use site-specific management measures to reduce impacts. The effects on special status plants would be similar to those described for Alternative 2.

4.18.10 Comparative Summary of Impacts

Under all alternatives, several resource management programs could substantially affect special status plants, both directly through removal or disturbance and indirectly through modification of one or more ecosystem parameters. The result could be a long-term change in the resource. The interaction between resource management actions and ecosystem parameters is highly complex and is difficult to discern within the context of a large-scale planning effort such as this RMP.

Adding to this complexity are management actions that occurred historically, that both directly and indirectly affect ecosystem parameters, and that are still an evident and active process on the current landscape (i.e. the introduction of grazing and noxious weeds).

All alternatives except for No Action include management actions that involve natural disturbance regimes such as fire on a larger portion of the landscape than currently exists. The reintroduction and use of fire and natural disturbance regimes on the landscape are considered beneficial because the ecosystem is adapted to these disturbance regimes and in many cases requires them to establish healthy communities.

Effects on vegetation resources differ little between resource management programs with associated substantial disturbance regimes, such as grazing and recreation. But the substantial disturbance regimes for grazing and recreation management actions can substantially affect vegetation on a landscape level. Generally, effects from these resource management programs would be reduced on a case-by-case basis through standard management measures under other management programs. All alternatives would be similar in their use of these standard management measures.

Resource management actions under the No Action and Economic Development Alternatives would less protect and enhance vegetation than management actions under the other alternatives. On an ecosystem level, the Ecosystem Restoration, Traditional Uses, and Preferred Alternatives would most benefit ecosystem processes by potentially reintroducing fire (both wildland fire use and prescribed fire) to the landscape on a substantial level. These alternatives would also provide more restrictions or protections from other disturbance regimes than would the No Action and Economic Development Alternatives.

Management actions with potentially substantial effects on vegetation include those for recreation; energy and minerals; and utilities, transportation, and telecommunications. The No Action, Economic Development, and Preferred Alternatives most emphasize the use and maintenance of utility corridors. The Ecosystem Restoration and Traditional Uses Alternatives propose the most restrictions on these uses

Over the long term, all alternatives would benefit vegetation by managing and protecting sensitive vegetation from excessive disturbance regimes that are considered counterproductive to healthy ecosystems. The timeframes and extent of benefits, however, substantially differ among most of the alternatives.

4.18.11 Cumulative Effects

The Cumulative effects to the special status plant populations would be minor as a result of project clearances and mitigation measures. The effects would be from ground disturbances created by new road and trail construction; juniper reduction; fuels management; energy and minerals; forestry; livestock grazing; off-highway vehicles; and utilities, transportation and communications projects.

4.18.12 Mitigation Measures

All proposed Eagle Lake Field Office projects will have a special status plant inventory before being implemented. If a population is found, measures will be taken to protect that population and avoid any damage to it.

4.18.13 Unavoidable Adverse Impacts

No unavoidable adverse impacts will inflict the known or suspected populations of special status plants on lands managed by BLM's Eagle Lake Field Office. This is a regulated program, and BLM will follow federal and state policy.

4.18.14 Short-Term Uses Versus Long-Term Productivity

None.

4.18.15 Irreversible and Irretrievable Impacts

There will be no irreversible and irretrievable impacts to the known or suspected populations of special status plants on lands managed by BLM's Eagle Lake Field Office. This is a regulated program, and BLM will follow federal and state policy.

4.19 Potential Effects on Visual Resources

This section describes the direct, indirect, and cumulative effects on visual resources and scenic quality from land use decisions under the alternatives. Proposed management activities likely to have the greatest effect on visual resources in the Eagle Lake Field Office area are activities associated with roads, fire, grazing, vegetation management, mining, recreation, and utilities.

4.19.1 Methodology and Assumptions

The following assumptions were used to evaluate visual impacts of the alternatives.

- Sensitive receptors for impacts on visual quality are visitors to BLM-administered lands or residents living next to BLM-administered lands. Visitors and residents generally would have equal or higher expectations for scenic quality than at present.
- Activities that cause the most contrast and are the most noticeable to the viewer were generally considered to have the greatest effect on scenic quality.
- Surface-disturbing activities may affect scenic quality in the Eagle Lake Field Office area. These activities include vegetation clearing, prescribed burns, chemical treatments, road and trail maintenance or construction, parking lot construction, and utility line ROW development or upgrades. These activities can affect visual resources by changing vegetative patterns; changing species composition; changing landform shape, texture, or color; or introducing non-natural features that provide contrast with the surrounding landscape character.
- The severity of an adverse visual effect depends on a variety of factors, including the size of a management action, the location and design of roads and trails, the treatment of residue or slash from vegetative harvest or mechanical treatments, and the overall visibility of the disturbed areas.
- In some cases, vegetative clearing can improve visual quality by opening pleasing views or by softening or blending contrasting vegetative boundaries caused by development or past management practices, particularly on steep slopes or prominent landforms.
- All actions proposed during the RMP process that would result in surface disturbances must be consistent with established VRM guidelines and reflect the value of visual resources.
- Under all alternatives, it was assumed that management activities would meet VRM classes and that opportunities exist to meet ecosystem management goals while focusing on retaining the natural landscape.

4.19.2 Incomplete or Unavailable Information

Adequate information is available to analyze the effects on visual resources at the plan level.

4.19.3 Analysis

Negligible: The impact to scenic quality would be barely detectable, affecting the experience of few visitors in the applicable setting.

Minor: The impact to scenic quality would be detectable, affecting the experience of many visitors in the applicable setting.

Moderate: The impact to scenic quality would be readily apparent, affecting the experience of the majority of visitors in the applicable setting.

Major: The impact to scenic quality would be severely adverse or exceptionally beneficial, affecting the experience of nearly all visitors in the applicable setting.

4.19.4 Impacts Common to All Alternatives

Proposed actions to protect cultural resource by restricting, reducing, or eliminating ground-disturbing activities—such as OHV travel, fire suppression, minerals development, and recreational staging areas—would benefit visual resources by maintaining the existing natural setting at cultural resource sites.

Wildland fire and fuels management actions including prescribed burns, mechanical treatments, and wildland fire use (WFU) may result in short-term visual impacts because of burned vegetation and other land disturbance. Adverse impacts would also occur from cross-country use of heavy equipment to construct fire lines or for mechanical vegetation treatments. Impacts generally would be site specific and temporary, and mitigation measures used to meet VRM class objectives would minimize impacts and help retain the natural landscape. In addition, WFU is expected to lead to a long-term increase in the health of native plant communities, which would help retain the naturalness of the landscape and would result in beneficial visual effects.

Soils management includes standard management practices for road construction, prescribed burning, mechanical vegetation treatment, soil treatment, and seeding. Under all alternatives, road construction would be minimized. In addition, ground-disturbing activities such as prescribed burns, mechanical vegetation treatment, soil treatment, and seeding would be minimal and would be implemented on an as-needed basis for 113,236 acres known to not be meeting land health standards. These activities would benefit the visual and scenic quality of the lands over the long term by enhancing the ecological health and natural character of the landscape.

Management to protect and restore riparian/wetland areas, sagebrush vegetation communities, and wildlife habitats and populations would indirectly benefit visual resources by maintaining and enhancing the natural character of the landscape.

Restoring unhealthy vegetation communities and reducing infestations of noxious weeds would benefit visual resources by restoring the natural diversity of the native landscape. Short-term adverse effects would result from these actions due to the use of machinery and the disturbance associated with vegetation manipulation, but these effects are not considered significant. Potential road construction for juniper management would cause negative visual impacts, but they would be localized and not significant, as the disturbed area would be restored with native species in order to reduce future juniper encroachment.

Existing WSAs covering 380,359 acres and comprising about 37% of BLM-administered lands in the field office area would be managed under VRM Class I. The natural setting would benefit because visual intrusions into the landscape would be prevented. Management of the identified trail corridors and special recreation management areas under VRM Class II also would benefit the visual landscape by ensuring that management or projects proposed in those areas closely follow the line, form, color, and texture of the existing landscape and ensuring that visual intrusions are reduced as much as possible.

Management actions to close and rehabilitate roads would improve the visual character of certain locations by removing road scars and promoting growth of natural vegetation.

These enhancements generally would be limited in area and would not affect overall scenic quality. Management practices to improve water quality and riparian function, including erosion control measures, instream structures, vegetation planting, and use of exclosures, are not anticipated to adversely affect visual resources because the activities would be limited in the area of impact and, for some of the measures, the visual disturbance would be temporary or would result in long-term benefits to visual resources as the natural landscape is restored.

Management of wild horses and burros is not anticipated to affect directly the visual and scenic quality of the field office area because management does not include ground-disturbing activities and would not cause visual intrusion in the landscape. Use of sensitive areas by wild horses and burros would result in secondary effects, such as trampling, compaction, grazing of vegetation, and channel incision, that would degrade the visual quality of the landscape. In particular, wild horses and burros affect the visual setting at watering areas, where severe vegetation and soil damage can occur. These impacts would be site specific, generally would be limited in area, and are not considered significant. Management actions for the wild horses and burros are substantially similar under all alternatives. This resource is not addressed further in the alternatives discussion in this section.

Managing 11,020 acres under all alternatives as commercial forest is expected to result in minimal impacts on visual resources because the variety of management methods would minimize effects that could occur under a single practice, such as clearcutting. Management actions also would occur only in about 1% of BLM-administered lands; effects on the overall visual setting are not expected to be significant.

Under all alternatives, management actions to enhance land health, such as prescribed fire and seeding, could result in negative effects in treatment areas; however, the impacts would be temporary and in localized areas. Grazing activities occurring under current BLM management are not resulting in significant impacts on the visual resources. Treatments would result in increased health and diversity of the range areas and positively affect the character of the natural setting.

Management activities relating to the extraction of mineral materials, oil and gas exploration, and the development and production of locatable minerals have the potential to change the natural character of the landscape. Existing WSAs would remain closed to mineral development and leasable mineral entry. Activities to develop locatable minerals would be restricted to those that do not require reclamation. The visual character of these areas would be retained. The potential for large-scale mining development in the field office area that could affect the visual landscape is generally considered low in most areas; consequently, minerals development is expected to result in minimal impacts on visual resources.

Under all alternatives, management actions identified that relate to land acquisition would not affect visual resources because acquired parcels would be managed under the same VRM class as adjacent parcels. Potential effects related to disposal are discussed for each alternative.

Continuation under all alternatives of existing recreation activities—except for OHV use—in areas other than WSAs, SRMAs, and other special management areas is not anticipated to cause increased degradation of resources and would not result in impacts on the visual landscape. Negative impacts on visual resources from OHV activities—especially cross-country travel—could occur, if the use caused increased soil erosion or loss of vegetation.

Construction of trails in the Bizz Johnson SRMA and motorized trails in the Eagle Lake Basin SRMA would cause temporary visual disturbances from construction activities. Planning routes to meet VRM class objectives would reduce the potential for new routes to affect the natural character of the landscape.

Management under all alternatives of the existing ACEC (the Pine Dunes RNA) would not affect visual resources because the natural character of the area would be retained. Management actions to protect approximately 38 miles of the Nobles Historic National Trail could result in beneficial effects for visual resources by retaining the natural setting of the trail. Restrictions placed on projects to minimize impacts on the trail's visual setting also would benefit the surrounding areas through reduced visual intrusions.

Management of WSAs would not affect visual resources because all proposals for uses or facilities within WSAs would be reviewed to determine whether the proposal meets the Class I VRM objectives and the non-impairment criteria. These criteria limit the types of activities and impacts that may occur on these lands, which ensures that adverse impacts on visual resources do not occur.

Management proposed for eligible Wild and Scenic River segments would need to meet VRM Class II objectives for retaining the natural landscape in rivers and canyons. Additional benefits to the visual setting would be achieved by excluding livestock and their associated vegetation and bank damage from the rivers and also by seeking to withdraw mineral operations from river corridors in order to limit the potential impacts of mining operations.

Summary of Effects – Common to All Alternatives

Management actions associated with water resources, wild horses and burros, grazing, and lands and realty would result in negligible effects on visual resources. Management actions that include ground-disturbing activities have the greatest potential to affect visual resources. The fire and fuels, soil resources, terrestrial and aquatic wildlife, vegetation, and forestry programs have the potential to result in short-term adverse effects on visual resources. Because the ground-disturbing activities associated with these resource programs primarily are involved with restoring healthier and more diverse native plant communities to the landscape, these programs would benefit visual resources over the long-tem. With respect to recreation resources, designation of special management areas and limitation of OHV use to roads and trails in most areas also would result in reduced impacts on visual resources in these areas over time. Cultural resource management would result in short-term, isolated disturbances. Utilities, transportation, and telecommunications infrastructure and energy and minerals development also would adversely affect visual resources. Site-disturbing activities would be designed to comply with the VRM designation where the facilities are sited as a means of reducing adverse effects.

4.19.5 No Action Alternative

Under the No Action Alternative, full suppression would be implemented on 1,022,767 acres, which could adversely affect visual resources because of the increased potential for catastrophic fires. The use of mechanical equipment for mechanical vegetation treatments or to construct fire lines could result in adverse impacts from cross-country driving by vehicles and earth-moving equipment. These activities would create temporary and localized impacts on the landscape, and effects are not expected to be significant.

Fuels treatment plans that include activities near campgrounds, trails, and wildland urban interface areas could result in impacts on visual resources from vegetation removal and ground-disturbing activities. However, the impacts would be temporary and would be localized on up to 600 acres; therefore, they are not considered significant.

In addition to the indirect impacts described under "Impacts Common to All Alternatives," fire-rehabilitation projects, fuels treatments, and prescribed fire projects would adversely affect visual resources from loss of vegetation and from the use of heavy equipment traveling cross country.

The impacts generally would be temporary and localized, and would be reduced by planning projects in accordance with VRM class objectives. These activities would result in long-term beneficial effects by enhancing the diversity and natural character of the landscape.

Under current management, approximately 25% of the field office area is managed as VRM Class IV. Activities that begin to dominate the visual landscape are allowed in these areas. Development could adversely affect visual resources from ground-disturbing activities and significant alterations in the form, line, and color of the existing landscape. Approximately 36% of BLM-administered lands are VRM Class III and also could be affected by activities that cause adverse impacts on visual resources. Activities that are very visible in the landscape could occur, although development would be planned to meet VRM class objectives. Impacts could be reduced by following the form, line, and color of the landscape as much as possible. About 39% of the field office area is VRM Class II, which includes the WSA area. Activities in this class would closely follow the form, line, and color of the landscape and are not expected to attract attention or cause adverse impacts on visual resources. The WSAs in this class would be subject to Class I standards, as described under "Impacts Common to All Alternatives."

Under the No Action Alternative, impacts fro energy and mineral development would be similar to those described under "Impacts Common to All Alternatives," except that the Pine Dunes ACEC and a portion of the Bizz Johnson trail (totaling approximately 2,500 acres) also would be closed to saleable minerals. The natural character of these areas would be protected from surface disturbance, with resulting benefits for visual quality.

Constructing up to 30 miles of new fencing for livestock grazing management under the No Action Alternative could affect visual resources because of new visual intrusions on the landscape. Fencing is not generally a highly visible intrusion, and planning under VRM objectives is expected to ensure that visual impacts are not significant.

Disposal of lands under the No Action Alternative could result in adverse impacts on visual resources, if transferred parcels were subject to development, such as mining, buildings, or other uses that do not consider the line, form, and color of the landscape. Because disposal is limited in scope, and lands would potentially be exchanged for those with higher resource values, visual impacts are not expected to be significant.

As a guide to provide a wide range of recreational experiences in desired settings, the recreation opportunity spectrum (ROS) would be used to manage development under the No Action Alternative in order to ensure that recreation areas had the appropriate management presence, visual setting, and level of social contact. ROS classes under the No Action Alternative list 70% of BLM administered lands as 'semi-primitive non-motorized', 19% as 'semi-primitive motorized, and 11% as 'roaded natural'. No 'primitive' designations exist under this alternative. ROS would provide additional criteria for managing the visual setting of recreation areas and for protecting them from impacts on the visual setting.

Under current management, approximately 579,000 acres (57% of the BLM-administered lands in the field office area) are designated as 'open', which allows cross-country OHV use. Because OHV use is a growing recreation activity (according to the Northern California Recreation Survey), the exposure of large areas to soil erosion and vegetation damage associated with OHV use in these areas could cause visual impacts. Approximately 8,900 acres (only 1% of the field office area) would be closed to OHV use. In the remaining areas, OHV use would be 'limited to existing or designated trails'. 'Closed' and limited areas are expected to benefit visual resources by preventing potential impacts from off-road travel.

Approximately 80 miles of non-motorized trails would be built under current management, which could adversely affect visual resources if the trails were poorly placed or constructed, or disrupted the natural character of the landscape. Requiring projects to meet VRM class objectives would minimize potential visual impacts and maintain the visual setting.

Acquisition of lands within Twin Peaks, Dry Valley Rim, Tunnison, and Skedaddle WSAs under the No Action Alternative could indirectly benefit visual resources by eliminating potential development by private landowners within the WSA, thereby retaining its natural character. No new ACECs or additional historic trails would be designated; no eligible river segments would be recommended as suitable for Wild and Scenic River designation; and sensitive areas would be subject to potentially adverse visual impacts, including minerals development and OHV use.

Issuing ROWs for transportation and energy projects on a case-by-case basis under the No Action Alternative could result in adverse effects on visual resources by allowing visual intrusions, such as power lines or roads, to be placed at multiple locations in the field office area. Requiring projects to meet VRM class objectives would reduce some potential impacts.

Summary of Effects – No Action Alternative

The No Action Alternative would result in moderate adverse impacts to visual resources, as this alternative contains the most lands designated as VRM Class IV. Under current management, approximately 25% of the field office area is managed as VRM Class IV. Activities that begin to dominate the visual landscape are allowed in these areas. Development could adversely affect visual resources from ground-disturbing activities and significant alterations in the form, line, and color of the existing landscape. Approximately 36% of BLM-administered lands are VRM Class III and also could be affected by activities that cause adverse impacts on visual resources.

Under current management, approximately 579,000 acres (57% of the BLM-administered lands in the field office area) are designated as ‘open’ , which allows cross-country OHV use. The exposure of large areas to soil erosion and vegetation damage associated with OHV use in these areas could cause visual impacts. Approximately 8,900 acres (only 1% of the field office area) would be closed to OHV use. In the remaining areas, OHV use would be ‘limited to existing or designated trails’. ‘Closed’ and limited areas are expected to benefit visual resources by preventing potential impacts from off-road travel.

Impacts to visual resources from most resource programs would be temporary and would be limited to specific local areas, where activities such as prescribed fires or vegetation treatments occur. Most activities would occur over very limited areas of the field office jurisdiction. The activities could result in negative effects on the visual setting in the short term but would lead to ecosystem health and, in the long term, would benefit visual resources by enhancing the diversity of the natural landscape character.

The development of new utilities, such as power lines or new mineral activities, could negatively affect visual resources on a more permanent basis because of significant visual intrusions and alterations to the landscape. The potential for most large-scale minerals development is generally low; however, planning projects to meet VRM objectives would ensure that visual impacts were minimized.

4.19.6 Alternative 1. Economic Development

Impacts from full suppression tactics on 1,022,767 acres would be the same under Alternative 1 as those described for the No Action Alternative. Impacts from fuels treatments would increase to 600-5,000 acres per year (600–4,400 more acres than under No Action Alternative); however, the impacts still would not be considered significant.

Impacts on visual resources from soil resources management actions would be similar under Alternative 1 to those described for the No Action Alternative. Using soil suitability for development could reduce the potential for visual intrusions in the landscape because of the reduced opportunities to construct new facilities. However, all new activities would be subject to meeting VRM class objectives, and effects on visual resources would not be significant.

Impacts from fire and vegetation treatments would be similar under Alternative 1 to those described for the No Action Alternative. Additionally, the construction of nesting islands in Eagle Lake and the Susan River would alter the view of the waterbodies from some locations. As the habitat matured, the islands would appear to be a natural component of the aquatic system and would enhance the visual resources by increasing the habitat character and attracting additional wildlife. Development of additional reservoirs would affect visual resources by creating a new visual component in the landscape. Adverse impacts are expected during reservoir construction and could be mitigated with planning activities to conform with VRM class objectives. The new features generally would enhance the visual character of the area by introducing waterbodies to the landscape, which is a primary component in the VRM inventory and classification system.

Under Alternative 1, about 21% of the field office area would be VRM Class IV, approximately 42% would be Class III, and 37% would be Class II. Activities in the Class III and IV areas, comprising about 63% of the field office area, could result in adverse impacts on visual resources similar to those described for the No Action Alternative. This would be a small increase in area managed as Class III or IV VRM under Alternative 1 compared to the No Action Alternative, and the overall impacts on visual resources would not be significantly different. Identification of an area for wind farm development would provide a location for BLM to meet future alternative energy demands without causing adverse impacts on sensitive visual areas in the field office area.

Impacts from energy and minerals management actions under Alternative 1 would be similar to those described for the No Action Alternative, except that the Bizz Johnson Trail SRMA and Aspen Groves ACEC would have NSO stipulations on leasable mineral activities, and the Eagle Lake ACEC would be closed to leasable minerals. The Susan River ACEC would be closed to locatable mineral entry, and the Aspen Grove ACEC would be closed to salable minerals, which would further protect the visual setting of these areas. All proposed activities would be planned to meet VRM class objectives, which could reduce the significance of any effects that did occur. The potential for most large-scale minerals development is generally low; however, planning projects to meet VRM objectives would be a key element to ensure impacts were minimized.

Forestry management actions under Alternative 1 would increase lumber and biomass harvest on 670 acres per year. This could increase the opportunity to affect the visual character, if the increase was harvested from concentrated areas. The area managed for forest products and subject to impacts would not change, and the effects on the overall visual landscape are not expected to be significant. Planning harvest activities within VRM class objectives would reduce the potential for adverse effects.

Constructing up to 90 miles of new fencing for grazing management under Alternative 1 could increase the potential for impacts on visual resources compared to those described for the No Action Alternative; however, the impacts are not expected to be significant because the fencing would be planned within VRM objectives.

Disposal of lands under Alternative 1 would increase, but would be limited to parcels that did not have high resource values or were not easily managed. The impacts are not expected to be significant because the area represents a small portion of the field office jurisdiction and the disposed parcels do not add value to other resources—including the natural visual character of the area.

The ROS settings for recreation management under Alternative 1 include approximately 913,288 acres designated as 'backcountry'. The backcountry designation represents a combination of the 'semi-primitive motorized' and 'non-motorized' classes but focuses more closely on managing the semi-primitive areas for a variety of uses. Visual resources are expected to benefit indirectly from the increased emphasis on the 'primitive' and 'semi-primitive' designations compared to current management, because this management would reduce the potential for alterations of the visual setting and would maintain the natural character of the landscape. The 'semi-primitive motorized' areas would allow more visual intrusion on the landscape but would still meet the desired setting to provide motorized recreation experiences. No areas would be designated as 'primitive', which would be the most restrictive in maintaining as natural a visual setting as possible.

Approximately 420 acres of the BLM-administered lands in the field office area would be designated as 'open' for OHV use. The areas would be limited to former gravel mining areas that do not exhibit visual or other resource values. Approximately 21,000 acres would be 'closed' to OHV use under this alternative, and approximately 98% of the field office area would be 'limited to existing or designated routes'. This represents a significant increase in the protection of visual resources and is expected to substantially reduce the potential for adverse effects from cross-country travel.

Approximately 277 miles of non-motorized trails would be built under Alternative 1, which is a substantial increase over the current management. The increase could adversely affect visual resources and disrupt the natural character of the landscape; however, planning projects to meet VRM class objectives would minimize potential impacts and maintain the visual setting.

Under Alternative 1, impacts from acquisition of WSA inholdings would be the same as those described for the No Action Alternative, except that acquisitions would be prioritized within all WSAs. Fuels reduction treatments would be implemented within the Tunnison WSA, on 1,734 acres, using primarily prescribed fire and manual treatments. All activities within WSAs would follow VRM Class I requirements to protect scenic quality, and other restrictions according to the Wilderness IMP.

The Aspen Groves ACEC would be designated, on approximately 2,700 acres, in various locations. This would benefit the visual resources of these areas by maintaining the natural character of the landscape and the scenic values that led to their designation.

Impacts on 24.5 miles of river segments recommended as suitable for designation as a Wild and Scenic River would be similar under Alternative 1 to those described under "Impacts Common to All Alternatives."

Under Alternative 1, designating corridors for transportation and utilities would identify the preferred areas for placing new projects and would benefit visual resources by promoting use of certain areas for more than one project. By reducing the potential for projects to be implemented in multiple areas, the area subject to visual intrusions would be decreased.

Summary of Effects – Alternative 1

The No Action Alternative would result in moderate adverse impacts to visual resources, as this alternative contains a significant amount of lands designated as VRM Class IV. 21% of the field office area would be VRM Class IV, approximately 42% would be Class III, and 37% would be Class II. Activities in the Class III and IV areas, comprising about 63% of the field office area, could result in adverse impacts on visual resources similar to those described for the No Action Alternative.

Approximately 420 acres of the BLM-administered lands in the field office area would be designated as 'open' for OHV use. The areas would be limited to former gravel mining areas that do not exhibit visual or other resource values. Approximately 21,000 acres would be 'closed' to OHV use under this alternative, and approximately 98% of the field office area would be 'limited to existing or designated routes'. This represents a significant increase in the protection of visual resources and is expected to substantially reduce the potential for adverse effects from cross-country travel.

Designation of two ACECs would provide protection to visual resources in these areas. Additional benefits would result from restoration of seedings and potential acquisition of WSA inholdings. Impacts on visual resources from most resource programs would be temporary and would be limited to specific local areas, similar to current management. Some activities would occur over a slightly larger area but still would not represent a significant part of the field office area. There would be a slight increase in restrictions on minerals development in the form of closures or NSO stipulations, which would reduce potential impacts on the visual setting of key areas. The development of new utilities, such as power lines, would be in designated corridors, and would concentrate visual intrusions in existing affected areas and reduce the potential for impacts in other areas of the field office area.

4.19.7 Alternative 2. Ecosystem Restoration

Effects of soils resources management actions on visual resources under Alternative 2 would be the same as those described for Alternative 1. Effects of lands and realty management actions under Alternative 2 would be similar to those described for the No Action Alternative.

Cultural resources management actions under Alternative 2 would limit OHV use to existing roads and trails in the Upper Dry Valley ACEC. A beneficial effect on the visual resources of 8,320 acres would result from reducing the potential impacts caused by cross-country travel, including soil exposure and erosion, and vegetation damage. The increase in acres of CRMAs would not affect visual resources.

The potential for impacts on visual resources from fire and fuels management actions under Alternative 2 would be reduced relative to Alternative 1 and the No Action Alternative because full suppression tactics would be implemented on only 282,304 acres. The use of AMR on 730,124 acres would reduce the potential for impacts on visual resources because VRM objectives could be considered in developing response, and cross-country heavy equipment use could be limited. The impacts from fuels treatments would increase to 600–10,000 acres per year (compared to <600 acres per year under the No Action Alternative). Impacts could be significant in certain locations.

Impacts on visual resources from terrestrial and aquatic wildlife management actions under Alternative 2 would be similar to those described for Alternative 1, except that no new reservoirs would be constructed. In addition, the restrictions of OHV use to existing roads and trails would reduce the potential impacts of these activities by reducing vegetation loss, soil exposure, and erosion caused by cross-country travel.

Fencing at-risk riparian areas could adversely affect the visual setting in localized areas because of the visual intrusion in the landscape. However, the accelerated recovery of the riparian areas would result in a long-term benefit for visual resources by enhancing the natural character of the areas. The protection of special-status plants by restricting land-disturbing activities and land disposal actions would benefit visual resources by limiting the area where development could occur and by reducing the potential for altering the visual setting in some areas.

Under Alternative 2, only about 8% of the field office area would be managed as VRM Class IV. Approximately 52% would be designated as VRM Class III. Activities in these areas, comprising about 60% of the field office, could adversely affect visual resources.

However, the area subject to the highest degree of impacts would be significantly lower under this alternative than under the No Action Alternative. The overall adverse effect on the visual landscape would be reduced. The area that would be designated as Class II is substantially similar to the area under the No Action Alternative; visual impacts in Class II areas under Alternative 2 would be similar to those described for the No Action Alternative.

Energy and minerals management actions under Alternative 2 would close approximately 417,400 acres to leasable minerals, approximately 50,000 acres to locatable minerals, and approximately 470,000 acres to saleable minerals. The closures would result in a beneficial effect on visual resources by substantially increasing the area protected from surface-disturbing activities. All proposed activities would be planned to meet VRM class objectives, which would lessen potential visual effects.

Forestry management actions under Alternative 2 would increase lumber and biomass harvest to 1,100 acres, and could increase the potential to affect the visual character of some areas compared to the potential under the No Action Alternative and Alternative 1. Planning harvest activities within VRM class objectives is expected to reduce the concentration of harvest activities in certain areas, which would reduce the potential for adverse effects. The area managed for forest products and subject to impacts would not change, and effects on the overall visual landscape are not expected to be significant.
Reduction of livestock grazing to once every three years in a pasture would result in minor beneficial impacts to visual resources. Native plant communities would be expected to improve in vigor, creating a higher quality visual setting. Visual disruptions, such as trampling of vegetation, bare areas, and disturbances to riparian areas would be reduced.

Under Alternative 2, the ROS settings would include approximately 300,000 acres designated as 'primitive' and 613,000 acres as 'backcountry'. Visual resources are expected to benefit indirectly from the increased emphasis on primitive designations because recreation management activities would reduce the potential for alterations of the visual setting and focus on maintaining the natural character of the landscape.

This alternative would require closing of 301,644 acres to OHV use. There would be no area designated as 'open'. This represents a significant increase in the protection of visual resources and is expected to substantially reduce the potential for adverse effects from cross-country travel.

Approximately 22.5 miles of non-motorized trails would be built under Alternative 2, which is a substantial decrease from current management. The decrease would reduce the potential for adverse effects on visual resources and for disrupting the natural character of the landscape.

Designating seven ACECs (comprising approximately 89,000 acres) would benefit the visual resources of the areas by maintaining the natural character of the landscape and the scenic values that led to their designation.

Impacts from acquisition of WSA inholdings would be the same as those described for the No Action Alternative, except that acquisitions would be prioritized within all WSAs. Fuels reduction treatments would be implemented within the Tunnison WSA, on 1,734 acres, using primarily prescribed fire and manual treatments. All activities within WSAs would follow VRM Class I requirements to protect scenic quality, and other restrictions according to the Wilderness IMP.

Closing 92 miles of roads and ways within WSAs would increase the protection of the visual character of the WSAs and would benefit visual resources by eliminating most potential for activities that could alter the natural setting. Construction of 68 miles of non-motorized trails within selected WSAs would follow VRM Class I requirements, and is not expected to alter visual quality in the long term.

Twenty-six miles of river segments recommended for designation as a Wild and Scenic River would be managed for VRM Class II objectives. Impacts in these areas under Alternative 2 would be the same as those described under "Impacts Common to All Alternatives."

Under Alternative 2, development of new transportation and utility projects would be excluded from sensitive areas such as WSAs and ACECs, which would benefit visual resources by retaining the natural setting of these areas. Co-locating new facilities, minimizing corridor width, and maximizing the use of existing communication sites would concentrate potential visual disturbances in existing affected areas and would benefit visual resources by reducing the opportunities for visual intrusions in new locations.

Summary of Effects – Alternative 2

Alternative 2 would result in minor adverse impacts to visual resources, and minor beneficial impacts. Under Alternative 2, only about 8% of the field office area would be managed as VRM Class IV. Approximately 52% would be designated as VRM Class III. Activities in these areas, comprising about 60% of the field office, could adversely affect visual resources; however, the area subject to the highest degree of impacts would be significantly lower under this alternative than under the No Action Alternative. The overall adverse effect on the visual landscape would be reduced.

Energy and minerals management actions under Alternative 2 would close approximately 417,400 acres to leasable minerals, approximately 50,000 acres to locatable minerals, and approximately 470,000 acres to saleable minerals. The closures would result in a beneficial effect on visual resources by substantially increasing the area protected from surface-disturbing activities.

Reduction of livestock grazing to once every three years in a pasture would result in minor beneficial impacts to visual resources. Native plant communities would be expected to improve in vigor, creating a higher quality visual setting. Visual disruptions, such as trampling of vegetation, bare areas, and disturbances to riparian areas would be reduced.

Designating seven ACECs (comprising approximately 89,000 acres) would benefit the visual resources of the areas by maintaining the natural character of the landscape and the scenic values that led to their designation.

4.19.8 Alternative 3. Traditional Uses

Impacts on visual resources from cultural resources management actions under Alternative 3 would be similar to those described for the No Action Alternative. Impacts on visual resources from soil resources, wildlife, grazing, OHV and non-motorized trails, and lands and realty management actions under Alternative 3 would be the same as those described for the No Action Alternative.

For fire and fuels management actions under Alternative 3, the areas subject to full suppression and AMR are not substantially different than those described for Alternative 1; impacts on visual resources would be similar. Fuels treatments would occur over the same area under Alternative 3 as that described for Alternative 1; impacts would not be significant. ROS designations and associated impacts are the same as Alternative 1. ACEC designations are the same as Alternative 1.

Impacts on visual resources from vegetation management actions under Alternative 3 would be similar to those described for the No Action Alternative, except that restrictions for development and disposal of lands with sensitive species would be increased—which would further reduce the potential for visual impacts under Alternative 3 compared to Alternative 2.

For visual resources management actions under Alternative 3, VRM classes and associated impacts on visual resources would the same as those described for the No Action Alternative.

Impacts on visual resources under Alternative 3 from locatable and saleable minerals would be the same as those described for Alternative 1. Approximately 414,000 acres would be closed to leasable mineral activities, and 11,210 acres of ACECs would be subject to NSO stipulations. The closures and stipulations would help preserve the natural setting by limiting surface-disturbing activities.

Forestry management actions under Alternative 3 would reduce the lumber and biomass harvest to 300 acres per year. This is expected to benefit visual resources by reducing the amount of vegetation removal and disturbance in localized areas. The overall effect on the visual setting is not expected to be significant because the area subject to harvest activities is less than 1% of the field office area.

Impacts on visual resources in WSAs would be similar to current management, except that no acquisitions of inholdings would occur. Potential development on the inholdings could adversely affect the natural setting in some locations; however, most inholding areas are small and impacts generally would be limited to certain areas within the WSA.

For utilities, transportation, and telecommunications management actions under Alternative 3, impacts would be similar to those described for Alternative 1—except that maximizing use of existing utility corridors would benefit visual resources by concentrating projects in areas that were already affected and by reducing potential for visual intrusions into new areas.

Summary of Effects – Alternative 3

Except for recreation, under Alternative 3 most programs would result in effects similar to those described for the No Action Alternative. Recreation would emphasize semi-primitive settings for activities; and OHV would be 'limited to designated routes' or prohibited entirely, which would reduce significantly the potential visual impacts from cross-country vehicle use. Management for utilities under Alternative 3 would be most similar to Alternative 1, except for a greater concentration of new facilities near existing facilities—which would reduce potential effects in undisturbed areas.

4.19.9 Preferred Alternative

For cultural resource management actions under the Preferred Alternative, the impacts from development of interpretive sites would occur in 19 locations; however, no long-term impacts on visual resources would result because the sites would meet VRM class objectives.

Impacts from vegetation treatment and fire and fuels management actions under the Preferred Alternative would be similar to those described for Alternative 2.

For soil resources management actions under the Preferred Alternative, impacts would be similar to those described for the No Action Alternative. Restricting sediment buffer zones to no more than 50 feet would further reduce localized ground-disturbing effects.

For terrestrial and aquatic wildlife management actions under the Preferred Alternative, visual impacts would be similar to those described for Alternative 1, except that the impacts from the restrictions on OHV use described for Alternative 2 also would occur under the Preferred Alternative.

Impacts on visual resources from vegetation management actions under the Preferred Alternative would be similar to those described for Alternative 2, except that existing fencing around riparian areas would be maintained and there would be no impacts related to new fencing.

Approximately 7% of the field office area would be assigned VRM Class IV, and Class II would be increased to approximately 50% under the Preferred Alternative. This represents the least amount of area where adverse impacts on visual resources could occur. The area subject to the highest degree of impacts under the Preferred Alternative is similar to that described for Alternative 2. However, the overall adverse effect on the visual landscape would be lower under the Preferred Alternative than under the other alternatives.

Under the Preferred Alternative, energy and minerals management actions would close approximately 495,000 acres or would subject them to NSO stipulations for leasable minerals. Approximately 389,000 acres and 8,500 acres would be closed to saleable and locatable mineral activities, respectively. The closures would protect the visual setting in large areas of the field office, including sensitive resource areas, and would retain the natural character of the landscape in key recreation areas. Substantial portions of the field office area would remain open for mineral activities, and projects would be planned to meet VRM objectives in order to reduce the adverse effects of surface-disturbing activities.

Impacts on visual resources from forestry management actions under the Preferred Alternative would be similar to those described for Alternative 2.

Impacts on visual resources from grazing management actions under the Preferred Alternative would be similar to those described for the No Action Alternative, except that 80 miles of fencing for livestock management would be constructed.

Impacts on visual resources from lands and realty management actions under the Preferred Alternative would be the same as those described for Alternative 1.

Recreation management actions under the Preferred Alternative would designate approximately 90% of the field office area as ‘primitive’ or ‘backcountry’. The backcountry designation represents a combination of the ‘semi-primitive motorized’ and ‘non-motorized’ classes but focuses more closely on managing the semi-primitive areas for a variety of uses. Visual resources are expected to benefit indirectly from the increased emphasis on the primitive and semi-primitive designations compared to current management, because this management would reduce the potential for alterations of the visual setting and would maintain the natural character of the landscape. The ‘semi-primitive motorized’ areas, covering approximately 196,000 acres, would result in similar impacts on visual resources under the Preferred Alternative as those described for Alternative 2.

Under the Preferred Alternative, 419 acres would be designated ‘open’ to OHV use, and impacts would be the same as those described for Alternative 1. Designating approximately 74% of the field office area (761,000 acres) as ‘limited to designated roads and trails’, and the remaining areas as ‘closed’ to OHV use would provide a significantly higher level of protection of visual resources from impacts associated with cross-country travel than under current management.

Approximately 277 miles of non-motorized trails would be built under the Preferred Alternative, which is a substantial increase from current management levels. Trail construction could increase the potential for adverse effects on visual resources and for disrupting the natural character of the landscape. Designing projects to meet VRM class objectives would reduce potential impacts.

Designating seven ACECs (comprising approximately 89,000 acres) would benefit the visual resources of the areas by maintaining the natural character of the landscape and the scenic values that led to their designation.

Impacts from acquisition of WSA inholdings would be the same as those described for the No Action Alternative, except that acquisitions would be prioritized within all WSAs. Fuels reduction treatments would be implemented within the Tunnison WSA, on 1,734 acres, using primarily prescribed fire and manual treatments. All activities within WSAs would follow VRM Class I requirements to protect scenic quality, and other restrictions according to the Wilderness IMP.

Closing 92 miles of roads and ways within WSAs would increase the protection of the visual character of the WSAs and would benefit visual resources by eliminating most potential for activities that could alter the natural setting. Construction of 68 miles of non-motorized trails within selected WSAs would follow VRM Class I requirements, and is not expected to alter visual quality in the long term.

Recommending the 10.6 miles of Upper Smoke Creek as suitable for designation as a Wild and Scenic River that would be managed as VRM Class II and associated benefits to visual resources under the Preferred Alternative would be the same as described under "Impacts Common to All Alternatives."

Impacts on visual resources from utilities, transportation, and telecommunications management actions under the Preferred Alternative would be similar to those described for Alternative 1, except that use in avoidance areas such as WSAs and ACECs would be minimized and the visual setting of these sensitive areas would be retained. Allowing military personnel maneuvers is not expected to affect visual resources, except in localized areas where activities or base operations are concentrated. The impacts would be temporary and would not affect the overall visual landscape.

Summary of Effects – Preferred Alternative

The Preferred Alternative would result in minor adverse and moderate to major beneficial impacts to scenic quality, and is similar to Alternative 2. Approximately 7% of the field office area would be assigned VRM Class IV, and Class II would be increased to approximately 50%. This represents the least amount of area where adverse impacts on visual resources could occur. The area subject to the highest degree of impacts under the Preferred Alternative is similar to that described for Alternative 2. However, the overall adverse effect on the visual landscape would be lower under the Preferred Alternative than under the other alternatives.

Energy and minerals management actions would close approximately 495,000 acres or would subject them to NSO stipulations for leasable minerals. Approximately 389,000 acres and 8,500 acres would be closed to saleable and locatable mineral activities, respectively. The closures would protect the visual setting in large areas of the field office, including sensitive resource areas, and would retain the natural character of the landscape in key recreation areas.

Recreation identifies most of the field office area as 'primitive' or 'backcountry' in order to emphasize recreation opportunities in natural settings. OHV use is restricted under the Preferred Alternative, similar to Alternative 2, and the potential for visual impacts of cross-country use are very low. Utilities also would make use of corridors under the Preferred Alternatives, and possible impacts on undisturbed areas are expected to be reduced from this approach.

4.19.10 Comparative Summary of Impacts

Overall, Alternative 2 would result in the least adverse effects on visual resources because management actions under this alternative would be restricted to certain areas and most activities that would cause significant impacts are more restricted than under the other alternatives. The effects of the Preferred Alternative are generally similar to those under Alternative 2. Although more areas would be open to minerals development under the Preferred Alternative, the potential for large-scale minerals development is generally low and visual impacts are not expected to be significant. Most other activities, such as prescribed fire and vegetation treatments, would occur over very limited areas of the field office area. Fire and fuels management activities, including prescribed burns and mechanical, chemical, and biological fuels treatments, would temporarily degrade visual quality at treatment sites under all alternatives. Although the activities would adversely affect the visual setting in the short term, they would lead to ecosystem health and in the long term would benefit visual resources by enhancing the diversity of the natural landscape character.

The No Action Alternative and Alternative 3 are generally similar; the less restrictive actions in management of programs would result in somewhat higher potential visual effects.

Management of special area designations such as WSAs and ACECs would result in beneficial impacts on visual resources. Alternative 2 and the Preferred Alternative included most areas for designation as ACECs and Wild and Scenic Rivers, which would retain visual quality over larger areas designated for protection of sensitive resources.

Alternatives 2 and 3 prohibit granting of new utility ROWs and development of communication sites; these actions would benefit visual resources by reducing potential visual intrusions into new areas. Alternative 1 and the Preferred Alternative would expand the width of existing utility corridors. However, by maximizing use of the corridors, the potential for utilities to be built on multiple routes and the subsequent adverse effects on visual resources would be minimized.

4.19.11 Cumulative Effects

In addition to BLM management activities land uses on areas surrounding BLM lands have the potential to adversely affect visual resources. There have been historically significant effects to the natural setting, and the visual landscape has been subject to incremental impacts as activities and development have gradually altered the visual setting. Known activities in the field office that would affect visual resources include conversion of native landscapes to agriculture and residential uses, road construction, logging, and juniper and vegetation treatments. Continued community growth and development would lead to increased demand for energy and building materials, potentially increasing the need for utilities and mineral materials. However, given the relatively low population density in the field office area, overall growth and demand for material is not expected to be significant.

In approving specific uses, BLM would consider potential impacts on visual resources in conjunction with the effects of adjacent uses and the potential of new activities to exacerbate any adverse effects. The effects of proposed management and activities on surrounding areas would result in incremental beneficial effects on visual resources from reduced impacts of OHV use, concentration of utility developments into corridors, and removal of existing utility facilities that have been abandoned. Most activities associated with BLM resource programs generally would be temporary and would be limited to the local area where the activities occur. The cumulative effects on visual resources are not expected to be significant when considered in combination with other land uses and reasonably foreseeable activities in the field office area.

4.19.12 Mitigation Measures

All surface-disturbing activities, regardless of alternative or management action, would be subject to the VRM Class objectives of the area within which the activity takes place. The visual resource contrast rating system is used as a guide to analyze the potential site-specific impacts of surface disturbance as well as facility design and placement. Surface-disturbing activities and facilities would then be designed to mitigate their visual impacts and conform to the area's assigned VRM Class objective. Mitigation would include camouflage coloring, facility design, placement, and/or topographic screening.

4.19.13 Unavoidable Adverse Impacts

Minerals exploration and development, trail construction, and woodland and vegetation treatments for fire management would cause short-term and long-term, unavoidable adverse impacts on visual quality that cannot be completely mitigated by camouflage coloring, facility design, placement, and/or topographic screening.

4.19.14 Short-term Use Versus Long-term Productivity

Unrestricted OHV use in 'open' areas would cause long-term losses in scenic quality if it occurs in highly visible or visually sensitive areas. The short-term adverse impacts of prescribed fire and other vegetation treatments would have long-term beneficial impacts on visual quality by improving the form, color, and line of vegetation, improving the vegetation mosaic, and reducing the potential for visual quality degradation from wildland fire.

4.19.15 Irreversible and Irretrievable Impacts

Some cultural resources, such as petroglyphs, pictographs, and prehistoric and historically important structures, are considered to have a visual resource component. Unauthorized activities that cause damage to or loss of these resources would have irreversible impacts on the resource.

4.20 Potential Effects on Water Resources

This section describes the potential impacts on water resources from implementing the resource programs under the alternatives.

4.20.1 Methodology and Assumptions

The potential for proposed management activities to affect water resources was evaluated, mainly through the framework of the Standards and Guidelines. We used the following standards in the analysis: Standard 2 (Streams) and Standard 3 (Water Quality).[1] In addition, the analysis considered water quantity (for both surface water and groundwater) and flooding, as directed by Executive Order 11988 (Floodplain Management). We have briefly discussed each criterion. For a more complete discussion of standards, please see the source document.

This analysis considered an effect on water **adverse** if it would do the following:

- **Standard 2** – Streams: prevent or impair significant progress toward stream channel form and function that is characteristic of the soil type, climate, and landform.
- **Standard 3** – Water Quality: prevent or impair significant progress toward water that has characteristics suitable for existing or potential beneficial uses. To support beneficial uses, surface water and groundwater should comply with the objectives of the Clean Water Act and other applicable water quality requirements, including meeting the California and Nevada state standards.
- **Water Quantity**: alter surface flows or aquifer volume so as to impair existing or future consumptive or instream uses.
- **Flooding**: result in incompatible floodplain development, not conform to the standards and criteria of the National Flood Insurance Program, or impair natural and beneficial floodplain values.

The following key water resources concepts are fundamental to understanding the discussion of environmental consequences. Key factors related to stream form and function include channel gradient, pool frequency, width to depth ratio, roughness, sinuosity, and sediment transport. All of these factors should be able to function naturally and be characteristic of the soil type, climate, and landform. Key indicators include the following:

- Gravel bars and other coarse-textured stream deposits are successfully colonized and stabilized by woody riparian species.
- Streambank vegetation is vigorous and diverse, mostly perennial, and holds and protects banks during high streamflow events.
- The stream water surface has a high degree of shading, resulting in cooler water in summer and reduced icing in winter.
- Portions of the primary floodplain are frequently flooded (inundated every 1 to 5 years).

---

[1] Standard 1, Upland Soils, and Standard 4, Riparian and Wetland Sites, while relating to water resources, are not discussed in this section. They are discussed in the "Soil Resources" and "Vegetation" sections of this chapter, respectively.

Water quality in a typical surface water body is influenced by processes and activities that take place in upstream areas of the drainage basin or watershed. In a natural system, surface water quality depends mainly on the mineral composition of the rocks in the upper source areas of the stream, as well as the types of rock and sediments that groundwater passes through on its way to the stream. Farther downstream, the water quality becomes more influenced by land use and land management activities, including discharges from both point and nonpoint sources. The analysis considered the following key constituents: sediment, temperature, nutrients, pathogens, and dissolved oxygen. The analysis did not consider other constituents, such as pH and conductivity, because of their low potential to be affected by the proposed management actions.

Sediment is generated when soils are disturbed and discharged directly to a water body or carried to the receiving water in overland runoff. High concentrations of suspended sediment in surface waters cause many adverse consequences, including the following:

- increased turbidity or impaired water clarity,
- reduced light penetration,
- reduced ability of predators that rely on sight to capture prey,
- clogged gills of fish and aquatic invertebrates,
- reduced spawning,
- reduced survival of juvenile fish, and
- reduced angling success.

Other impacts, such as smothering the benthic community and changes in the composition of the bed substrate, result when sediment is deposited in slow-moving receiving waters. Suspended sediment is also an efficient carrier of toxic organic substances and trace metals because these substances can bind to sediment particles. Once sediment falls out of suspension, pollutants in enriched bottom sediments can be remobilized under suitable environmental conditions and pose a risk to benthic life. Note that in areas starved of sediment (e.g. areas downstream of reservoirs or other artificial impoundments) increases in sediment can benefit channel geomorphology and development of aquatic habitat.

Elevated water temperatures can substantially affect organisms adapted to a cold water environment. A rise in water temperature of only a few degrees over ambient conditions can reduce the number of or eliminate sensitive invertebrates and fish. In general, sustained summer water temperatures exceeding 20°C (68°F) are considered to be stressful–and perhaps lethal–too many cold water organisms in the Eagle Lake Field Office area. Large daily fluctuations in temperature can also result in adverse effects.

Nutrients are needed for photosynthesis for supporting the requirements of organisms at higher trophic levels. In freshwater aquatic systems, the main nutrients are phosphorus and nitrogen. In particular, phosphorus is a controlling factor on photosynthesis in aquatic systems. High concentrations can stimulate the growth of plants and algae. Excessive growth of plants and algae can do the following:

- reduce the aesthetic appeal of the water for recreational users,
- clog the habitat used by other aquatic organisms,
- cause large daily swings in DO concentrations, and
- cause other nuisance conditions.

Excessive levels of phosphorus and nitrogen that lead to undesirable algal blooms are part of a process known as eutrophication.

Waterborne pathogens could result in various adverse effects on warm-blooded animals drinking the water and even some possible adverse effects on human contact recreation activities. The main indicator of pathogens is the presence of coliform bacteria, which are microorganisms that live in the intestines of both warm- and cold-blooded animals, including humans. These bacteria enter the hydrologic system through fecal material that enters into water bodies. The presence of fecal coliform bacteria in water shows that fecal material has entered the water body. The presence of fecal coliform can also show that other harmful bacteria or viruses might be present. Some of the results of these bacteria or viruses in the water body could be exposure of people using the water to typhoid fever, bacterial gastroenteritis, and hepatitis A. Fecal coliform bacteria in water bodies on BLM-administered lands are usually a result of nonpoint sources of human and animal waste.

The amount of oxygen that can be dissolved in water differs with temperature. Cold water can contain more dissolved oxygen (DO) than warm water. The amount of DO present in relation to the amount that could be dissolved at a given temperature is referred to as the saturation level, which is expressed as a percentage. Decomposition of organic matter by microorganisms depletes levels of DO in slow-moving receiving waters and lakes and reservoirs. The degree of potential DO depletion is measured by the biochemical oxygen demand (BOD) test, which measures the amount of oxidizable matter. Factors resulting in increased DO levels include the following:

- physical mixing and agitation of the water (aeration),
- photosynthetic production of oxygen by aquatic algae and plants, and
- lower water temperatures.

When DO levels drop too low, waters can become uninhabitable for aquatic organisms and might result in fish kills.

Water quantity is related to the volume of flow and/or storage in a given water body. For groundwater, water quantity is expressed as aquifer volume. Groundwater resources should be sufficient to support beneficial uses, which can include domestic and agricultural supply. Surface water flows might also support the following:

- domestic and agricultural consumptive uses,
- recreational activity,
- biological resources (such as fish passage), and
- water quality.

The Federal Emergency Management Agency (FEMA) provides information on flood hazard and frequency on its Flood Insurance Rate Maps (FIRMs). FEMA delineates zones to show flood hazard potential. In general, flooding occurs along waterways, with infrequent localized flooding also occurring because of constrictions of drainage systems or surface water ponding. Flooding generally benefits the natural ecosystem, but it can imperil humans, livestock, wild horses and burros, and property.

Floodwaters can also mobilize and direct contaminates into previously uncontaminated waters. Human activity, such as increases in soil compaction or impervious surfaces such as pavement, can reduce the ability for precipitation to infiltrate into soil and increase the speed of conveyance—altering the timing and increasing the peak runoff during precipitation events.

Assessments and data used to compare water quality condition with the indicators above are maintained in several databases and linked to geographic information system (GIS) layers.

Water quality data are maintained in the Excel Water Quality database in the Eagle Lake Field Office. California Irrigation Management Information System (CIMIS) data were used to help normalize water temperature data.

Each state maintains a database of water rights assertions and actions. In addition, BLM's field offices maintain a Water Source Inventory database, which is partially complete.

The analysis boundary for considering the effects on water resources is all the lands within the Eagle Lake Field Office's jurisdiction. For considering cumulative impacts, we considered all lands within the watersheds of Eagle Lake Field Office holdings, as well as any downstream conditions to which project alternatives could contribute.

4.20.2 Methodology and Assumptions

In analyzing effects on water resources, we made the following assumptions.

- Short-term effects are those expected to occur within 1 to 5 years of an activity's being implemented. Long-term effects are those that would occur after the first 5 years of implementation but within the life of the RMP (projected to be 20 years).
- Adverse effects on water resources throughout the Eagle Lake Field Office area would be minimized through the use of standard management practices and adherence to Standards 2 (streams) and 3 (Water Quality) of the Standards for Rangeland health standards and Guidelines for Northeastern California and Northwestern Nevada (Appendix B) as well as BLM's source water and groundwater exportation policies.
- All BLM actions are required to meet or make significant progress toward meeting these standards, which are achieved by implementing the standard management practices and other BLM standards. Consequently, substantial harm to water resources is not possible. The discussion of effects, therefore, focuses on the rate of progress toward meeting standards, except for wild horses and burro management actions, for which implementing regulations could have adverse effects.
- Because of the programmatic nature of the project alternatives, we have discussed the impacts qualitatively. In some cases, more specific analysis would be required to precisely determine the extent of potential impacts. We would conduct such analysis when a management action is clearly defined.
- Air quality management actions relate mainly to use of fire. For this reason, we have discussed potential effects with the effects from fire and fuels management actions.

The management actions that could lead to the effects described above includes the following on-the-ground activities:

Ground disturbance can result from many activities, including

- mechanical and hand treatments of vegetation;
- livestock and wild horse grazing,
- energy and mineral development;
- harvesting of timber;
- road construction;
- recreation activities, including off-highway vehicle (OHV) use; and

- installing fences and exclosures.

If not properly managed, this ground disturbance could lead to erosion and sedimentation into waterways, with such degrading of water quality as increased turbidity and smothering of habitat.

- Streambed disturbance can mobilize sediments and increase turbidity downstream. Construction activities in streams can also introduce the potential for releases of construction-related hazardous materials. Because of the direct mechanism for exposure to such contaminants, instream work is of particular concern. Long-term effects would be related to increases or decreases in flows and sediment transport, with effects on geomorphology and stream health.
- Reservoirs and instream structures can affect storage and flows in surface water bodies. If a new reservoir is built, storage in that area would increase, and flows downstream could decline.
- Livestock distribution can increase or decrease the effect of livestock, depending on their location and density. If livestock are concentrated in small areas or along fence lines, the effect of animal waste and soil disturbance from trampling would be greater in those areas—with associated effects related to soil disturbance and compaction, as well as increased concentrations of nutrients and pathogens. Concentration of livestock in riparian areas can destroy streambanks and remove riparian vegetation. Such concentration can occur where alternative water supplies are not available or where exclosures are not used. Similar effects can result from the activities of wild horses and burros.
- Altered drainage patterns could result from ground-disturbing activities, such as road building, timber harvesting, and installing instream structures. Altered drainage patterns could increase erosion and sedimentation or violate water quality standards by directing contaminates into previously uncontaminated waters.
- Roads and vehicles can produce a variety of contaminants that can wash into water bodies during precipitation events. Such contaminants include oil and grease, gasoline, heavy metals, and sediment. Improperly maintained ditches and culverts for roads can concentrate runoff from roads and cause erosion. Off-road vehicles can also cause erosion.
- Herbicides, if improperly applied, can cause violations of water quality standards. Residual traces of herbicides can be washed into soils and water bodies during precipitation events.
- Water transfers can result in water being removed from a system and in net decreases in water quantity, or can they can otherwise degrade beneficial uses.
- Public visitation could mean an increase in ground-disturbing activities from foot and vehicle traffic. Water quality standards could also be violated if an increase in vehicle traffic leads to an increase in contaminants washing off roads into the water bodies. Water bodies could be directly polluted by littering, indiscriminant discharges from recreational vehicles, or direct influx of body waste to a lake or stream.
- Increased use of trails could lead to increased erosion and sedimentation.
- Improper locating of projects could result in adverse effects to many of the factors listed above.

4.20.3 Incomplete or Unavailable Information

The water quality database contains all water quality data collected since 1979. Although the data were collected and analyzed using protocols approved or accepted by the U.S. Environmental Protection Agency (EPA) and U.S. Geological Survey (USGS), the quality of the work varies considerably with the experience of the field and analytical people. Because of funding constraints, there has been no regular monitoring program, and consistency differs from year to year.

Beginning in hydrologic year (HY) 2002, the Eagle Lake Field Office began a conscientious effort to collect at least a baseline minimum of water quality information on all perennial and important intermittent streams. This effort resulted in the collection of indicator variables generally sufficient to suggest where water quality conditions probably are and are not meeting the water quality indicators listed above. This information would also be used to direct BLM's future water quality data collection to data gaps. Because of time constraints, the data used in this report have not been validated and probably reflect a worst-case scenario.

Other areas where data gaps could be filled include the following:

- More water quality data is needed to determine the condition of other waters, including springs, intermittent streams, lakes, and ponds.
- On the basis of existing data, follow-up data collection is needed on waters that might not meet standards or the needs of desired beneficial uses, mainly the desired assemblage of aquatic species.

4.20.4 Analysis

This analysis defined the levels of effects on water resources management as follows:

Negligible: Any chemical, physical, or biological effects would not be detectable, would be well below water quality standards or criteria, and would be within historical or desired water quality conditions.

Minor: Chemical, physical, or biological effects would be detectable but would be well below water quality standards or criteria and within historical or desired water quality conditions.

Moderate: Chemical, physical, or biological effects would be detectable but would be at or below water quality standards or criteria. Historical baseline or desired water quality conditions would be altered on a short-term basis.

Major: Chemical, physical, or biological effects would be detectable and would be frequently altered from the historical baseline or desired water quality conditions and/or chemical, physical, or biological water quality standards or criteria would be exceeded on a short-term basis.

4.20.5 Impacts Common to All Alternatives

Major water-disturbing activities that are expected to occur under all alternatives include the following:

- livestock and wild horse grazing,
- recreation and off-highway vehicle (OHV) use,
- fire use and fuels treatments,
- road construction and maintenance, and

- juniper treatment and timber harvest.

As a result of these activities, impacts common to all alternatives include

- hydrologic modifications through soil erosion and soil compaction,
- decreased infiltration and increased runoff, thereby degrading water quality and quantity through increased sedimentation and streambank alteration.

Forestry and juniper management common to all alternatives include harvest, fuels management, and reforestation. The ground-disturbing aspects of these activities in the short term can decrease infiltration and increase runoff, erosion, turbidity, soil compaction, and sedimentation (Riekerk 1989). But timber and juniper operations would have to implement measures as needed to protect water quality. Where forestry and juniper actions improve ecosystem condition, long-term benefits would accrue to water quality, stream channel condition, and flooding as a result of improved natural functioning of forested areas and reductions in catastrophic fires through fuels management.

If not properly managed, fires can increase erosion and sedimentation and result in other declines in water quality, such as the following:

- increases in organic carbon,
- releases of other contaminants from burned material, and
- decreased infiltration that results in increases in peak runoff and flooding.

Fire can therefore degrade stream channel condition, lower water quality, intensify flooding, and lower water quantity. These effects are particularly acute during and following catastrophic fires. In general, use of appropriate management response (AMR), wildland fire use (WFU), and fire and fuels management actions would benefit water in long term by reducing the potential for catastrophic fires.

Rehabilitation activities would also result in both short- and long-term benefits. Short-term adverse effects could result from certain fuels management activities, including chemical and mechanical treatments. But as discussed above, management measures would be implemented to reduce or avoid these effects, and the long-term benefits of such activities would generally offset these effects.

Livestock grazing and wild horse use introduce the potential for ongoing soil compaction, erosion, sedimentation, and degrading of stream channel condition where exclosures are not established (Fleischner 1994). The presence of livestock and wild horses could also degrade water quality when animal wastes are washed into water bodies, increasing nutrient (Belsky, et al 1999) and pathogen levels (Bohn and Buckhouse 1985b). Where allotments are failing to meet land health standards, appropriate guidelines would be implemented as stated in the Standards and Guidelines. Developing water sources is expected to generally protect water quality by reducing direct use of springs by livestock and would also benefit water supply and stream channel condition. All of these activities would result in long-term benefits, particularly where the activities are focused in areas not meeting land health standards. Overall, livestock and wild horse use would result in short- and long-term minor to moderate adverse impacts on hydrology and water quality.

Recreation, in general, can lead to surface disturbance; release of human-related contaminants such as nutrients, bacteria, and trash; and other effects from vehicle use. Water-based recreation represents a direct mechanism for contaminating water bodies. Where recreation is properly managed (e.g. restricted to suitable locations and activities), substantial adverse effects on water resources and water quality could be minimized or avoided.

Specific actions with potential adverse effects include new trail and facility construction, with short-term effects from construction and longer-term effects from the use of these areas.

BLM would implement measures to reduce short-term effects so that they would not be significant. In addition, as discussed above, proper siting and management would reduce long-term adverse effects.

Managing the existing Eagle Lake Basin and Bizz Johnson Trail SRMAs, and the Pine Dunes RNA, including restrictions on OHV use, would continue, with resulting benefits to water resources. For water resources, WSA management would be the same for all alternatives, and effects would also be the same. Managing WSAs to retain their wilderness character is generally expected to minimize erosion, soil compaction, and sedimentation—thereby improving water quality and hydrologic function.

Granting rights-of-way (ROWs) would not degrade water quality, but building facilities on ROWs could cause adverse effects as ground disturbance. Such construction could do the following:

- decrease infiltration;
- increase soil compaction, erosion, sedimentation, and runoff; and
- release of construction-related hazardous materials.

But before allowing any major construction, BLM would perform project-specific environmental analysis to determine potential water quality effects and suitable mitigation.

Weed control by herbicides or mechanical means would cause negligible to minor short-term disturbance to soil chemistry, structure, productivity, and abundance through herbicide applications, equipment disruption and compaction, and wind erosion. Methods for herbicide application would follow label requirements, which would ensure that any effects from herbicide use would be minimal. The long-term benefits of weed control and a restored sagebrush-steppe community would include stabilized soils and improved or restored natural fertility, productivity, and function. Such benefits would be long term and moderate in intensity and would indirectly benefit water resources.

Many of the actions under the resource programs propose measures that would protect water resources, such as use of exclosures and closing areas to certain uses. Of these measures, management actions for soil and water resources are most explicitly aimed at maintaining and improving progress toward proper functioning condition (PFC) and would most benefit water resources. Exclosures and closures of areas for wildlife and archeological concerns would offer extended benefits to water resources as a byproduct. Other types of management actions common to all alternatives are as follows:

- limiting or prohibiting activities near intermittent and perennial streams in areas not meeting land health standards or where such activities would disrupt watershed function or processes;
- managing livestock grazing patterns;
- controlling invasive species;
- preventing compaction of shrink-swell soils;
- establishing buffers around sensitive sites; and
- limiting ground-disturbing activities near water bodies and where soils are not in proper functioning condition (PFC).

These actions would also marginally reduce harmful flooding and improve water supplies by encouraging soil water retention and later release over the season.

Measures to improve fish and wildlife habitat and to support special-status species would benefit water quality over the long term. The indirect benefits of habitat rehabilitation, increased water availability, managing grazing practices, use of exclosures, and OHV restrictions can improve soil stability, hydrologic function, and overall beneficial use of water supplies.

Building new islands for waterfowl would likely result in short-term increases in turbidity in reservoirs and in short-term adverse effects that would be difficult to avoid.
For special-status species management, water resources could benefit greatly in the areas where management action is focused—for instance, where instream flows and channel condition are improved for use by certain fish species.

4.20.6 No Action Alternative

Because the No Action Alternative represents a continuation of current management, cultural resources management actions under this alternative are not anticipated to substantially alter water resources trends and would not result in significant effects, either adverse or beneficial, compared to baseline conditions. Existing exclosures would continue to be used; where these exclosures protect or assist in recovery of waterbodies not meeting land health standards, beneficial effects would continue. Overall, under this alternative, land health standards would be somewhat easily achieved and would take an intermediate amount of effort to achieve.

Fire and fuels management actions under the No Action Alternative include prescribed fire, mechanical treatment, and full suppression. This alternative has the greatest potential to affect water resources through small areas of fuels treatment (<600 acres) and large areas of full suppression (1,022,767 acres), resulting in small short-term adverse effects, but substantial long-term adverse effects from catastrophic fires and an unnatural fire regime. Adverse effects of catastrophic fires are widespread increases in erosion rates and consequently increase in sedimentation rates within water bodies.

Catastrophic fires often result in extreme hydrologic modification due to the loss of vegetation and corresponding increases in erosion and runoff. The potential for catastrophic fires and relatively slow recovery from such fires therefore would be relatively high. These actions could adversely affect soil/site stability, watershed function, erosion, sedimentation, and runoff, as well as resulting in reduced interception of precipitation. Therefore, the No Action Alternative could result in adverse effects on water resources. These effects would be experienced in the short term and long term where catastrophic fires occur, or in locations of historical fires that are in recovery. This could impede progress toward meeting land health standards, particularly where these conditions occur in watersheds that do not meet standards.

Because sediment intrusion buffers would be applied on a case-by-case basis, adequate protection may not be provided in areas where such buffers are needed but the need is not identified. Under the No Action Alternative, land health standards generally would be maintained, and reasonable progress toward meeting standards is expected in areas not currently meeting standards.

Under the No Action Alternative, public use along water quality-limited streams would be allowed as long as there is no effect on restoration, and uses in other areas would be allowed if progress is made toward attainment of water quality standards and PFC. The No Action Alternative would result in a relatively small potential to affect water resources in the short term because few ground-disturbing activities would be undertaken in association with construction of roads, exclosures, or erosion control and instream structures. The long-term beneficial effects of this alternative also would be correspondingly small.

Recreation resources management actions under the No Action Alternative with potential to affect water resources include those previously discussed under Impacts Common to All Alternatives. This alternative would involve a relatively large area ‘open’ to OHV use and an intermediate amount of non-motorized trail construction (80.5 miles). Effects of these recreation management actions include long-term increases in erosion, sedimentation, and runoff from OHV use and increased visitation to trails; and short-term increases from construction-related activities to build trails.

Special management areas resources management actions under the No Action Alternative include continuing management at Pine Dunes RNA, and making no recommendations for eligible rivers as suitable for the Wild and Scenic River designation by Congress. This alternative would offer the least protection of water resources by not recommending any rivers for the Wild and Scenic River designation and by not designating additional ACECs or SRMAs.

Under the No Action Alternative, closure of 20,160 acres to grazing would result in beneficial impacts on water quality in closed areas and downstream by reducing trampling, erosion, compaction, and release of other water quality contaminants from livestock. Fence construction, and rest or deferment provided to achieve rangeland and riparian goals and standards, would result in similar beneficial effects.

Rehabilitation actions would result in beneficial effects by increasing vegetative cover and soil stability. Juniper reduction activities could result in adverse or beneficial effects as described under “Impacts Common to All Alternatives—Vegetation Management Actions.” Some ground-disturbing actions, such as fence construction, could include construction-related erosion; sedimentation effects, decreased infiltration, and increased runoff could occur in the short term from these actions. However, measures would be implemented to minimize these effects, and the adverse effects would be outweighed by long-term beneficial effects, such as where fences are used to protect riparian and upland areas. Grazing and chemical treatments of vegetation could cause water quality issues if animal wastes or chemicals, respectively, were mobilized and entered waterbodies.

Increased recreational use of the field office area—at existing and new sites—could increase the effects from human use, including trampling, erosion, and release of human-related contaminants, such as bacteria and trash. These effects would be particularly acute for recreational use near water bodies that do not meet land health standards. Overall, minor adverse effects on water resources are expected to increase from baseline conditions.

Summary of Effects – No Action Alternative

The No Action Alternative would result in water quality trends continuing along their current trajectory and are not anticipated to result in either adverse or beneficial effects relative to baseline conditions. Under current management, adverse impacts on water resources from most resource programs generally would be temporary and would be limited to specific local areas where activities such as prescribed fires or vegetation treatments occur.

The program areas with greatest potential to adversely affect water resources would be those related to fire and fuels management, recreation, and livestock and wild horse grazing. Most activities would occur over very limited portions of the field office area. The activities could result in negative effects on water resources in the short term but would lead to ecosystem health and, in the long term, would benefit water resources through improved soil stability, improved hydrologic function, and other benefits afforded by healthy ecosystems. The potential for most large-scale mineral development in the field office area is generally low; however, planning projects to maintain water quality would ensure that impacts are negligible.

4.20.7 Alternative 1. Economic Development

Alternative 1 proposes several management activities that could result in adverse effects on water quality and it implements few management measures that would benefit water resources. As a result, land health standards would not be as readily achieved and would take a greater amount of effort to achieve.

Management measures under Alternative 1 related to water quality and hydrologic function would be similar to those of the No Action Alternative.

Withdrawal of water rights on sources that are not waters of the state could adversely affect beneficial uses supported by those water rights; however, the beneficial uses supported by the withdrawal of the water right in some cases could outweigh these adverse effects. In addition, the withdrawal could result in beneficial effects related to water quality and stream channel condition where flows are needed to support land health standards. Overall, water rights actions could result in adverse or beneficial direct impacts on water supply—and indirect impacts on water quality, flooding, and stream channel condition—depending on the specific proposal. Proposals with potential for adverse effects would be subjected to subsequent NEPA analysis that would identify the extent of effects. Implementation of 50-foot buffers around sensitive sites would help ensure that land health standards are maintained or progress toward meeting standards is accelerated relative to baseline conditions.

Fire resource management actions under Alternative 1 generally would be as described for the No Action Alternative. Fuels treatment plans would be similar to—but cover larger areas than—the No Action Alternative and are anticipated to result in generally beneficial effects by reducing the potential for catastrophic fires. The Eagle Lake Field Office would apply prescribed fire for fuels treatment on 1,500 acres annually, having indirect long-term major benefits to water resources. Fuels could be mechanically treated on 2,500 acres annually, resulting in further major long-term benefits. The benefits of the treatments would outweigh any major but short-term adverse impacts. Improperly managed chemical treatment could contaminate water. Improperly managed biological treatments (e.g. overgrazing by goats) could remove too much riparian vegetation and increase streambank erosion. BLM would intensely manage biological and chemical treatments on 1,000 acres per year. Therefore, any adverse effects would be minor and short term. But benefits to water resources would be moderate and both short and long term through enhanced recovery of the natural vegetation community and, therefore, hydrologic processes.

Silvicultural methods: commercial thinning, even-age management, uneven-age management, and precommercial thinning. 670 acres/yr would have major short-term adverse effects on water resources:

- soil compaction;
- decreased infiltration; and
- increased erosion, sedimentation, and runoff.

The result would be increased hydrologic modification and sediment loading to water bodies. However, all forest activities would be managed to protect water resources.

Recreation resources management actions under Alternative 1 would be similar to those under the No Action Alternative, except that a much smaller portion of the Eagle Lake Field Office area would be ‘open’ to OHV use, more semi-primitive non-motorized ROS would be designated, and more construction and maintenance of trails would occur. Under Alternative 1, off-highway vehicle (OHV) use would largely be ‘limited to existing roads and trails’, which would reduce the degrading of water resources where OHVs engaged in cross-country travel. The benefits to water resources of this restriction would be muted somewhat by the exceptions for off-road travel (i.e., for woodcutting and game retrieval).

Banning camping within 200 feet of water sources, sensitive plant locations, and cultural sites would benefit water resources in those areas by reducing trampling and related erosion and soil compaction.

Alternative 1 would designate two new acres of areas of critical environmental concern (ACECs), additionally benefiting water resources by focusing management attention within those areas. The Pine Dunes RNA would be designated as an ACEC.
Because Pine Dunes possesses unique botanical qualities, actions taken to preserve this area (e.g., fencing; acquisition of adjacent land; and no OHV use, grazing, or woodcutting) would protect soil resources in this area.

Alternative 1 also would recommend the Susan River, Upper Willow Creek, Upper Smoke Creek, and Lower Smoke Creek as eligible rivers for Wild and Scenic Rivers designation by Congress. In the short-term, the Wild and Scenic Rivers designation could result in increased visitation to the rivers, which potentially could lead to increased erosion or sedimentation through trampling activities. However, the long-term effects of the Wild and Scenic Rivers designation would be beneficial as the rivers and streams and their adjacent riparian and upland soils were allowed to return to their natural state.

Maintaining 1,715 miles of routes would moderately degrade water resources throughout the field office area. All adverse effects to water resources would be minimized through the use of best management practices (BMPs) or mitigated for offsite. Building an additional 15 miles of routes would cause short term sedimentation, and could effect water resources.

The smallest area is closed to grazing under Alternative 1 than under any other alternative (between 0 and 10,080 acres), resulting in the smallest degree of beneficial effect from such closures. In addition, no rest or deferment would be provided, and rehabilitation would be of limited scope compared with other alternatives—with fewer beneficial effects from such actions. Alternative 1 would construct up to 90 additional miles of fencing, the largest amount under any alternative, which would benefit soil resources by reducing disturbance in critical areas. Overall, in the short term and long term under this alternative, Standard 1 would not be readily achieved and would require the greatest amount of effort to achieve. Grazing management actions under Alternative 1 have the greatest potential to adversely affect soil resources of any alternative.

Summary of Effects – Alternative 1

Alternative 1 would foster the greatest degree of active use and development, resulting in minor to moderate adverse affects overall on water resources. Many of these uses would slow progress toward achieving land health standards. Livestock grazing would be increased, and required rest periods would be reduced. No exclosures would be constructed to protect sensitive riparian areas, or other water bodies.

Increased recreational use would result from the designation of two new SRMAs, and 277 miles of new non-motorized routes. Effects would increase near water sources from human use, including trampling, erosion, and release of human-related contaminants, such as bacteria and trash. However, management attention would focus on the natural resources of that area and this would mitigate impacts.

Minor benefits would also result from this alternative. (OHV) use would largely be ‘limited to existing roads and trails’, which would reduce the degrading of water resources where OHVs engaged in cross-country travel. Banning camping within 200 feet of water sources, sensitive plant locations, and cultural sites would benefit water resources in those areas by reducing trampling and related erosion and soil compaction.

Fuels treatment plans would be similar to—but cover larger areas than—the No Action Alternative and are anticipated to result in generally beneficial effects by reducing the potential for catastrophic fires. Impacts from energy and mineral development, and wild horse use are similar to No Action.

4.20.8 Alternative 2. Ecosystem Restoration

Alternative 2 would result in 56,782 acres managed as CRMAs, and these would be expanded where possible. As a result, the indirect benefits to water resources associated with such management would occur over a larger area than under other alternatives. Implementation of existing CRMPs and development of additional CRMPs would focus management attention on these areas, and would help maintain water quality and support land health standards. Where CRMPs are located in areas where waterbodies do not currently meet standards, these CRMPs could help improve progress toward meeting standards.

The fire and fuels management actions in Alternative 2 would result in much greater beneficial effects than those in the No Action Alternative and Alternative 1 by reducing the areas of full suppression and increasing the areas that would have AMR, prescribed fire, and fuels treatment. Alternative 2 would implement appropriate management response (AMR) to wildland fires on 730,124 acres and wildland fire use (WFU) on 10,339 acres. These actions would reduce fuel loads and create a more natural fire regime, with reduced potential for catastrophic fires, which could degrade water resources. Prescribed fire for fuels treatment could be applied on 4,500 acres annually, having major benefits to water resources in the long term. Fuels would be mechanically treated on 3,500 acres annually, resulting in further moderate long-term benefits. The benefits of the treatments would outweigh the moderate but short-term adverse impacts from mechanical treatment. There would be a substantial reduction in the potential for catastrophic fires under this alternative, with resultant indirect effects on water resources.

Management actions for soil resources under Alternative 2 would result in impacts similar to those under Alternative 1; however, beneficial effects would be greater from implementing larger buffers (100 feet) and from restricting new construction to locations with the least impact on resources, including water resources.

Wildlife and fisheries management actions under Alternative 2 include juniper reduction, biological weed control, natural fire, building nesting structures and fencing, developing new reservoirs, maintaining/enhancing water sources, constructing nesting islands, and improving springs not in PFC. Alternative 2 would result in the greatest potential to adversely affect water resources in the short term through the more active approach to habitat rehabilitation and improvement—and the associated ground-disturbing activities associated with grazing, fire, juniper removal, fence construction, weed control and construction in waterbodies. In the long-term, however, management actions for terrestrial and aquatic wildlife under Alternative 2 would result in the greatest benefits to water quality.

The effects of water resources management actions under Alternative 2 would be a more active approach to ecosystem restoration that is likely to result in relatively quick progress toward meeting land health standards, and benefits would be more pronounced in both the short term and long term. Uses would be allowed only where they would result in unimpeded progress toward standards; in streams with water-quality-limited segments, uses would be allowed only if they promote recovery. Rehabilitation would focus on natural processes and would not involve actions where these processes are not effective. To the extent that this approach would eliminate needed management action in impaired areas, beneficial effects would be reduced. However, overall, management actions for water resources under Alternative 2 would result in substantially greater beneficial effects on water quality by more actively fostering progress toward land health standards.

Closures to livestock grazing could comprise more than 30,000 acres, which is the largest area of any alternative, with the correspondingly greatest beneficial effects. In addition, every allotment would be rested for 2 out of every 3 years, which would greatly improve maintenance of and progress toward land health standards.

No new seedings would be conducted, however, and the beneficial effects related to soil stabilization from seeding under other alternatives would not occur. Nevertheless, grazing management actions under Alternative 2 would be the most beneficial overall and would greatly improve progress toward proper functioning condition (PFC) in impaired areas.

Largely limiting off-highway vehicle (OHV) use to designated roads and trails would eliminate adverse impacts of certain roads to water resources in areas where OHVs travel cross country. Closing 301,644 acres to OHV use for cultural, wildlife, and riparian concerns would better protect water resources. About 300,382 acres would have Recreation Opportunity Spectrum (ROS) designations of primitive , which would result in major short and long term benefits to water resources in areas subject to those designations by eliminating motorized vehicle use. A small amount of new trails would be constructed (15.5 miles), and speed restrictions on boats would be implemented on Eagle Lake. Overall effects of the recreation management actions under Alternative 2 would result in long term decreases in erosion, sedimentation, and runoff from ROS designations; decreases in short-term impacts from construction-related activities to build trails; and water quality benefits in Eagle Lake from speed restrictions through reduced generation of turbidity and shoreline erosion.

Alternative 2 includes designating seven areas as ACECs, for a total of 89,397 acres. Designation of these areas as ACECs presumably would lead to restriction of activities in these areas that could cause erosion or sedimentation, and is expected to result in an increased protection of water resources. Alternative 2 includes recommending that Susan River, Upper Willow Creek, Upper Smoke Creek, and Lower Smoke Creek are eligible rivers for the Wild and Scenic River designation by Congress. Short term effects of the Wild and Scenic River designation could include increased visitation to the rivers, which could lead to water contamination from human use. However, the long-term effects of the Wild and Scenic River designation would be beneficial as the rivers and streams were allowed to return to their natural state. Alternative 2 would offer the greatest protection of water resources because of its ACEC designations and recommendations for designation as Wild and Scenic Rivers.

Summary of Effects – Alternative 2

Alternative 2 would result in a major beneficial effect on water resources overall, resulting from a substantial degree of environmental protection, including many measures that would specifically protect water resources. Uses would be allowed only where they would result in unimpeded progress toward standards; in streams with water-quality-limited segments, uses would be allowed only if they promote recovery. In some cases, however, the focus on natural processes would preclude the use of needed management action, resulting in the unintended consequence of impairing progress of water bodies toward meeting land health standards.

Allowing grazing in only one of three years would greatly benefit water resources through increased vegetative cover, improved channel condition, improved hydrologic function, and reduced water quality contaminants originating from livestock. Significant restrictions on OHV use and closure of routes would reduce potential impacts on water resources from cross-country travel, and route proliferation. More restrictions on mineral development in the form of closures or No Surface Occupancy (NSO) stipulations also would reduce potential impacts on water quality in these areas. Beneficial effects would also result from implementing 100-foot buffers zones and restricting new construction to locations with the least impact on water resources.

The fire and fuels management actions in Alternative 2 would result in much greater beneficial effects than those in No Action and Alternative 1 by reducing the areas of full suppression and increasing the areas that would have appropriate management response (AMR), prescribed fire, and fuels treatment. These actions would reduce fuel loads and create a more natural fire regime, with reduced potential for catastrophic fires, which would degrade water resources. Wild horse use would be managed to meet appropriate management levels, which would reduce impacts to water sources over the long term.

4.20.9 Alternative 3. Traditional Uses

Management actions and associated impacts under Alternative 3 are very similar to those described for the No Action Alternative. The area of fuels treatment (500 acres/year for prescribed fire, 2,500 acres/year for mechanical treatment) would help promote the natural fire regime and more productive rangelands with less soil degradation. Over the life of this RMP, 200,000 acres (40% of the field office area) could be treated mechanically or with prescribed fire. Annual biological and chemical treatments on 500 and 1,500 acres, respectively, would be intensely managed. Therefore, any adverse effects would be minor and short term. Combined adverse effects over the life of the plan would be major but short term. Long-term moderate benefits would outweigh any short-term adverse effects.

Timber harvesting on 300 acres would result in short-term adverse effects to water resources such as decreased infiltration and increased erosion, sedimentation, runoff, and soil compaction, decreasing soil/site stability and soil productivity. Timber operations would not be designed to enhance wildlife habitat or late seral stages, as in other alternatives.

Similar to the No Action Alternative, 'open' OHV use would be allowed on 57% of BLM administered lands. Soil erosion and sedimentation disturbances from cross-country travel would be moderate to major and long term. OHV use is likely to result in continued degradation of water resources due to compaction and erosion associated with OHV travel—both on roads and trails and in cross-country areas.

The effects of recreation resources management actions under Alternative 3 would be similar to those of Alternative 1. ROS designations would focus on semi-primitive as opposed to primitive uses, which would slightly increase the potential for impacts related to recreational uses. Alternative 3 also would result in the smallest amount of new trail construction, with correspondingly small adverse effects associated with such construction and trail use.

Management actions under Alternative 3 include designation of the Pine Dunes and Aspen Groves ACECs (2,905 acres) and making no recommendations for eligible rivers as suitable for Wild and Scenic River designation by Congress. Alternative 3 is very similar to the No Action Alternative. Both alternatives would offer the least protection of water resources by not recommending any rivers for the Wild and Scenic River designation and by continuing to manage other potential ACEC areas as they are currently managed.

The effects of grazing management actions under Alternative 3 would be similar to the No Action Alternative. Only 30% of all grazing allotments would be rested on an annual basis. Impacts to water resources from livestock would be moderate to major and long term. Because less rest or deferment would be provided, progress toward meeting land health standards in impaired areas would be slowed. Management actions for grazing under Alternative 3 therefore have the greatest potential for adverse effects on water resources of any alternative.

Summary of Effects – Alternative 3

Alternative 3 would result in moderate adverse impacts to water resources from 'open' OHV use and additional livestock grazing. OHV use is likely to result in continued degradation of water resources due to compaction and erosion associated with OHV travel—both on roads and trails and in cross-country areas.

Livestock grazing would be allowed without required rest periods and without exclosures to protect sensitive resources. Grazing actions would be difficult to mitigate without some rest periods required, and intense management actions–increased herding, fencing, vegetation treatment, and water development–would be required to maintain land health standards.

Grazing actions would be difficult to mitigate without some rest periods required, and intense management actions–increased herding, fencing, vegetation treatment, and water development–would be required to maintain land health standards. Unless livestock grazing practices are intensely managed, Alternative 3 would result in moderate short and long term adverse effects on water resources, particularly in sensitive areas such as riparian areas.

4.20.10 Preferred Alternative

Effects of fire and fuels management actions under the Preferred Alternative would be similar to those of Alternative 2 due to the similar management approach. However, the emphasis on monitoring would result in greater long-term benefits to water quality as the effects of fire are better understood and adaptive management is implemented.

Under the Preferred Alternative, the large area proposed for the full range of fire suppression options (282,304 acres) and small acreage proposed for wildland fire use (WFU) would reduce the potential for catastrophic fire over the field office area. The area of fuels treatment (4,500 acres per year for prescribed fire, 3,500 acres per year for mechanical treatment) would help promote the natural fire regime that would produce a natural vegetation component and enhanced soil structure to indirectly support natural hydrologic and water quality processes.

Over the life of the plan, 200,000 acres (40% of the field office area) could be treated mechanically or by prescribed fire. BLM would intensively manage biological and chemical treatments on 1,500 and 500 acres per year, respectively. Therefore, any adverse effects would be minor and short term. Combined adverse effects over the life of the plan would be major but short term. Beneficial long-term effects would outweigh any adverse effects.

Mechanical treatment of juniper and harvesting timber on 1,100 acres/yr, and reforestation efforts could result in major short-term adverse effects on water resources such as decreased infiltration and increased runoff, erosion, soil compaction, and sedimentation. The result would be decreases in streambank stability and water quality. But BLM would design timber and juniper operations to protect water resources. In addition, over the long term, artificial regeneration and establishing of the natural sagebrush-steppe community would increase vegetation cover, with corresponding benefits to water resources over a major area.

Prescribed burning on 4,500 acres might moderately increase erosion and runoff on a short-term basis, but long-term benefits would outweigh any adverse effects. But the resulting long-term benefits to water resources from removing juniper would compensate for these adverse effects.

OHV use would be largely ‘limited to existing or designated roads and trails’, which would minimize adverse impacts to certain roads and to water resources where OHVs travel cross country. A total of 261,511 acres would be closed to OHV use for cultural, riparian, wildlife, and wilderness characteristics concerns. This closure would provide more water resource protection. About 237,953 acres would have ROS designations of primitive. These designations would have major short and long-term benefits to water resources by eliminating motorized vehicle use.

The ACEC designation for 89,397 acres would provide more protection for water resources and would result in moderate short- and long-term benefits to water quality and hydrology.
In addition, the Preferred Alternative recommends 10.6 miles of wild and scenic river segment of Upper Smoke Creek. This designation would have corresponding benefits to water resources in those areas.

Effects of management actions related to water quality and hydrologic function under the Preferred Alternative would be similar to those under the No Action Alternative. Additional focus on a variety of management practices to achieve PFC would result in increased progress toward meeting land health standards. The effects of water rights actions would be most similar to Alternative 2. Exclosures around springs, riparian areas, and contributing uplands would result in additional beneficial effects. Assertion of instream flow and riparian rights would result in benefits to flows overall. Water resources management actions of the Preferred Alternative represent a coordinated and comprehensive approach to water resources management, and are anticipated to result in benefits that are similar to those of Alternative 2.

Summary of Effects – Preferred Alternative

The Preferred Alternative provides many measures to improve land health—similar to Alternative 2, and would result in minor adverse effects and moderate to major beneficial impacts to water resources. Additional focus on a variety of management practices to achieve proper functioning condition would result in increased progress toward meeting land health standards.

Exclosures around springs, riparian areas, and contributing uplands would result in additional beneficial effects. Assertion of instream flow and riparian rights would result in benefits to water resources overall. A larger variety of management practices would be used to manage fisheries, including removal of cattle from areas where they are affecting water quality and stream channel condition. This approach is expected to result in substantial short-term and long-term beneficial effects on water resources in these areas.

Major improvements to livestock grazing strategies and land health would be made, resulting in the restoration of riparian areas and springs. Recreation identifies most of the field office area as primitive or backcountry to emphasize recreation opportunities in natural settings. OHV use would be restricted, and the potential for water resources impacts related to cross-country OHV use would be very low. Significant restrictions on OHV use and closure of routes would reduce potential impacts on water resources from cross-country travel, and route proliferation.

Beneficial effects would also result from implementing >50-foot buffers zones and restricting new construction to locations with the least impact on water resources.

4.20.11 Comparative Summary of Impacts

Overall, the Preferred Alternative would result in the least adverse impacts to water resources because management actions under this alternative would be most focused on resource protection and improvement. The Preferred Alternative would more restrict activities that could significantly degrade water resources than would the other alternatives. The effects of the Preferred Alternative are generally similar to those of Alternative 2.

But the Preferred Alternative would implement fewer protective measures that would benefit water resources. The No Action Alternative and Alternative 3 are generally expected to have the greatest potential for adverse effects on water resources because of their lack of protective actions. Alternative 1 offers the second most number of measures to protect water resources, but its increased level of development and use might negate some of the benefits.

4.20.12 Cumulative Effects

Cumulative effects are mainly expected where water bodies do not meet land health standards (on BLM-administered lands) or are designated as impaired under the Clean Water Act, Section 303(d) (on both BLM- and non-BLM-administered lands). Water bodies meeting this definition are listed in Chapter 3. In such areas, any management action that can impede the meeting of land health standards would adversely affect water quality. Such impacts are not considered substantial.

Land uses on areas surrounding BLM holdings could generate adverse effects on water resources. These effects could be exacerbated by BLM actions with similar potential adverse effects. Known activities and conditions on non-BLM-administered lands in the Eagle Lake Field Office area include the following:

- conversion of sagebrush and other habitats to agricultural or residential use,
- invasions of noxious weeds,
- juniper treatments,
- logging and road building,
- livestock grazing,
- water use, and
- wildfire.

In approving specific activities and implementing suitable measures and management practices for lands it administers, BLM would consider these adjacent uses and the potential for BLM's activities to exacerbate potential cumulative adverse impacts. Therefore, although some cumulatively considerable effects might result from BLM activities in combination with other land uses, such effects are expected to be minor.

4.20.13 Mitigation Measures

All resource uses that could degrade water resources would employ best management practices (BMPs) to minimize potential adverse effects. Where adverse effects cannot be avoided and disturbed resources would not naturally recover, they would be mitigated for by providing improvement equal in value to the area disturbed elsewhere in the field office area.

4.20.14 Unavoidable Adverse Impacts

Resource uses of most concern would be livestock grazing, wild horse and burro use, new road construction, and OHV use, because of their potential for localized and widespread surface disturbance. Actions with similar but smaller adverse effects are related to forestry, issuing rights-of-way, and mineral extraction because these actions would disturb smaller areas.

Fire and fuels management has a great potential to degrade water resources, but natural recovery of watersheds and benefits to water resources following fire and fuel uses would outweigh these effects.

4.20.15 Short-Term Uses Versus Long-Term Productivity

Short-term uses resulting in adverse impacts to water resources–such as vegetation and juniper treatments and fire use–would generate enhanced long-term productivity.

4.20.16 Irreversible and Irretrievable Impacts

None.

4.21 Potential Effects on Wild Horses and Burros

This section describes the direct, indirect, and cumulative effects on wild horses and burros of land use decisions under the alternatives. Impacts from decisions concerning air quality, wildland fire management, noxious weeds and special status plants, visual resources, forestry, wild and scenic rivers and boating would have negligible or minor impacts on wild horses and burros. Therefore, these subjects are not being discussed further in this analysis. Impacts from decisions concerning fuels management, soils, wildlife, vegetation, water resources, wild horses and burros, recreation, and livestock grazing could affect wild horses and burros.

4.21.1 Methodology and Assumptions

This impact assessment is based on the assumption that the existing wild horse and burro appropriate management levels (AML) would remain at their current levels under all alternatives unless changes are required because of the need to comply with land health standards. BLM would successfully manage herds within the AML range under all alternatives.

Although herd sizes would be maintained at AML, management actions that increase the availability of forage could provide forage for wild horses and burros. Such actions are considered to benefit wild horses and burros by increasing the health of individuals and reducing the potential that carrying capacity could drop below AMLs during drought periods. Increased forage is considered a benefit, despite the general recognition that water availability rather than forage is most limiting to wild horse and burro populations.

4.21.2 Incomplete or Unavailable Information

The analysis of effects assumes that the AMLs for the three herd management areas are appropriate and would be maintained over time. If monitoring determines the AMLs are not appropriate, then they may be adjusted up or down. Adequate information is available to address the impacts of other resource program actions on wild horses and burros at the planning level of the RMP.

4.21.3 Analysis

This analysis defined the levels of effects on wild horses and burros as follows.

Negligible: Wild horses and burros would not be affected, or the effects would be at or below the level of detection. Impacts would be so slight that they would not be of any measurable or perceptible consequence to the population, health, distribution, or wild free-roaming character of the animals.

Minor: The effects on wild horses and burros would be detectable but localized, small, and of little consequence to the population, health, distribution, or wild free-roaming character of the animals. Mitigating measures, if needed to offset adverse effects, would be simple and successful.

Moderate: The effects on wild horses and burros would be readily detectable and localized, with consequences to the population, health, distribution, or wild free-roaming character of the animals. Mitigating measures, if needed to offset adverse effects, would be extensive and probably successful.

Major: The effects on wild horses and burros would be obvious and would result in substantial consequences to the population, health, distribution, or wild free-roaming character of the animals.

Extensive mitigating measures would be needed to offset adverse effects, and their success would not be guaranteed.

4.21.4 Impacts Common to All Alternatives

Cultural resources would be located at the project level, and impacts would be mitigated as needed. Proposed management for cultural resources would benefit wild horses and burros by restricting uses and activities in areas where horses and burros occur.

Management emphases for protecting or restoring soil conditions would have minor impacts to wild horses and burros across all alternatives. Although the degree of emphasis on soil health varies between alternatives, the restrictions for heavy equipment, tools used for recovering areas in degraded condition, and road placement would overall benefit wild horses and burros by limiting activities to the most suitable soils. BLM would manage horses and burros at appropriate management levels (AML) and would adjust these levels should impacts to soils be attributed to wild horses or burros.

Wildlife management actions that emphasize habitat improvement in uplands and riparian areas, as well as reductions of invasive juniper, cheatgrass, and other annual grasses, would benefit wild horses and burros by also improving forage conditions and potential water availability. Maintenance of existing exclosures (> 40 acres each) that encompass a total of 2,200 acres would not affect wild horses or burros because horses have become accustomed to their presence. New exclosures would need to be analyzed at the project level and specifics determined to minimize impacts from new fence construction, including possible changes in herd movement and changes in access to water.

Proposed land acquisitions would benefit wild horses and burros under all alternatives by minimizing management problems with use of private lands within herd management areas by wild horses and burros. Land disposals, rights-of-way, and utility corridor management actions, as described, would negligibly affect wild horses and burros.

Gathering horses and burros in response to stabilization and rehabilitation plans for wildfire and vegetation treatments would temporarily and slightly (minor impact) lower herd numbers. Exclosure fences to protect treated areas might impede movement within HMAs, depending on the exclosure size.

4.21.5 No Action Alternative

The No Action Alternative places few restrictions on wild horses and burros. Herd management areas (HMAs) would continue to be managed with regular gathers to maintain herd numbers within appropriate management levels and, when necessary, for rehabilitation after wildfire. Livestock grazing would continue with intensive management on portions of some allotments, including building new fences and water developments. Livestock and horses would continue to compete for forage and water. Where land health standards are not being met, wild horse and burro management would address issues when recognized.

Fuels management would have minor impacts to wild horses and burros under the No Action Alternative. Proposed treated acres (<500) would have negligible impacts to any of the herd management areas, due mainly to the size of the treatments. All herd management areas (HMAs) are large enough so that even one project area of 500 acres would not impair the movement, distribution, or forage availability for the horses near the treatment.

Under current management, prescribed fire, small herbicide applications, and wildland fire Emergency Stabilization and Rehabilitation funds are tools used to restore unhealthy or "at risk" vegetation alliances or ecological sites to a desired condition. Wild horses and burros are considered in project analyses of this type and are managed to minimize the impacts to the project.

No Action Alternative would give the same considerations to future projects for vegetation management. Thus, negligible impacts to wild horses and burros are expected.

Designating the Aspen Groves ACEC would require fencing and could have minor impacts to wild horses and burros by restricting movement within their herd areas on 2,719 acres of small, scattered groves. Because aspen groves often grow around springs or in riparian areas, fencing them could limit access to some water sources.

Wild horses and burros would continue to degrade water resources, including springs and riparian areas, but at lower levels when herds are maintained within appropriate management levels. As long as there is progress toward attaining water quality and riparian objectives, restrictions would have minor effects on wild horses and burros. The emphasis of providing more water developments and storage for livestock, wildlife, and wild horses on an as-needed basis would benefit wild horses and burros by increasing the potential water sources available, potentially improving distribution within an HMA.

Management actions for energy and minerals leasing would not affect wild horses and burros under the No-Action Alternative.

Recreation involving motorized and non-motorized uses, wilderness study areas (WSAs), and special recreation management areas (SRMAs) would continue. Human-horse encounters in remote areas would continue to be limited. Opportunities for encounters in accessible areas would be slightly greater. The Fort Sage SRMA overlaps the Fort Sage HMA. Current management actions negligibly disturb wild horses, mainly due to the intermittent, dispersed nature of the uses within the SRMA and the ability of the horses to move away from temporary concentrated uses such as special events.

4.21.6 Alternative 1. Economic Development

The Economic Development Alternative emphasizes commodity production. Thus vegetation management, grazing, and recreation emphasize activities intended to promote more use of resources through the following:

- improved forage condition and production,
- increased forage utilization by livestock, and
- increased opportunities for recreation throughout the field office area.

Similarly, BLM would manage wild horses and burros to promote and increase the adoptability of animals gathered from all three HMAs. Historical traits would not be emphasized for horses returned to the range. Traits most likely to produce highly adoptable animals, such as color and conformation, would be emphasized. Improvements at the Litchfield Corral Facility would focus on promoting public viewing and adoption of animals.

Proposed fuels management, including prescribed fire and mechanical, biological, and chemical treatments, would impose potentially moderate adverse impacts to wild horses. The HMAs most likely affected would be Fort Sage or New Ravendale because of their size (~ 15,000 acres each).

If large treatment areas (1,500-2,500 acres) overlap either of these HMAs, available forage and movement within the HMA could be limited until vegetation objectives are achieved. Most treatments would restrict grazing by either removing animals or fencing the project area.

Management practices proposed to improve vegetation condition and productivity, restore unhealthy ecological sites, and treat juniper and unique vegetation associations, could improve overall habitat conditions for wild horses and burros. Adverse impacts immediately following initial treatments could be minor because of grazing restrictions.

Designating the Aspen Groves ACECs would require fencing and could impose minor adverse impacts on wild horses and burros by restricting movement within their herd areas on 2,719 acres of small scattered groves. Because aspen groves often grow around springs or in riparian areas, fencing could also limit wild horse and burro access to some water sources.

Impacts from managing water resources and supply to wild horses and burros would be similar to those under the No Action Alternative. Wild horses and burros would continue to degrade water resources, including springs and riparian areas, but at acceptable levels when animal numbers are maintained within appropriate management levels. As long as there is progress toward attaining water quality and riparian objectives, restrictions would only slightly (minor impact) adverse impacts wild horses and burros. The emphasis on providing more water developments to improve livestock distribution would benefit wild horses and burros by increasing potential water sources available to horses when livestock are not present. This increase could improve the distribution of horses within an HMA.

Management actions for energy and minerals leasing would not affect wild horses and burros under the Economic Development Alternative. Areas closed or with seasonal closures for leasable, locatable, or saleable minerals are either closed because of other designations or do not overlap a herd management area.

Livestock grazing could increase by 10-15% above current use levels, having the potential to moderately decrease the amount of forage available for wild horses and burros. The availability of resources to wild horses and burros would decline as a result of the following:

- more forage use by livestock,
- possible extended seasons of livestock use over more acres,
- extended livestock use of water sources, and
- fewer acres unallocated to livestock grazing.

Building 60 to 90 miles of new fences could moderately impede the ability of wild horses and burros to move unimpaired throughout their areas.

The recreation emphasis on managing special recreation management areas (SRMAs) at Fort Sage and designating a new SRMA in the Dry Valley Rim area could cause a minor disturbance to the wild horses and burros in those areas. Increased use by off-highway vehicle (OHV) riders, hikers, equestrians, and sightseers could increase human-horse encounters and disturbance in areas previously less used by the public. But restricting motorized use to designated routes could keep disturbance negligible by providing areas of limited use where horses and burros could remain mostly undisturbed. Building 81 miles of new non-motorized routes within wilderness study areas (WSAs) could also create minor impacts in portions of the WSAs previously inaccessible to most of the public by increasing the chance of human-horse encounters.

4.21.7 Alternative 2. Ecosystem Restoration

The Ecosystem Restoration Alternative emphasizes resource management through ecosystem restoration. Wild horses and burros would be affected by the following:

- greater restrictions on uses that affect water resources and riparian areas,
- more use of fuels management for habitat restoration,
- decreased livestock grazing, and
- eliminating one of the three herd management areas.

Increased emphasis on restoring ecosystems and habitats that are not fully functioning or are unhealthy would both effect and benefit wild horses and burros. The potential for large acreages (up to 4,500 acres) to be treated with prescribed fire and mechanical, biological, or chemical treatments in any one year could moderately disturb wild horses and burros for the short term immediately following treatment. If the same area is similarly treated during later years, or multiple treatments occur in the same vicinity during consecutive years, the impacts would become greater and extended over a longer timeframe.

Removing horses from an area to allow vegetation treatments to be effective would require more wild horses and burro gathers more often than those proposed every 3 years. Gathering too often can stress animals by

- mixing individual bands of horses,
- splitting mares and foals, and
- increasing potential injuries caused by gather operations on the range, at the gather site, and during transportation.

Fencing to protect vegetation treatments could have varying degrees of impact, depending on the HMA. The Twin Peaks HMA, being the largest in the field office area, provides more flexibility for the horses to adjust to temporary fences and allows them to better redistribute themselves within the HMA and adjust movement patterns. The Fort Sage HMA is much smaller. New fences could greatly (major impact) impede animal movement between forage areas and water sources. In the long term, vegetation treatments to restore unhealthy ecosystems, protect unique vegetation associations, and improve habitat conditions would benefit wild horses and burros by

- increasing desirable vegetation,
- protecting soils,
- reducing the potential for invasive species, and
- increasing the overall productivity of the range for wild horses and burros.

Under Alternative 2, managing water resources and supply would have minor to moderate adverse effects on wild horse and burro management. If monitoring determines that wild horses and burros are preventing "unimpeded progress toward achieving hydrologic and water quality goals and objectives," management actions such as fences, exclosures, and gathers could moderately disturb wild horses and burros by blocking their access to water, restricting movement, and reducing animal numbers.

Alternative 2 would benefit wild horses and burros. These animals would benefit if the emphasis on developing water sources and extending seasonal availability for wildlife is expanded to provide those water sources for horse and burro use. The potential 70% reduction in livestock AUMs annually would benefit wild horses and burros. Rest and deferment from livestock grazing would improve overall forage conditions, improving wild horse and burro habitat.

Seasonal competition for water sources would also decline. Over time, the general health of the herds is expected to improve. The livestock grazing allotments within HMAs are managed with intensive grazing systems already, so few adjustments in the existing grazing strategies would be needed to meet Alternative 2's requirements.

Other fences needed for livestock control could moderately effect wild horses and burros by limiting their movement within the HMA. Other water sources might be developed and would benefit horses and burros. But if livestock operators cannot graze their allotments for 2 out of 3 years, they might not annually maintain some water sources, possibly harming wild horses and burros.

The Ecosystem Restoration Alternative proposes to gather all horses from the New Ravendale HMA and no longer manage it for wild horses. Alternative 2 also proposes the following:

- no management for historical characteristics of individual herds,
- no public education or interpretation of wild horses and burros in the ecosystem, and
- no development of public viewing opportunities.

BLM would manage wild horses and burros to best improve overall ecosystem health. Eliminating the New Ravendale HMA would remove at most 25 head of wild horses from management. From a population perspective, this would be a negligible impact. But the New Ravendale HMA has the potential to promote an understanding of wild horse and burro management to the public because of the HMAs closeness to a well-traveled state highway. Alternative 2 would not promote BLM's wild horse and burro program. In the long term, less public understanding of wild horse and burro management could have a minor adverse impact to wild horses and burros because of a lack of public support for the program as a whole.

Impacts from energy and minerals management under the Ecosystem Restoration Alternative would involve the Fort Sage Special Recreation Management Area (SRMA) and the North Dry Valley Area of Critical Environmental Concern (ACEC). Impacts would be minor because of greater restrictions or closures of these areas to leasable, locatable, and saleable mineral extraction on 38,000 acres within the Fort Sage and Twin Peaks HMAs. Alternative 2 would reduce or eliminate disturbance from exploration, development, and removal of minerals within these areas.

Impacts from recreation management under the Ecosystem Restoration Alternative would be similar to those under No Action. Recreation involving motorized and non-motorized uses, wilderness study areas (WSAs) and special recreation management areas (SRMAs) would continue. Human-horse encounters in remote areas would continue to be limited, and opportunities for encounters in accessible areas would slightly increase. The Fort Sage SRMA overlaps the Fort Sage HMA. Current management actions only negligibly disturb wild horses, mainly because of the intermittent, dispersed nature of uses within the SRMA and the ability of horses to move away from temporary concentrated uses such as special events.

4.21.8 Alternative 3. Traditional Uses

The Traditional Uses Alternative emphasizes traditional uses of resources, combined with mitigation and protective measures for resource protection.

Adverse impacts to wild horses and burros from fuels management, habitat restoration, and vegetation improvement projects would be minor to moderate under Alternative 3. Prescribed fire would be proposed on fewer acres (<500) than under the No Action or Economic Development Alternatives.

Mechanical and biological treatments would be applied to fewer acres than under the Ecosystem Restoration Alternative, but the same acreage as under the Economic Development Alternative. Chemical treatments would be applied on more acres (as much as 1,500) than under any other alternative. Protecting treated acres from wild horses and burros to allow for recovery would require either (1) removal by gathering or (2) fencing to keep horses off treated acres. As under the other alternatives, size, location, and duration of protection measures would determine the extent of impacts to the movement and distribution of horses and burros within their herd areas.

Over the long term, vegetation treatments to restore unhealthy ecosystems, protect unique vegetation associations, and improve habitat conditions would benefit wild horses and burros by doing the following:

- increasing desirable vegetation,
- protecting soils,
- reducing the potential for invasive species, and
- increasing the overall productivity of the range for wild horses and burros.

Impacts to wild horses and burros from management actions for water resources and supply would be the same as under the No Action Alternative. Wild horses and burros would continue to degrade water resources, including springs and riparian areas, but at lower levels when maintained within appropriate management levels. As long as there is progress toward attaining water quality and riparian objectives, restrictions would only slightly (minor impact) effect wild horses and burros. The emphasis of providing more water developments and storage for livestock on an as-needed basis would benefit wild horses and burros by increasing potential water sources available, potentially improving distribution within an HMA.

Under the Traditional Uses Alternative, wild horse and burro management would be similar to that under the No Action Alternative, negligibly affecting wild horses and burros. BLM would do the following:

- manage three herd management areas at appropriate management levels,
- conduct regular gathers,
- emphasize historical traits in horses returned to the HMA, and
- develop the Litchfield Corral Facility to promote public education and interpretation.

Alternative 3 is most similar to the No Action Alternative for impacts from energy and minerals management. Acreages managed for locatable and saleable minerals would be the same and would not affect wild horses and burros. Acreage open but with seasonal or other restrictions for leasable mineral activities would increase, having a minor adverse impact on wild horses and burros within the Twin Peaks HMA, which overlaps the North Dry Valley ACEC (10,156 acres). Greater restrictions on activities–including exploration, development, and removal of minerals within this area–would lessen and control impacts to wild horses and burros from mineral activities.

Livestock grazing impacts to wild horses and burros under Alternative 3 would be similar to those under the No Action and Economic Development Alternatives. Moderate adverse impacts would result from less emphasis on intensive livestock grazing strategies and the use of currently unallocated lands for livestock grazing. Although total permitted AUMs would not increase, the potential for all permitted AUMs to be used would decrease available forage for wild horses and burros. With increased use of AUMs, livestock water sources might also be depleted, changing how horses and burros use undeveloped springs and water sources. As under all the alternatives, building new fences to control livestock movement would moderately impede the movement and distribution of wild horses and burros within their herd areas.

Impacts to wild horses and burros from recreation management under the Traditional Uses Alternative would be the same as under the No Action and Ecosystem Restoration Alternatives. Recreation involving motorized and non-motorized uses, wilderness study areas (WSAs), and special recreation management areas (SRMAs) would continue. Human-horse encounters in remote areas would continue to be limited, but opportunities for encounters in accessible areas would slightly increase. The Fort SRMA overlaps the Fort Sage HMA. Current management actions only negligibly disturb the wild horses, mainly due to the intermittent, dispersed nature of recreation uses within the SRMA and the ability of the horses to move away from temporary concentrated uses such as special events.

4.21.9 Preferred Alternative

The Preferred Alternative emphasizes resource management through commodity production combined with mitigation and protective measures for resource protection. Preferred alternative management actions that affect wild horses and burros are most like those under Alternative 2.

Wild horses and burros would be managed most like under the No Action and Traditional Uses Alternative. BLM would maintain three HMAs at appropriate management levels, emphasizing the historical traits of each herd. Emphasis would be given to promoting public education and interpretation of the wild horse and burro program. Facilities would be developed for the adoption program and for public viewing of wild horses and burros in their natural habitat.

Increased emphasis on restoring ecosystems and habitats that are not fully functioning or are unhealthy would both harm and benefit wild horses and burros. The potential for large acreages (up to 4,500 acres) to be treated with prescribed fire and mechanical, biological, or chemical treatments in any one year could moderately effect wild horses and burros for the short term immediately following treatment. If similar treatments occur in the same area during later years, the impacts would become greater and extended over a longer timeframe.

Removing animals from an area to allow vegetation treatments to be effective would require more gathers of wild horses and burros more often than the proposed 3-year interval. Fencing to protect vegetation treatments could have varying degrees of disturbance, depending on the HMA. The Twin Peaks HMA, being the largest HMA in the field office area, provides more flexibility for horses to adjust to temporary fences and allows them to better redistribute themselves within the HMA and adjust movement patterns. The Fort Sage HMA is much smaller than the Twin Peaks HMA. New fences in the Fort Sage area could greatly impede (major impact) animal movement between forage areas and water sources.

In the long-term, vegetation treatments to restore unhealthy ecosystems, protect unique vegetation associations, and improve habitat conditions would benefit wild horses and burros by doing the following:

- increasing desirable vegetation,
- protecting soils,
- reducing the potential for invasive species, and
- increasing the overall productivity of the range for wild horses and burros.

Managing water resources and supply would slightly affect (minor impacts) wild horse and burro management. As long as there is progress toward attaining water quality and riparian objectives, restrictions would have minor adverse impacts to wild horses and burros. The emphasis on providing more water developments to improve livestock distribution would benefit wild horses and burros by increasing the potential water sources for horses when livestock are not present, potentially improving distribution of horses within an HMA.

Management activities such as building new fences, establishing exclosures, and gathering horses could moderately effect wild horses and burros by

- blocking their access to water,
- restricting their movement, and
- reducing animal numbers.

But the Preferred Alternative could benefit wild horses and burros with its emphasis on developing water sources and extending seasonal availability for wildlife, by also providing those water sources for horse and burro use.

Adverse impacts from energy and minerals management under the Preferred Alternative would involve the Fort Sage and South Dry Valley Special Recreation Management Areas (SRMAs), and the North Dry Valley ACEC. Impacts would be minor due to greater restrictions on or closure of these areas to leasable, locatable, and saleable minerals on 85,000 acres within the Fort Sage and Twin Peaks HMAs. Greater restrictions on activities, including exploration for and development and removal of minerals within these areas would lessen and control impacts to wild horses and burros.

Livestock grazing would continue with intensive management on portions of some allotments, including building of new fences and water developments. Livestock-horse competition for forage and water would continue. Rest and deferment from livestock grazing would improve overall forage conditions, benefiting wild horses and burros. Over time, the general health of the herds is expected to improve. Livestock grazing allotments within HMAs are already managed with intensive grazing systems, so few adjustments in the existing grazing strategies may be needed to meet the requirements of the Preferred Alternative. More fences required for livestock control could moderately effect wild horses and burros by limiting their movement within the HMA. Developing more water sources would benefit horses and burros.

The recreation emphasis on special recreation management areas (SRMAs) at Fort Sage and designating a new SRMA in the Dry Valley Rim area could have minor adverse impacts on the wild horses and burros in those areas. Increased use by off-highway vehicle (OHV) riders, hikers, equestrians, and sightseers could increase human-horse encounters and disturbance in areas previously less used by the public. But restricting motorized use to designated routes could keep impacts negligible by providing areas of limited use where horses and burros could remain mostly undisturbed.

The building of 81 miles of new non-motorized routes within wilderness study areas (WSAs) could also inflict minor adverse impacts to horses and burros in portions of WSAs that previously were mostly inaccessible to the public. Human-horse encounters would increase.

4.21.10 Comparative Summary of Impacts

The No Action Alternative would have negligible to minor impacts to wild horses and burros because fuels management, recreation, and wild horse and burro management actions would not change from the current situation. Prescribed fire treatments, vegetation treatments, and required improvements for water resources would have minor impacts by requiring some periods of rest following treatments, but impacts would be short term.

Under Alternative 1 management actions for vegetation, water resources and recreation would be negligible to minor. But fuels and grazing management would moderately effect wild horses and burros by doing the following:

- increasing the need for new fences,

- increasing livestock use, and
- limiting forage availability with either fuels treatments or competition with livestock.

Alternative 2 overall would moderately benefit wild horses and burros, with more adverse short-term impacts, but also long-term benefits. Most impacts would result from more acres treated to improve vegetation or decrease fuels that would also require complete rest from grazing, either livestock or wild horses. The potential need for more fencing for intensive grazing strategies would also impede herd movement and distribution. Eliminating the Ravendale HMA and public education about the wild horse and burro program would decrease public awareness and support for the program as a whole over the long term. Beneficial impacts would result from the long-term improvement of habitat due to reduced livestock grazing and vegetation treatments.

Alternative 3 would have overall minor to moderate impacts with respect to fuels treatment acres, water resources and changes in grazing management. Recreation management and wild horse and burro management would both have negligible impacts, similar to the No Action Alternative.
The Preferred Alternative balances the needs for resources and uses with overall minor to moderate short-term impacts to wild horses and burros, but some major long-term benefits. The level of vegetation and fuels treatments coupled with the requirements for water resources and continuing intensive grazing strategies where appropriate, will have long-term beneficial impacts to wild horses and burros by improving habitat conditions. Short-term impacts from temporary fences or restrictions on treated acres would be minor. Recreation management will provide for visitor use in new areas, but with minor impacts to wild horses and burros.

4.21.11 Cumulative Effects

The area of analysis for cumulative impacts on wild horses and burros is the area within the boundary of each herd management area. Management of horses and burros is regulated to remain within designated herd areas that were used by herds as their habitat in 1971. BLM does not manage horses outside these areas, and resource management activities outside the herd areas are not expected to affect the animals within them.

Cumulative effects to wild horses and burros revolve around forage and water availability, as well as human disturbance, including recreation, development, and livestock grazing. Over the long term the following would benefit wild horses and burros by improving their overall habitat:

- fuels and vegetation treatments,
- intensive grazing strategies, and
- developing water sources for livestock and wildlife.

But treatments requiring rest from grazing and involving the building of fences would cumulatively impede movement within herd areas if intensive grazing strategies also require building new fences.

Multiple treatments of adjacent acres over consecutive years would cumulatively decrease forage availability for wild horses and burros for at least 2 years beyond the treatment periods.

Typical requirements for rest after vegetation treatments within the Eagle Lake Field Office area are at least 2 years, followed with approval (based on monitoring information from the natural resources interdisciplinary team) allowing grazing to resume. The same requirements would apply to wild horses and burros in most instances.

Increased recreation in existing and newly designated areas, along with more vegetation treatments like prescribed fire, could cumulatively effect wild horses and burros by changing their movement and distribution within herd areas in an attempt to avoid re-occurring activities.

Limiting many activities to designated routes would mitigate some impacts. New non-motorized routes within WSAs and special recreation management areas (SRMAs) would promote increased visitor use within areas previously used only intermittently. These routes might result in more human-horse encounters, but horses are expected to adapt to the activity or learn to avoid areas receiving more recreation use.

4.21.12 Mitigation Measures

- Use a staggered schedule for fuels and vegetation treatments within HMAs to reduce the short-term adverse impacts to wild horses and burros from treated areas that require rest from livestock or wild horse and burro grazing until vegetation has recovered.
- Locate new fences to support both livestock grazing strategies and protect vegetation treatments without building multiple fences for single purposes in the same areas.

4.21.13 Unavoidable Adverse Impacts

There are no unavoidable adverse impacts to wild horses if mitigation measures are implemented.

4.21.14 Short-Term Uses Versus Long-Term Productivity

Short-term fuels and vegetation management activities, such as prescribed burning or mechanical treatments, would benefit the long-term productivity of the herds by increasing available forage and improving habitat. Dispersed recreation in an area, while individually short term, would potentially have cumulative long-term impacts on wild horse and burro herd distribution by disturbing an area's use for forage or as a water source.

4.21.15 Irreversible and Irretrievable Impacts

Irretrievable impacts to wild horses and burros would include the loss of forage in areas of vegetation treatments. Prescribed fire and mechanical, biological, or chemical treatment of uplands would temporarily remove areas from vegetation production. These areas would otherwise be available for wild horse or burro forage. Fences for special habitats, riparian improvement, or spring developments designed for wildlife would result in an irretrievable loss of water resources for wild horses and burros and would adversely affect them.

4.22 Potential Effects on Wildlife and Fisheries

This section describes the direct, indirect, and cumulative effects on terrestrial and aquatic wildlife from land use decisions of the Eagle Lake Field Office's resource programs under the five alternatives. Land use decisions may result in effects to individuals of a species, wildlife populations, habitat, or life history requirements.

4.22.1 Methodology and Assumptions

The information used in this analysis was obtained from the following sources:

- agency and scientific literature;
- the professional judgment of BLM and other wildlife biologists;
- interdisciplinary team members and contractors;
- existing plans;
- wildlife databases; and
- field site visits.

This information, in addition to existing knowledge of species-habitat relationships and general knowledge of the field office area, was used to assess impacts.

The planning approach regarding terrestrial and aquatic wildlife is to determine which activities or actions are likely to affect wildlife, whether effects are adverse or beneficial, and what type of mitigation, if any, can be used to minimize adverse effects.

The analysis considered an effect on terrestrial and aquatic wildlife **adverse** if it would do the following:

- cause a loss of individuals of a species or population;
- interfere significantly with the movement of a resident or migratory species;
- reduce habitat quality or acreage, especially if it prevents the reestablishing of native biological communities that inhabited the area before the action; or
- harm, harass, or destroy a species, habitat, or natural community that is recognized for scientific, ecological, recreational, or commercial importance.

In addition, for special-status species and their habitat, an effect was considered adverse and requiring mitigation if it would harm, harass, or destroy any special-status species, its habitat, migration corridors, or breeding areas.

The analysis considered an effect on terrestrial and aquatic wildlife **beneficial** if it would do any of the following:

- maintain or increase individuals of a species or population;
- protect or facilitate the movement of a resident or migratory species; or
- maintain or increase habitat quality or acreage, especially if it promotes native biological communities.

4.22.2 Incomplete or Unavailable Information

Information on the locations, population status, trends, and distributions of some wildlife species in the Eagle Lake Field Office is limited. Recently more complete information regarding species presence or absence has been collected for some species including greater sage-grouse, pygmy rabbit, and Carson wandering skipper. Adequate information does exist, however, on the general potential for occurrence of species, seasons of use, relative suitability of habitat, and consequences of management actions.

4.22.3 Analysis

This analysis defined the levels of effects on wildlife as follows:

Negligible: The effects on wildlife would be at or below the level of detection. Effects would be so slight as to not be of any measurable or perceptible consequence to the population of any wildlife species and would generally be temporary or short term (last less than a single year or season).

Minor: The effects on wildlife would be detectable but localized and of little consequence to the population of any wildlife species. Effects would generally be temporary or short term but in some cases might be long term. Mitigation measures, if needed to offset adverse effects, would be simple and successful.

Moderate: The effects on wildlife would be readily detectable and localized with consequences at the population level. Effects might be short term or long term. Mitigation measures, if needed to offset adverse effects, would be extensive and would probably be successful.

Major: The effects on wildlife would be obvious and would result in substantial consequences to wildlife populations in the field office area or region. Effects might be short term but would likely be long term. Extensive mitigation measures would be needed to offset adverse effects, and their success would not be guaranteed.

Short Term: An effect generally lasting less than a single year or season.

Long Term: An effect lasting longer than a single year or season.

4.22.4 Impacts Common to All Alternatives

Under all alternatives, BLM would follow terms and conditions in biological opinions and recovery plans for federally listed species (bald eagle, Carson wandering skipper, Lahontan cutthroat trout). BLM projects would be subject to Endangered Species Act (ESA) and National Environmental Policy Act (NEPA) compliance. BLM would apply measures to reduce or avoid adverse effects to wildlife species at the project level. Habitat for any located Carson wandering skippers and pygmy rabbits would be protected and managed to maintain or enhance populations. Sage-grouse leks (breeding display sites) and other sage-grouse habitat would be protected through measures incorporated from the Conservation Strategy for Sage-Grouse *(Centrocercus urophasianus)* and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit (Northern California Sage-grouse Working Group 2005). These actions would be effective and would provide long-term benefits to these species.

Forests would be managed to promote forest health and improve and protect wildlife values. Management of 18,500 acres as commercial forest could have minor to major short-term or somewhat longer adverse effects to some forest species, including ungulates, small mammals, and birds due to the following:

- equipment and human disturbance;
- removal of canopy and trees; and
- ground cover disturbance, alteration, or removal.

But minor to major long-term benefits are likely from the following actions:

- improving the overall health of the forest,
- opening up the canopy for easier access to prey, and
- allowing light to promote the growth of understory species such as shrubs and grasses.

The dead woody material–including snags, down logs, and litter–left after forest management activities would provide minor to moderate short- to long-term benefits for forest wildlife species using the material for shelter and cover. This management would be of moderate, long-term benefit to bald eagles and California spotted owls and their habitat because potential nest trees and snags would be retained.

Nesting and wintering habitat would be managed through a variety of silvicultural methods. Additionally, promoting a natural fire regime in forested habitat would benefit bald eagles, California spotted owls, and other forest wildlife species by reducing potential habitat loss from catastrophic wildfire. Forested riparian areas would be managed to provide long-term benefits to riparian-dependent and aquatic species.

Fire suppression and fuels management actions would vary by areas designated. Acreages would vary by alternative. Full fire suppression would protect existing habitat from wildfire and in the short term would benefit most species by reducing the acreage subject to intensive wildfire. Long-term adverse effects might include the following:

- increased density of big sagebrush (increased fuel to carry fire)
- later losses of forbs and grasses, and
- buildups of heavy fuels that could ultimately increase future fire intensity and thus decrease habitat or habitat values.

Fire fighting and fuels management actions, such as building firelines (especially with heavy mechanical equipment) and backfiring operations would cause minor to moderate short-term adverse effects to habitat. But the potential loss of habitat from a catastrophic fire far outweighs the risk if such actions are not taken.

Management common to all alternatives for cultural resources includes the following:

- protecting four Native American special interest areas from adverse impacts,
- monitoring 30 cultural sites annually, and
- inventorying 640 acres annually.

Sites would be managed using the ecosystem/landscape as a basis. Sites would be evaluated using Upland Health and the Northeastern California and Northwestern Nevada Standards for Land (Rangeland) Health and Guidelines for Livestock Grazing Management (Appendix B). These actions would benefit wildlife species by protecting and inventorying habitat within these areas to avoid adverse effects.

Under all alternatives, management for soil resources focuses on practices to determine which soils are not meeting land health standards and promote the stabilization of soils so that they do meet these standards. Additionally, BLM will determine which soils have the most suitable characteristics and use these soils for the management actions of other resource programs, such as off-highway vehicle (OHV) use, road and trail building, and other developments. In the long term these actions will ultimately benefit all wildlife species by increasing vegetation diversity, vigor, and native composition. Fish and other aquatic species would benefit from measures intended to reduce streambank erosion.

BLM would implement restorative management for hydrologic function on 37 miles of streams and 59 acres of riparian/wetland areas not in proper functioning condition or desired future conditions to improve and progress toward meeting these goals. Other management actions include the following:

- Develop and implement best management practices to improve water quality and progress toward meeting state standards and needs of beneficial uses on 34 miles of streams not in compliance with BLM standards.
- Manage and maintain water sources to ensure adequate water supply for the proper distribution of wildlife.
- Selectively develop springs and exclosures for riparian ecosystems.

These actions would have long-term moderate to major benefits for riparian and aquatic species, in addition to deer and other terrestrial species.

All alternatives would use the criteria to meet Land Health Standard 5 (Biodiversity), which promotes diverse and viable wildlife populations by addressing seral stages, vegetation structure, age classes, vigor, patch size, and habitat connectivity. Management would include the following:

- using local native seeds in plantings,
- conducting seedings and other vegetation management projects,
- applying integrated weed management (IWM) to control undesirable (invasive and noxious) weeds and annual grasses,
- implementing fire and fuels projects, and
- reducing juniper where encroachment has altered the ecological potential of wildlife habitat.

Implementing these measures would have minor to major long-term benefits to a variety of wildlife species, including deer, pronghorn, and sage-grouse. Other management actions would also be implemented.

- Use BLM wildlife fencing specifications for new fences to facilitate movement of deer and pronghorn and benefit these species over the long term.
- Implement seasonal protection measures and buffer zones for species in nesting or other important habitats when recognized, to reduce disturbance and increase the potential for reproductive success of species, particularly raptors.

- For aquatic wildlife, use the criteria to meet land health standards 2 (Streams) and 4 (Riparian and Wetland Sites), which address stream characteristics, vegetation diversity and vigor, bank stability, and minimizing effects of erosion and high flow events.
- Where needed, use restoration and rehabilitation projects, such as improving minimum pool depths, increasing clean spawning gravels, and stabilizing banks. These measures would provide minor to moderate long-term benefits to aquatic and riparian species.

Vegetation would be managed in accord with Northeastern California and Northwestern Nevada Standards for Land (Rangeland) Health and Guidelines for Livestock Grazing Management (Appendix B). These standards and guidelines would maintain vegetation currently rated as "healthy" and manage other vegetation to achieve and then maintain "healthy" status. Areas would be closed to livestock and wild horses and burro grazing to stabilize and rehabilitate prescribed disturbances and wildfires until the area recovers or grazing is determined no longer to cause adverse effects. Additionally, special status plants would be managed to maintain, restore, and enhance populations. Treatments to reduce or eliminate invasive and noxious weeds using integrated weed management would improve land health and enhance habitat. These actions would be of moderate to major long-term benefit to wildlife habitat by maintaining or increasing vegetation biodiversity within the field office area, and providing desirable forage and cover for a variety of species.

Grazing would continue in 54 allotments and would continue to inflict minor to moderate adverse effects on wildlife species due to habitat damage and competition for forage. Animals particularly affected include deer, pronghorn, sage-grouse, other sagebrush-obligate species, and riparian species. But grazing management would be implemented to meet or progress toward meeting the Northeastern California and Northwestern Nevada Standards for Land (Rangeland) Health and Guidelines for Livestock Grazing Management (Appendix B), including riparian goals, which would reduce adverse effects.

Effects of grazing (adverse or beneficial) on Carson wandering skipper populations and their habitat are unknown. This species has not been documented on BLM-administered lands within the field office area.

Selecting small land parcels for exchange (unallocated or previously allocated for grazing) could slightly (minor) to moderately benefit wildlife species by exchanging for other suitable habitat acreage. BLM parcels currently containing suitable habitat for endangered species would likely not be selected for sale or exchange. Exchange parcels would provide equal or other benefits to wildlife or other public issues. Wildlife species–particularly deer, pronghorn, riparian, and sagebrush-obligate species–would experience minor to moderate long-term benefits due to reduced habitat damage and competition for forage.

Under all alternatives, the Eagle Lake Field Office would seek to acquire lands with high ecological or historical values close or next to large, contiguous public land bases. These acquisitions would result in long-term minor to major benefits to wildlife and wildlife habitat, depending on the acreage of the acquisition and affected wildlife species. Deer and pronghorn could benefit by improved management of important foraging, migration, fawning, or other priority habitat. Sagebrush obligates could benefit from the same in nesting, brood-rearing, and similar habitat. Land would be disposed of as stated in current management framework plans and if community benefits are determined to outweigh BLM's retention of parcels. Because parcels important to wildlife would likely not be recommended for disposal, adverse effects to wildlife would be negligible or minor.

Wild horse and burro management would maintain populations at established appropriate management levels (AMLs) via regular censuses and gathers. Wildlife species, particularly deer, pronghorn, riparian, and sagebrush-obligate species would experience moderate to major long-term benefits from these actions because of reduced habitat damage and competition for forage.

Energy and minerals management actions under all alternatives could inflict minor short-term or long-term adverse effects on wildlife and wildlife habitat, particularly deer, pronghorn, sage-grouse, and sagebrush-obligate species. Mineral exploration and development could result in the following:

- removal of vegetation;
- alteration of site conditions, including hydrology, which could result in habitat-type conversions of dominant vegetation; and
- indirect disturbances such as the introduction of invasive weeds.

Mineral extraction activities could adversely affect wildlife species, but these effects would be reduced by applying restrictive stipulations in project-specific National Environmental Policy Act (NEPA) documents.

In wilderness study areas (WSAs) 380,359 acres would be closed to leasable and saleable minerals activities. But these areas would be open to exploration for and development of locatable minerals if activities do not require reclamation (unless before Oct. 21, 1976). Because the demand for energy and minimal resources within the field office area is low and program activities require individual permitting and NEPA analysis, the program is not expected to substantially adversely affect wildlife species and their habitats.

BLM would manage current special recreation management areas (SRMAs), consisting of 65,570 acres within the field office area, under activity-level management plans. These plans emphasize giving the public a variety of motorized and non-motorized recreational opportunities. Recreation use in some areas would have minor to moderate adverse effects on wildlife species and their habitats, such as deer, pronghorn, lizards, ground squirrels, nesting raptors, breeding waterfowl, and upland game birds including sage-grouse. Human presence and surface disruption (of vegetation or soil) would disturb these animals.

Actions designating recreation routes would strive to reduce wildlife harassment or significant disruptions to wildlife habitat, paying special attention to protecting special status species and their habitats. Attempts to limit adverse effects to wildlife would include the following:

- closing routes,
- rerouting roads or trails,
- improving route design and reconstruction, or
- limiting use during critical periods of the year (implementing seasonal protection measures and buffer zones).

Campers would be informed of the California Department of Fish and Game and Nevada Department of Wildlife regulations against camping within 200 feet of any small water source (less than 1 surface acre) so that campers do not disrupt wildlife access to water supplies. Additionally, camping would be restricted within 200 feet from creeks, rivers, lakes, and reservoirs to protect water quality and related values, which would also provide benefits to wildlife. Within the field office area, BLM would designate at least 8,883 acres as closed to off-highway vehicle (OHV) use. These closures would protect terrestrial and aquatic habitats within the designated areas from OHV damage to soils and vegetation. These closures would also prevent OHVs from disturbing wildlife and their habitats, including nests and shelters of ground-nesting or ground-dwelling species.

Under all alternatives, actions relating to utilities, transportation, and communications would comply with regulations (Title V of the Federal Land Policy and Management Act (FLPMA) and 43 CFR 2800), and National Environmental Policy Act (NEPA) to reduce adverse effects to wildlife.

BLM will continue to accept applications for rights-of-way, including easements; leases; permits; or licenses to occupy, use, or cross public lands, which would negligibly to slightly (minor impact) adversely affect wildlife through disturbance or loss of habitat within these areas.

4.22.5 No Action Alternative

Forest management under the No Action Alternative would negligibly to slightly (minor effects) adversely affect some forest species, such as some songbirds, woodpeckers, and mammals that use trees for food and shelter. But ultimately, these activities would have the following beneficial long-term effects:

- increasing overall forest health;
- reducing the likelihood of stand-destroying catastrophic fire; and
- allowing increased light to the understory to promote growth of young trees, shrubs, grasses and other vegetation.

Some acres would be artificially regenerated, also benefiting forest wildlife species over the long term.

The No Action Alternative would manage the entire field office area under full fire suppression. This management would adversely affect some species and benefit others. Suppression would create minor short-term benefits to wildlife but could result in long-term destruction in the event of catastrophic fire or if long-term suppression leads to adverse habitat change for particular species. No more than 100 acres of prescribed fire would be conducted, and no more than 500 acres would be treated mechanically for fuels management and habitat restoration. Although treatments would have short-term adverse but long-term beneficial effects to species in the treated area, not many acres are proposed for treatment, so long-term effects would be limited. Fire stabilization and rehabilitation would be conducted on a case-by-case basis, providing long-term benefits. The lack of fire stabilization and rehabilitation would delay habitat recovery or allow invasive plants to become established.

Management for cultural resources under No Action would protect 15 cultural resource management areas (CRMAs) comprising 11,069 acres under proactive management. Wildlife habitat within these CRMAs would be protected. Under the No Action Alternative, wildlife or wildlife habitat would not receive the protection of cultural areas of critical environmental concern (ACECs) or management plans for historic trails.

Management actions for soil resources would be minimal under the No Action Alternative. This alternative would not emphasize improving or restoring soil conditions to meet the land health standards or to restore soil to proper functioning condition. Additionally, the No Action Alternative would not further restrict construction (including building new roads) or add restrictions to protect drainages from the effects of heavy machinery.

On a case-by-case basis BLM would establish sediment intrusion buffer zones for sensitive resources, including bodies of water and biological sites. Wildlife would be adversely affected if soil conditions deteriorate and do not support vegetation growth or regrowth. Riparian and aquatic species would particularly suffer adverse effects if sediment intrusion buffer zones are not present or are inadequate to prevent bank erosion or allow increased sedimentation of waters.

Under the No Action Alternative, terrestrial and aquatic wildlife would experience minor to moderate long-term benefits from maintaining 32 guzzlers, 12 large existing exclosures, 5 current meadow and riparian projects, and existing waterfowl nesting islands.

Among the animals that would benefit from these actions are

- large mammals including deer and pronghorn;
- small mammals including ground squirrels;
- birds including sage-grouse and songbirds; and
- amphibians, reptiles, and waterfowl.

The lack of other projects being built under No Action would adversely affect wildlife where

- water is determined to be a limiting factor;
- springs, meadows, or riparian areas would not be protected by exclosures; or
- waterfowl reproduction could be enhanced by improving existing islands or adding waterfowl nesting islands.

Vegetation management under No Action would focus on conserving biological crusts and maintaining healthy vegetation alliances for ecological site health. Over the long term, this management would benefit all wildlife species. Managing aspen, black oak woodlands, and buffaloberry sites as areas of critical environmental concern (ACECs) would protect these sites and provide long-term benefits to deer, pronghorn, birds and other wildlife. The active abatement of invasive western juniper would benefit sagebrush-obligate species, including sage-grouse. But benefits could be limited or adverse effects could result if sites are not rested from grazing because other invasive species could become established or shrub reproduction could be hindered.

Under the No Action Alternative, 987,779 acres would be open to grazing. And presently unallocated lands might also be considered for grazing. A total of 20,160 acres would be closed to grazing. Additional acres open to grazing would increase the competition for forage among cattle and wild ungulates and alter habitat for sagebrush-obligate species, including sage-grouse. About 75% to 85% of grazing acres now receive either rest or deferment, which benefits wildlife. BLM maintains 12 large exclosures consisting of 2,200 acres. Installing 20 to 30 more miles of fence could render benefits by increasing BLM's ability to regulate the location and timing of grazing. Although they can be detrimental to deer and pronghorn by restricting mobility, fences would be built to wildlife specifications to reduce adverse effects.

BLM would continue to manage wild horses and burros in three herd management areas (HMAs), comprising 828,569 acres. The appropriate management level (AML) range would continue at 513 to 848. In general, wild horses and burros conflict with deer and pronghorn when occupying the same range. Wild horses and burros can compete for forage and increase soil compaction, erosion, sedimentation, and degradation of accessible stream channels. The No Action Alternative would not significantly alter effects in the short term, but potential long-term adverse effects to wildlife habitats could increase due to habitat degradation and competition for forage.

Under No Action, energy and minerals management could result in minor short- and long-term effects to wildlife habitat on 642,408 acres of BLM land in the field office area. For leasable minerals, no open acres have seasonal or other restrictions, and no acres would be designated permanent no surface occupancy (NSO). Existing wilderness study areas (WSAs), containing 380,359 acres, are closed to energy and leasable minerals development.

For locatable minerals, the WSAs contain a stipulation of no surface disturbance that requires reclamation, but no acres are closed. For saleable minerals, the WSAs are also closed as are 160 acres in Pine Dunes ACEC and 2,495 acres of the Bizz Johnson Trail Special Recreation Management Area. The entire field office area is open to decorative stone and flat rock collection.

Potential effects from energy and minerals actions include the following:

- direct removal of native vegetation, including sagebrush and bitterbrush;
- altered site conditions, including hydrology and biological crusts, which could result in type conversions of dominant vegetation; and
- spread of noxious weeds or other invasive plants.

Adverse effects to habitat for fish and other aquatic species would include the following:

- erosion,
- ground disturbance,
- hydrologic disruption,
- altered groundwater levels, and
- discharge of mine waters to surface sources.

Additionally, terrestrial and aquatic species would be disturbed by the presence and accompanying noise of humans and equipment engaged in energy and minerals actions.

The potential for energy and minerals development has not yet been assessed, so it is difficult to determine the potential for effects. But because of the low demand for energy and minerals development within the field office area, adverse effects would be minor. Future demand, however, could increase and intensify the potential for adverse effects.

Most of the field office area (957,197 acres) would be managed as an Extensive Recreation Management Area (ERMA), where people engage in dispersed recreation uses. BLM would develop recreation facilities only as needed to mitigate impacts of visitor use, protect resources, and provide visitor interpretation and information.

The remaining 65,570 acres of the field office area would be managed as special recreation management areas (SRMAs), which emphasize giving the public a variety of motorized and non-motorized recreational opportunities. Recreation use in some areas would cause minor to moderate adverse effects to such wildlife species and their habitats as the following:

- lizards,
- ground squirrels,
- nesting raptors,
- breeding waterfowl, and
- upland game birds including sage-grouse.

These effects would result from the disturbance of human presence or the surface (vegetation or soil) disturbance from recreation activities.

The No Action Alternative would restrict motorized use of the field office area as follows:

- 562,197 acres would be designated open to motorized use;
- 412,966 acres would be 'limited to existing roads and trails';
- 22,210 acres would be 'limited to designated routes'; and

- 8,883 acres would be designated as 'closed' to motorized use (16,511 acres are not now designated).

The closures would protect terrestrial and aquatic habitats within the designated areas from off-highway vehicle (OHV) damage to soils and vegetation, in addition to disturbance of wildlife species and their habitats, including shelters of ground-nesting or ground-dwelling species. Areas limited in use would reduce adverse effects and also protect wildlife and habitat.

The No Action Alternative proposes building 80.5 miles of non-motorized routes within the field office area. Route construction would negligibly to slightly (minor effects) adversely effect wildlife species and habitat by removing some habitat and increasing human and domestic animal (dogs, horses) disturbance to wildlife. No seasonal route closures are proposed to protect wildlife habitat, and no areas of critical environmental concern (ACECs) would be designated.

Utilities/transportation/communications actions would include a review of all applications for utility and transportation corridors unless environmental analysis finds a potential significant impact to a resource. The No Action Alternative would designate no right-of-way avoidance areas. Sage-grouse and other ground-nesting species could experience adverse effects from raptors perching on overhead lines and structures that facilitate their predation of nests. Wind turbines and microwave and other towers could cause deaths of all types of birds that collide with them. The Conservation Strategy for Sage-grouse (*Centrocercus urophasianus*) and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit (Northeast California Sage-grouse Working Group 2005) recommends not granting rights-of-way for such structures within 2 miles of any active or inactive sage-grouse leks.

4.22.6 Alternative 1. Economic Development

Under Alternative 1, forest harvest volumes inflict negligible to minor adverse effects on some forest species, such as some songbirds, woodpeckers, and mammals that use trees for food and shelter. But ultimately this harvesting would provide long-term benefits by doing the following:

- increasing the overall health of the forests;
- reducing the likelihood of stand-destroying catastrophic fire; and
- allowing increased light to the understory to promote growth of young trees, shrubs, grasses and other vegetation.

BLM would artificially regenerate acres, which would benefit forest wildlife species in the long term. Large trees left in Upper Murrers Meadows after harvest for potential nest trees would benefit

- California spotted owls,
- northern goshawks,
- woodpeckers,
- cavity-dwelling species, and
- other wildlife that might use these trees for food or shelter.

Under the Economic Development Alternative, the entire field office area would be managed under full fire suppression. This management would affect some species adversely and benefit others. Suppression would have minor short-term benefits to wildlife in the localized area of each particular fire but could cause long-term harm to wildlife in the event of catastrophic fire or if long-term suppression leads to adverse habitat change for particular species.

No more than 1,500 acres of prescribed fire would be conducted, and from 500 to 2,500 acres would be treated mechanically for fuels management and habitat restoration. Biological and chemical treatments would range from 50 to 500 acres.

Although treatments would have short-term adverse but long-term beneficial effects to species in the treated area, not many acres are proposed for treatment, so long-term effects would be limited. Over time as more acres are treated, long-term benefits would increase.

Cultural resource management under the Economic Development Alternative would protect 10 cultural resource management areas (CRMAs), comprising 1,900 acres under proactive management. Wildlife habitat would be protected within these CRMAs. But this alternative does not provide for any cultural areas of critical environmental concern (ACECs), so no benefits of protecting wildlife or wildlife habitat would result.

The management of soil resources would focus on uses for commodity production, emphasizing improving or restoring soil conditions to meet land health standards or restoring soil condition to proper functioning condition to realize economic benefits. BLM would encourage construction activities (including building new roads), which would have minor adverse effects on affected species due to loss of vegetation and increased disturbance from human presence. Heavy machinery would be restricted to protect drainages and sensitive soil sites. BLM would establish at a maximum width of 50 feet sediment intrusion buffer zones for sensitive resources, including bodies of water and biological sites. Wildlife habitat would be disturbed if soil conditions deteriorate and cannot support vegetation growth or regrowth. Riparian and aquatic species, in particular, would be adversely affected if the 50-foot sediment intrusion buffer zones are not present or are inadequate to prevent bank erosion or they allow increased sedimentation of waters.

Under the Economic Development Alternative, terrestrial and aquatic wildlife would experience minor to moderate long-term benefits from the maintaining 32 guzzlers, in addition to building new guzzlers where water is determined to be a limiting factor for wildlife. This alternative would emphasize maintaining these structures, including enlisting local volunteers to help with monitoring and maintenance.

Invasive juniper would be reduced on 10,000 to 15,000 acres where encroachment has altered a site's ecological potential. Juniper reduction would have minor adverse effects to some bird species that use juniper for nesting or perching. But site restoration would increase vegetation biodiversity and benefit sagebrush-obligate species such as sage-grouse by increasing habitat and reducing perch sites for aerial predators.

Upland game birds would benefit from brush piles built to provide cover and shelter where these requirements are determined to be lacking. Existing waterfowl nesting islands would be maintained and enhanced, and sites would be evaluated for new islands or structures. These projects would provide cover, protection from predators, and increased nesting and reproduction opportunities for waterfowl and shorebirds. Improvements on 1,050-2,100 acres of aspen, mountain mahogany, and oak woodland habitats would benefit deer, squirrels, and bird species by improving stand health and regeneration. Emphasis on selected waterways to improve fisheries would benefit fish and other aquatic species by improving habitat and stream conditions.

BLM would manage vegetation as a commodity, mainly for consumptive and recreational uses. Restoring healthy vegetation alliances and ecological sites would be emphasized, but only areas of priority to mule deer would be rested from grazing for two growing seasons. This rest would benefit deer and other wildlife species using these areas in the short and long term, but could also adversely affect species in other areas because revegetation could be delayed or invasive species could become established.

Aspen, black oak woodlands, and buffaloberry sites would be managed as areas of critical environmental concern (ACECs), which would protect these sites and provide long-term benefits to deer, pronghorn, birds and other wildlife.

The Economic Development Alternative would combat invasive western juniper to provide economic opportunities. This action would benefit sagebrush-obligate species, including sage-grouse, but could have adverse effects on species in other areas as re-vegetation could be delayed or invasive species could become established. If sites are not rested from grazing, other invasive species could become established, or shrub reproduction could be hindered.

Alternative 1 would consider 997,858 to 1,007,938 acres for grazing, including lands presently unallocated. A range of 0 to 10,080 acres would be closed to grazing. More acres of grazing and minimal rest or deferment would increase the competition for forage among cattle and other ungulates and alter habitat for sagebrush-obligate species including sage-grouse. Additionally, minimal rest or deferment from grazing (40% to 60% of acres) would be required, which would increase the duration and intensity of use on vegetation and adverse effects to wildlife and habitat.

Livestock exclosures would not be maintained and would be considered for livestock use. The result would be long-term adverse effects to wildlife due to the following:

- removal of and damage to vegetation,
- soil compaction and destabilization, and
- general disturbance and competition at water sources.

Animal unit months of forage used by livestock would be increased, which would have the same effects as mentioned above. Building 60 to 90 more miles of fence could benefit wildlife by increasing BLM's ability to regulate the location and timing of grazing. Although they can restrict deer and pronghorn mobility, fences would be built to wildlife specifications to reduce adverse effects.

Wild horses and burros would continue to be managed in three herd management areas (HMAs), comprising 828,569 acres. The appropriate management level (AML) range would continue at 513 to 848. In general, wild horses and burros conflict with deer and pronghorn when occupying the same range. Wild horses and burros can compete for forage and increase soil compaction, erosion, sedimentation, and degradation of accessible stream channels. Under Alternative 1, effects to wildlife would not be significantly altered in the short term. But potential long-term adverse effects to wildlife habitats could increase because of habitat degradation and competition for forage.

Energy and minerals management could result in minor short- and long-term effects to wildlife habitat on 602,453 acres of BLM land in the field office area. For leasable minerals, 160 acres in the Pine Dunes ACEC would be open with seasonal or other restrictions (including restrictions to protect wildlife reproductive efforts), and 5,475 acres would be designated permanent no surface occupancy (NSO). Existing wilderness study areas (WSAs) and Eagle Lake Basin Area of Critical Environmental Concern (ACEC), totaling 414,679 acres, would be closed.

For locatable minerals, the WSA acres contain a stipulation of no surface disturbance that requires reclamation, and the Susan River ACEC (2,495 acres) would be closed. For saleable minerals, the WSAs are closed in addition to the following:

- 160 acres in Pine Dunes ACEC,
- 2,719 acres in the Aspen Groves ACEC, and

- 2,495 acres of the Bizz Johnson Trail.

The entire field office area is open to decorative stone and flat rock collection.

Potential effects from energy and minerals actions include the following:

- direct removal of native vegetation including sagebrush and bitterbrush;
- altered site conditions, including hydrology and biological crusts, which could result in type conversions of dominant vegetation; and
- spread of noxious weeds or other invasive plants.

Adverse effects to habitat for fish and other aquatic species include

- erosion,
- ground disturbance,
- hydrologic disruption,
- alteration of groundwater levels, and
- discharge of mine waters to surface sources.

Additionally, terrestrial and aquatic species would be disturbed due to the presence and accompanying noise of humans and equipment in energy and minerals actions. The potential for energy and minerals development has not yet been assessed, so it is difficult to determine the potential for effects. Because of the current low demand for energy and minerals development within the field office area, adverse effects would be minor. However, future demand may increase and thus intensify the potential for adverse effects.

The Economic Development Alternative proposes two new special recreation management areas (SRMAs), totaling 174,147 acres of SRMA management. SMRA management emphasizes giving the public a variety of motorized and non-motorized recreation opportunities. Increased recreation use in some areas would slightly (minor impact) to moderately adversely affect wildlife species and their habitat. Human presence and surface (vegetation or soil) disruption from recreation activities would disturb the following animals:

- lizards,
- ground squirrels,
- nesting raptors,
- breeding waterfowl, and
- upland game birds including sage-grouse.

The remainder and most of the field office area (848,620 acres) would be managed as an Extensive Recreation Management Area (ERMA), where recreation uses are dispersed and recreation facilities are developed as needed to

- mitigate impacts of visitor use,
- protect resources, and
- provide visitor interpretation and information.

The Economic Development Alternative would restrict motorized use of the field office area as follows:

- 419 acres as open to motorized use;
- 412,966 acres as ‘limited to existing roads and trails’;

- 588,724 acres as 'limited to designated routes'; and
- 20,658 acres as 'closed' to motorized use.

The closures would protect terrestrial and aquatic habitats within the designated areas from off-highway vehicle (OHV) damage to soils and vegetation. Closures also protect from disturbance wildlife species and their habitats, including shelters of ground-nesting or ground-dwelling species. Areas limited in use would reduce adverse effects and also protect wildlife and habitat.

This alternative proposes building up to 15 miles of new motorized routes and 277 miles of non-motorized routes within the field office area. Route building would remove habitat and increase disturbance to wildlife by humans, vehicles, and domestic animals (dogs, horses).
This amount of new route building would result in minor to moderate adverse effects to wildlife species and habitat. This alternative proposes no seasonal route closures to protect wildlife habitat, and designates no areas of critical environmental concern (ACECs).

Utilities/transportation/communications actions would include review and use of all utility/transportation corridors in the Western Regional Corridor Study (Western Utility Group 2003) unless environmental analysis finds a potential significant impact to a resource. Under Alternative 1, WSAs are the only right-of-way avoidance areas. Sage-grouse and other ground-nesting species could experience adverse effects from raptors perching on overhead lines and structures, which facilitates predation of nests and individuals.

Wind turbines and microwave and other towers could cause the deaths of all types of birds that collide with them. The Conservation Strategy for Sage-Grouse (*Centrocercus urophasianus*) and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit (Northern California Sage-grouse Working Group 2005) recommends not granting rights-of-way for such structures within 2 miles of any active or inactive sage-grouse leks.

Under the Economic Development Alternative, corridor widths would be at least 2,000 feet (1,000 feet on either side of existing centerlines) unless next to exclusion areas. Corridors of that width could create minor adverse effects to species using this habitat from the following:

- reducing or removing habitat,
- decreasing roadside cover, and
- introducing human or vehicle disturbance.

4.22.7 Alternative 2. Ecosystem Restoration

Forest management under the Ecosystem Restoration Alternative would treat 1,100 acres per year, mainly thinning stands and managing for commercial timber with an emphasis on wildlife and old growth. These activities would have minor effects on forest species such as some songbirds, woodpeckers, and mammals that use trees for food and shelter. But these activities would particularly benefit species such as the California spotted owl and pileated woodpecker.

Beneficial long-term effects would include the following:

- increasing the overall health of the forests,
- reducing the likelihood of stand-destroying catastrophic fire, and
- allowing increased light to the understory to promote growth of young trees, shrubs, grasses and other vegetation.

BLM would artificially regenerate acres which would provide benefits to forest wildlife species in the long term.

The Ecosystem Restoration Alternative would manage the field office area for fire in the following ways:

- 730,039 acres under a full range of appropriate management response (AMR) options,
- 282,304 acres under full fire suppression, and
- 10,339 acres under wildland fire use.

This alternative provides for a combination of fire management actions depending on the ecological site location and the specific characteristics of the fire. Full suppression would allow for protective measures for important wildlife habitat such as bald eagle nesting territories and sage-grouse leks, or in special habitats such as aspen stands and oak woodlands.
Other management options could be considered if suppression could facilitate increasing chances of a catastrophic fire or if long-term suppression leads to unhealthy ecosystems.

Wildland fire use could be used to remove invasive species or help create a more natural ecosystem of native species. BLM would treat no more than 4,500 acres with prescribed fire and no more than 3,500 acres mechanically for fuels management and habitat restoration. Biological treatments would range from 50 to 1,500 acres, and chemical treatments would range from 50 to 500 acres. These treatments would have short-term adverse but long-term beneficial effects to species in the treated area. They would also improve ecological health and vegetation biodiversity.

BLM would address fire stabilization and rehabilitation by developing a "Normal Fire Rehabilitation Plan", benefiting wildlife and wildlife habitat in the long time by working in cooperation with others to implement beneficial actions.

Cultural resource management under Ecosystem Restoration would protect 25 cultural resource management areas (CRMAs) comprising 33,999 acres under proactive management. This alternative would also designate two cultural areas of critical environmental concern (ACECs) totaling 46,571 acres and one historic trail under a management plan. These designations of CRMAs and ACECs would have the beneficial effects of protecting wildlife or wildlife habitat.

The management of soil resources would target natural recovery processes by limiting or excluding soil-damaging activities. The Ecosystem Management Alternative would emphasize improving or restoring soil conditions to meet land health standards or restore soil to proper functioning condition to promote robust healthy ecosystems. Construction (including building new roads) would be allowed as needed, but emphasis would be placed on closing, rehabilitating, and relocating roads. Construction would have minor adverse effects on affected species from vegetation loss and increased disturbance from human presence. But long-term overall effects would be beneficial in the event of road closures and rehabilitation.

Heavy machinery would be restricted to protect drainages and sensitive soil sites. Sediment intrusion buffer zones 100-feet wide would be established for sensitive resources, including water bodies and biological sites. Wildlife habitat would be adversely affected if soil conditions deteriorate and do not support vegetation growth or regrowth. Riparian and aquatic species in particular would be adversely affected if the 100-foot-wide sediment intrusion buffer zones are not present or they either are inadequate to prevent bank erosion or they allow increased sedimentation of waters.

Under the Ecosystem Restoration Alternative, terrestrial and aquatic wildlife would experience minor to moderate long-term benefits from maintaining 32 guzzlers, in addition to building new ones where water is determined to be a limiting factor for wildlife. This alternative would emphasize maintaining these structures, including enlisting local volunteers to help in monitoring and maintenance.

BLM would maintain 12 large existing exclosures and other smaller ones to reduce damage to riparian areas and springs, providing benefits for a host of wildlife species. Fences would conform to BLM wildlife specifications. BLM would also use let-down fences where possible and remove unused fences as identified to facilitate deer and pronghorn movement. Other projects to enhance meadow and riparian areas would also be maintained.

In suitable forest habitat, large-diameter trees and snags, high-canopy closure, and downed woody material would be retained to provide habitat for California spotted owls. Invasive juniper would be removed on 15,000 to 20,000 acres where encroachment has altered a site's ecological potential. This removal would slightly (minor effect) adversely affect some bird species using the juniper for nesting or perching. But restoring the site would increase vegetation biodiversity and benefit sagebrush-obligate species such as sage-grouse by increasing habitat and reducing perch sites for aerial predators.

Upland game birds would benefit from brush piles built to provide cover and shelter where these requirements are determined to be lacking. Existing waterfowl nesting islands would be maintained and enhanced, and sites would be evaluated for new islands or structures. These projects would provide cover, protection from predators, and increased nesting and reproduction opportunities for waterfowl and shorebirds. Improvements on 2,100 to 3,150 acres of aspen, mountain mahogany, and oak woodland habitats would benefit deer, squirrels, some bird species and other wildlife by improving stand health and regeneration. Emphasis on selected waterways to improve fisheries would benefit fish and other aquatic species by improving habitat and stream conditions.

Vegetation management would emphasize maintaining healthy vegetation alliances, associations and ecological sites, and restoring those that are unhealthy, focusing on conserving functional/structural groups. Active use of prescribed fire and other actions would be applied as appropriate. Two years of rest would be applied for shrubs requiring it for viable seed production. In the long term such management would greatly (major impact) benefit all wildlife species. Healthy ecosystems with a diversity of vegetation would provide quality habitat. Aspen, black oak woodlands, and buffaloberry sites would be managed as unique vegetation using the functional/structural groups' concept. This management would protect these sites and provide long-term benefits to deer, pronghorn, birds, and other wildlife. One 5-acre buffaloberry site is currently fenced. Other sites would be given enough rest to allow for growth outside the reach of livestock.

Juniper woodlands on woodland soils (19,552 acres) would be managed for the successional stages of woodland development. About 6,907 acres of unhealthy [juniper] woodlands and woodlands shown to be invasive into rangeland ecological sites would be treated to recover the proper ecological sites. Recovery would have minor adverse short-term effects on bird species using juniper for nesting or perching and for species using these trees for cover. But treatment would moderately or more significantly benefit wildlife in general and such species as deer, pronghorn, and sage-grouse by returning sites to their ecological potential.

Under the Ecosystem Restoration Alternative, no more than 977,700 acres would be open to grazing. Currently unallocated lands would not be considered for grazing. Additionally, 30,238 acres would be closed to grazing. These actions would benefit wildlife by reducing competition for forage among cattle and other ungulates and habitat alteration affecting sage-grouse and other sagebrush-obligate species.

All acres and all allotments in the Eagle Lake Field Office area would be rested or deferred from livestock grazing. Each allotment or pasture would be completely rested for 2 out of 3 years to achieve rangeland and riparian goals and standards. Rest would allow vegetation to recover from grazing and could provide important cover for ground-nesting species such as sage-grouse and quail, and hiding cover for small mammals and prey animals. A total of 2,000 to 3,000 acres of livestock exclosures would be maintained, or more acres if a need is determined. Animal unit months (AUMs) of forage could be decreased, and annual use of AUMs would be reduced because of the periods of rest.

Construction or reconstruction of 60 more miles of fence could benefit wildlife by increasing BLM's ability to regulate the location and timing of grazing. Other exclosures could be built if a need is determined. Although fencing can restrict the mobility of deer and pronghorn, fences would be built to wildlife specifications to reduce adverse effects. BLM would also consider removing fences on a case-by-case basis. Seedings using local native perennial species would be used for wildlife habitat restoration and would provide long-term benefits to wildlife by improving habitat health.

Wild horses and burros would be managed in two herd management areas (HMAs), comprising 813,686 acres. The appropriate management level (AML) range would be 503 to 823. In general, wild horses and burros conflict with deer and pronghorn when occupying the same range. Wild horses and burros can compete for forage and increase soil compaction, erosion, sedimentation, and degradation of accessible stream channels. Under the Ecosystem Restoration Alternative, adverse effects to wildlife would decrease due to fewer animals occupying HMAs. Thus, effects to habitat would not be as concentrated as with three HMAs.

Under the Ecosystem Restoration Alternative, energy and minerals management could result in minor short- and long-term effects to wildlife habitat on 391,339 acres of BLM land in the field office area. For leasable minerals, 137,071 acres in special recreation management areas (SRMAs) would be open with seasonal or other restrictions (including restrictions to protect wildlife reproductive efforts), and 76,922 acres would be designated permanent no surface occupancy (NSO). Existing WSAs, Eagle Lake Basin ACEC, and Bizz Johnson SRMA, totaling 417,435 acres, would be designated as closed.

For locatable minerals, the wilderness study area (WSA) acres contain a stipulation of no surface disturbance that requires reclamation, and 52,882 acres of ACECs would be closed. For saleable minerals, the WSAs would be closed in addition to 89,397 acres in ACECs. The entire field office area would be closed to decorative stone and flat rock collection.

Potential effects from energy and minerals actions include the following:

- direct removal of native vegetation including sagebrush and bitterbrush;
- altered site conditions, including hydrology and biological crusts, which could result in type conversions of dominant vegetation; and
- spread of noxious weeds or other invasive plants.

Adverse effects to habitat for fish and other aquatic species include

- erosion,
- ground disturbance,
- hydrologic disruption,
- alteration of groundwater levels, and
- discharge of mine waters to surface sources.

Additionally, the presence and accompanying noise of humans and equipment in energy and minerals actions would disturb terrestrial and aquatic species. The potential for energy and minerals development has not yet been assessed, so it is difficult to determine the potential for effects. Because of the current low demand for energy and minerals development within the field office area, adverse effects would be minor. However future demand might increase and intensify the potential for adverse effects. Of all the alternatives, the Ecosystem Restoration Alternative would close the most acreage to energy and minerals development, providing the most protection to wildlife and wildlife habitat.

Most of the field office area (957,197 acres) would be managed as an Extensive Recreation Management Area (ERMA), where people engage in dispersed recreation uses and BLM would develop recreation facilities only as needed to mitigate impacts of visitor use, protect resources, and provide visitor interpretation and information. The remaining 65,570 acres of the field office area would be managed as special recreation management areas (SRMAs), which emphasize giving the public a variety of motorized and non-motorized recreational opportunities.

The disturbance from human presence or surface (vegetation or soil) disturbance from recreation in some areas would slightly (minor impacts) to moderately adversely impact such wildlife species and their habitats as the following:

- lizards,
- ground squirrels,
- nesting raptors,
- breeding waterfowl, and
- upland game birds including sage-grouse.

The Ecosystem Restoration Alternative would designate no lands within the field office area as 'open' to motorized use or as 'limited to existing roads and trails'. It would designate 721,123 acres as 'limited to designated routes' and 301,644 acres as 'closed' to motorized use. The closures would protect terrestrial and aquatic habitats within the designated areas from off-highway vehicle (OHV) damage to soils and vegetation. They would also protect from disturbance wildlife species and their habitats, including shelters of ground-nesting or ground-dwelling species. The 721,123 acres designated as limited in use would reduce adverse effects and also protect wildlife and habitat.

This alternative proposes 58.5 miles of permanent motorized route closures. These closures would have long-term minor to moderate benefits to wildlife and habitat by providing more acres of un-fragmented habitat and reducing human and vehicle disturbance to wildlife. Also proposed are 22.5 miles of new non-motorized routes, which would have negligible to minor adverse effects to wildlife species and habitat from removing some habitat and increasing disturbance to wildlife by humans and domestic animals (dogs, horses).

This alternative also proposes seasonal route closures to protect wildlife habitat on the Cleghorn access road, Horse Lake Road, and the Tablelands. Two areas of critical environmental concern (ACECs) would be designated. In the long term these ACECs would benefit wildlife and wildlife habitat by managing these areas to protect their environmental aspects and values.

Utilities/transportation/communications actions would include accepting applications but not granting rights-of-way for overhead lines and structures, microwave towers, and wind turbines within 2 miles of an active or inactive sage-grouse lek. This action conforms to recommendations in the Conservation Strategy for Sage-Grouse (*Centrocercus urophasianus*) and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit (Northern California Sage-grouse Working Group 2005).

This action would slightly (minor impact) to moderately benefit sage-grouse and other ground-nesting species by decreasing aerial predation and reducing fatalities to airborne wildlife from colliding with structures. Under this alternative, right-of-way avoidance areas would include lands next to wilderness study areas (WSAs), ACECs, wild and scenic rivers (WSRs), and other special management areas considered as high resources of public interest value. These areas would also be protected from the negligible or minor adverse impacts of energy and minerals actions.

Under the Ecosystem Restoration Alternative, corridor widths would be kept to a minimum, depending on existing parallel facilities, and would be handled on a case-by-case basis. This action would benefit species that use this habitat and might experience negligible to minor short-term adverse effects due to

- reducing or removing habitat,
- decreasing roadside cover, and
- introducing human or vehicle disturbance.

4.22.8 Alternative 3. Traditional Uses

Forest management under the Traditional Uses Alternative would negligibly to slightly (minor impact) adversely affect some forest species, such as songbirds, woodpeckers, and mammals that use trees for food and shelter. But ultimately in the long term these activities would do the following:

- increase the overall health of the forests,
- reduce the likelihood of stand-destroying catastrophic fire, and
- allow increased light into the understory to promote growth of young trees, shrubs, grasses and other vegetation.

BLM would artificially regenerate acres, which would benefit forest wildlife species in the long term.

Under the Traditional Uses Alternative, BLM would manage the entire field office area under full fire suppression. This management would affect some species adversely and benefit others. Suppression would create minor short-term benefits to wildlife in the localized area of each fire but in long term could adversely affect wildlife species in the event of catastrophic fire or if long-term suppression leads to adverse habitat change for particular species. BLM would conduct no more than 500 acres of prescribed fire and treat 500 to 2,500 acres mechanically for fuels management and habitat restoration. Biological and chemical treatments would range from 50 to 1,500 acres.

Although treatments would have short-term adverse but long-term beneficial effects to species in the treated area, few acres are acres proposed for treatment, so long-term effects would be limited. Over time, as more acres are treated, long-term benefits would increase.

Fire stabilization and rehabilitation would be addressed by developing local or regional plans to support ecosystem health and local economies. Native species and prompt timber salvage would be emphasized. Leaving some standing and down material during salvage operations would have minor to moderate beneficial effects for raptors, woodpeckers, other birds, cavity-dwelling species, and species that use down material for shelter or cover.

Cultural resource management would protect 15 cultural resource management areas (CRMAs), comprising 11,069 acres under proactive management. Wildlife habitat within these CRMAs would be protected. However, this alternative does not provide for any cultural ACECs or management plans for historic trails, so no benefits of protecting wildlife or wildlife habitat would be realized for these areas.

Management actions for soil resources would be minimal. BLM would place no added emphasis on improving or restoring soil conditions to meet land health standards or to restore soil to proper functioning condition. BLM would also not impose more restrictions on construction (including building new roads) or to protect drainages from the effects of heavy machinery.

On a case-by-case basis, BLM would establish sediment intrusion buffer zones for sensitive resources, including bodies of water and biological sites. If soil conditions deteriorate and do not support vegetation growth or regrowth, wildlife would be adversely affected. Riparian and aquatic species would experience particular adverse effects if sediment intrusion buffer zones are not present, are inadequate to prevent bank erosion, or allow increased sedimentation of waters.

Under the Traditional Uses Alternative, terrestrial and aquatic wildlife would experience minor to moderate long-term benefits from maintaining the following:

- 32 guzzlers,
- 12 large existing exclosures,
- 5 current meadow and riparian projects, and
- existing waterfowl nesting islands.

The following species would benefit from these projects:

- large mammals including deer and pronghorn;
- small mammals including ground squirrels;
- birds including sage-grouse and songbirds; and
- amphibians, reptiles, waterfowl, and other species.

No other projects would be built under this alternative. Limiting projects would be detrimental to wildlife where

- water is determined to be a limiting factor;
- springs, meadows, or riparian areas would not be protected by exclosures; or
- waterfowl reproduction could be enhanced by improving existing waterfowl nesting islands or adding new ones.

Vegetation management would focus on maintaining healthy vegetation alliances, associations, and ecological site health and would provide long-tern benefits to all wildlife species. Only areas of priority to mule deer would be rested from grazing for two growing seasons. This action would benefit deer and other wildlife species using these areas in the short and long term, but could adversely affect species in other areas because revegetation could be delayed or invasive species could become established.

Aspen, black oak woodlands, and buffaloberry sites would be managed as areas of critical environmental concern (ACECs), which would protect these sites and provide long-term benefits to deer, pronghorn, birds, and other wildlife.

The Traditional Uses Alternative would retain juniper in locations to support wildlife, while emphasizing a natural early-seral stage understory to provide livestock forage. Retaining juniper would benefit bird species using juniper for nesting or perching or for cover, but could result in limited or adverse effects if grazing is intense, allowing invasive species to become established, or hindering shrub reproduction.

The Traditional Uses Alternative might consider unallocated lands for grazing. More acres of grazing and minimal rest or deferment would increase the competition for forage among cattle and other ungulates and alter habitat for sagebrush-obligate species including sage-grouse. Up to 20,160 acres would be closed to grazing. Additionally, minimal rest or deferment from grazing (30% to 40% of acres) would be required, which would increase the duration and intensity of use on vegetation and would adversely affect wildlife and habitat.

BLM would not maintain livestock exclosures and would consider them for livestock use. Such added livestock use in the long term would adversely affect wildlife by

- removing and damaging vegetation,
- compacting and destabilizing the soil, and
- causing general disturbance and competition at water sources.

Total permitted animal unit months (AUMs) would amount to 52,250. Building 60 more miles of fence could increase BLM's ability to regulate the location and timing of grazing. Although they can restrict the mobility of deer and pronghorn, fences would be built to wildlife specifications to reduce adverse effects.

BLM would continue to manage wild horses and burros in three herd management areas (HMAs) comprising 828,569 acres. The appropriate management level (AML) range would continue at 513 to 848. In general, wild horses and burros conflict with deer and pronghorn when occupying the same range. Wild horses and burros can compete for forage and increase soil compaction, erosion, sedimentation and degradation of accessible stream channels. Under this alternative, effects to wildlife would not be significantly altered in the short term, but potential long-term adverse effects to wildlife habitats could increase due to habitat degradation and competition for forage.

Under the Traditional Uses Alternative, energy and minerals management actions could result in minor short- and long-term adverse effects to wildlife habitat on 591,403 acres of BLM land. For leasable minerals, 11,210 acres in the areas of critical environmental concern (ACECs) would be open with seasonal or other restrictions (including restrictions to protect wildlife reproductive efforts), and 5,475 acres would be designated permanent no surface occupancy (NSO). Existing WSAs and Eagle Lake Basin ACEC, totaling 414,679 acres, would be designated as closed.

For locatable minerals, the wilderness study area (WSA) acres contain a stipulation of no surface disturbance that requires reclamation, but no acres are designated as closed.

For saleable minerals, the existing WSAs are closed in addition to the following areas:

- 160 acres in the Pine Dunes ACEC,
- 2,719 acres in the Aspen Groves ACECs, and
- 2,495 acres of the Bizz Johnson Trail.

The entire field office area is open to decorative stone and flat rock collection.

Potential effects from energy and minerals actions include the following:

- direct removal of native vegetation including sagebrush and bitterbrush;
- alteration of site conditions including hydrology and biological crusts, which could result in type conversions of dominant vegetation; and
- the spread of noxious weeds or other invasive plants.

Adverse effects to habitat for fish and other aquatic species include

- erosion,
- ground disturbance,
- hydrologic disruption,
- alteration of groundwater levels, and
- discharge of mine waters to surface sources.

Additionally, terrestrial and aquatic species would be disturbed because of the presence and accompanying noise of humans and equipment in energy and minerals actions. The potential for energy and minerals development has not yet been assessed, so it is difficult to determine the potential for effects. Because of the current low demand for energy and minerals development within the field office area, adverse effects would be minor, but future demand may increase and intensify the potential for adverse effects.

Most of the field office area (957,197 acres) would be managed as an Extensive Recreation Management Area (ERMA), where people engage in dispersed recreation and BLM develops recreation facilities only as needed to mitigate impacts of visitor use, protect resources, and provide visitor interpretation and information.

The remaining 65,570 acres of the field office would be managed as special recreation management areas (SRMAs), which emphasize giving the public a variety of motorized and non-motorized recreational opportunities. The disturbance from human presence or surface (vegetation or soil) disruption from recreation activities in some areas would slightly (minor impacts) to moderately adversely affect such wildlife species and their habitats as the following:

- lizards,
- ground squirrels,
- nesting raptors,
- breeding waterfowl, and
- upland game birds including sage-grouse.

The Traditional Uses Alternative would restrict motorized use of the field office area as follows:

- 578,708 acres are designated 'open' to motorized use;
- 412,966 acres are 'limited to existing roads and trails';
- 22,210 acres are 'limited to designated routes'; and
- 8,883 acres are designated as 'closed' to motorized use.

The closures would protect terrestrial and aquatic habitats within the designated areas from OHV damage to soils and vegetation. They would also protect wildlife species and their habitats, including shelters of ground-nesting or ground-dwelling species. Areas limited in use would reduce adverse effects and also protect wildlife and habitat.

The Traditional Uses Alternative proposes 18 miles of non-motorized route construction within the field office area. This construction would negligibly to slightly (minor impact) adversely affect wildlife and habitat by removing some habitat and increasing disturbance to wildlife by humans and domestic animals (dogs, horses).

This alternative proposes no seasonal route closures to protect wildlife habitat and would designate no areas of critical environmental concern (ACECs).

Utilities/transportation/communications actions would include rcview and use of all utility/transportation corridors included by the Western Regional Corridor Study (Western Utility Group 2003) unless environmental analysis finds a potential significant impact to a resource.

Under this alternative, WSAs are the only right-of-way avoidance areas. Sage-grouse and other ground-nesting species could be adversely affected due to raptors perching on overhead lines and structures, which facilitate predation of nests and individuals. Wind turbines and microwave and other towers could cause the death of all types of birds that collide with them. The Conservation Strategy for Sage-Grouse (*Centrocercus urophasianus*) and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit (Northern California Sage-grouse Working Group 2005) recommends not granting rights-of-way for such structures within 2 miles of any active or inactive sage-grouse leks.

This alternative would maximize the development of corridors within existing corridors and reduce impacts to natural values. By designating of no other corridors, BLM would reduce adverse effects to species caused by

- reducing or removing habitat,
- decreasing roadside cover, and
- introducing human or vehicle disturbance.

4.22.9 Preferred Alternative

Forest management under the Preferred Alternative would treat 1,100 acres per year, mainly thinning stands and managing for commercial timber with an emphasis on wildlife and old growth. These activities would have minor effects on forest species such as some songbirds, woodpeckers, and mammals that use trees for food and shelter. But they would particularly benefit species such as the California spotted owl and pileated woodpecker. Beneficial long-term effects would include the following:

- increasing the overall health of the forests;
- reducing the likelihood of stand-destroying catastrophic fire; and
- allowing increased light to the understory to promote growth of young trees, shrubs, grasses and other vegetation.

BLM would artificially regenerate forested acres, which would benefit forest wildlife species in the long term.

Under the Preferred Alternative, the Eagle Lake Field Office area would manage fire as follows:

- 730,039 acres would be managed under a full range of appropriate management response (AMR) options;
- 282,304 acres would be managed under full fire suppression; and
- 10,339 acres would be managed under wildland fire use.

The Preferred Alternative provides for a combination of fire management actions, depending on the ecological site location of the fire and specific fire characteristics. Full suppression would allow for protective measures of important wildlife habitat such as bald cagle nesting territories and sage-grouse leks, or in special habitats such as aspen stands and oak woodlands.

Other management options could be considered if suppression could facilitate increasing chances of a catastrophic fire or if long-term suppression leads to unhealthy ecosystems. Wildland fire use could be applied to remove invasive species or help create a more natural ecosystem of native species.

BLM would conduct no more than 4,500 acres of prescribed fire and would mechanically treat no more than 3,500 acres for fuels management and habitat restoration. Biological treatments would range from 50 to 1,500 acres, and chemical treatments would range from 50 to 500 acres. These treatments would have short-term adverse but long-term beneficial effects to species in the treated area. They would improve ecological health and vegetation biodiversity. BLM would address fire stabilization and rehabilitation by developing a "Normal Fire Rehabilitation Plan". Through such a plan, BLM would provide long-term benefits to wildlife and wildlife habitat by working in cooperation with others to implement actions benefiting wildlife and wildlife habitat over the long term.

Cultural resource management under the Preferred Alternative would protect 25 cultural resource management areas (CRMAs) comprising 33,999 acres under proactive management. Wildlife habitat within these CRMAs would be protected. This alternative also designates one cultural area of critical environmental concern (ACEC) of 10,156 acres and one historic trail under a management plan. These designations would provide the benefits of protecting wildlife or wildlife habitat within these areas.

Management actions for soil resources would target mitigative and natural recovery processes using bioengineering approaches if needed. The Preferred Alternative would emphasize improving or restoring soil conditions to meet land health standards or restoring soil to proper functioning condition. Construction would be restricted to locations having the most suitable soil characteristics for development and would be allowed only on a minimum number of roads. The emphasis would be on closing, rehabilitating, and relocating roads. Construction would have minor adverse effects on affected species from the loss of vegetation and increased disturbance from human presence, but long-term overall effects would be beneficial as roads are closed and rehabilitated.

Heavy machinery would be restricted to protect drainages and sensitive soil sites. Sediment intrusion buffer zones, 50 feet wide, would be established for sensitive resources, including water bodies and biological sites. Larger zones would be determined on a site-specific basis. Wildlife habitat would be adversely affected if soil conditions deteriorate and do not support vegetation growth or regrowth. Riparian and aquatic species in particular would suffer adverse effects if the 50-foot-wide or greater sediment intrusion buffer zones are not present, are inadequate to prevent bank erosion, or allow increased sedimentation of waters.

For wildlife, BLM would follow the terms and conditions in biological opinions and recovery plans for federally listed species (bald eagle, Carson wandering skipper, Lahontan cutthroat trout). BLM projects would be subject to Endangered Species Act (ESA) and National Environmental Policy Act (NEPA) compliance. BLM would implement measures to reduce or avoid adverse effects to wildlife species at the project level.

Habitat for any located Carson wandering skippers and pygmy rabbits would be protected and managed to maintain or enhance populations. Sage-grouse leks (breeding display sites) and other sage-grouse habitat would be protected through measures incorporated from the Conservation Strategy for Sage-Grouse *(Centrocercus urophasianus)* and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit (Northern California Sage-grouse Working Group 2005).

These actions would provide long-term benefits to these species. Terrestrial and aquatic wildlife would experience minor to moderate long-term benefits from maintaining 32 guzzlers, in addition to building new ones where water is determined to be a limiting factor for wildlife.

The Preferred Alternative would emphasize maintaining these structures, including enlisting local volunteers to help in monitoring and maintenance.

BLM would maintain 12 large existing exclosures and other smaller ones to reduce damage to riparian areas and springs. A host of species would benefit. Fences would conform to BLM wildlife specifications. In addition, BLM would use let-down fences where possible and would remove unused fences if appropriate to facilitate deer and pronghorn movement. Other projects to enhance meadow and riparian areas would also be maintained.

Forest stand characteristics such as vertical canopy layering, tree height or diameter diversity, canopy closure, large snags and downed woody material would be maintained across the landscape within the range California spotted owl to provide suitable habitat. Invasive juniper would be reduced on 15,000 to 20,000 acres where encroachment has altered a site's ecological potential.

Juniper removal would adversely affect some bird species using the juniper for nesting or perching, but restoring the site would increase vegetation biodiversity and benefit sagebrush-obligate species such as sage-grouse by increasing habitat and reducing perch sites for aerial predators.

Upland game birds would benefit from brush piles built to provide cover and shelter where cover is determined to be lacking. Existing waterfowl nesting islands would be maintained and enhanced. Sites would be evaluated for new islands or structures to provide

- cover,
- protection from predators, and
- increased nesting/reproduction opportunities for waterfowl and shorebirds.

Improvements on 2,100 to 3,150 acres of aspen, mountain mahogany, and oak woodland habitats would benefit deer, squirrels, some bird species, and other wildlife by improving stand health and regeneration. Emphasis on selected waterways to improve fisheries would benefit fish and other aquatic species by improving habitat and stream conditions.

Vegetation management would emphasize maintaining healthy vegetation alliances, associations, and ecological sites, and restoring those that are unhealthy, focusing on conserving functional/structural groups. BLM would apply active use of prescribed fire and other actions as suitable and 2 years of rest for shrubs needing it for viable seed production. In the long term, such management would greatly benefit (major impact) all wildlife species as healthy ecosystems with a diversity of vegetation provide quality habitat.

BLM would manage aspen, black oak woodlands, and buffaloberry sites as unique vegetation, using the functional/structural groups' concept. This management would protect these sites and provide long-term benefits to deer, pronghorn, birds, and other wildlife. One 5-acre buffaloberry site is currently fenced. Other sites would be given enough rest to allow for growth outside the reach of livestock.

Juniper woodlands on woodland soils (19,552 acres) would be managed for the successional stages of woodland development. BLM would treat 6,907 acres of unhealthy juniper woodlands and woodlands shown to be invasive into rangeland ecological sites to recover the proper ecological sites. Recovery would have minor adverse short-term effects on bird species using the juniper for nesting or perching, and species using these trees for cover. But treatment would have moderate or more significant beneficial effects on wildlife in general and on such species as deer, pronghorn, and sage-grouse by returning sites to their ecological potential.

Under the Preferred Alternative, 987,779 acres would be open to livestock grazing, and presently unallocated lands might also be considered for grazing. A total of 20,160 acres would be closed to grazing. More acres of livestock grazing would increase the competition for forage among cattle and other ungulates and alter habitat for sagebrush-obligate species, including sage-grouse. But 80% to 90% of all grazed acres would receive rest or deferment, reducing long-term adverse effects to wildlife habitat and competition for forage. Rest would allow vegetation to recover from grazing and could provide important cover for ground-nesting species such as sage-grouse and quail, and hiding cover for small mammals and prey animals.

Intensive grazing strategies would actively change to meet or make progress toward land health standards, which would provide long-term benefits to wildlife. From 2,000 to 3,000 acres of livestock exclosures would be maintained. More land could be added to exclosures as a need is recognized. Building 60 to 80 more miles of fence could benefit wildlife by increasing BLM's ability to regulate the location and timing of grazing. Although they can restrict the mobility of deer and pronghorn, fences would be built to wildlife specifications to reduce adverse effects.

BLM would continue to manage wild horses and burros in three herd management areas (HMAs) comprising 828,569 acres. The appropriate management level (AML) range would continue at 513 to 848. In general, wild horses and burros conflict with deer and pronghorn when occupying the same range. Wild horses and burros can compete for forage and increase soil compaction, erosion, sedimentation, and degradation of accessible stream channels. Under the Preferred Alternative, wild horse and burro effects to wildlife would not significantly change in the short term, but potential long-term adverse effects to wildlife habitats could increase due to habitat degradation and competition for forage.

Under the Preferred Alternative, energy and minerals management actions could result in minor short- and long-term effects to wildlife habitat on 388,620 acres of BLM land in the Eagle Lake Field Office area. For leasable minerals, 139,790 acres in areas of critical environmental concern (ACECs) and special recreation management areas (SRMAs) would be open with seasonal or other restrictions. No surface structures that could be used as raptor perches would be allowed within 2 miles of sage-grouse leks and activities. This requirement would conform to the Conservation Strategy for Sage-Grouse *(Centrocercus urophasianus)* and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit (Northern California Sage-grouse Working Group 2005). Also, 79,678 acres would be designated permanent no surface occupancy (NSO). Existing wilderness study areas (WSAs) and the Eagle Lake Basin ACEC, totaling 414,679 acres, would be closed.

For locatable minerals, the WSAs contain a stipulation of no surface disturbance that requires reclamation, and 8,406 acres of ACECs would be closed. For saleable minerals, the WSAs would be closed in addition to 8,406 acres in ACECs. The entire field office area would be open to decorative stone and flat rock collection.

Energy and minerals actions would remove native vegetation, including sagebrush and bitterbrush. These actions could also alter site conditions, including hydrology and biological crusts, which could result in type conversions of dominant vegetation and the spread of noxious weeds or other invasive plants.

Adverse effects to habitat for fish and other aquatic species include the following:

- erosion,
- ground disturbance,
- hydrologic disruption,
- alteration of groundwater levels, and
- discharge of mine waters to surface sources.

In addition, terrestrial and aquatic species would be disturbed by the presence and accompanying noise of humans and equipment in energy and minerals actions.

The potential for energy and minerals development has not yet been assessed, so it is difficult to determine the potential for effects. Because of the current low demand for energy and minerals development within the field office area, adverse effects would be minor. But future demand might increase, intensifying the potential for adverse effects.

The Preferred Alternative would create two new special recreation management areas (SRMAs), giving the field office area a total of 174,147 acres of SRMA management. These SRMAs would emphasize giving the public a variety of motorized and non-motorized recreational opportunities.

Increased recreation use in some areas would inflict minor to moderate adverse effects on the habitats and populations of the following wildlife:

- lizards,
- ground squirrels,
- nesting raptors,
- breeding waterfowl, and
- upland game birds including sage-grouse.

These impacts would result from human presence or the surface (vegetation or soil) disturbance from recreation activities. The remainder and most of the field office area (848,620 acres) would be managed as an Extensive Recreation Management Area (ERMA) for dispersed recreation. In the ERMA, BLM would develop recreation facilities only as needed to mitigate impacts of visitor use, protect resources, and provide visitor interpretation and information.

The Preferred Alternative would restrict motorized use of the field office area as follows:

- 419 acres would be designated 'open' to motorized use,
- 0 acres would be 'limited to existing roads and trails',
- 760,837 acres would be 'limited to designated routes', and
- 261,511 acres would be designated as 'closed' to motorized use.

The large amount of closed acres would protect terrestrial and aquatic habitats from off-highway vehicle (OHV) damage to soils and vegetation. Closed areas would also protect from disturbance wildlife species and their habitats, including shelters of ground-nesting or ground-dwelling species. The 760,837 acres specified as 'limited to designated routes' would reduce adverse effects and also protect wildlife and habitat.

This alternative proposes up to 15 miles of new motorized route construction and 277 miles of non-motorized route construction within the field office area. This amount of new route construction would slightly (minor impacts) to moderately adversely affect wildlife species and habitat by removing habitat and increasing wildlife disturbance by humans, vehicles, and domestic animals (dogs, horses).

The Preferred Alternative proposes seasonal route closures to protect wildlife habitat on the Cleghorn access road, Horse Lake Road, and the Tablelands. It also proposes two areas of critical environmental concern (ACECs). In the long term these ACECs would benefit wildlife and wildlife habitat by managing these areas to protect their environmental aspects and values.

Utilities/transportation/communications actions under the Preferred Alternative would include review and use of all utility/transportation corridors included in the Western Regional Corridor Study (Western Utility Group 2003) unless environmental analysis finds a potential significant impact to a resource. Under the Preferred Alternative, right-of-way avoidance areas would include lands next to WSAs, ACECs, WSRs, and other special management areas considered high resources of public interest value.

These areas would also be protected from the negligible or minor adverse effects of energy and minerals actions. The Conservation Strategy for Sage-Grouse (*Centrocercus urophasianus*) and Sagebrush Ecosystems within the Buffalo-Skedaddle Population Management Unit (Northern California Sage-grouse Working Group 2005) recommends not granting rights-of-way for such structures within 2 miles of any active or inactive sage-grouse leks. Sage-grouse and other ground-nesting species can experience adverse effects from raptors perching on overhead lines and structures. Aerial perches facilitate the predation of nests and individuals.

Corridor widths would vary under this alternative, depending on the number of parallel facilities. Widths would be at least 2,000 feet (1,000 feet on either side of existing centerlines) unless next to exclusion areas. Corridors could create minor adverse effects to species using this habitat by

- reducing or removing habitat,
- decreasing roadside cover, and
- introducing human or vehicle disturbances.

4.22.10 Summary of Impacts - No Action Alternative

- Timber harvest and artificial regeneration would be minimal, with limited beneficial or adverse effects to wildlife.
- Possible fuel buildup could increase adverse effects in the event of a catastrophic fire.
- Full fire suppression would benefit localized habitat but could increase the possibility of future habitat damage from fires.
- Acres of fuels treatments would be minimal, and fire stabilization and treatment would be conducted only on a case-by-case basis, minimizing long-term benefits to wildlife.
- BLM would manage 15 cultural resource management areas (CRMAs), protecting wildlife habitat.
- Management actions to protect soil would be minimal, and sediment intrusion buffer zones would be established only on a case-by-case basis, which could be detrimental to riparian and aquatic wildlife species and habitat.
- Wildlife would benefit from maintaining guzzlers, exclosures, waterfowl nesting islands, and habitat projects, but no additional projects would be undertaken.
- Vegetation management would provide minor to moderate benefits to wildlife and habitat and, ACECs would be established for aspen, oak, and buffaloberry sites.
- Grazing and wild horse and burro management would continue at present levels with more lands considered for cattle grazing, which would continue or increase adverse effects to wildlife species and habitat.
- The most field office acres would be open to the exploration for and development of saleable, leasable, and locatable minerals and the fewest acres closed or restricted.

- Recreation uses would continue to inflict minor to moderate adverse effects to wildlife species and habitats.
- A total of 562,197 acres would be open to motorized recreation, and 80.5 miles of new non-motorized trail would be built. Minor impacts to wildlife and habitat would continue or increase.
- No ACECs would be designated by the recreation program, and no seasonal route closures would be proposed to protect wildlife habitat or reproductive efforts.
- No right-of-way avoidance areas would be designated, which could increase adverse effects to sage-grouse and other ground-nesting and ground-dwelling species by providing perches for aerial predators.

4.22.11 Summary of Impacts - Alternative 1. Economic Development

- Impacts would be somewhat similar to those under the No Action Alternative.
- Forest harvest volumes would be higher than under No Action, as would acreage of artificial regeneration.
- Full fire suppression would still be used, but acres of fuels treatments would be increased, providing more long-term benefits to wildlife habitat and decreasing the buildup of fuels and the potential for catastrophic wildfire.
- Ten CRMAs would be managed, protecting wildlife habitat.
- Soil resource management would strive to meet land health standards, and sediment intrusion buffer zones would be 50 feet wide, which would benefit terrestrial and aquatic species.
- Wildlife would benefit from maintenance of guzzlers, exclosures, waterfowl nesting islands, and habitat projects. More projects would be developed as they are determined to be needed.
- Invasive juniper would be reduced on 10,000 to 15,000 acres, which would return sites to their ecological potential and increase habitat for species such as sage-grouse, other sagebrush-obligate species, and ungulates.
- Improvements on 1,050 to 2,100 acres of special habitats such as aspen and oak woodlands and selected waterways would enhance habitats for a variety of terrestrial and aquatic wildlife species.
- Vegetation would be managed as a commodity, and only areas of priority to mule deer would be rested from grazing for two growing seasons.
- ACECs would be established for aspen, oak, and buffaloberry sites.
- Acres open to grazing would be the highest among the alternatives, and rest or deferment would be low, which would inflict the most impact on wildlife habitat and species competing for forage.
- Significant acreage would still be open for mineral uses, but acres in WSAs and ACECs would be closed or restricted.
- Recreation uses would continue inflict minor to moderate adverse impacts. Two new SRMAs would be created, increasing adverse effects from more disturbance and habitat fragmentation.

- A total of 419 acres would be open and 20,658 acres closed to motorized recreation. The remaining acres would be limited, benefiting wildlife by reducing damage to habitat and disturbance to individuals.
- Up to 15 miles of motorized and 277 miles of non-motorized trails are proposed.
- No ACECs would be designated by the recreation program under this alternative, and no seasonal route closures are proposed to protect wildlife habitat or reproductive efforts.
- The only right-of-way avoidance areas designated would be WSAs.
- Minimum corridor widths of 2,000 feet would reduce protective measures and increase adverse effects to sage-grouse and other ground-nesting and ground-dwelling species by providing perches for aerial predators. Habitat disturbance and removal would also increase.

4.22.12 Summary of Impacts - Alternative 2. Ecosystem Restoration

- Most impacts to wildlife and wildlife habitat would be less than under any other alternative.
- More forest acres would be harvested and treated, causing short-term adverse effects but resulting in long-term benefits by increasing forest health and management and emphasizing wildlife and old growth.
- Most of the field office area would be managed under a range of appropriate management response (AMR) for fire, which would benefit wildlife in the long term by increasing options for fire suppression and fuels treatment.
- More acres are proposed for prescribed fire and other fuels treatments than under any other alternative.
- Twenty-five cultural resource management areas (CRMAs) would be managed, protecting wildlife habitat.
- Soils management would emphasize meeting land health standards and establishing sediment intrusion buffer zones of 100 feet, which would benefit terrestrial and aquatic habitats and species over the long term.
- Wildlife would benefit from maintenance of guzzlers, exclosures, waterfowl nesting islands, and habitat projects. Other projects would be developed as the need is determined.
- The use of let-down fences would be considered where possible. Unused fences would be removed to reduce impacts to ungulates.
- Reducing invasive juniper on 15,000 to 20,000 acres would benefit habitat for species such as sage-grouse, ungulates, and other sagebrush-obligate species by increasing vegetation biodiversity and returning sites to their ecological potential.
- Managing vegetation to maintain healthy ecological sites and restore unhealthy sites to create quality wildlife habitat would provide minor to major benefits to wildlife and habitats.
- From 2,100 to 3,150 acres of special habitats, including aspen, California black oak, and buffaloberry sites, would be managed as unique vegetation, benefiting ungulates, birds, and other species.
- Acres open to livestock grazing would be the lowest under all alternatives, those closed would be the highest, providing the greatest benefits to wildlife habitat and species competing for forage.

- Rest or deferment on all acres in all allotments–resting allotments or pastures 2 years out of every 3–would significantly benefit wildlife habitat over the long term.
- Animal unit months (AUMs) of forage and annual use of AUMs due to rest periods would also decrease adverse effects to wildlife species competing for forage.
- The Eagle Lake Field Office area would have only two herd management areas (HMAs) for wild horses and burros, which would reduce competition for forage and damage to habitat.
- Acres open to mineral uses would be the lowest, and those closed or restricted (WSAs and ACECs) would be the highest under any of the alternatives. Restrictions would apply to protect sage-grouse leks, known raptor nests, and other sensitive wildlife habitats.
- Recreation sites would continue to inflict minor to moderate adverse impacts.
- No new special recreation management areas (SRMAs) would be established.
- The only motorized use would be on 721,123 acres designated as ‘limited to designated routes’. No acres would be ‘open’ , and 301,644 acres would be designated as ‘closed’. These restrictions would benefit wildlife and wildlife habitat by decreasing damage to habitat and disturbance to individuals.
- Alternative 2 would close 58.5 miles of motorized routes and create 22.5 miles of non-motorized routes.
- Two ACECs would protect wildlife habitat, as would seasonal route closures on the Cleghorn access road, Horse Lake Road, and the Tablelands.
- Minimal impacts would result from rights-of-way because they would not be granted within 2 miles of active or inactive sage-grouse leks or next to WSAs, ACECs, WSRs, and other special management areas. In addition, corridor widths would be kept to a minimum and handled on a case-by-case basis.

4.22.13 Summary of Impacts - Alternative 3. Traditional Uses

- Impacts from this alternative would be similar to those under either the No Action or the Economic Development Alternatives.
- Slightly fewer forested acres would be harvested and treated than under No Action or Alternative 1, but slightly more acres would be treated under fuels management.
- Fifteen CRMAs would be managed, protecting wildlife habitat.
- Wildlife and habitat would experience adverse effects relating to soils because construction would not be restricted and sediment intrusion buffer zones would not be established.
- Vegetation would be managed as under Alternative 1.
- Livestock grazing would increase adverse effects because minimal livestock rest or deferment would be required (the lowest under any alternative), exclosures would not be maintained, and AUMs could be based on past or traditional uses and could therefore be higher. These actions would increase adverse effects to wildlife and habitat from more livestock, more concentrated livestock, and increased damage to springs and water sources. In addition, presently unallocated lands would be used for livestock grazing, compounding the previously stated effects.

- For leasable minerals, actions would be the same as under Alternative 1, except slightly fewer acres would be open and more (ACECs for 11,210 acres) would contain seasonal and other restrictions.
- Actions for locatable minerals would be identical to the No Action Alternative, and those for saleable minerals would be identical to Alternative 1.
- Recreation actions would be similar to those under the No Action Alternative because no new SRMAs would be designated, and no seasonal route closures are proposed to protect wildlife habitat or reproductive efforts. No ACECs would be designated.
- Management actions for motorized travel contain the most acres designated as 'open,' which would increase adverse effects to wildlife.
- No new motorized route construction is proposed, which would benefit wildlife, but route closures are also not proposed. A total of 18 miles of new non-motorized trails are proposed.
- Utilities/transportation/communications actions would be identical to those under Alternative 1 except for corridor widths. Development would be maximized within existing corridors, and no more corridors would be designated. Adverse effects could increase within the existing corridors, but wildlife and habitat would benefit from no more corridors being built.

4.22.14 Summary of Impacts - Preferred Alternative

- Under the Preferred Alternative (as under Alternative 2), 1,100 forested acres would be treated each year, causing short-term adverse effects but resulting in long-term benefits by increasing forest health and management and emphasizing wildlife and old growth.
- Most of the field office area would be managed under a range of appropriate management response (AMR) for fire, which would provide long-term benefits for wildlife by increasing options for fire suppression and fuels treatment. More acres are proposed for prescribed fire and other fuels treatments under this alternative (and Alternative 2) than under any other alternatives.
- Twenty-five CRMAs would be managed, protecting wildlife habitat.
- Soils management would benefit wildlife and wildlife habitat by striving to meet land health standards, restricting construction activities and equipment, and establishing 50-foot or wider sediment intrusion buffer zones.

  Natural recovery processes would be emphasized, and bio-engineered approaches would be used if needed. These approaches reduce adverse effects to wildlife and habitat and provide for long-term benefits.
- Wildlife would benefit from maintaining guzzlers, exclosures, waterfowl nesting islands, habitat projects, and other projects found to be needed.
- The use of let-down fences would be considered where possible, in addition to removing unused fences, to reduce adverse effects to ungulates.
- Reducing invasive juniper on 15,000 to 20,000 acres would increase habitat for species such as sage-grouse, other sagebrush-obligate species, and ungulates by increasing vegetation biodiversity and returning sites to their ecological potential.
- Vegetation would be managed to maintain healthy ecological sites and restore unhealthy sites to provide quality wildlife habitat.

- From 2,100 to 3,150 acres of special habitats, including aspen, California black oak, and buffaloberry sites would be managed as unique vegetation, benefiting ungulates, birds, and other species.
- Livestock grazing and wild horse and burro management would continue as under current management (No Action Alternative), with increased acres receiving rest or deferment in more allotments for livestock grazing, and more miles of fence being built or rebuilt. Although fences can restrict deer and pronghorn mobility, they would be built to wildlife specifications to reduce adverse effects.
- For leasable minerals the Preferred Alternative is the most beneficial to wildlife because it contains the least acres open under standard terms and conditions and the most acres closed, open with restrictions, and under permanent no surface occupancy.
- For locatable and saleable minerals, adverse effects to wildlife and habitat would slightly increase because more acres would be open to activities and fewer acres would be closed (certain ACECs and WSAs). This alternative is a compromise among the other alternatives.
- Minor to moderate adverse effects would continue to result from recreation uses.
- Two new SRMAs would be created, increasing adverse effects to species from more disturbance and habitat fragmentation (than under alternatives that do not designate new SRMAs).
- A total of 419 acres would to 'open' to motorized recreation, and 261,511 acres would be closed. The remainder of the field office area would be 'limited to designated routes', which would benefit wildlife by reducing disturbance to wildlife and damage to habitat.
- Up to 15 miles of motorized and 277 miles of non-motorized trails are proposed. These trails would increase disturbance to wildlife and damage to habitat.
- A total of 58.5 miles of motorized routes would be closed, benefiting wildlife.
- Two ACECs would protect wildlife habitat, as would seasonal route closures on the Cleghorn access road, Horse Lake Road, and the Tablelands.
- Actions for utilities/transportation/communications are a combination of those under Alternatives 1 and 2, where right-of-way avoidance areas would consist of lands next to WSAs, ACECs, WSRs, and other special management areas. Wildlife would benefit from these avoidance areas. However, corridor widths would be at least 2,000 feet, which reduces protective measures and increases adverse effects to sage-grouse and other ground-nesting and ground-dwelling species by providing perches for aerial predators and increasing habitat disturbance and removal.

4.22.15 Cumulative Effects

The major cumulative effects to wildlife and wildlife habitat are effects on habitat. Habitat conversion, degradation, fragmentation, and loss all adversely affect wildlife. Impacts from activities implemented by others on lands next to or near BLM-administered lands create more cumulative impacts for actions authorized by BLM. Such activities affecting BLM lands within the Eagle Lake Field Office area may result from federal agencies, including the following:

- adjacent BLM field offices in California and Nevada;
- U.S. Forest Service;
- U.S. Fish and Wildlife Service;

- Department of Defense;
- state agencies, including the California Department of Fish and Game, California Lands Commission, and California Department of Corrections; and
- private landowners.

Major programs that are considered relevant to the evaluation of cumulative impacts on terrestrial and aquatic wildlife species and habitat within the field office area include the following:

- implementing federal recovery plans and biological opinions for listed species on other federal lands;
- completing and implementing ongoing multi-agency planning efforts such as those for sage-grouse and juniper management;
- implementing similar management actions on adjacent lands administered by other BLM field offices and the U.S. Forest Service to manage ecosystems to achieve objectives similar to those for BLM-administered lands (i.e. land health standards, Healthy Forests Initiative, ecosystem management);
- implementation and project-level implementation of other existing or future management plans;
- acquiring and managing land by the California Department of Fish and Game, including
    - revising deer and pronghorn herd plans;
    - converting native habitats to agricultural uses;
- subdividing private lands, including conversion from agricultural and grazing uses to residential uses, according to Susanville (Naphtali H. Knox & Associates and others 1990) and Lassen County (Simcox and Funke 1999) General Plans;
- water development issues for interbasin transfer to the City of Reno or other regional areas; and,
- future geothermal or other energy development.

Actions such as the continued reliance on full fire suppression by BLM and other federal and state agencies could contribute to cumulative adverse effects on wildlife and habitat by increasing the buildup of fuels and decadence in habitats and increasing the risk of habitat loss due to catastrophic wildfires.

Significant reductions in livestock grazing could have cumulative adverse effects to wildlife and wildlife habitat if livestock operations on private lands are disrupted. Landowners depending on Eagle Lake Field Office lands for seasonal grazing could have to scale back operations on private lands (convert native lands for grazing or intensify management to offset forage losses on BLM lands) or abandon ranching and sell their lands for other uses. Also, private ranchlands in the region provide important habitat for wildlife species, including sage-grouse (Northern California Sage-grouse Working Group 2005), pronghorn, deer, and waterfowl. Such changes could adversely effect local populations.

BLM projects proposed on lands administered by the Eagle Lake Field Office would be subject to National Environmental Policy Act (NEPA) documentation and permitting decisions, which would address cumulative effects on a project-level basis.

4.22.16 Mitigation Measures

Most actions for wildlife management relate to mitigation measures applied to certain actions. Mitigation generally takes the form of changes in type of action, the size or magnitude of an action, or changes in timing of an action. Mitigation measures could entail a seasonal or permanent closure to a particular activity or structure, a change in type of action such as using fire versus mechanical fuels reduction, or adjusting the size of an action such as limiting acreage cut or otherwise treated.

Some mitigation measures to reduce impacts to terrestrial and aquatic wildlife and habitat from implementing management actions have been already been addressed in Chapter 2 (i.e. protection for known raptor nests and sage-grouse leks). Mitigation that may be required for a particular action will be addressed as needed at the project level. Mitigation measures would likely reduce significant impacts to habitat and to the viability of terrestrial and aquatic species populations but may not avoid all adverse impacts.

4.22.17 Unavoidable Adverse Impacts

Unavoidable adverse impacts to terrestrial and aquatic species populations from implementing other resource management actions would occur through habitat loss, degradation, fragmentation and conversion, including the following:

- reduced or lost vegetation biodiversity and ecological site function or potential;
- population reduction or isolation or both; and
- loss of prey base or forage.

Mitigation measures as described above and in Chapter 2 would reduce these impacts to the extent possible. However, some impacts would result to varying degrees under all of the proposed alternatives. The most unavoidable adverse impacts would likely result under Alternative 3 because of its increased focus on grazing and recreation, followed by Alternative 1, the No Action Alternative, and Alternative 2.

4.22.18 Short-Term Uses versus Long-Term Productivity

Construction of roads for other resource actions such as forestry, fire, fuels, and energy and mineral operations would constitute short-term uses that could cause long-term wildlife habitat fragmentation unless these roads are rehabilitated or closed. Other resources that could degrade or compete for wildlife habitat include

- trail building for motorized and non-motorized use,
- energy structures,
- rights-of-way, and
- livestock and wild horse and burro grazing.

These activities could have long-term adverse effects to wildlife species and habitat, not only through habitat loss, degradation, and fragmentation, but through disturbance and possible spread of noxious weeds. Noxious weeds compete for water and space with native plants and can alter a site's vegetation biodiversity. Habitat would not be achieving ecological potential and would decrease in long-term productivity.

4.22.19 Irreversible and Irretrievable Impacts

Irreversible and irretrievable impacts could occur if habitat loss, degradation, or fragmentation results in isolation of wildlife populations into smaller populations that are more susceptible to extinction from random events. Fragmentation could also alter or eliminate migration corridors used by wildlife to move between winter and summer habitats or habitat used for reproduction and upbringing of young. Fragmentation could thus create an irretrievable loss in a species' productivity and adversely affect populations.

Chapter 5: CONSULTATION AND COORDINATION

Chapter 5. Consultation and Coordination

In the summer of 2003, BLM initiated the revision of management plans for the Alturas, Eagle Lake, and Surprise Field Offices. The issues that were addressed in the planning process were identified through consultation and coordination with interested and affected groups and individuals. This chapter includes a brief description of the process used during the preparation of the Eagle Lake Draft RMP to keep people informed about and involved in the decision process.

5.1 Federal Register Notice

A Notice of Intent was published in the Federal Register in 2003. The announcement contained a request for comments and issues to be addressed in the RMP and concerns over managing public lands.

5.2 Public Meetings and Field Trips

BLM hosted six public scoping meetings in August and September 2003 to identify issues central to the development of the three new RMPs for northeastern California. Approximately 205 persons attended these meetings; dates and locations of the meetings are in Table 1.1-3. Four meetings were held in the planning area (Alturas, Cedarville, Susanville, and Fall River Mills). Additional meetings were held in Redding, California and Reno, Nevada to ensure that the concerns of user groups residing outside the planning area were considered during the planning process. BLM also conducted a field tour of each field office in August 2003. Twenty members of the public attended these tours.

Another addition to the traditional planning process was conducting community workshops to discuss economics and social values. Three social and economic outreach workshops were held in the three field office areas in late fall 2003; these were attended by 42 community members. The workshops focused on presenting economic data and working with community members to arrive at a common understanding of the economic drivers of communities, local social values related to natural resources and places, community goals and vision, and the role of BLM in the community.

Additional public meetings were held in the Alturas, Eagle Lake, and Surprise Field Offices in mid-February 2005 to brief community members on the progress of the alternatives development process.

5.3 Plan Updates

BLM also provided periodic plan updates that were mailed to all members of the BLM RMP mailing list. News releases were broadcast on local television and radio stations and were published in local newspapers.

5.4 Collaborative Planning

The proximity of BLM lands to local communities increases use demands and the need for partnerships and coordination to provide for multiple needs and reduce conflicts. The collaborative process was designed to put government representatives and citizens together to resolve the significant planning issues. See Table 5.1-1 at end of section for a list of key collaboration meetings.

4.1. Intergovernmental Agency Representatives

BLM sent letters to numerous federal, state, and local agencies and tribal governments, inviting them to be official cooperating agencies in this planning effort. Cooperating agency status is a form of collaboration established in NEPA for government entities with special expertise, shared decision making, or relevant interest in a federal agency project. Table 5.1-2 lists the intergovernmental agency representatives who participated in the planning process, in addition to BLM ID team members identified in the "List of Preparers" at the end of this chapter.

4.2. Northeast California Resource Advisory Council

The Northeast California Resource Advisory Council is a committee formally chartered under the Federal Advisory Committee Act to provide a broad representation of interests to advise federal land managers in the northeast California Region. Table 5.1-3 contains the Northeast California Resource Advisory Council membership list.

Table 5.1-2 Intergovernmental Agency Representatives Who Participated in Preparation of the Draft RMP/EIS

Agency/Organization and Contact	Position	Office and Location
BLM		
Paul Roush	BLM NorCal Wildlife Biologist	Arcata Field Office, Arcata, CA
Lassen County		
Jack Hanson	Chairman, Board of Supervisors	Lassen County, Susanville, CA
Robert Sorvaag	Director, Economic Development Council	Lassen County, Susanville, CA
Rick Simon	Planning Division	Lassen County, Susanville, CA
Modoc County		
Sean Curtis	Resource Analyst	Modoc County, Alturas, CA
Washoe County		
Bill Whitney	Planner	Washoe County, Reno, NV
U.S. Fish and Wildlife Service		
Leonard Le Captain	Wildlife Biologist	USFWS, Klamath Falls, OR
Stewart Reid	Wildlife Biologist	USFWS, Klamath Falls, OR
Rick Hardy	Wildlife Biologist	USFWS, Klamath Falls, OR
Kevin Kritz	Wildlife Biologist	USFWS, Reno, NV
California Department of Fish and Game (CDFG)		
Jim Nelson	Wildlife Biologist	CDFG, Redding, CA
Frank Hall	Wildlife Biologist	CDFG, Wendel, CA
Nevada Department of Wildlife (NDOW)		
Roy Leach	Western Regional Supervisor	NDOW, Reno, NV

Note: The individuals listed in this table are in addition to the BLM staff members noted in the List of Preparers.

Table 5.1-3 Northeast California Resource Advisory Council Membership Roster

Individual	Interest
Martin Balding	National/regional environmental interests
Frank Bayham	Historical/archaeological resources
Leo Chauvet	Off-highway vehicle use on federal land
John Erquiaga	Livestock grazing on federal land
Wesley Finley	Wild horses and burros
Tim Garrod	Public at large
Jim Chapman	Elected officials
Nancy Huffman	Public at large
Henricus Jansen	Academicians
Ken McGarva	Livestock grazing on federal land
Gerald Nordstrom	National/regional environmental interests
Todd Swickard	Livestock grazing on federal land
Vacant	Tribes
Skip Willmore	Forest products
Rosalee Bradley	Dispersed recreation

5.5 Agencies and Organizations Consulted

BLM maintains a mailing list of approximately 850 agencies, organizations, and individuals to inform them of the ongoing planning process for three field offices. The following lists contain the names of agencies and organizations to which the Alturas, Eagle Lake, and Surprise Draft RMPs/EISs have been sent for review:

5.1. Federal Agencies

- U.S. Bureau of Indian Affairs
- U.S. Bureau of Reclamation
- National Oceanic and Atmospheric Administration Fisheries Service
- U.S. Environmental Protection Agency
- National Park Service
- National Resources Conservation Service
- U.S. Fish and Wildlife Service
- U.S. Department of Food and Agriculture Forest Service
- U.S. Forest Service
- U.S. Geological Survey

5.2. State Agencies

- California Department of Conservation
- California Department of Fish and Game
- California Department of Food and Agriculture
- California Department of Forestry and Fire Protection

- California Department of Parks and Recreation
- California Department of Water Resources
- California Department of Transportation
- California Energy Commission
- California Environmental Protection Agency
- California Resources Agency
- California State Historic Preservation Office
- California State Water Resources Control Board
- Central Valley Regional Water Quality Control Board
- Lahontan Regional Water Quality Control Board
- North Coast Regional Water Quality Control Board
- Nevada Department of Wildlife
- Nevada Department of Conservation and Natural Resources
- Nevada Department of Transportation
- Nevada State Historic Preservation Office

5.3. Counties

- Humboldt County (NV) Planning Department
- Lassen County (CA) Planning Department
- Modoc County (CA) Planning Department
- Nevada County (CA) Planning Department
- Plumas County (CA) Planning Department
- Shasta County (CA) Planning Department
- Sierra County (CA) Planning Department
- Siskiyou County (CA) Planning Department
- Washoe County (NV) Planning Department

5.4. Native America Tribes

- Redding Ranchería
- Shasta Nation
- Shasta Tribe, Inc.
- Modoc Tribe
- Klamath Tribes
- Susanville Indian Ranchería
- Cedarville Ranchería of Northern Paiute Indians
- Alturas Ranchería of Pit River Indians
- Fort Bidwell Community of Paiute Indians
- Pit River Tribe of California
- Summit Lake Paiute Tribe
- Fort McDermitt Paiute/Shoshone Tribe
- Greenville Ranchería of Maidu Indians
- Pyramid Lake Paiute Indian Tribe
- Washoe Tribe of Nevada and California

5.5 Elected Officials

California

Representative John T. Doolittle, Fourth Congressional District
U.S. Senator Barbara Boxer
U.S. Senator Dianne Feinstein

Senator Dave Cox, First California District
Assembly Member Rick Keene, Third California District

Nevada

Representative James Gibbons, Second Congressional District
U.S. Senator John Ensign
U.S. Senator Harry Reid

State Senator Dean Rhodes

Assembly Member John Marvel, District 32
Assembly Member William Horne, District 34

Table 5.1-1 Key Interdisciplinary Team and Cooperative Agency Events

Date	Event Summary
01/26–01/28/04	Alturas, Eagle Lake, Surprise (AELS) Resource Management Plans (RMPs) Alternatives Development Workshop – BLM and cooperative agencies
01/30/04	Northeast California Resource Advisory Council (NECA RAC) meeting
02/10/04	RMP meeting with wildlife agencies, Susanville
02/10/04	AELS RMPs land use alternatives public meeting, Susanville
02/10/04	Lassen County Board of Supervisors – RMP update
02/11/04	AELS RMPs land use alternatives public meeting, Alturas
02/12/04	AELS RMPs land use alternatives public meeting, Cedarville
02/17–02/19/04	RMP alternatives workshop, Susanville – BLM and cooperating agencies
02/26/04	Eagle Lake Field Office RMP Interdisciplinary (ID) Team alternatives formulation
03/01/04	Eagle Lake Field Office RMP ID Team alternatives formulation
03/01/04	Government consultation, AELS RMP/EIS, Humboldt County Commission in Winnemucca
03/02/04	Alturas Field Office RMP ID Team alternatives formulation
03/02/04	Fort Bidwell Reservation meeting – RMP update
03/06/04	Big Valley/Fall River Cattlemen's Association, Bieber – RMP update
03/06/04	Eagle Lake Field Office RMP ID Team alternatives formulation
03/10/04	Alturas Field Office RMP ID Team alternatives formulation
03/10/04	Surprise Field Office RMP ID Team alternatives formulation
03/11/04	Eagle Lake Field Office RMP ID Team alternatives formulation
03/12/04	Pit River Tribe RMP meeting—RMP update
03/15/04	Memorandum of Understanding between BLM and Lassen County Board of Supervisors
03/15/04	Eagle Lake Field Office RMP ID Team alternatives formulation
03/15–03/17/04	Alturas Field Office RMP ID Team alternatives formulation
03/17/04	Honey Lake EIS team – RMP update
03/18/04	Surprise Field Office RMP ID Team alternatives formulation
03/19/04	Surprise Field Office RMP ID Team alternatives formulation
03/23/04	Eagle Lake Field Office RMP ID Team alternatives formulation
03/24/04	Alturas Field Office RMP ID Team alternatives formulation
03/24/04	Eagle Lake Field Office RMP ID Team alternatives formulation
03/25/04	Surprise Field Office RMP ID Team alternatives formulation
03/31/04	Eagle Lake Field Office RMP ID Team alternatives formulation
04/12–04/13/04	Surprise Field Office ID Team – impact assessment and development of preferred alternatives

Date	Event Summary
04/13–04/15/04	Eagle Lake Field Office ID Team – impact assessment and development of preferred alternatives
04/15/04	Pit River Tribe RMP meeting
04/16/04	NECA RAC RMP subcommittee – review of AELS alternatives
04/19–04/23/04	Alturas Field Office ID Team – impact assessment and development of preferred alternatives
04/20–04/23/04	Eagle Lake Field Office ID Team – impact assessment and development of preferred alternatives
4/20/04	RMP meeting with Modoc County Board of Supervisors
04/22–04/23/04	Surprise Field Office ID Team – impact assessment and development of preferred alternatives
04/26–04/28/04	Alturas Field Office ID Team – impact assessment and development of preferred alternatives
04/27/04	Meeting with Honey Lake EIS team
04/30/04	NECA RAC meeting – AELS alternatives presented
05/12/04	Modoc County Land Use Committee RMP briefing
05/18/04	RMP Status Report to Lassen County Supervisors
06/07–06/08/04	BLM/AELS management team and ID Team meeting
06/09/04	Modoc County Land Use Committee RMP briefing
06/15/04	BLM State Director briefing
06/17/04	NECA RAC RMP subcommittee – preferred alternatives review
06/29/04	NECA RAC RMP subcommittee meeting
07/07/04	RMP-SHPO cooperative agency (Nevada)
07/28/04	AELS RMP biological assessment committee meeting – BLM, USFWS
08/20/04	NECA RAC meeting – RMP update
09/15/04	Western Juniper EIS public meeting, Susanville
09/28/04	Cooperative agreement with Susanville Indian Ranchería
01/14/05	NECA RAC meeting – RMP update
01/25-01/26/05	Eagle Lake Field Office ID Team – Format Chapter 2 Alternatives Summary Table
03/16– 03/17/05	BLM Environmental Consequences Workshop – Alturas, Eagle Lake, and Surprise RMPs Interdisciplinary (ID) Team meeting to develop environmental consequences
04/15-04/16/05	Eagle Lake Field Office ID Team – Final review of Chapter 2 Alternatives
06/15-06/16/05	Eagle Lake Field Office ID Team – Development of Environmental Consequences
07/14/05	Lassen County Chamber of Commerce – RMP Update
07/19/05	Eagle Lake Field Office ID Team – Review of Environmental Consequences
08/03/05	Nevada State Historic Preservation Office – RMP briefing
08/03/05	Washoe County Supervisors and Planning Commission – RMP briefing

Date	Event Summary
08/03/05	RMP briefing to Congressman James Gibbons, Senator Harry Reid, and Senator John Ensign
08/11/05	NECA RAC meeting – RMP update
08/15/05	Modoc County Board of Supervisors – RMP update
08/24/05	Interagency Wildlife Meeting – discussion of management actions for wildlife within the Preferred Alternative for the Alturas, Eagle Lake, and Surprise RMPs
8/31/05	Nevada State Historic Preservation Office – RMP briefing
8/31/05	RMP briefing to Congressman John Doolittle
8/31/05	Summary of Alturas, Eagle Lake, and Surprise RMPs - briefing to BLM California State Office
9/13/05	Summary of Alturas, Eagle Lake, and Surprise RMPs - briefing to BLM Washington Office
10/15/05	Fort Bidwell Indian Community Council - RMP briefing
10/24/05	Lassen County Economic Development Council – RMP slideshow briefing

5.6 List of Preparers

Individuals who participated in the preparation of the Eagle Lake Draft RMP/EIS are listed below.

Name and Affiliation	Qualifications	Professional Experience and Expertise
Dayne Barron BLM Eagle Lake Field Office	B.S. Forest Management University of Montana M.S. Silviculture Colorado State University	Eagle Lake Field Office Manager, 16 years experience.
Rhonda Sue Noggles Interdisciplinary Planner BLM Alturas, Eagle Lake, and Surprise Field Offices	B.S. Natural Resources/ Rangeland Management Humboldt State University, Arcata, California	22 years experience as Rangeland Specialist (Natural Resources Conservation Service); 2 years experience in RMP Planning (BLM).
Air Quality		
Jerry Wheeless BLM Eagle Lake Field Office	Jerry Wheeless BLM Eagle Lake Field Office	Currently attending Colorado State University; pending 401 series qualifications
Paul Whitcome BLM Eagle Lake Field Office	B.S. Biology University of Nevada, Reno	Assistant Fire Management Officer, Northern California Region, 30 seasons/years fire management experience. Expertise in fire planning, prescribed fire, and suppression operations.
Shannon Hatcher Jones & Stokes	B.S. Environmental Science and Environmental Health and Safety Oregon State University	Air Quality Specialist, 3 years experience. Expertise in environmental impact analysis, air quality science, and environmental noise monitoring.
Cultural Resources		
Don Manuel BLM Eagle Lake Field Office	B.A. Anthropology California State University, Stanislaus Graduate Studies, Anthropology California State University, Chico	Archaeologist, 34 years experience. Expertise in cultural resources management, cultural resources law enforcement, archaeological field methods and regional studies, cultural ecology, and integrated resource management planning. Special expertise in Great Basin-California prehistory, ethnography and history, military history and the Indian wars. Meets the Secretary of the Interior's guidelines for a professional archaeologist.
Karen Crawford Jones & Stokes	B.A. Anthropology University of California, Long Beach M.A. Anthropology University of California, Davis	Archaeologist, 5 years experience. Expertise in prehistoric and historic archeology. Meets the Secretary of the Interior's guidelines for a professional archaeologist.

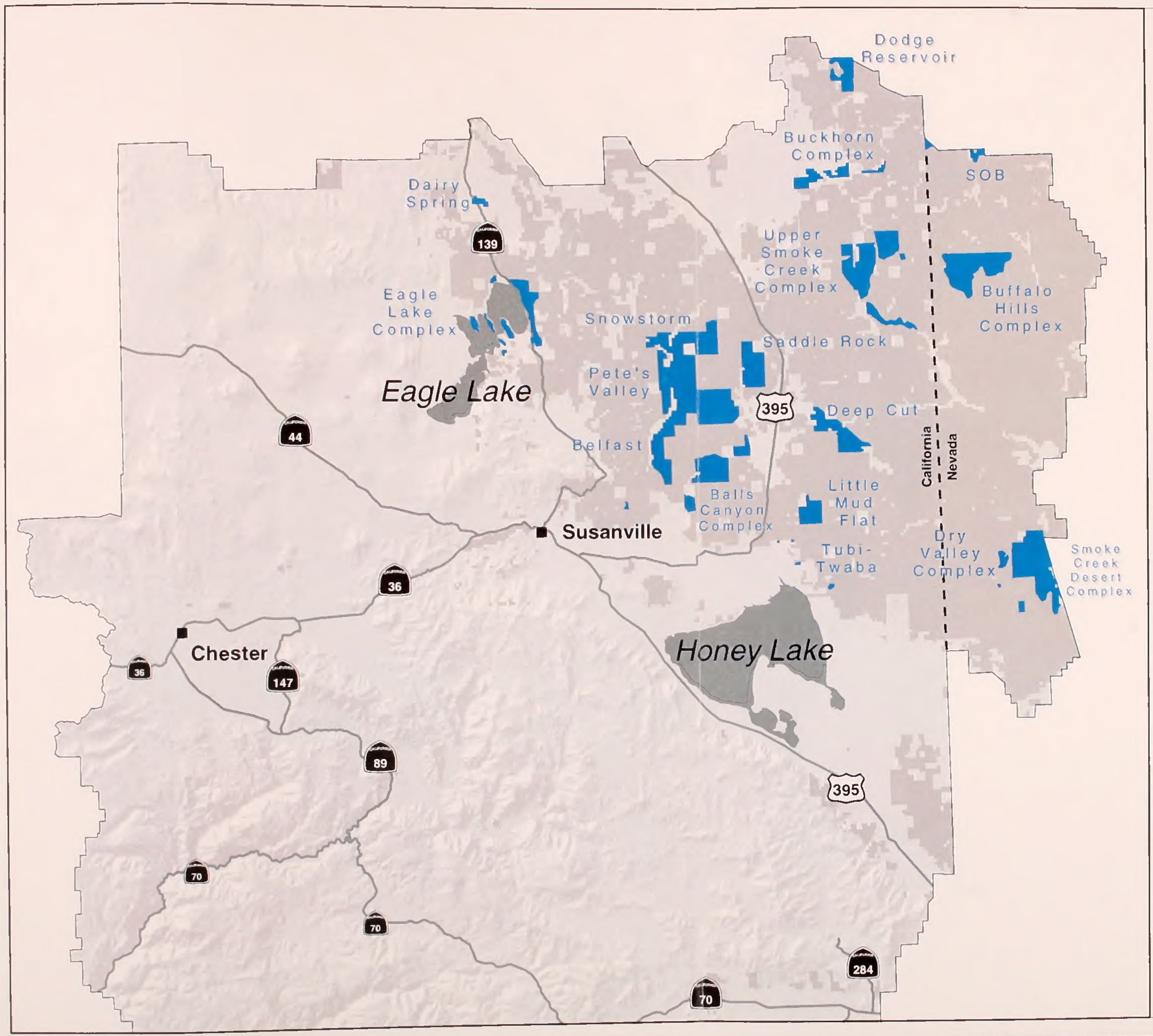
Name and Affiliation	Qualifications	Professional Experience and Expertise
Fire and Fuels		
Jerry Wheeless BLM Eagle Lake Field Office	Currently attending Colorado State University; pending 401 series qualifications	Fire Management Officer, 15 years experience. Expertise in fire suppression tactics and strategy; special emphasis on fuels management.
Paul Whitcome BLM Eagle Lake Field Office	B.S. Biology University of Nevada, Reno	Assistant Fire Management Officer, Northern California Region, 30 seasons/years fire management experience. Expertise in fire planning, prescribed fire, and suppression operations.
Jon Waggoner Jones & Stokes	B.A. Psychobiology University of California, Davis Special Training: Burn Boss—Prescribed Fire Ignition	Fire and Fuels Specialist, 5 years experience. Expertise in fire ecology, fuels management, and post-fire restoration.
Soil and Water Resources		
George Wingate BLM Eagle Lake Field Office	B.S. Forest Management California State University, Humboldt M.S. Wildland Watershed Management California State University, Humboldt	Hydrologist, 33 years experience. Expertise in wildland hydrology, water quality, soils, erosion and sedimentation control, soil interpretation), wildland watershed management, and forest management.
Jeff Peters Jones & Stokes	B.A. Geology Colby College M.A. Geography University of Oregon	Geologist/Geomorphologist, 2 years experience. Expertise in impact assessment related to geology, seismicity, soils, hydrology, and groundwater issues in support of NEPA documents.
Steven Renehan Jones & Stokes	B.A. Geography University of California, Santa Barbara M.A. Geography University of California, Santa Barbara	Hydrologist/Data Analyst, 6 years experience. Expertise in water quality analysis and modeling.
Terrestrial and Aquatic Wildlife		
Melissa Nelson BLM Eagle Lake Field Office	B.S. Wildlife Science Purdue University	Wildlife Biologist, 13 years experience. Expertise in sensitive species, waterfowl, forest carnivores, and forest habitat management.

Name and Affiliation	Qualifications	Professional Experience and Expertise
Dan Airola Jones & Stokes	B.A. Biology University of California, Berkeley M.S. Wildland Resource Science (wildlife emphasis) University of California, Berkeley	Biologist, 25 years experience. Expertise in wildlife biology and management, environmental law, biological resource impact assessment, mitigation planning and monitoring, endangered species assessments, natural resource policy analyses, conservation biology planning, environmental permitting and negotiation, remote imagery interpretation, statistical analysis, wildlife survey techniques, and habitat evaluation procedure analysis.
John Sterling Jones & Stokes	B.A. English California State University, Humboldt	Wildlife Biologist, 22 years experience. Expertise in avian research studies, wildlife surveys, conservation biology, special-status species analyses, and impact assessments.
Vegetation		
Don Armentrout BLM Eagle Lake Field Office	B.S. Wildlife Management University of Nevada, Reno	Ecologist, 28 years experience. Expertise in wildlife habitat, rangeland ecology, inventory and monitoring, NEPA, and ESA.
Carolyn Gibbs BLM Eagle Lake Field Office	B.A. Plant Biology University of California, Davis	Botanist/ Weed Coordinator, 10 years experience.
Ralph Mauck BLM Eagle Lake Field Office	B.S. Range and Wildlife Management California State University, Humboldt	Rangeland Management Specialist, 27 years experience with BLM. Emphasis on riparian management and range improvements.
Susan Bushnell Jones & Stokes	B.S. Plant Ecology University of California, Berkeley	Plant Ecologist, 13 years experience. Expertise in conducting extensive botanical field surveys and preparing environmental compliance documents.
Brad Schafer Jones & Stokes	B.S. Biology Western Illinois University, Macomb	Botanist, 9 years experience. Expertise in mapping and assessing biological systems, plant community mapping and interpretation of aerial photographs, rare and endangered species surveys, floristic inventories, wetland delineations, and NEPA assessments.

Name and Affiliation	Qualifications	Professional Experience and Expertise
Visual Resources, Recreation, and Special Management Areas		
Stanley Bales BLM Eagle Lake Field Office	B.S. Recreation University of Utah	Outdoor Recreation Planner, 25 years experience. Expertise in recreation, OHV management, visual resource management, and trails.
Duane Jackson BLM Eagle Lake Field Office	B.S. Natural Resources Management California Polytechnic State University, San Luis Obispo	Recreation Planner, 2 years experience. Expertise in resource management, land use planning, VRM, recreation planning, and cultural resources.
Mark Meyer Jones & Stokes	B.S.D. Urban Planning/Landscape Architecture Arizona State University M. S. Natural Sciences Arizona State University	Habitat Restoration Planner, 22 years experience. Expertise in landscape architecture, open space and recreational planning, restoration ecology, and scenery management.
Wild Horses and Burros		
Kirsten R. Pasero BLM Eagle Lake Field Office	B.S. Range Science Montana State University M.S. Range Management University of Idaho	Supervisory Natural Resource Specialist, 14 years experience. Wild Horse and Burro Program Manager, rangeland management specialist.
Energy and Minerals		
Ken Collum BLM Surprise Field Office	B.S. Geology California State University, Fresno	Geologist/Realty Specialist with BLM, 6 months experience. Project Manager/Geologist in the minerals industry, 18 years experience.
Alfred Clapham Jones & Stokes	B.S. Civil Engineering University of California, Davis M.S. Engineering University of California, Berkeley	Engineer, 35 years experience. Expertise in natural resource management and environmental compliance throughout the western and southwestern United States.
Forestry		
Don Dockery BLM Eagle Lake Field Office	B.S. Forestry University of Montana, Missoula	Forester, 31 years experience in planning, implementation, and administration of timber program.
Eileen Carey Jones & Stokes	B.S. Natural Resources Cornell University M.S. Forestry University of Illinois Ph.D. Plant Biology University of Illinois	Ecologist, 18 years experience. Expertise in forest ecology and management, fire ecology, modeling forest productivity, and NEPA compliance.

Name and Affiliation	Qualifications	Professional Experience and Expertise
Grazing		
Ralph Mauck BLM Eagle Lake Field Office	B.S. Range and Wildlife Management California State University, Humboldt	Rangeland Management Specialist, 27 years experience with BLM. Emphasis on riparian management and range improvements.
Dan Airola Jones & Stokes	B.A. Biology University of California, Berkeley M.S. Wildland Resource Science (wildlife emphasis) University of California, Berkeley	Biologist, 25 years experience. Expertise in wildlife biology and management, environmental law, biological resource impact assessment, mitigation planning and monitoring, endangered species assessments, natural resource policy analyses, conservation biology planning, environmental permitting and negotiation, remote imagery interpretation, statistical analysis, wildlife survey techniques, and habitat evaluation procedure analysis.
Lands and Realty; Utilities, Transportation, and Telecommunications		
Susan Wannebo BLM Eagle Lake Field Office	BLM Realty Specialist	13 years experience as Realty Specialist and NEPA Coordinator.
Dean Amundson Jones & Stokes	B.A. Environmental Studies Sonoma State University M.S. Environmental Policy University of California, Davis	Environmental Planner and Policy Specialist, 11 years experience. Expertise in NEPA compliance, land use planning, and visual and recreation analysis.
Economic Conditions		
Gregg Roy Jones & Stokes	B.S. Political Economy of Natural Resources University of California, Berkeley	Economist, 20 years experience. Expertise in natural resource and environmental economic studies, regulatory impact analyses, farmland conversion studies, water resource development and flood control studies, and NEPA compliance.
Environmental Justice		
Kristin Warren Jones & Stokes	B.A. Communications University of California, Davis	Community Affairs Specialist, 3 years experience. Specializes in public involvement, community relations, crisis management, and meeting facilitation.

Name and Affiliation	Qualifications	Professional Experience and Expertise
Social Conditions		
Merle Anderson Jones & Stokes	B.A. Art, Minor in Planning and Rural Development California State University, Chico American Institute of Certified Planners	Community Development Planner, 23 years experience. Expertise in community planning and economic development in rural communities.
Bonnie Chiu Jones & Stokes	B.A. Political Science–Public Service University of California, Davis	Planner, Environmental Justice Specialist, 2 years experience. Expertise in environmental justice issues in relation to environmental planning.
Technical Editing		
Ken McGinty GWG Human Resources	B.A. History Duke University M.A. Geography Clark University	Writer-Editor, 30 years experience in technical editing with BLM
Marjie Brown GWG Human Resources	B.A. Communications Western State College of Colorado	Communications Specialist, 20 years experience technical writing, and public relations
David Moore GWG Human Resources	B.S. Forest Management Utah State University	Resource Planner, 30 years experience in recreation and resource planning with BLM
Bruce Hulbert BLM Eagle Lake Field Office	B.S. Wildlife Biology University of Montana, Missoula, MT	Writer-Editor, 2 years experience with BLM
Jeff Fontana BLM Northern California Field Offices	B.A. Journalism University of Nevada Reno	Public Affairs Specialist, 15 years BLM; 10 years journalism experience
Teresa Simpson Typing and Temporaries	A.A. Business (in progress) Lassen Community College	Typist, Editor, 2 years experience
GIS Technology		
Karen Holmstrom BLM Eagle Lake Field Office	B.S. Anthropology Humboldt State University, Arcata	Geographic Information Specialist, 12 years experience
Josh Gibbs BLM Eagle Lake Field Office	Lassen High School, Susanville	Lead Biological Technician, 6 years experience



MAP: CR-1

Cultural Resource Management Areas Preferred Alternative

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM
- 🟦 Cultural Resources Management Areas

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

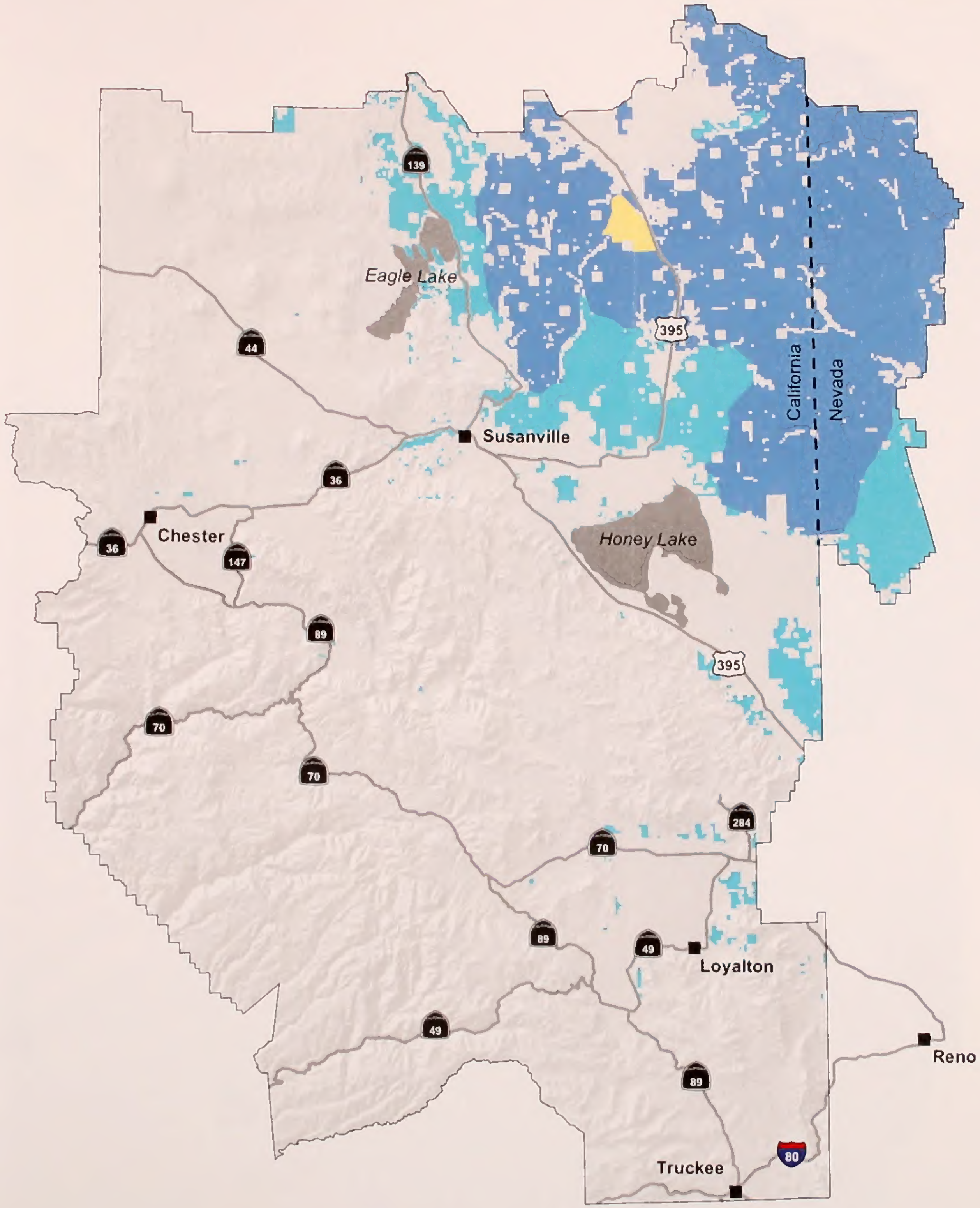
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregated use with other data. Original data was compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notice.

Kilometers: 0, 10, 20

Miles: 0, 5, 10, 20



MAP: FIRE-1

Fire Management Preferred Alternative

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM
- 🟨 Wildland Fire Use
- 🟦 Full Suppression
- 🟦 Appropriate Management Response

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

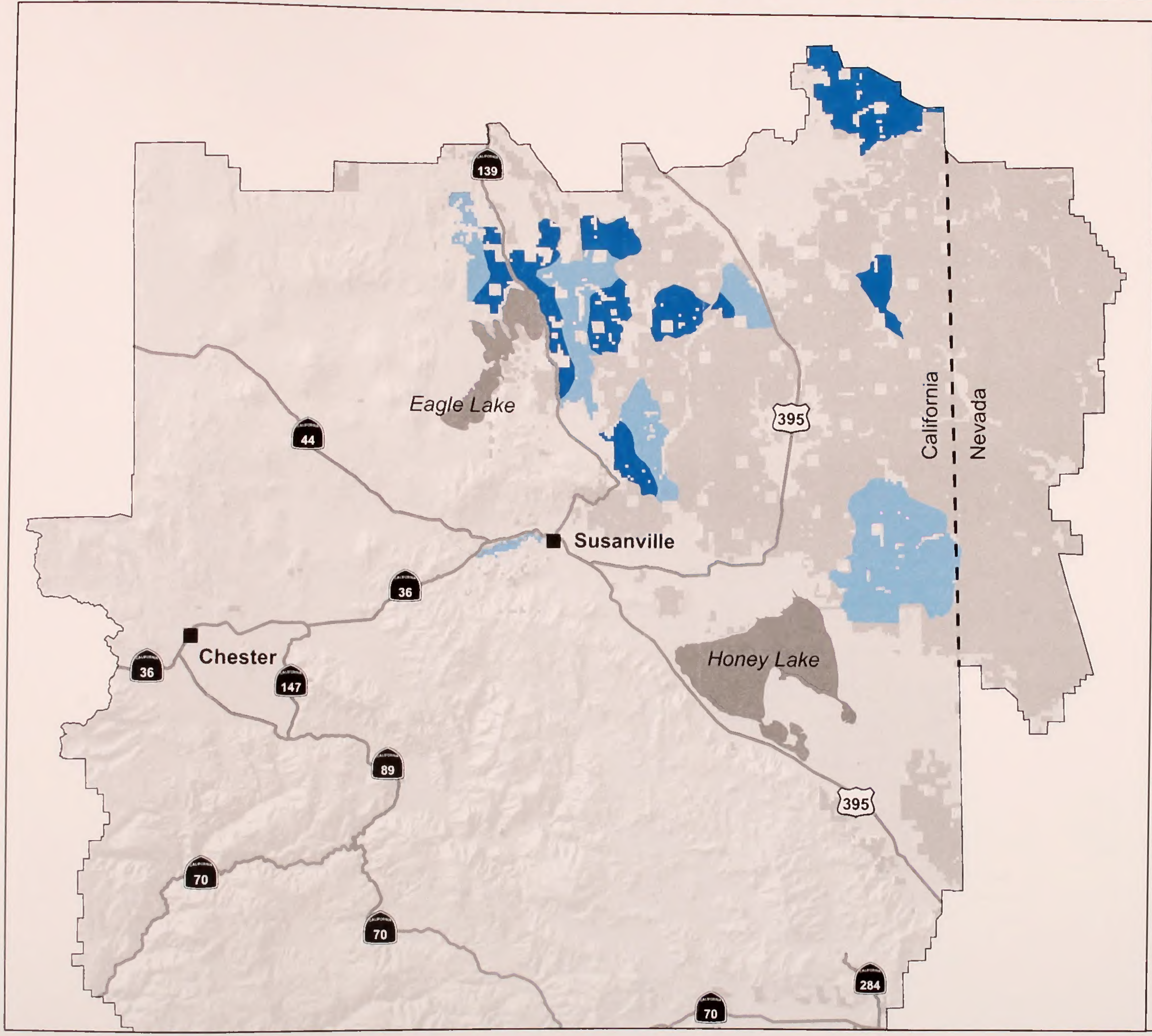
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

Kilometers
0 10 20

Miles
0 5 10 20



MAP: FIRE-2

Fuels Management and Western Juniper Treatment Areas Preferred Alternative

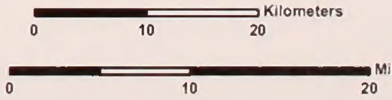
LEGEND

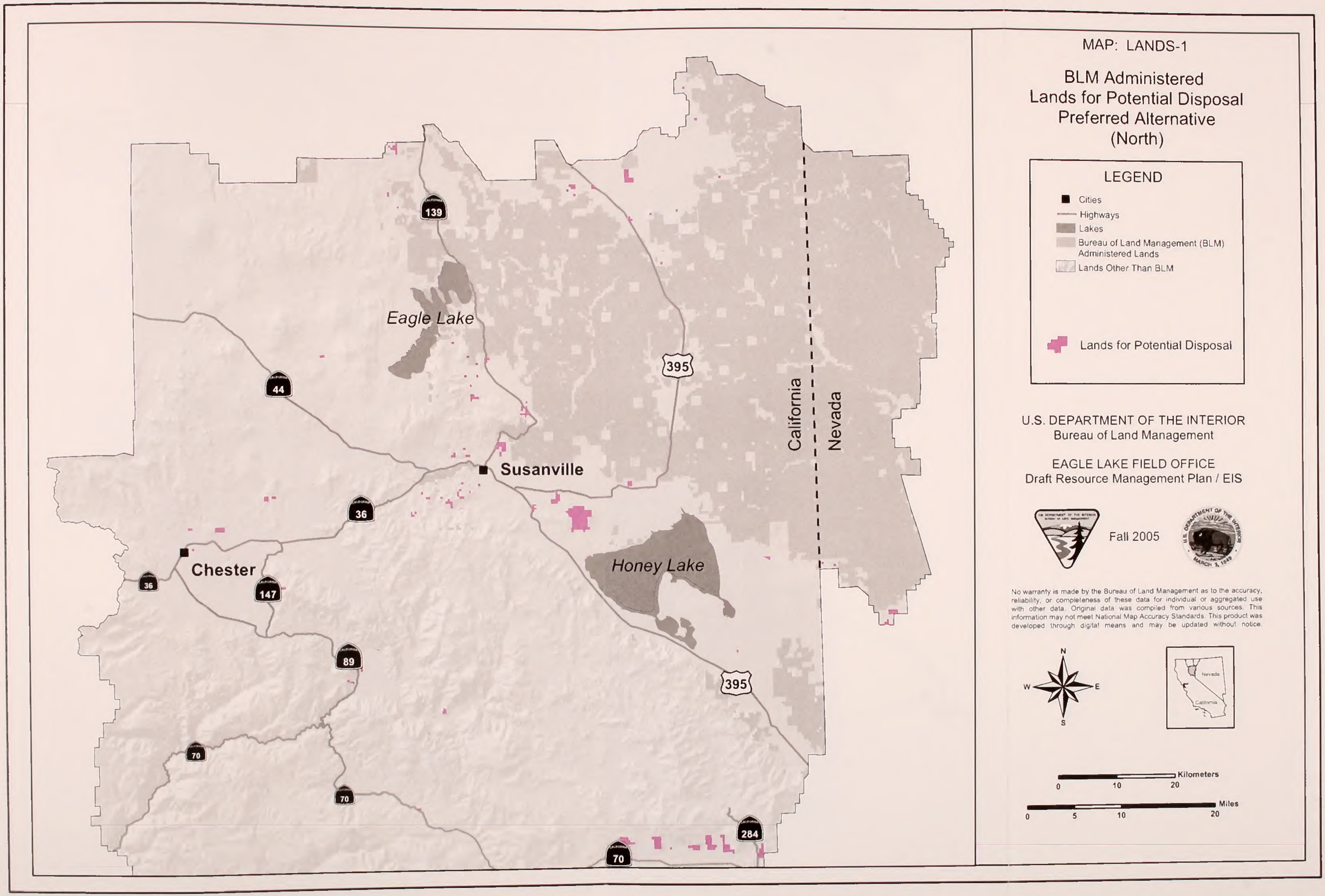
- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM
- ▨ All Fuels Treatment
- ■ Juniper Treatment

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005





MAP: LANDS-1

BLM Administered Lands for Potential Disposal Preferred Alternative (North)

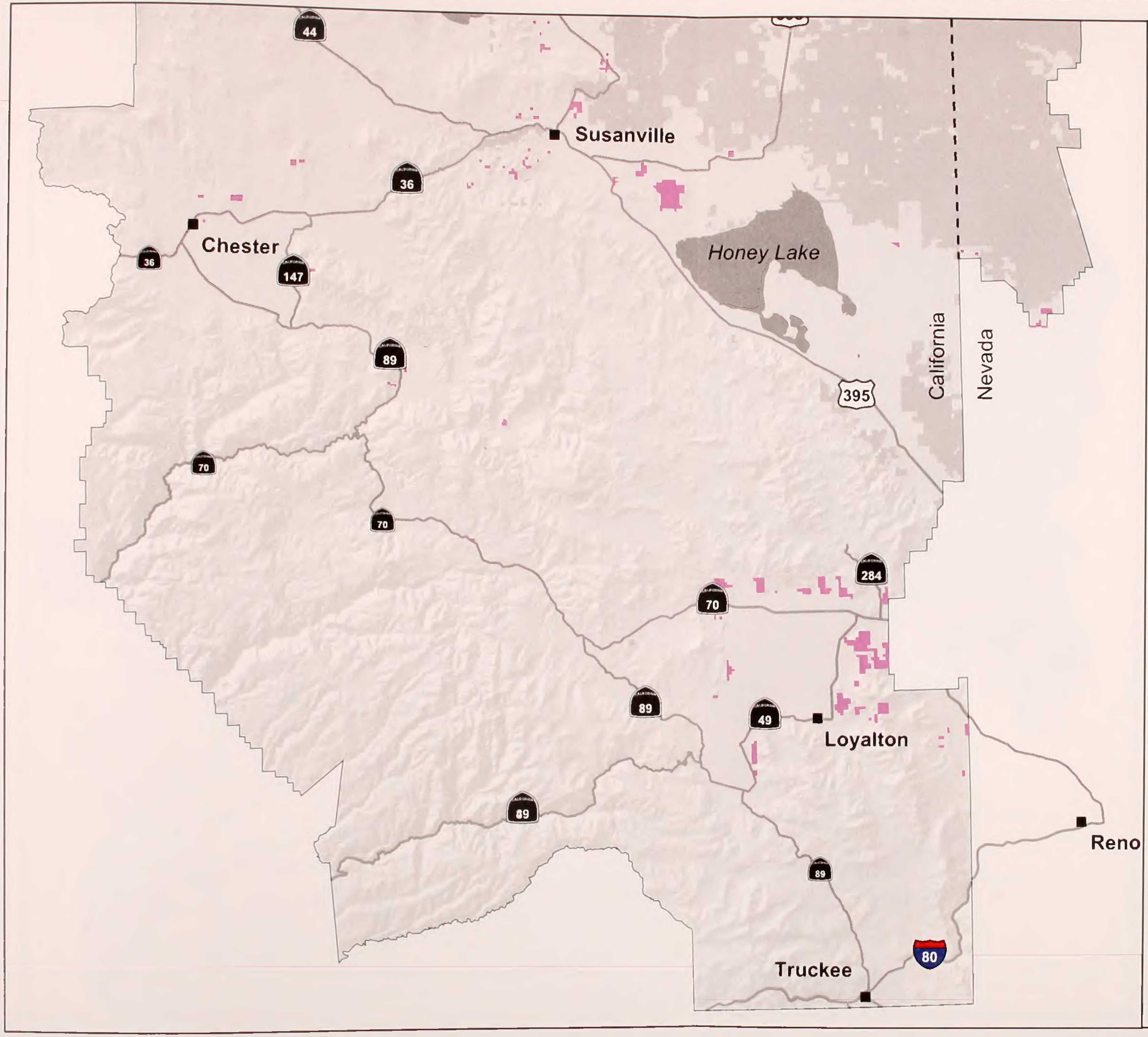
LEGEND

- ■ Cities
- — Highways
- ▩ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM
- 🟪 Lands for Potential Disposal

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005



MAP: LANDS-1

BLM Administered Lands for Potential Disposal Preferred Alternative (South)

LEGEND

■ Cities

— Highways

▨ Lakes

▨ Bureau of Land Management (BLM) Administered Lands

☐ Lands Other Than BLM

▨ Lands for Potential Disposal

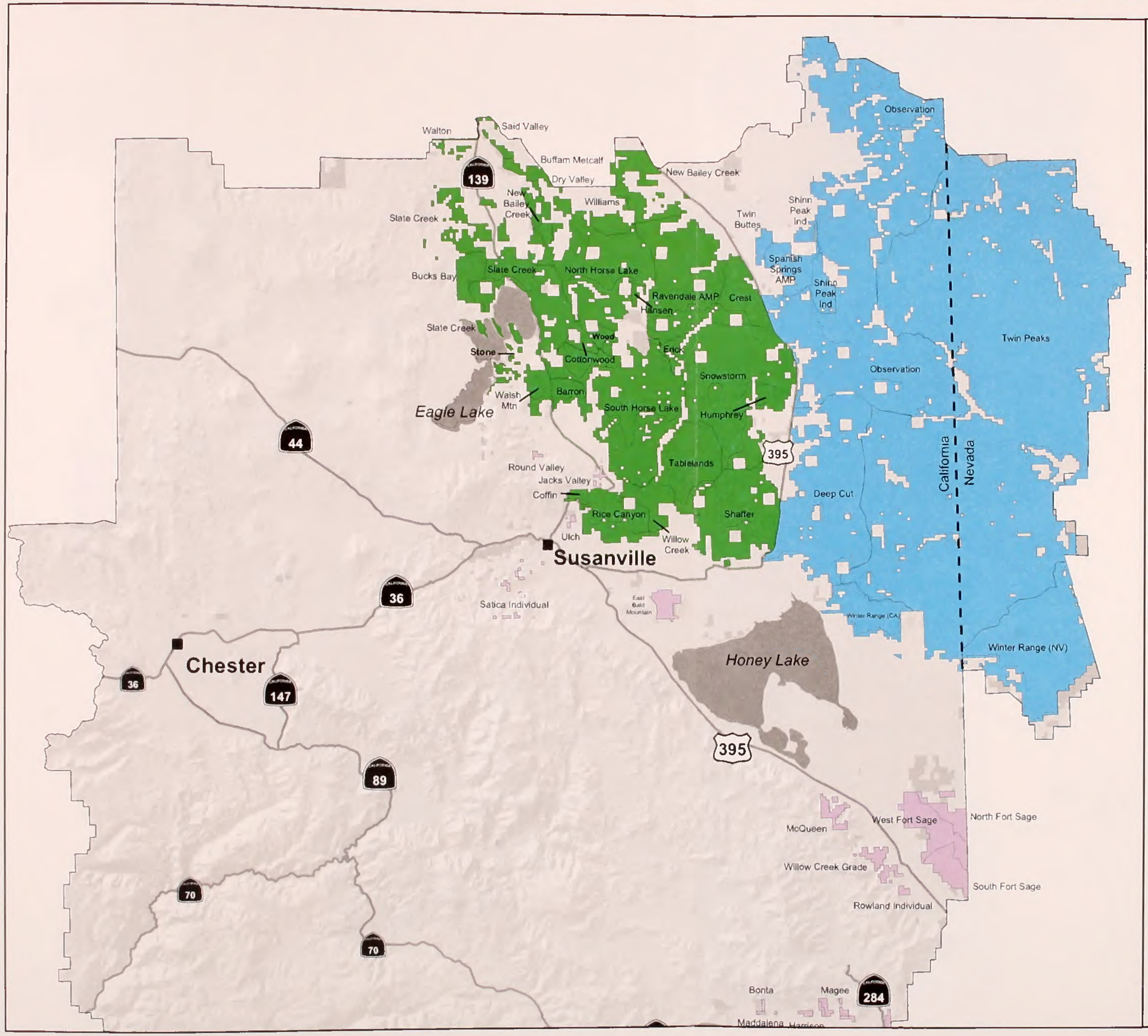
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

Kilometers
0 10 20

Miles
0 5 10 20



MAP: GRAZ-1

Livestock Grazing Allotments by Planning Unit
No Action and Preferred Alternative
(North)

LEGEND

■ Cities
— Highways
▨ Lakes
▨ Bureau of Land Management (BLM) Administered Lands
☐ Lands Other Than BLM

Planning Units

🟦 Calneva
🟪 Honey Lake
🟩 Willow Creek

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

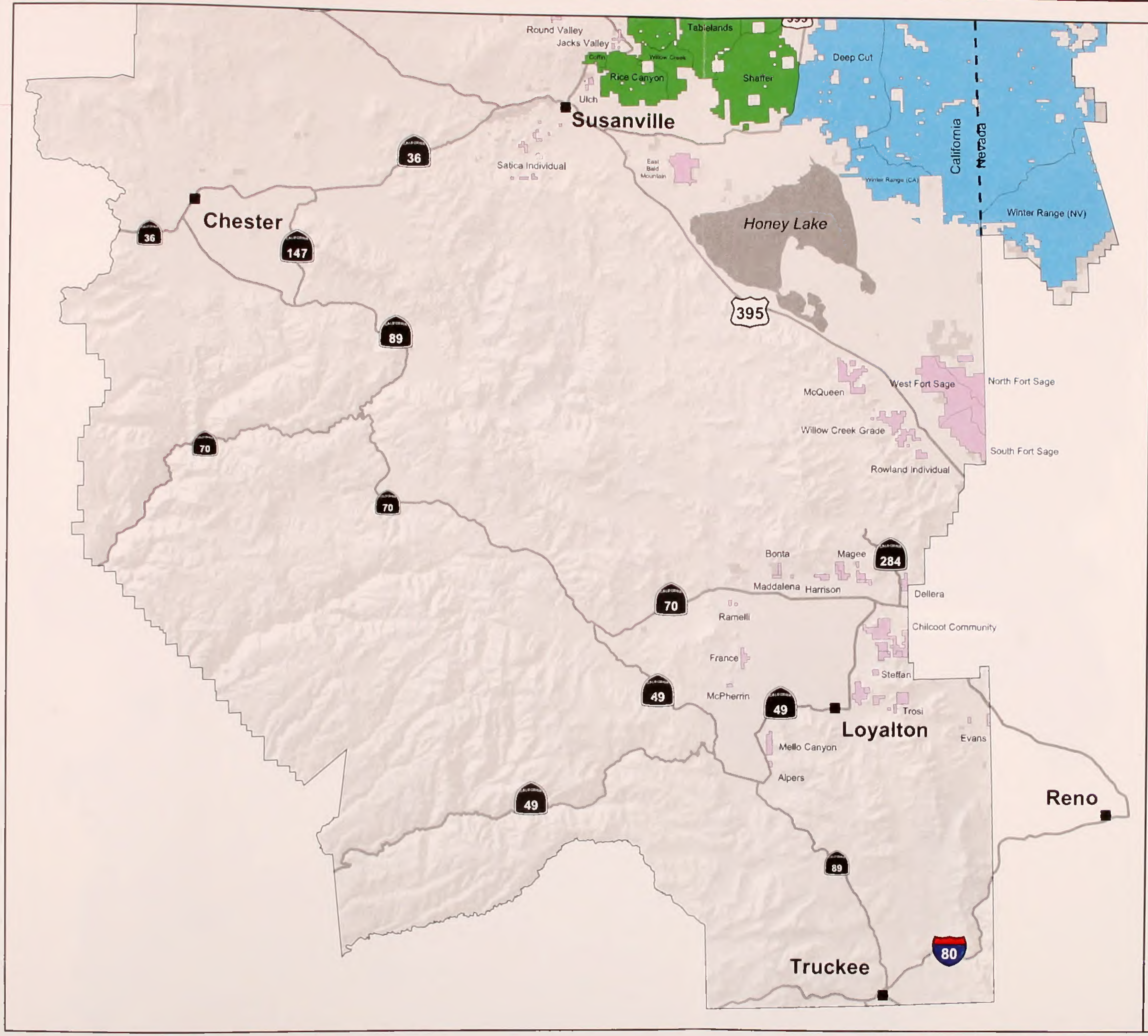
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

0 10 20 Kilometers

0 5 10 20 Miles



MAP: GRAZ-1

Livestock Grazing Allotments by Planning Unit
No Action and Preferred Alternative
(South)

LEGEND

■ Cities
— Highways
▨ Lakes
▨ Bureau of Land Management (BLM) Administered Lands
☐ Lands Other Than BLM

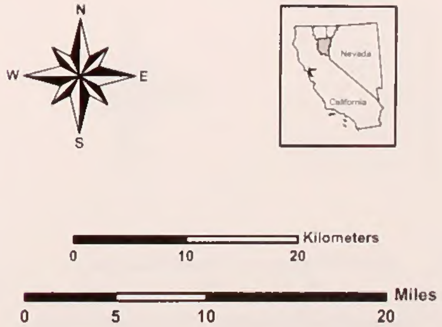
Planning Units

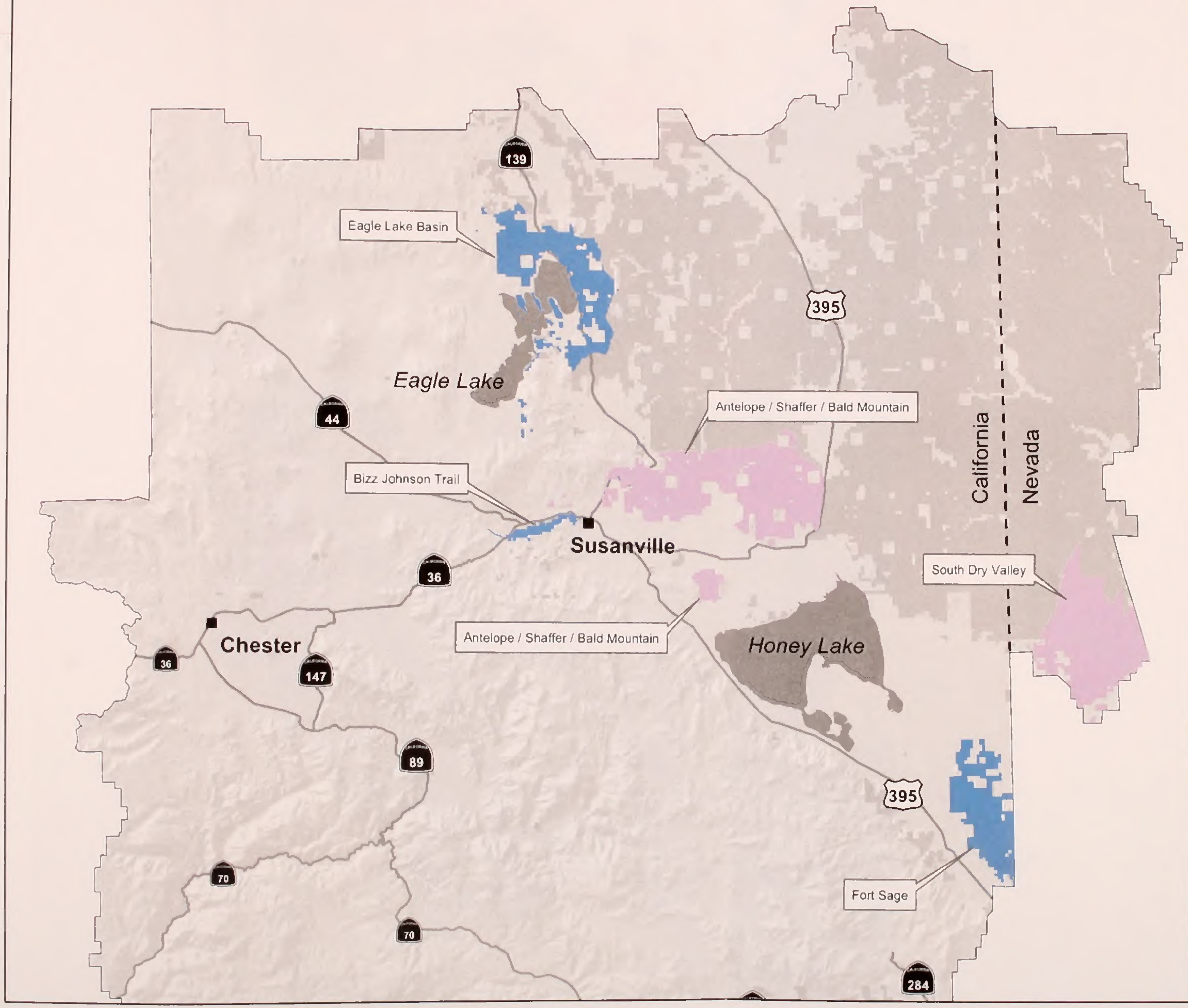
🟦 Calneva
🟪 Honey Lake
🟩 Willow Creek

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005





MAP: REC-1

Special Recreation Management Areas
No-Action and Preferred Alternatives

LEGEND

■ Cities
— Highways
▨ Lakes
▨ Bureau of Land Management (BLM) Administered Lands
☐ Lands Other Than BLM

Special Recreation Management Areas

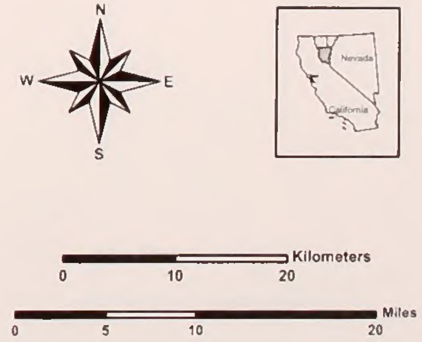
🟦 Existing - No Action Alternative & Preferred Alternative

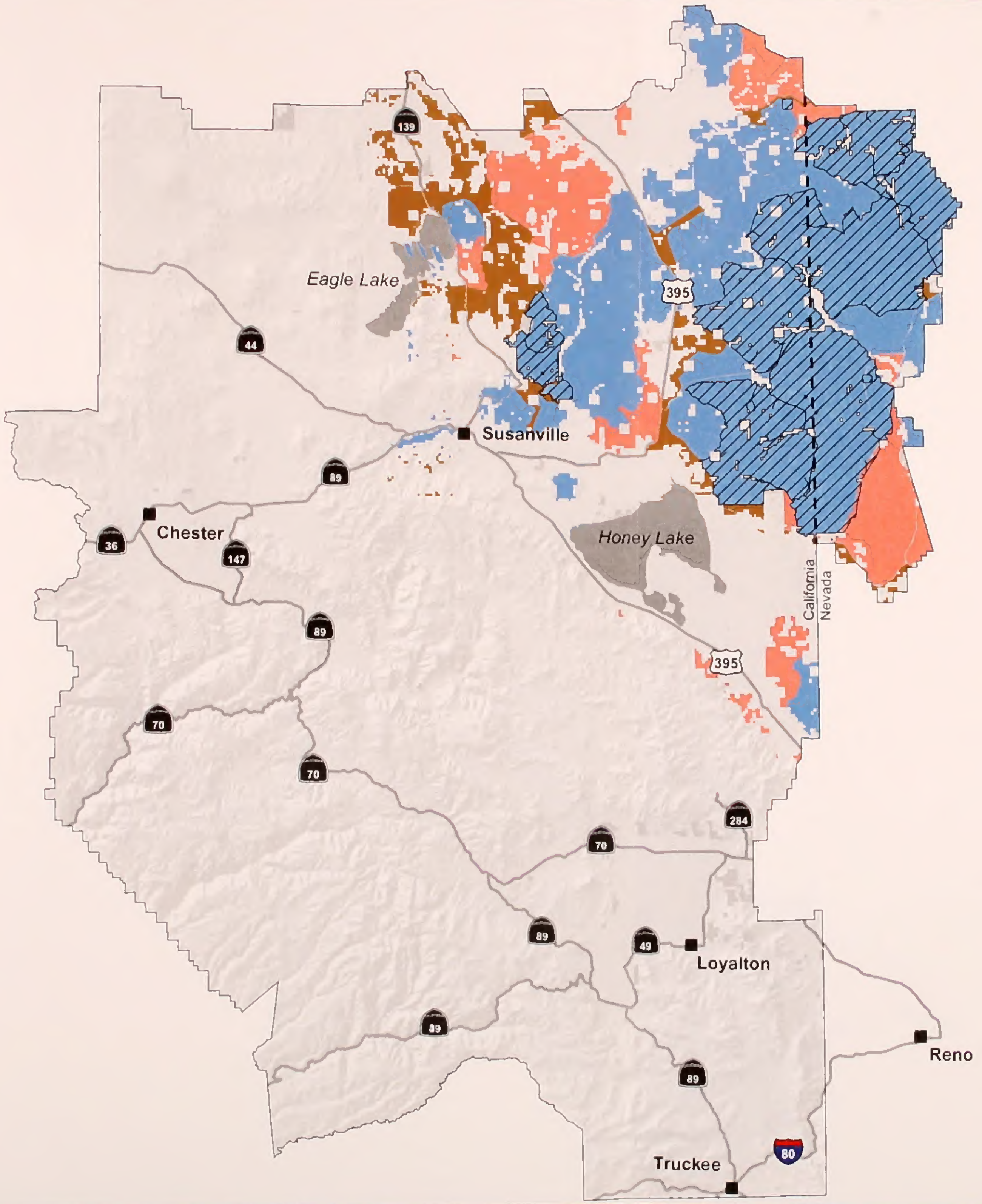
🟪 Proposed - Preferred Alternative

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005





MAP: REC - 2

Recreation Opportunity Spectrum Classes
No Action Alternative

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ▨ Lands Other Than BLM

ROS Class

- 🟫 Roaded Natural
- 🟥 Semi-Primitive Motorized
- 🟦 Semi-Primitive Non-Motorized
- ▨ Wilderness Study Areas

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

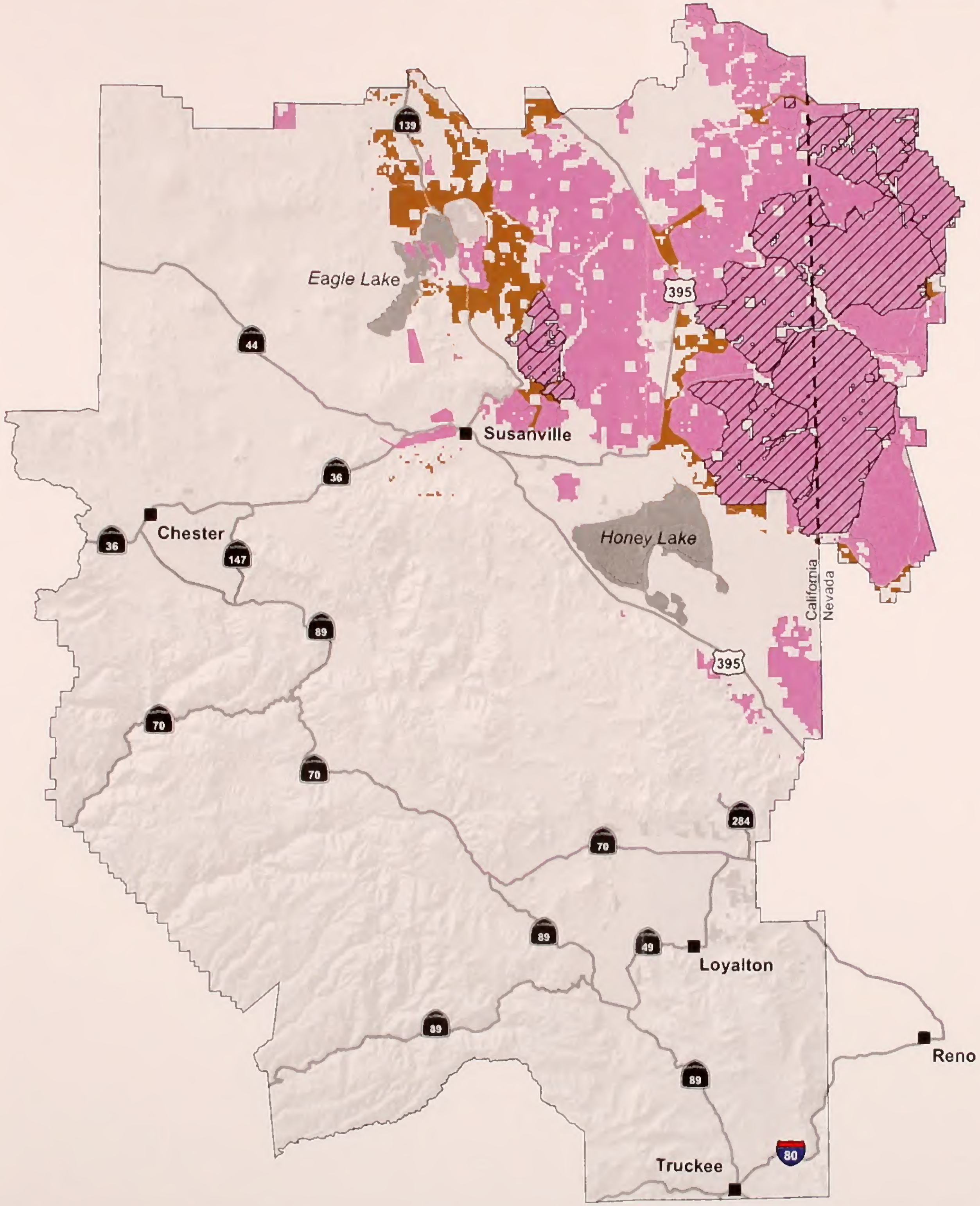
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

Kilometers
0 10 20

Miles
0 5 10 20



MAP: REC - 3

Recreation Opportunity Spectrum Classes
Alternative 1

LEGEND

- ■ Cities
- — Highways
- ▩ Lakes
- ▢ Bureau of Land Management (BLM) Administered Lands
- ▢ Lands Other Than BLM

ROS Class

- 🟧 Roaded Natural
- 🟪 Backcountry
- ▨ Wilderness Study Areas

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

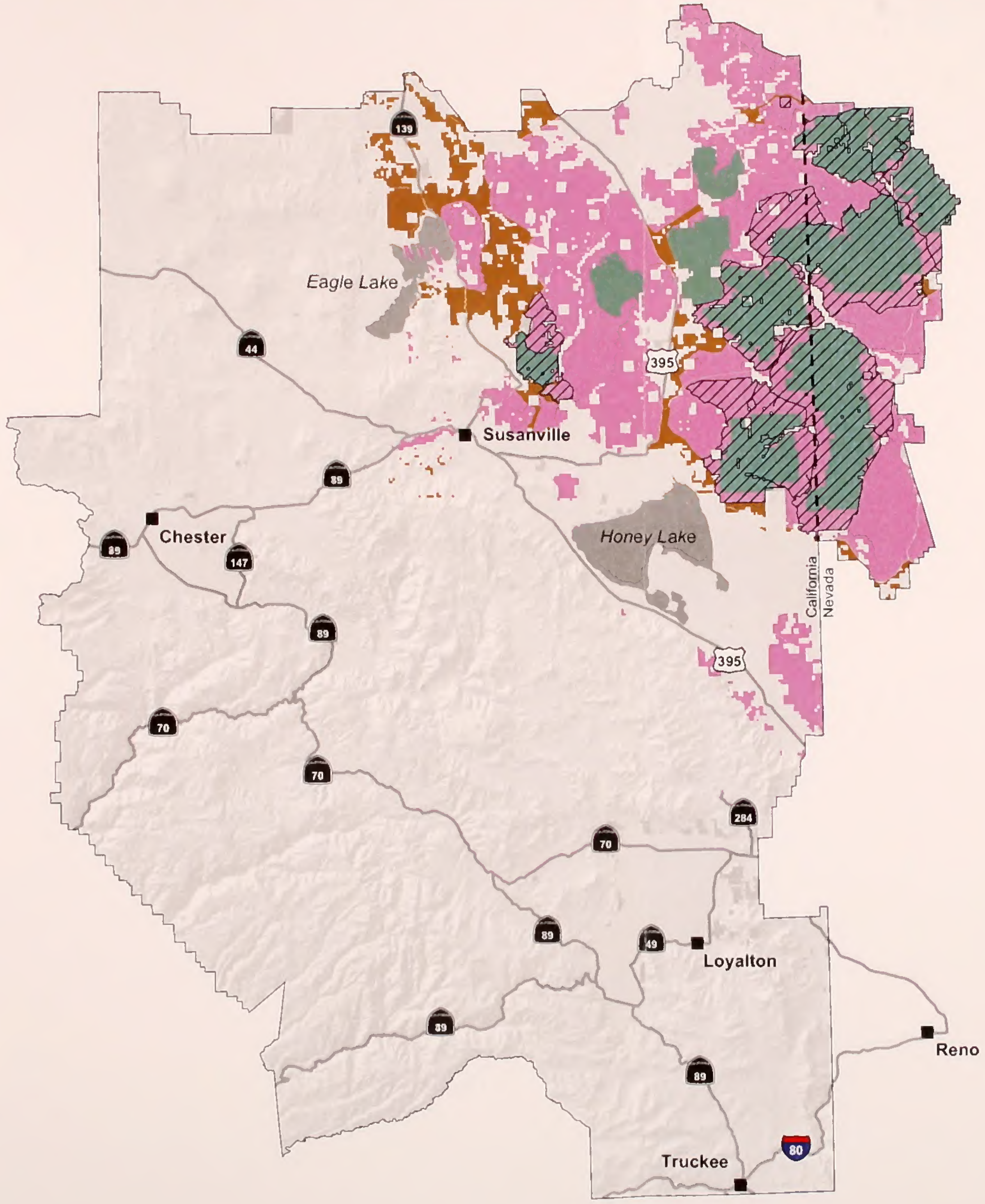
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

Kilometers
0 10 20

Miles
0 5 10 20



MAP: REC - 4

Recreation Opportunity Spectrum Classes Alternative 2

LEGEND

■ Cities
— Highways
▩ Lakes
□ Bureau of Land Management (BLM) Administered Lands
▨ Lands Other Than BLM

ROS Class

🟧 Roaded Natural
🟩 Primitive
🟪 Backcountry
▨ Wilderness Study Areas

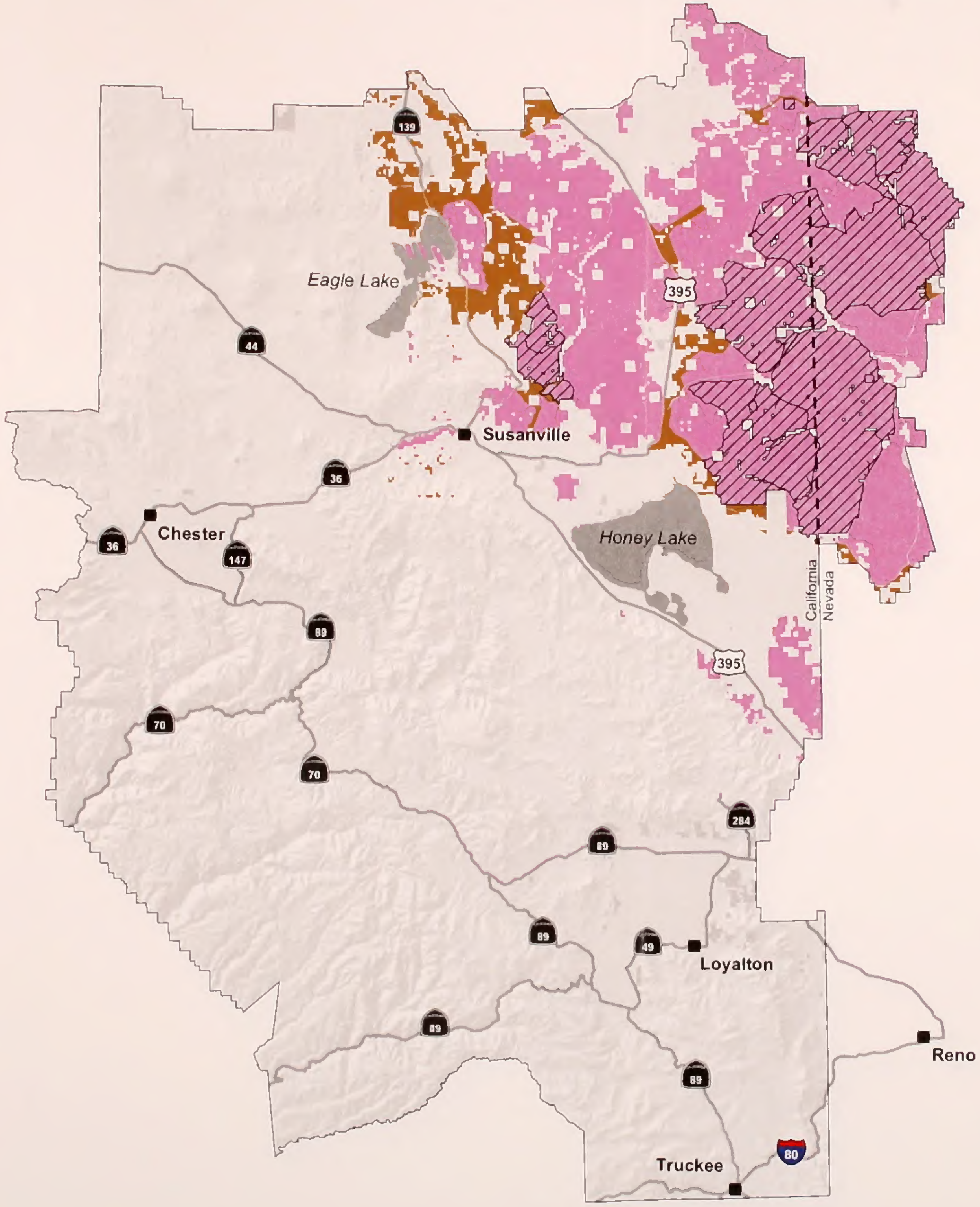
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

Kilometers
0 10 20

Miles
0 5 10 20



MAP: REC - 5

Recreation Opportunity Spectrum Classes Alternative 3

LEGEND

■ Cities
— Highways
▨ Lakes
▨ Bureau of Land Management (BLM) Administered Lands
☐ Lands Other Than BLM

ROS Class

- 🟧 Roaded Natural
- 🟪 Backcountry
- ▨ Wilderness Study Areas

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

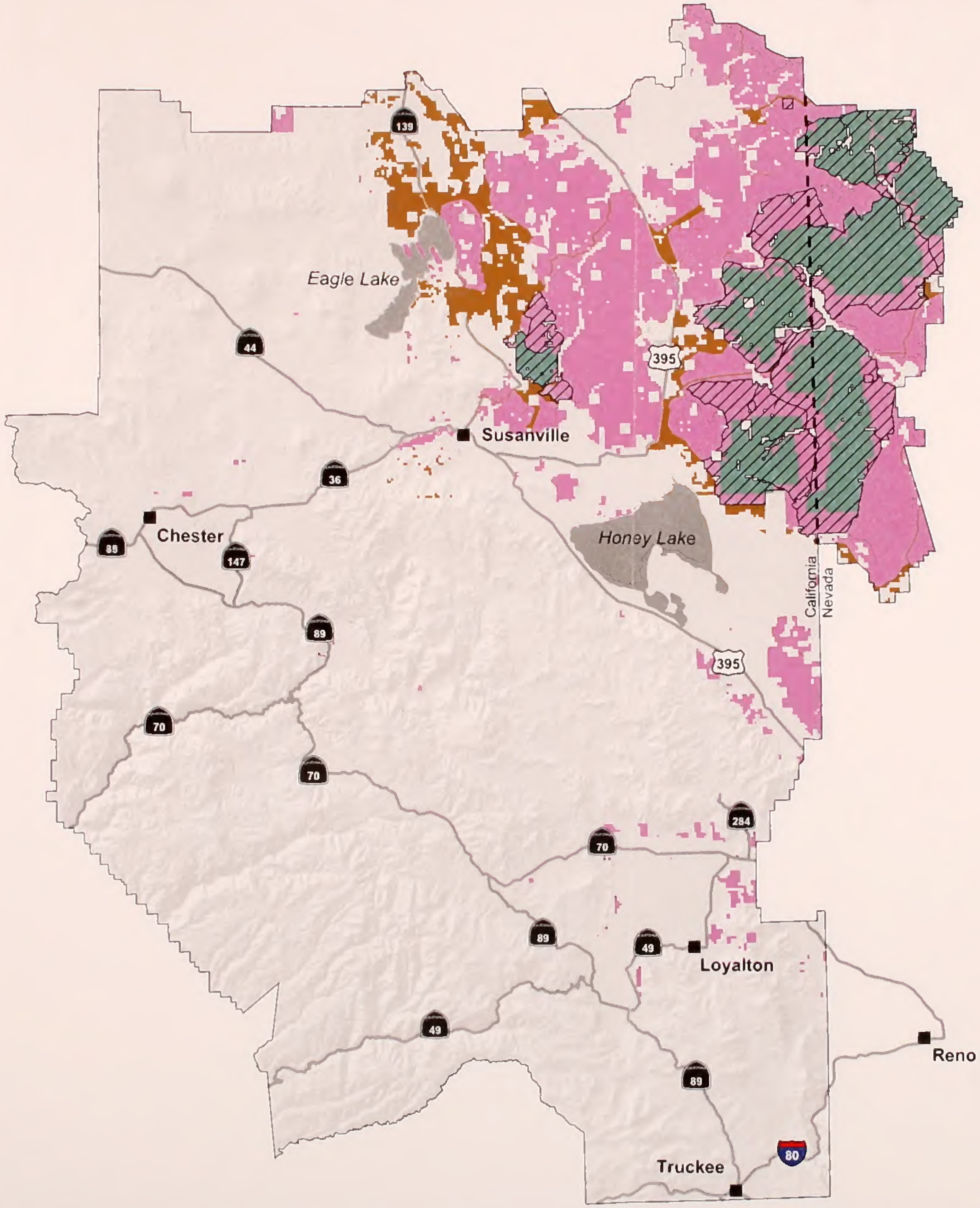
Fall 2005

MARCH 3, 1849

N
W E
S

Kilometers
0 10 20

Miles
0 5 10 20



MAP: REC-6

Recreation Opportunity Spectrum Classes Preferred Alternative

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▢ Bureau of Land Management (BLM) Administered Lands
- ▢ Lands Other Than BLM

ROS Class

- 🟧 Roaded Natural
- 🟩 Primitive
- 🟪 Backcountry
- ▨ Wilderness Study Areas

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

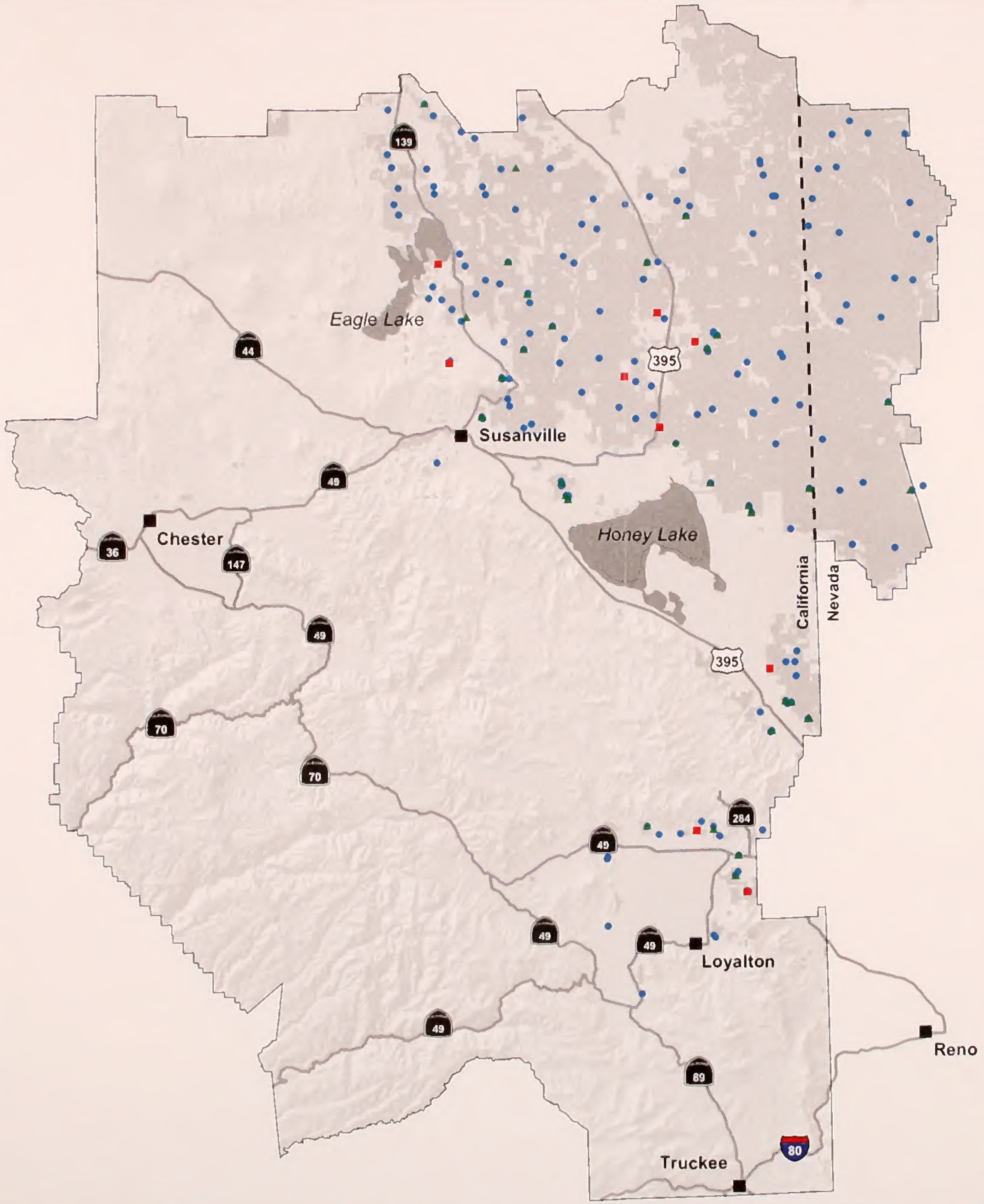
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

Kilometers
0 10 20

Miles
0 5 10 20



MAP: SOIL-1

Soil / Site Stability Based on Land Health Assessments

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM

Land Health Assessment Ranking
(Deviation from what would be expected on a reference site)

- ■ Soils Moderate to Extreme
- ▲ Soils Moderate
- ● Soils Slight

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

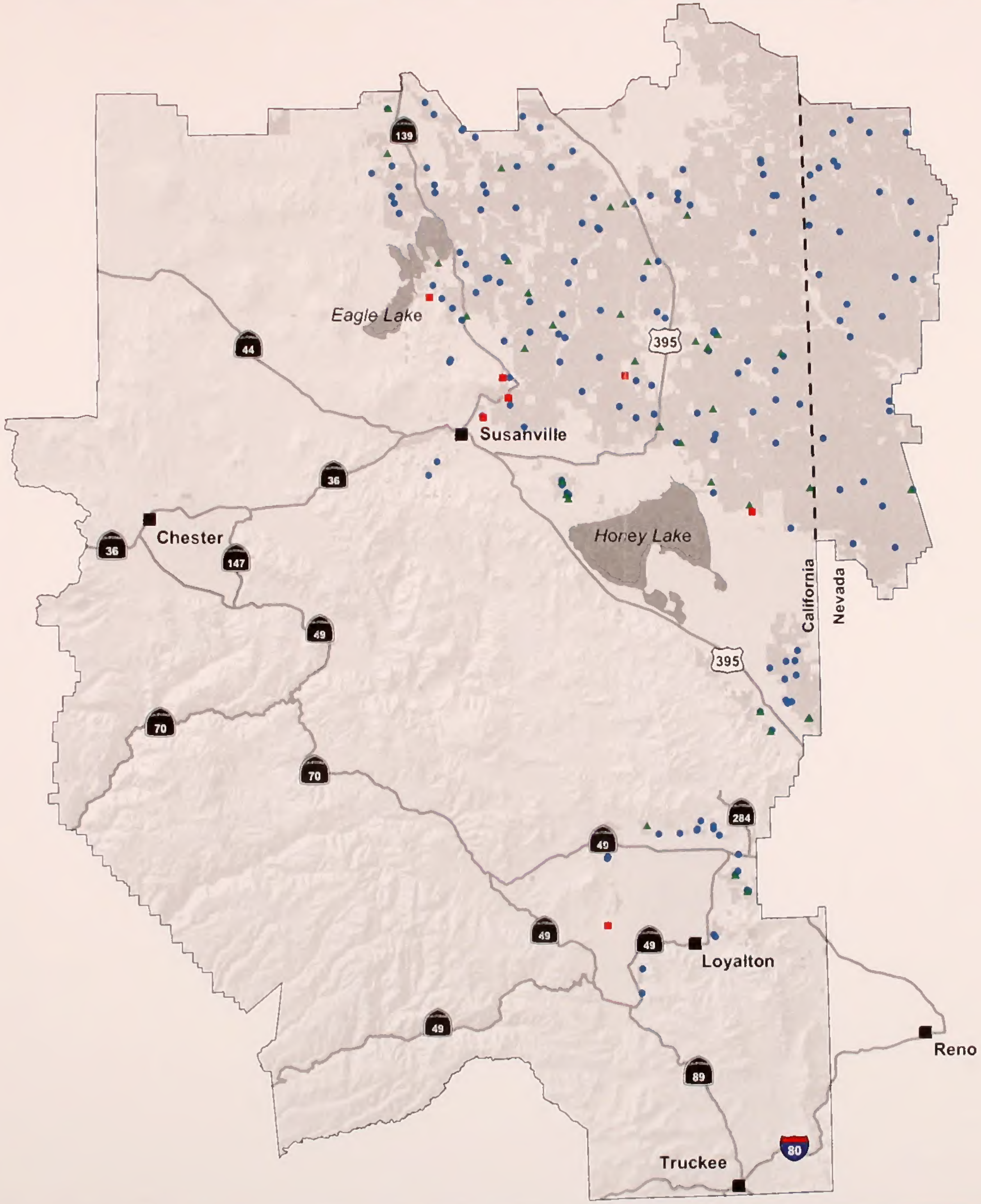
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

Kilometers
0 10 20

Miles
0 5 10 20



MAP: SOIL-2

Upland Hydrologic Function Based on Land Health Assessments

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ▨ Lands Other Than BLM

Land Health Assessment Ranking

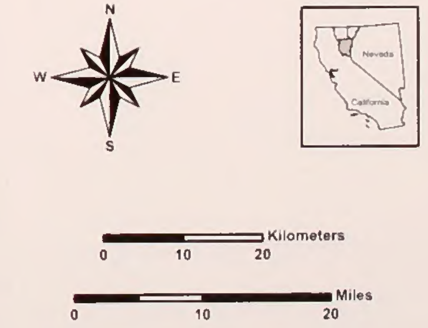
(Deviation from what would be expected on a reference site)

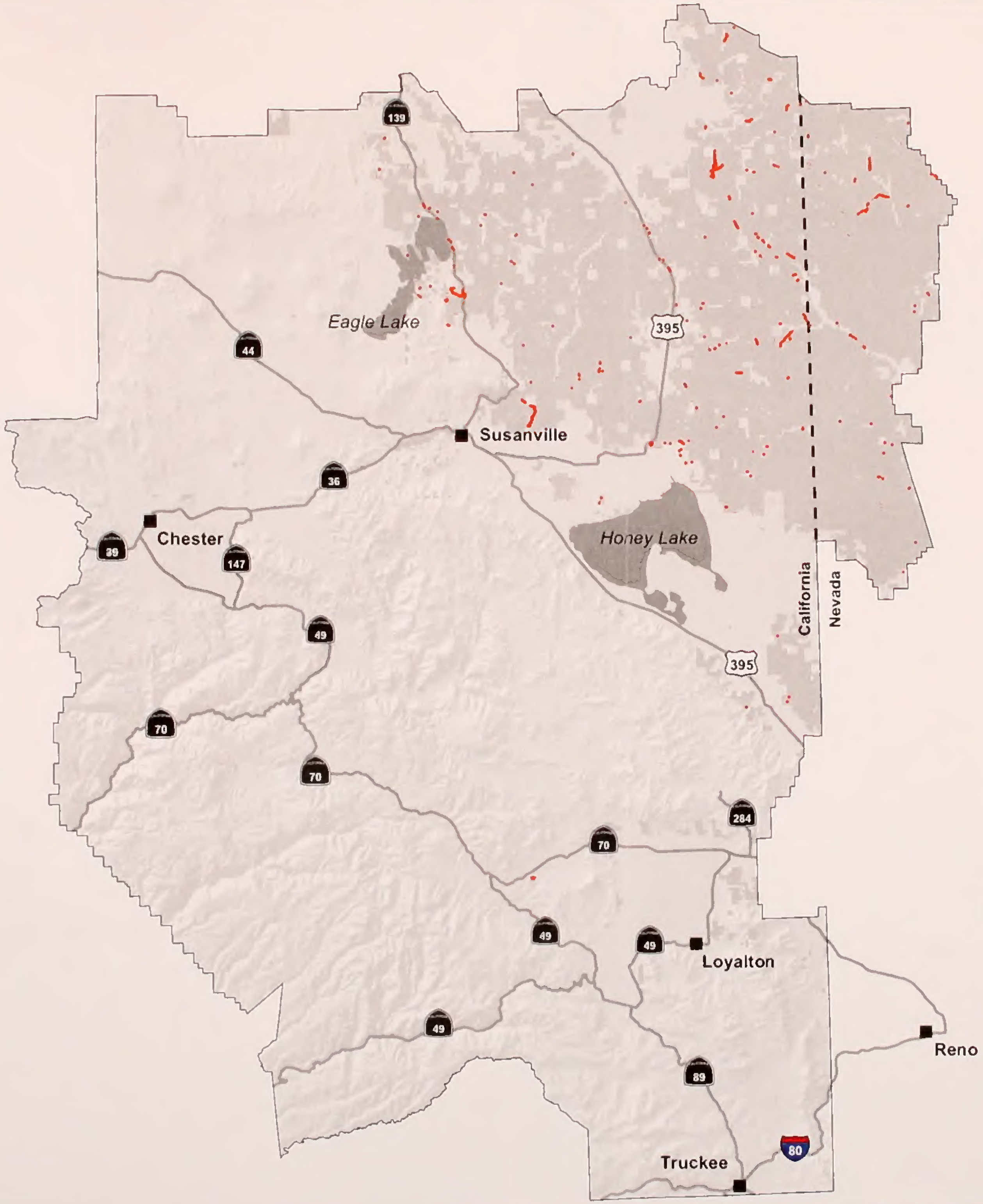
- ■ Soils Moderate to Extreme
- ▲ Soils Moderate
- ● Soils Slight

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005





MAP: SOIL-3

Roads within Sensitive Resource Sediment Buffer Areas

LEGEND

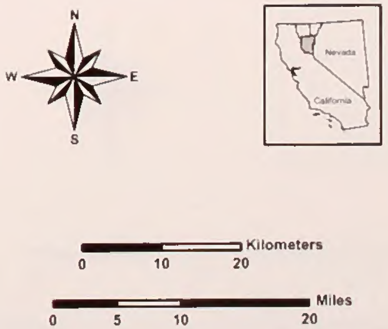
■ Cities
— Highways
▨ Lakes
▨ Bureau of Land Management (BLM) Administered Lands
☐ Lands Other Than BLM
〜 Roads within 100 feet of Sensitive Resource Areas

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

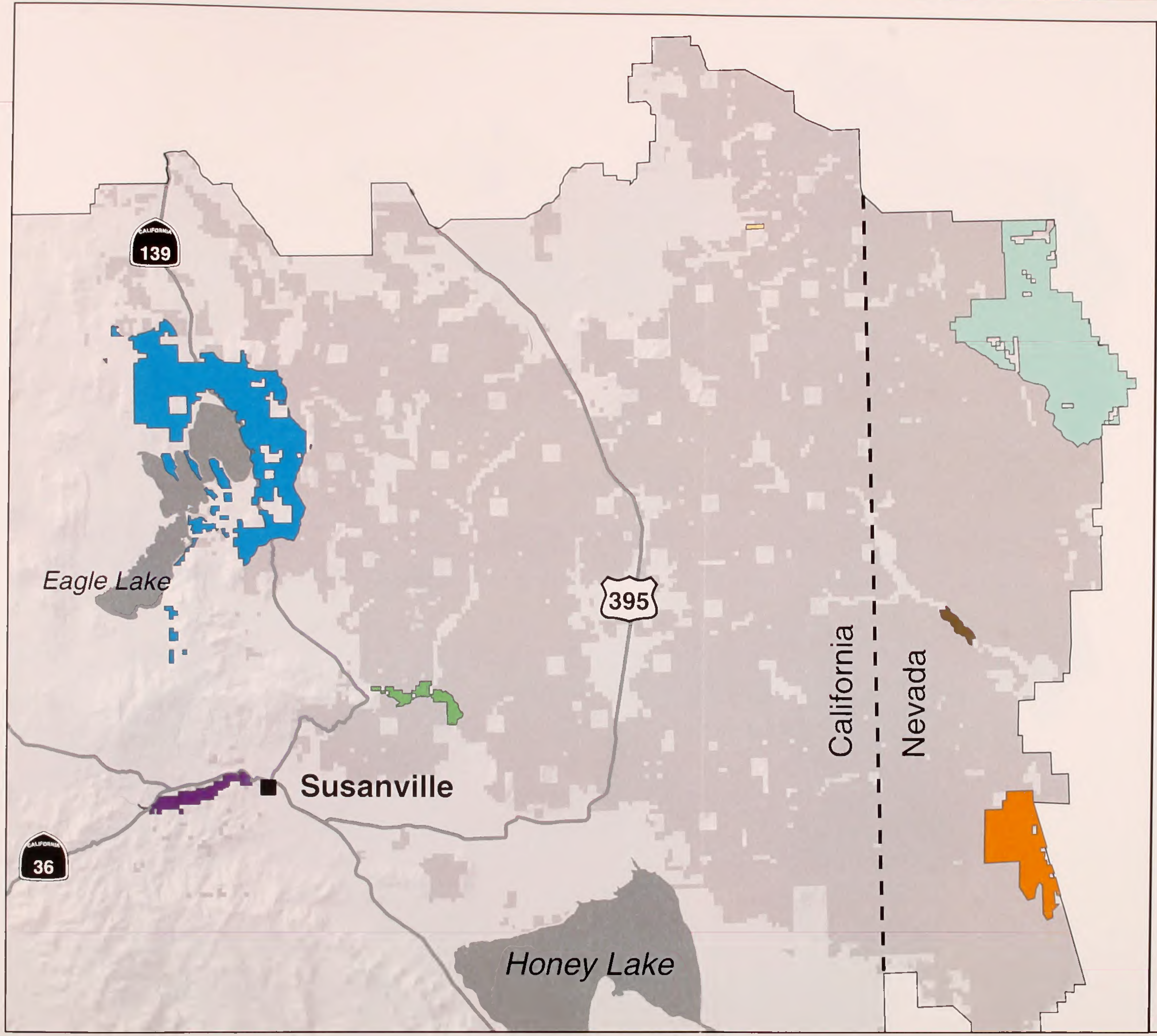
Fall 2005

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregated use with other data. Original data was compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notice.



MAP: ACEC-1

Areas of Critical Environmental Concern
Alternative 2



LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM

Areas of Critical Environmental Concern

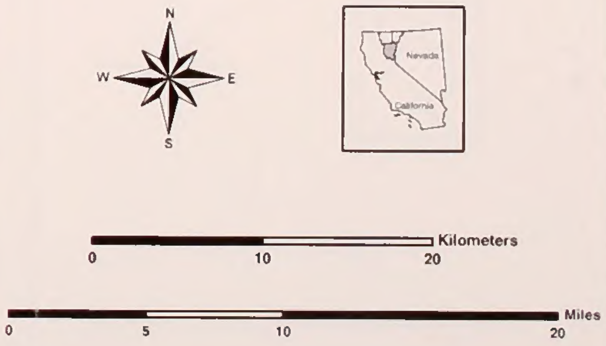
- 🟩 Buffalo Creek Canyons
- 🟦 Eagle Lake Basin
- 🟫 Lower Smoke Creek
- 🟧 North Dry Valley
- 🟨 Pine Dunes
- 🟪 Susan River
- 🟩 Willow Creek

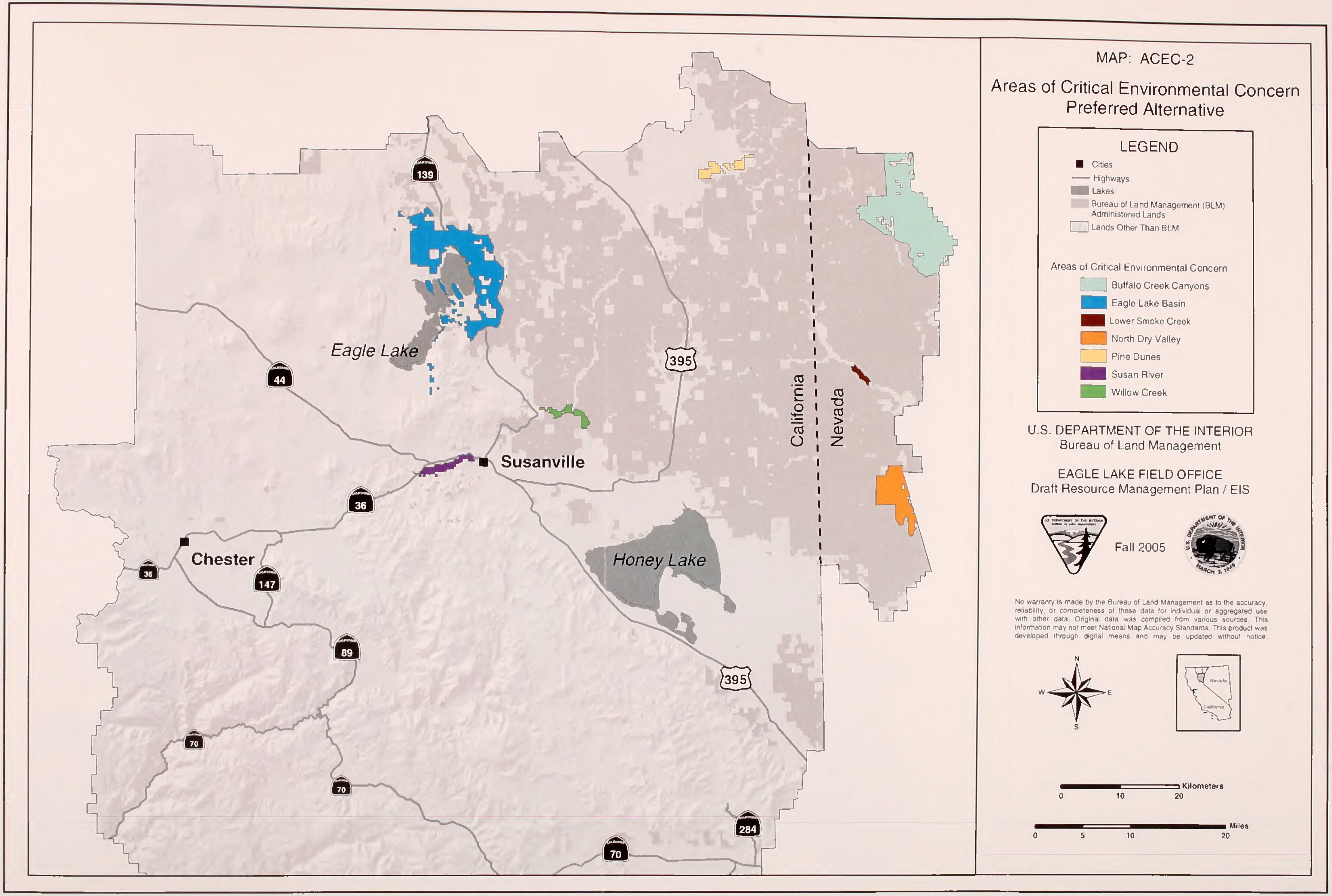
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregated use with other data. Original data was compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notice.





MAP: ACEC-2

Areas of Critical Environmental Concern
Preferred Alternative

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM

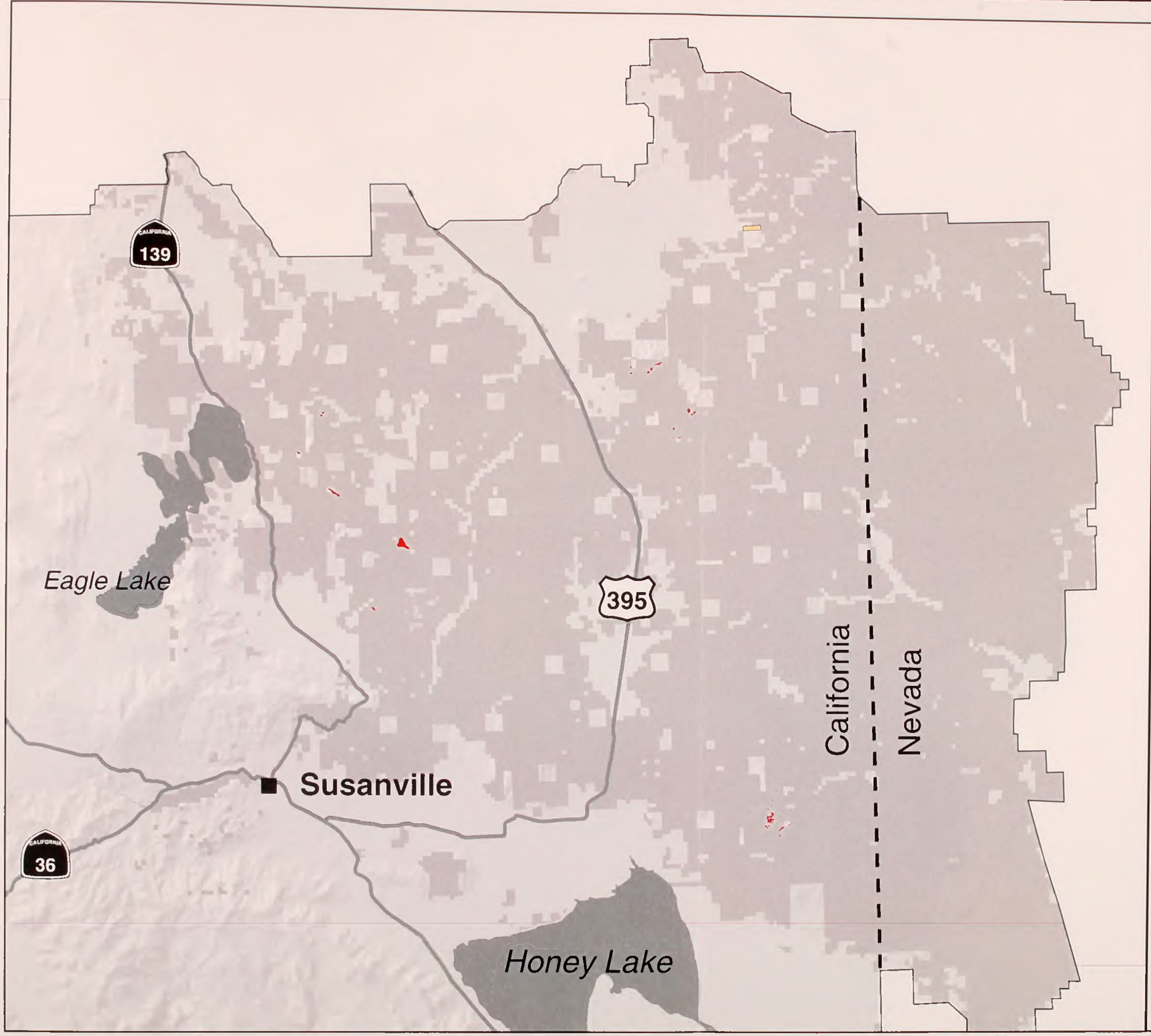
Areas of Critical Environmental Concern

- 🟩 Buffalo Creek Canyons
- 🟦 Eagle Lake Basin
- 🟥 Lower Smoke Creek
- 🟧 North Dry Valley
- 🟨 Pine Dunes
- 🟪 Susan River
- 🟩 Willow Creek

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005



MAP: ACEC-3

Areas of Critical Environmental Concern Alternatives 1 and 3

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM

Areas of Critical Environmental Concern

- 🟥 Aspen
- 🟨 Pine Dunes

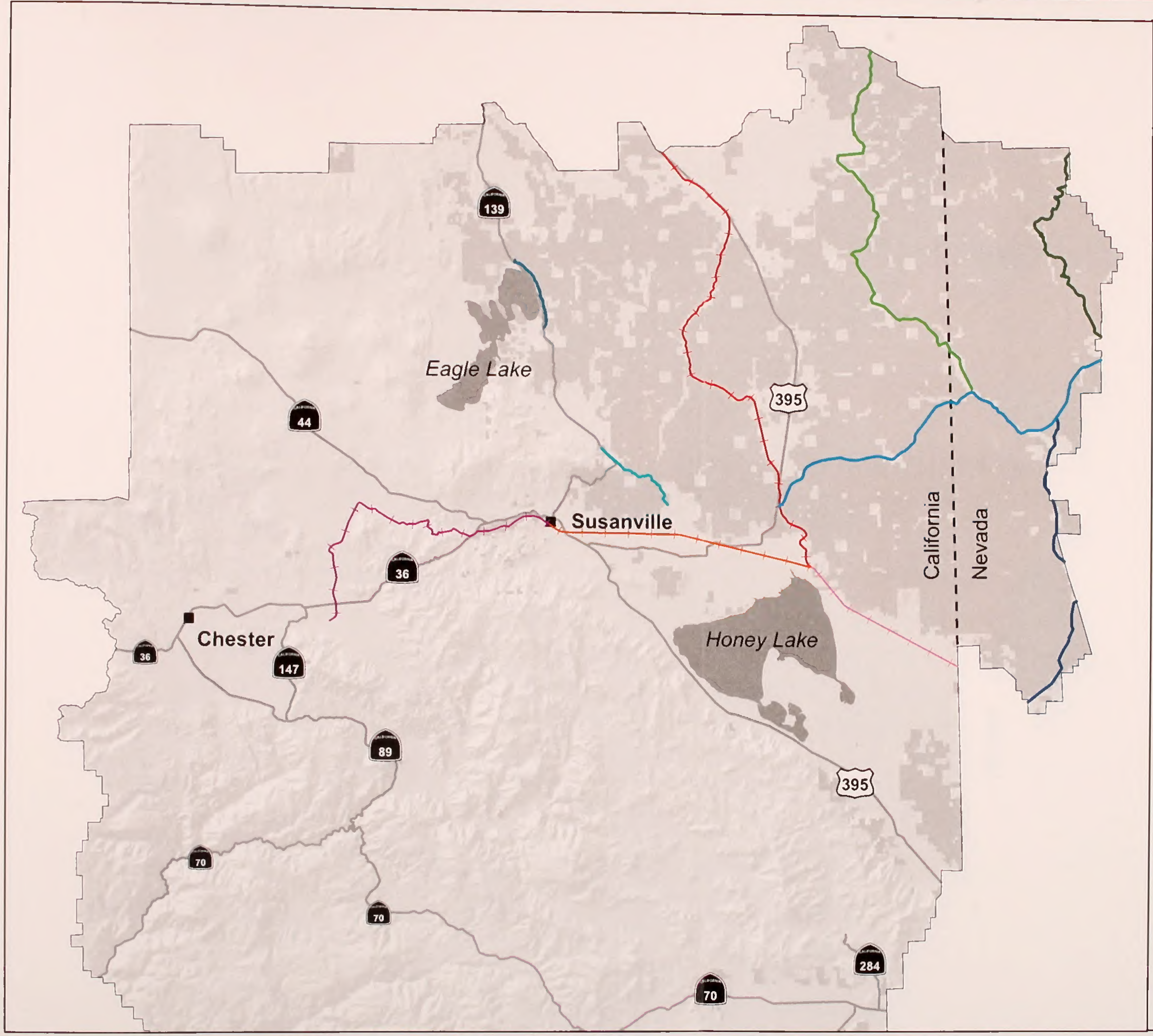
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

Kilometers 0 10 20

Miles 0 5 10 20



MAP: HT-1

Historic Trails
Preferred Alternative

LEGEND

■ Cities
— Highways
▨ Lakes
▨ Bureau of Land Management (BLM) Administered Lands
☐ Lands Other Than BLM

Railroad Grades
- Bizz Johnson Trail Segment
- Modoc Line
- Susanville - Wendel Segment
- Wendel-Flanigan Segment

Wagon Roads
- Buffalo Hills Toll Road
- Ft Churchill-Ft Bidwell Military Road
- Merrillville-Beiber (Eagle Lake Segment)
- Merrillville-Beiber (Willow Creek Segment)
- Military Patrol Road
- Nobles Emigrant Trail

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

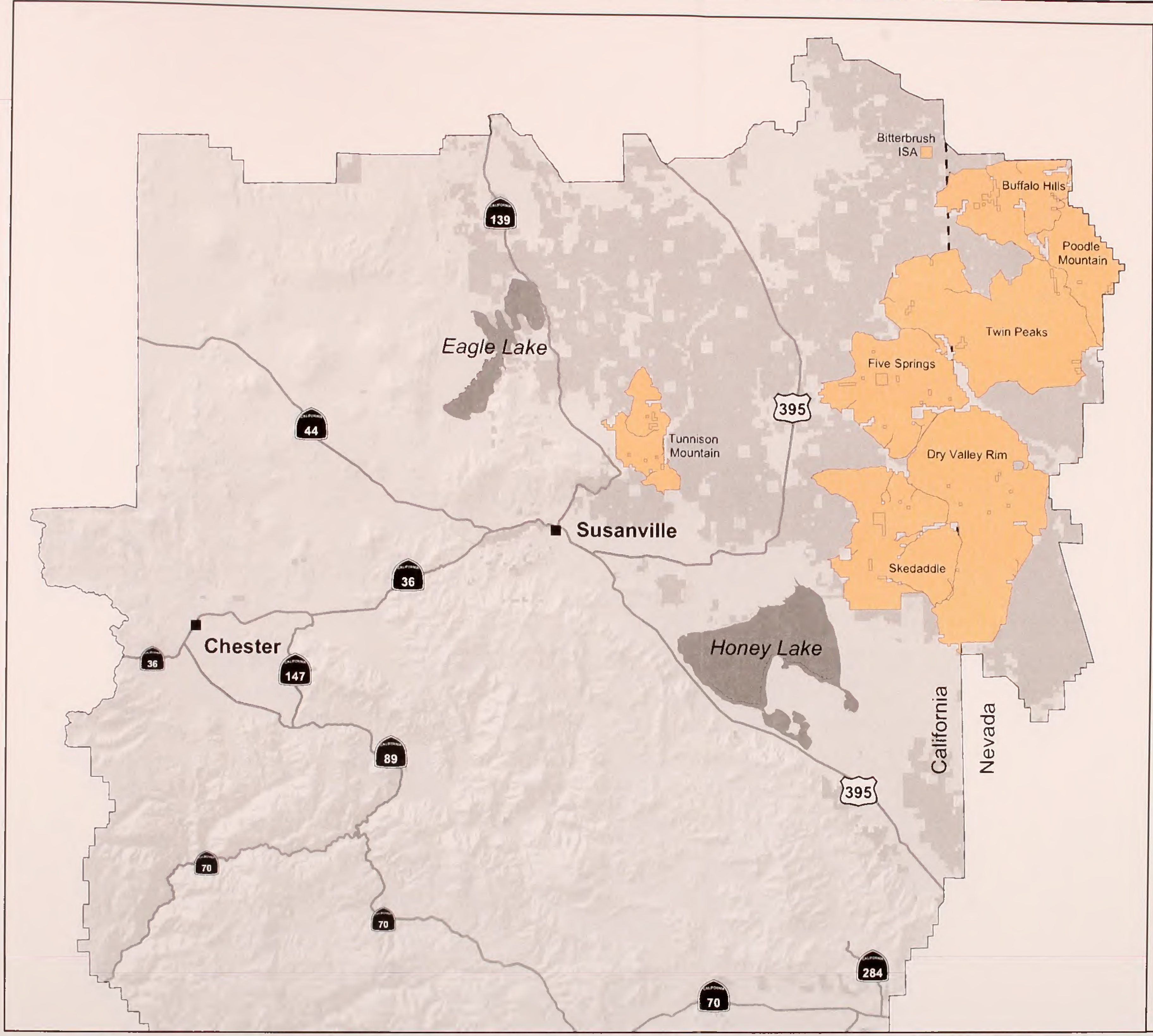
Fall 2005

MARCH 3, 1849

N
W E
S

Kilometers
0 10 20

Miles
0 5 10 20



MAP: WSA-1
Wilderness Study Areas

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM
- 🟧 Wilderness Study Areas

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

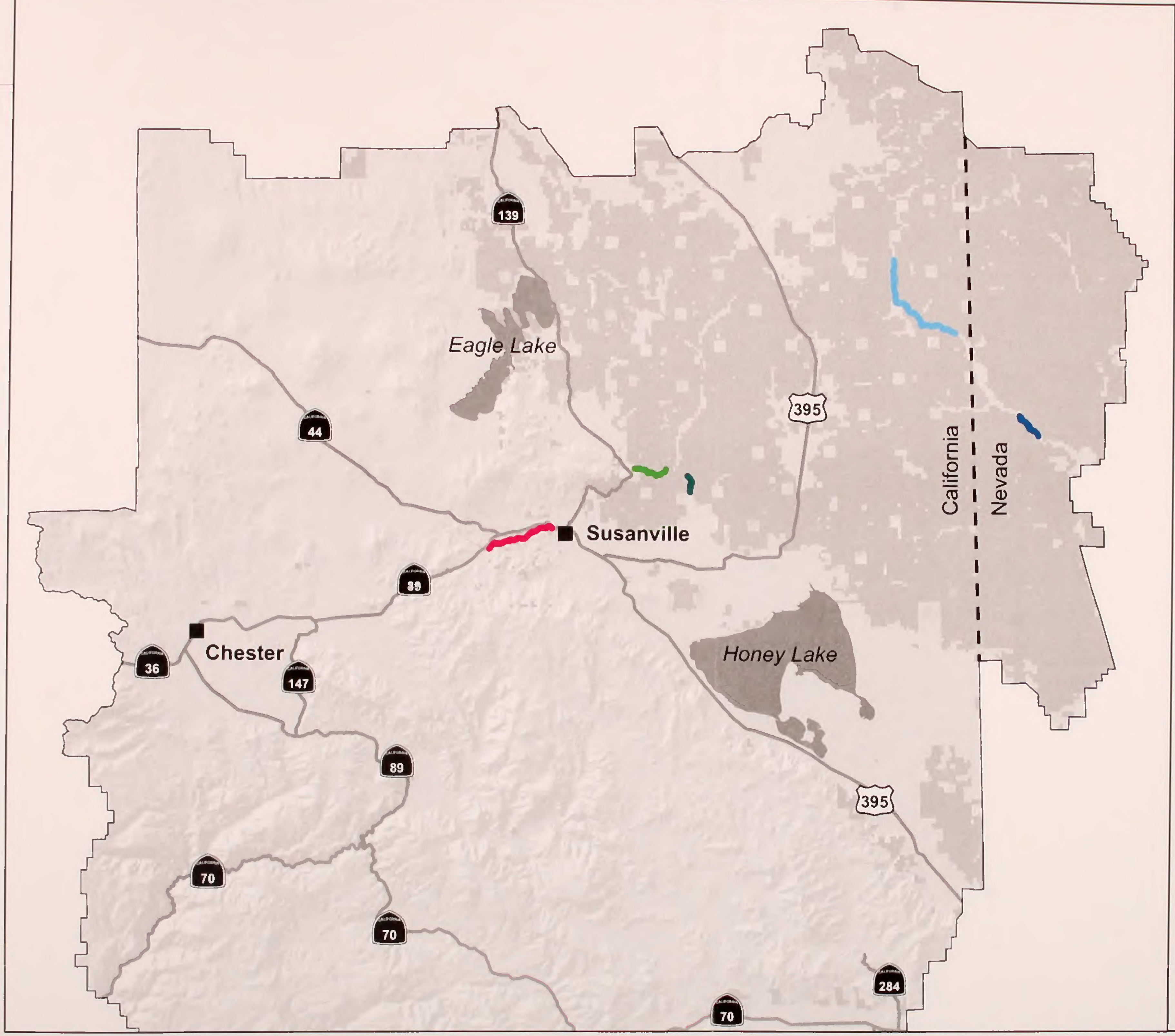
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

Kilometers
0 10 20

Miles
0 5 10 20



MAP: WSR-1

Wild and Scenic River Designations
Alternative 1

LEGEND

- ■ Cities
- ― Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM

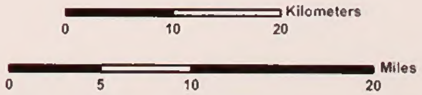
Proposed Wild & Scenic Rivers

- ～ Smoke Creek - Lower
- ～ Smoke Creek - Upper
- ～ Susan River
- ～ Willow Creek - Lower
- ～ Willow Creek - Upper

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

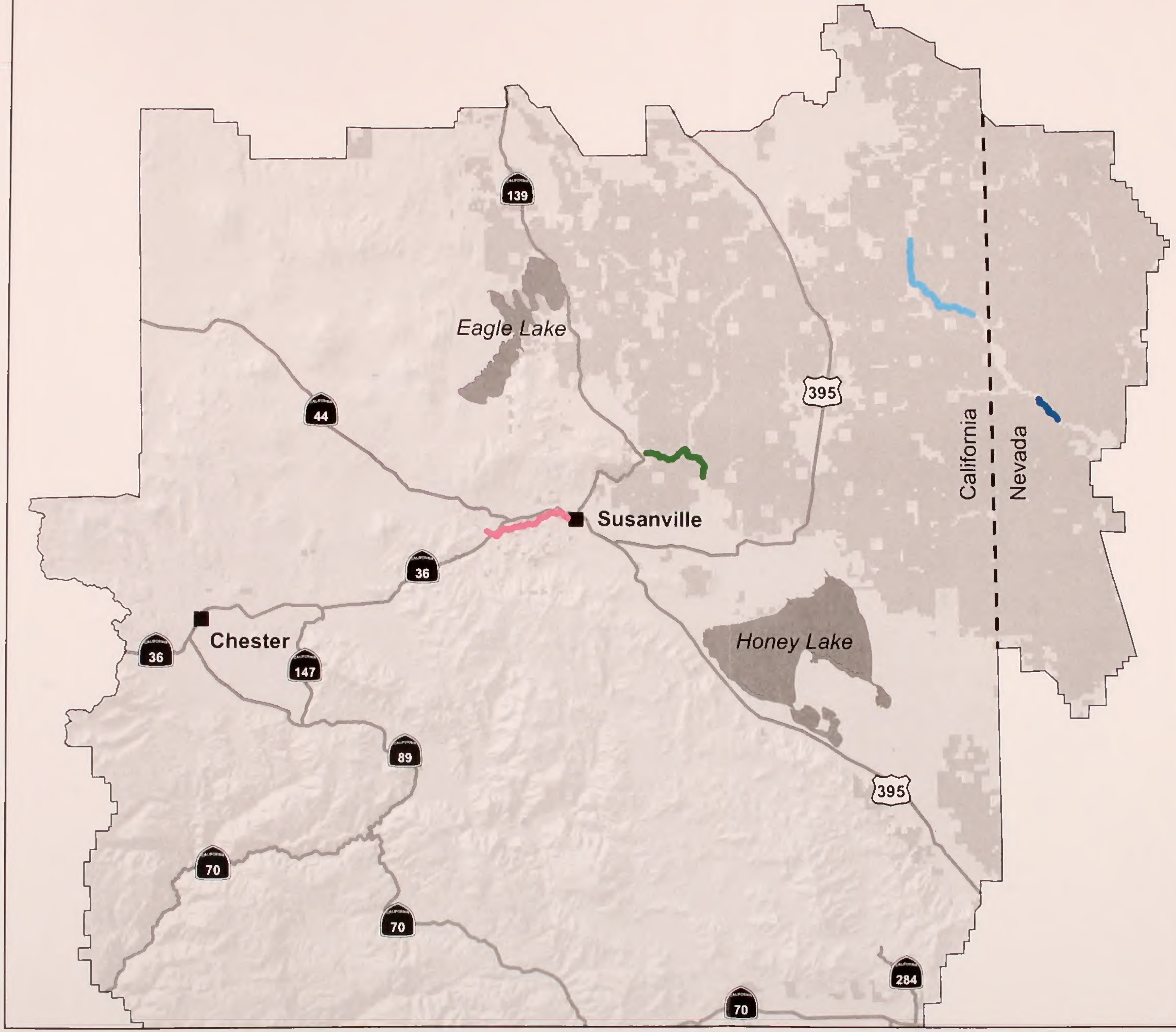
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005



MAP: WSR-2

Wild and Scenic River Designations Alternative 2



LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM

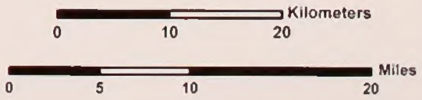
Proposed Wild & Scenic Rivers

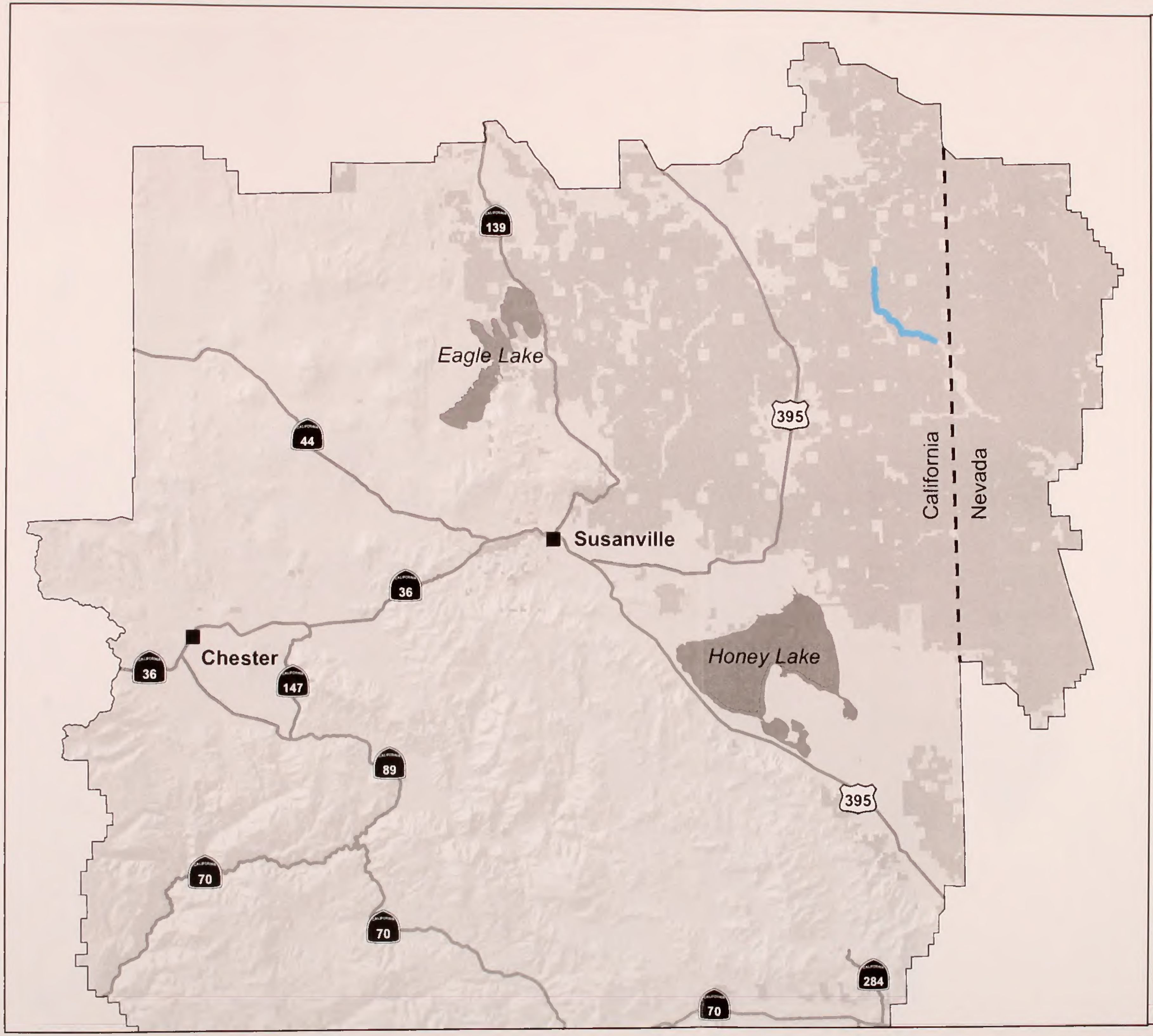
- 〰 Smoke Creek - Lower
- 〰 Smoke Creek - Upper
- 〰 Susan River
- 〰 Willow Creek

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005





MAP: WSR-3

Wild and Scenic River Designations Preferred Alternative

LEGEND

■ Cities
— Highways
▩ Lakes
▨ Bureau of Land Management (BLM) Administered Lands
☐ Lands Other Than BLM

Proposed Wild & Scenic Rivers

〰 Upper Smoke Creek

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

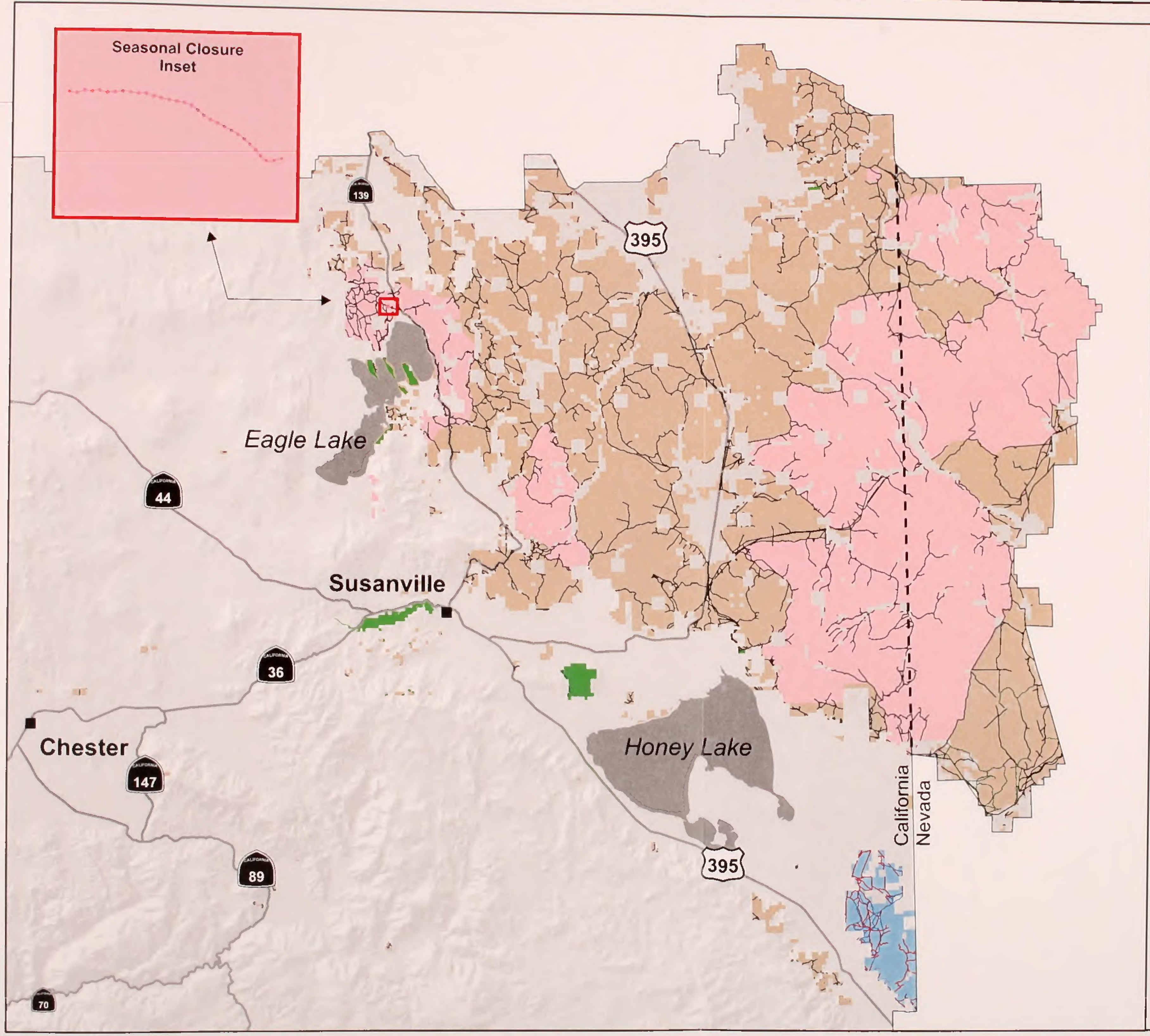
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

Kilometers
0 10 20

Miles
0 5 10 20



MAP: TRAVEL- 2

Off-Highway Vehicle Area and Route Designations No Action Alternative

LEGEND

■ Cities
— Highways
▨ Lakes
☐ Lands Other Than BLM

•-•-•-• Closure-Seasonal - Dec 1 to Aug 31

ROUTES

— Designated Route - 4 Wheel Drive
— Designated Route - ATV
— Existing Route - 4 Wheel Drive
— Existing Route - ATV

OFF-HIGHWAY VEHICLE
AREA DESIGNATIONS

🟫 Open
🟥 Limited to Existing Routes
🟦 Limited to Designated Routes
🟩 Closed

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

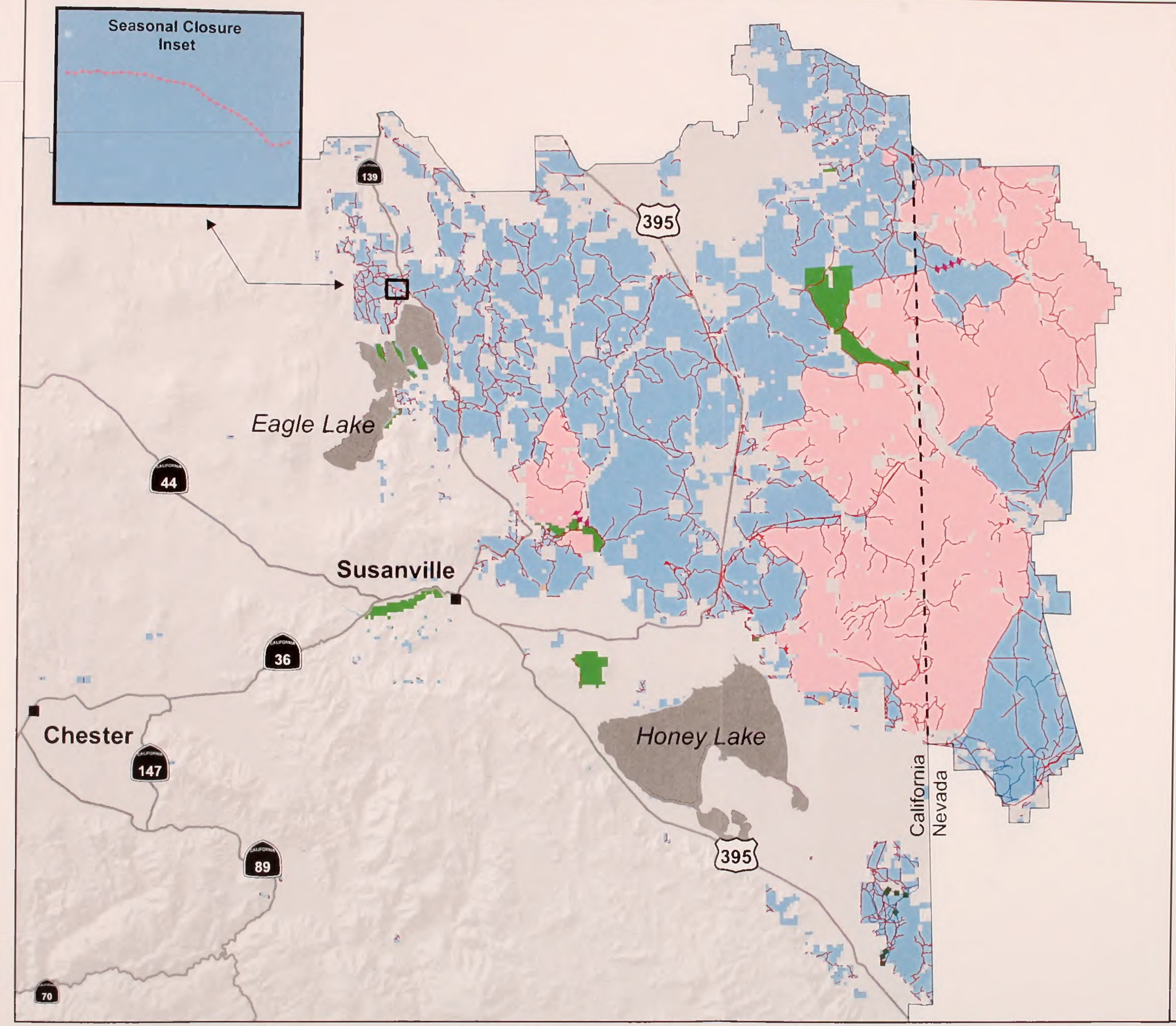
Fall 2005

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregated use with other data. Original data was compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notice.

N
W E
S

Kilometers
0 10 20

Miles
0 5 10 20



MAP: TRAVEL- 3

Off-Highway Vehicle Area and Route Designations Alternative 1

LEGEND

■ Cities
— Highways
▨ Lakes
☐ Lands Other Than BLM

Closure-Seasonal - Dec 1 to Aug 31

ROUTES
— Designated Route - 4 Wheel Drive
— Designated Route - ATV
♦♦♦♦♦ Route Construction - 4 Wheel Drive
■-■-■ Route Construction - ATV

OFF-HIGHWAY VEHICLE AREA DESIGNATIONS
🟧 Open
🟥 Limited to Existing Routes
🟦 Limited to Designated Routes
🟩 Closed

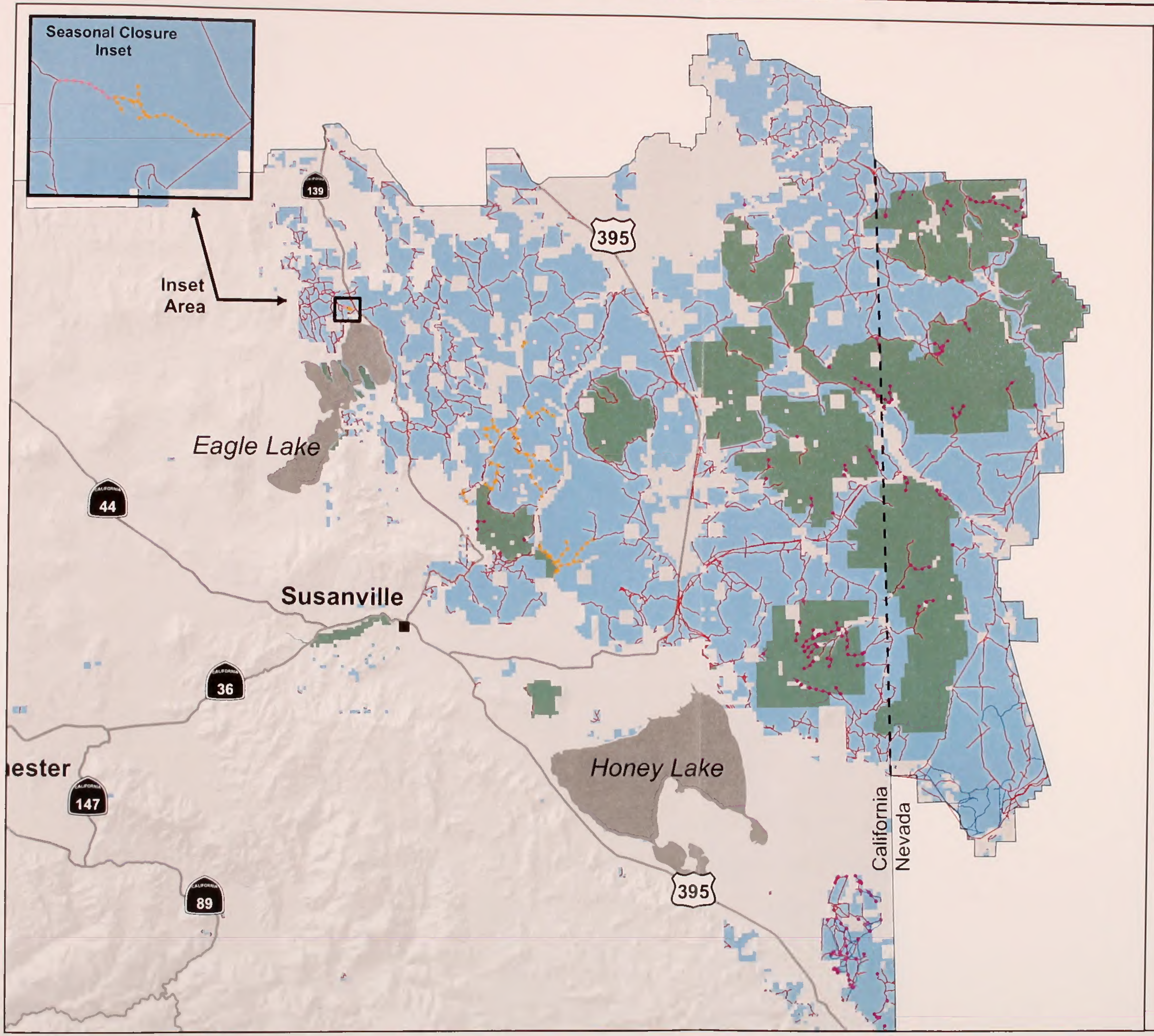
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

0 10 20 Kilometers

0 5 10 20 Miles



MAP: TRAVEL- 4

Off-Highway Vehicle Area and Route Designations
Alternative 2

LEGEND

■ Cities
— Highways
▨ Lakes
▨ Lands Other Than BLM

ROUTES
•••• Closure - Permanent
•••• Closure Seasonal - Dec 1 to Aug 31
•••• Closure Seasonal - Jan 1 to Apr 15
— Designated Route - 4 Wheel Drive
— Designated Route - ATV

OFF-HIGHWAY VEHICLE AREA DESIGNATIONS
🟩 Closed
🟦 Limited to Designated Routes

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

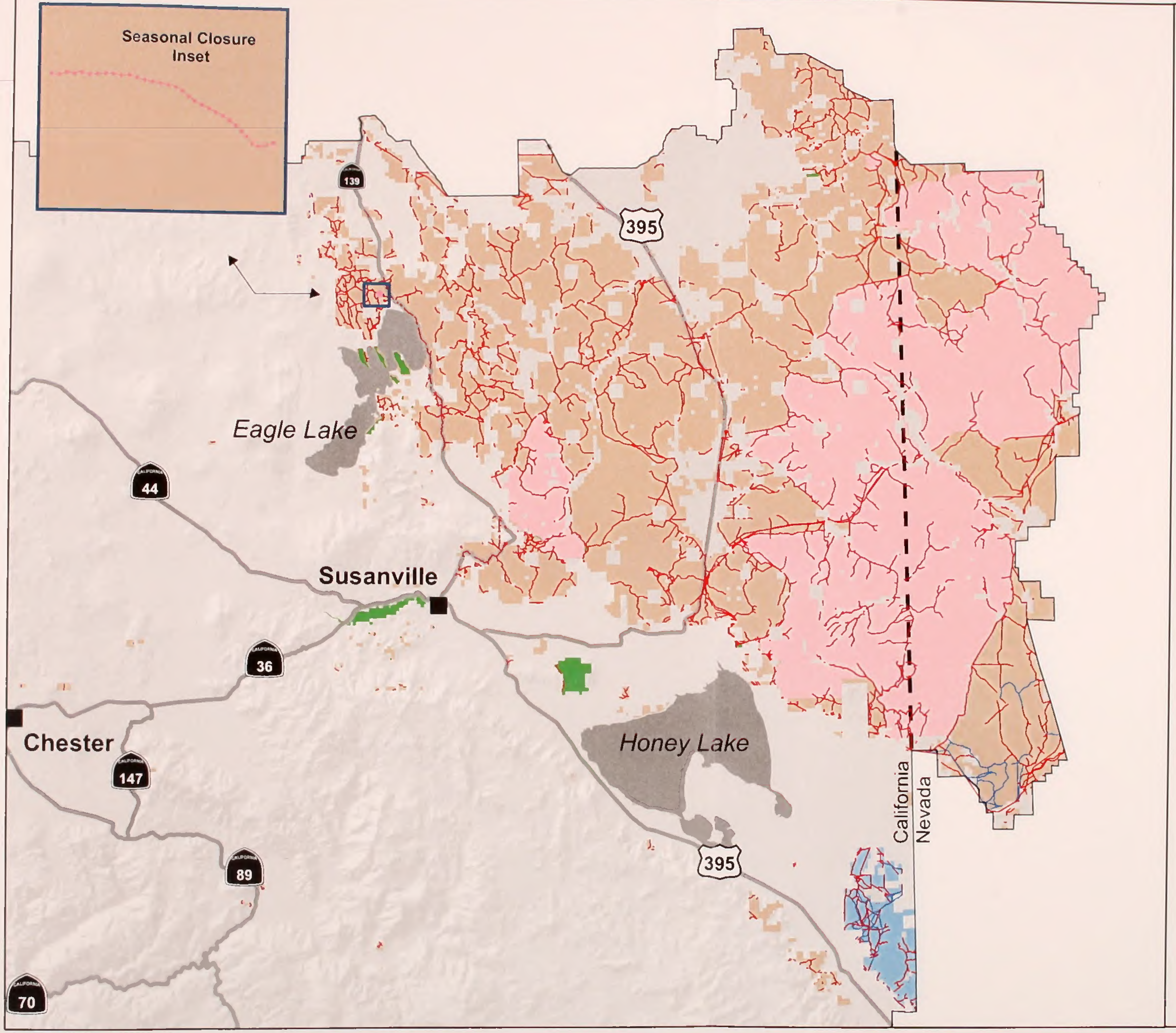
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

0 10 20 Kilometers

0 5 10 20 Miles



MAP: TRAVEL- 5
Off-Highway Vehicle Area and Route Designations
Alternative 3

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ☐ Lands Other Than BLM

•-•-•-• Closure-Seasonal - Dec 1 to Aug 31

ROUTES

- — Designated Route - 4 Wheel Drive
- — Designated Route - ATV
- •-•-•-• Closure-Seasonal - Dec 1 to Aug 31

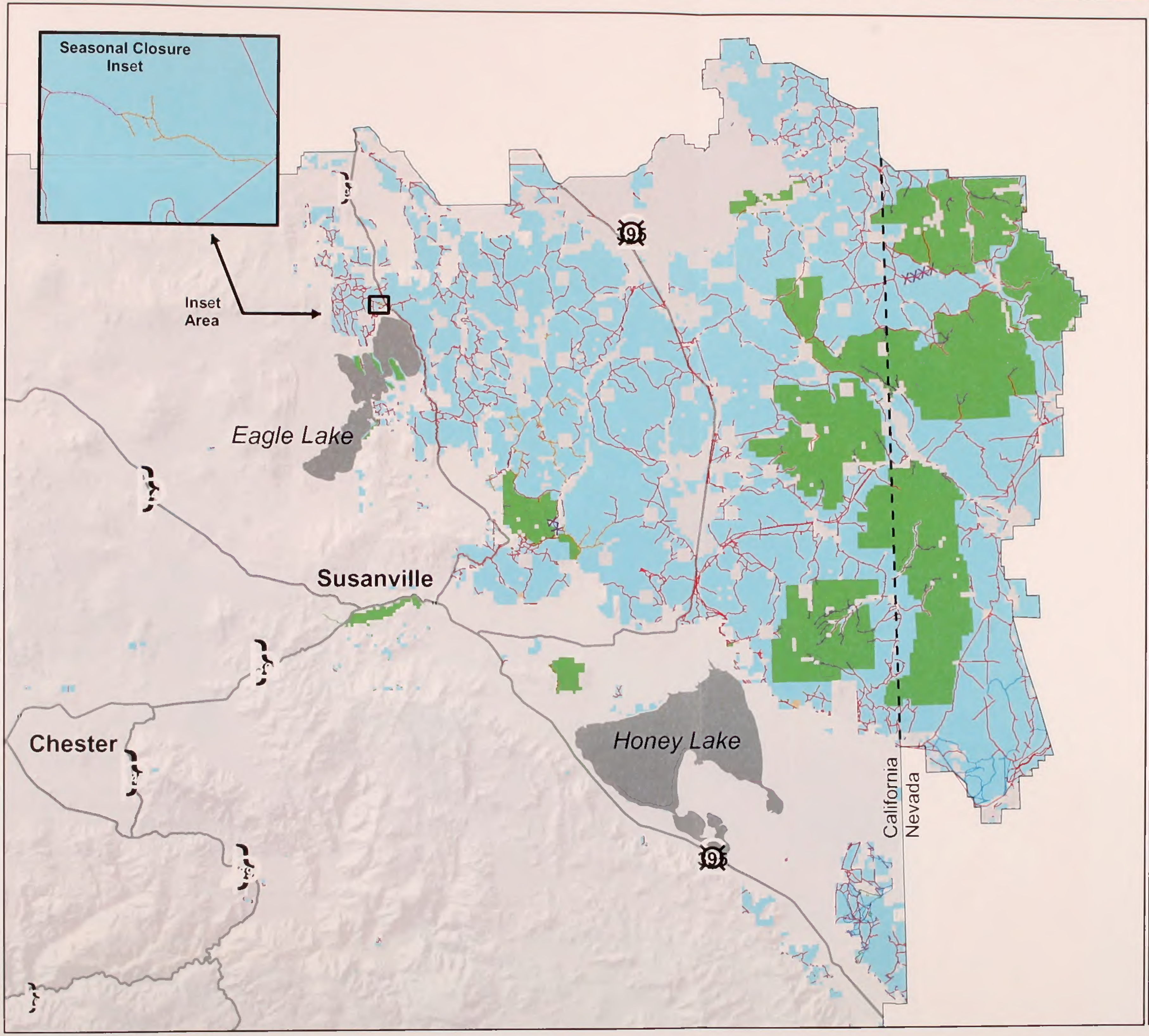
OFF-HIGHWAY VEHICLE AREA DESIGNATIONS

- 🟫 Open
- ▨ Limited to Existing Routes
- 🟦 Limited to Designated Routes
- 🟩 Closed

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005



MAP: TRAVEL- 6

Off-Highway Vehicle Area and Route Designations Preferred Alternative

LEGEND

- " Cities
- ━ Highways
- ▆ Lakes
- ☐ Lands Other Than BLM

ROUTES

- Closure - Permanent
- Closure Seasonal - Dec 1 to Aug 31
- Closure Seasonal - Jan 1 to Apr 15
- Designated Route - 4 Wheel Drive
- Designated Route - ATV
- XXX Route Construction - 4 Wheel Drive
- Route Construction - ATV

OFF-HIGHWAY VEHICLE AREA DESIGNATIONS

- 🟧 Open
- 🟦 Limited to Designated Routes
- 🟩 Closed

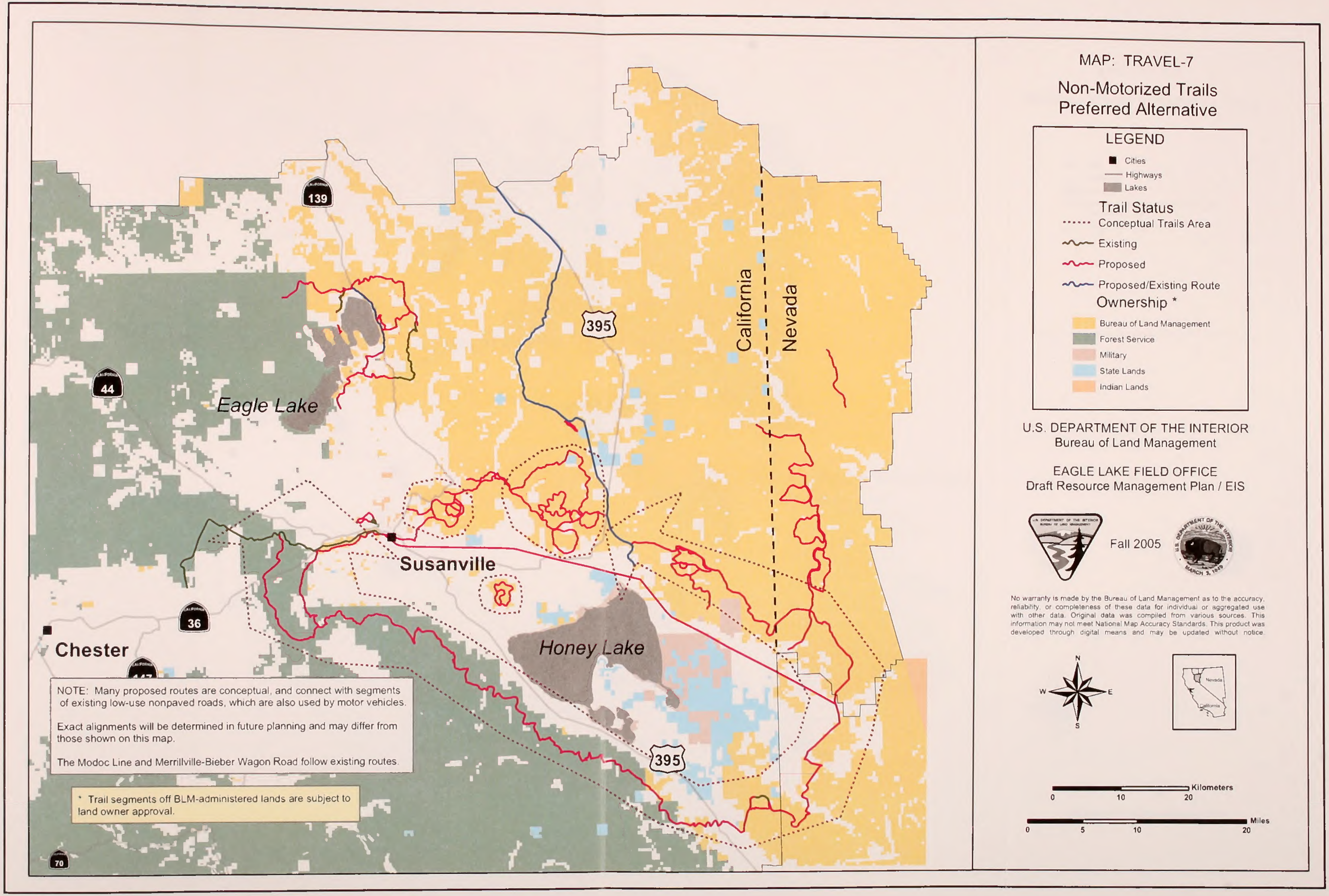
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

Kilometers
0 10 20

Miles
0 5 10 20



MAP: TRAVEL-7

Non-Motorized Trails
Preferred Alternative

LEGEND

■ Cities
— Highways
▨ Lakes

Trail Status

······ Conceptual Trails Area
〰 Existing
〰 Proposed
〰 Proposed/Existing Route

Ownership *

▨ Bureau of Land Management
▨ Forest Service
▨ Military
▨ State Lands
▨ Indian Lands

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

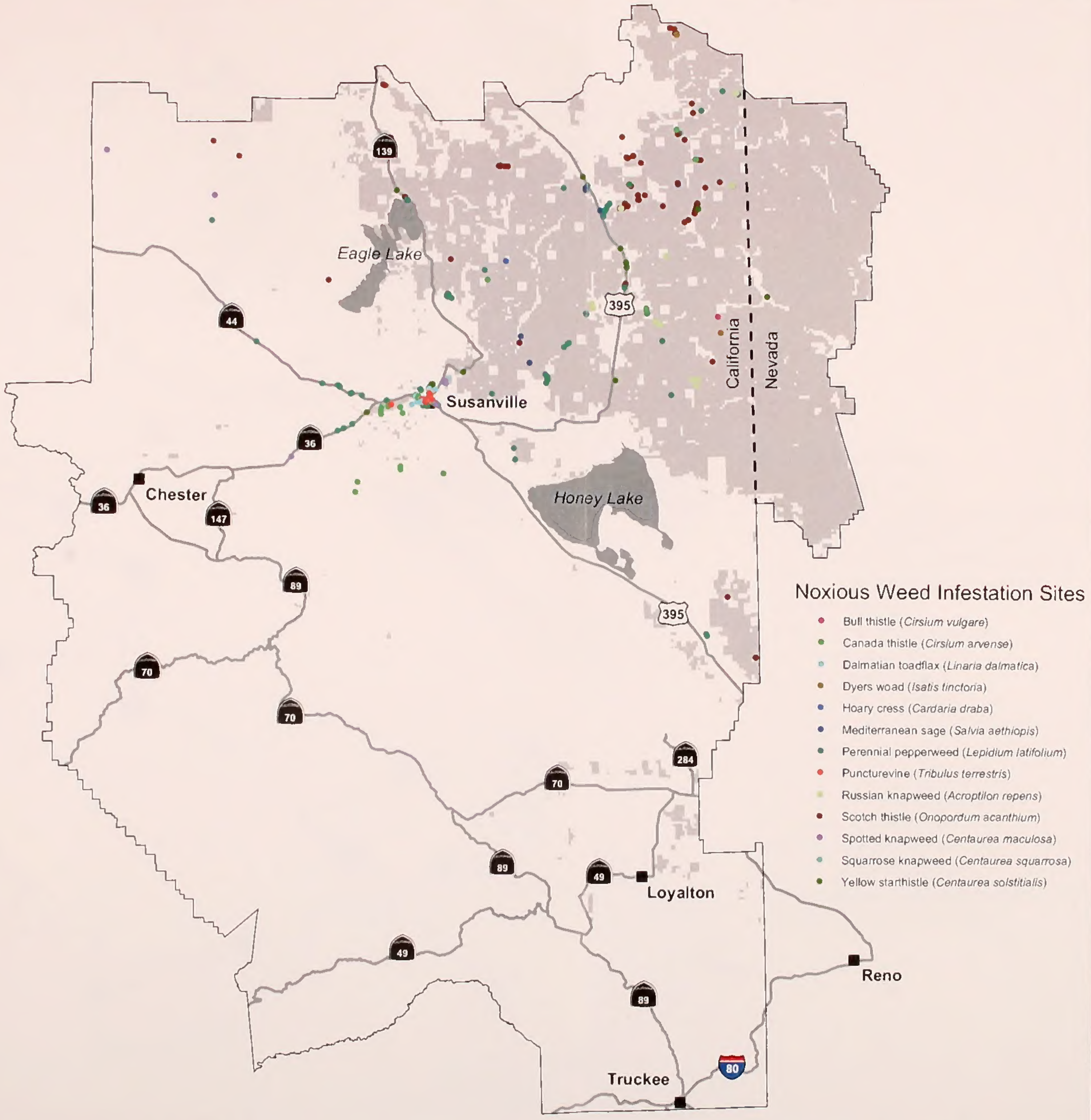
Fall 2005

NOTE: Many proposed routes are conceptual, and connect with segments of existing low-use nonpaved roads, which are also used by motor vehicles.

Exact alignments will be determined in future planning and may differ from those shown on this map.

The Modoc Line and Merrillville-Bieber Wagon Road follow existing routes.

* Trail segments off BLM-administered lands are subject to land owner approval.



MAP: VEG-3

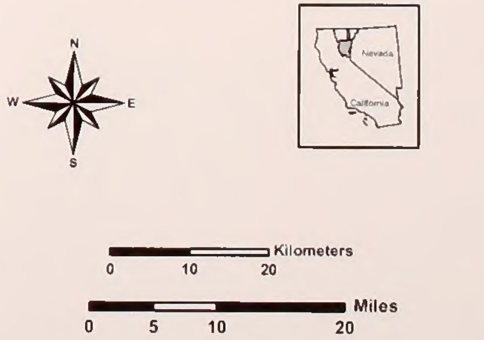
Noxious Weed Infestation Sites

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

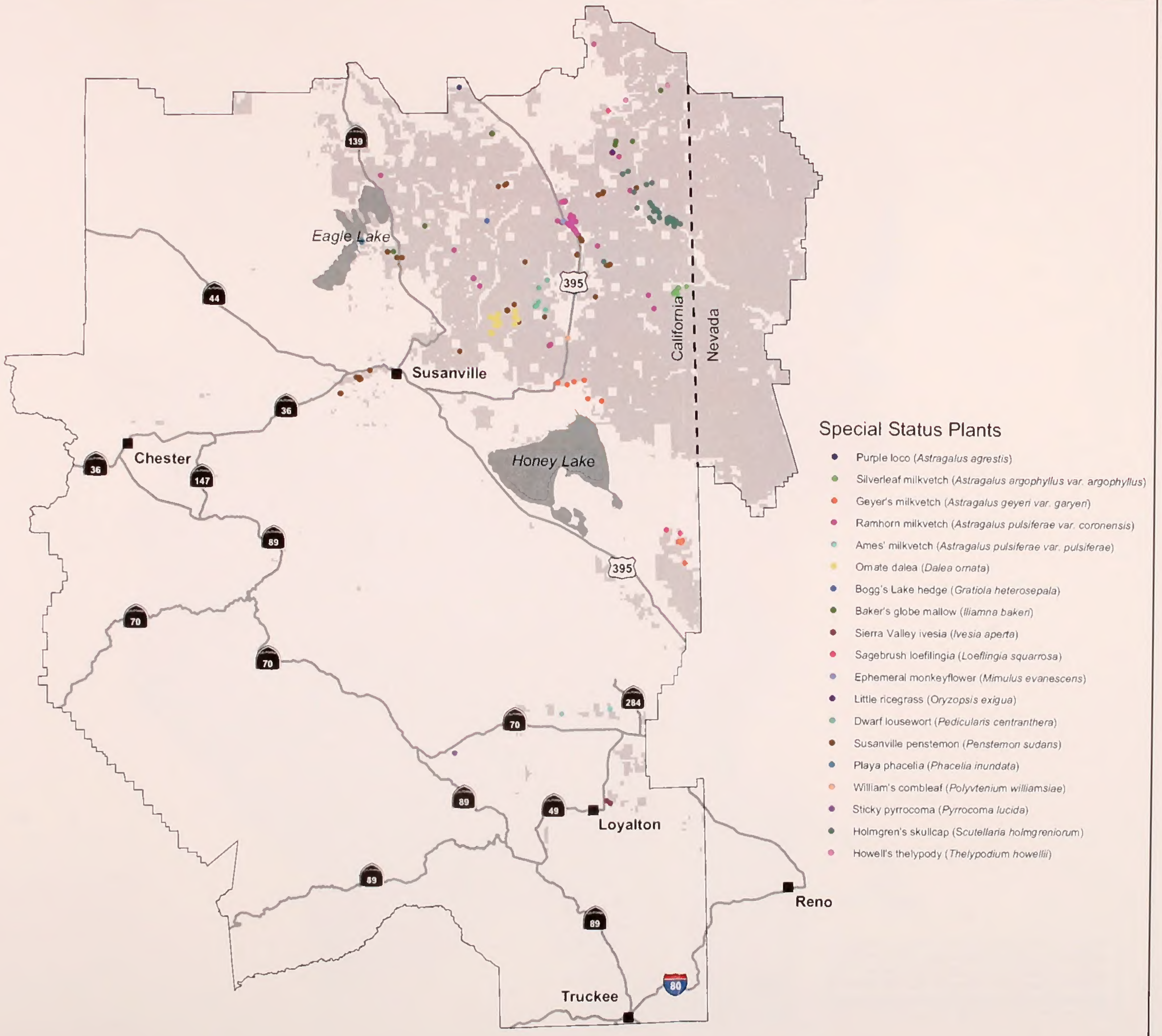
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005



MAP: VEG-4

Special Status Plants



■ Cities
— Highways
▨ Lakes
▨ Bureau of Land Management (BLM) Administered Lands
☐ Lands Other Than BLM

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

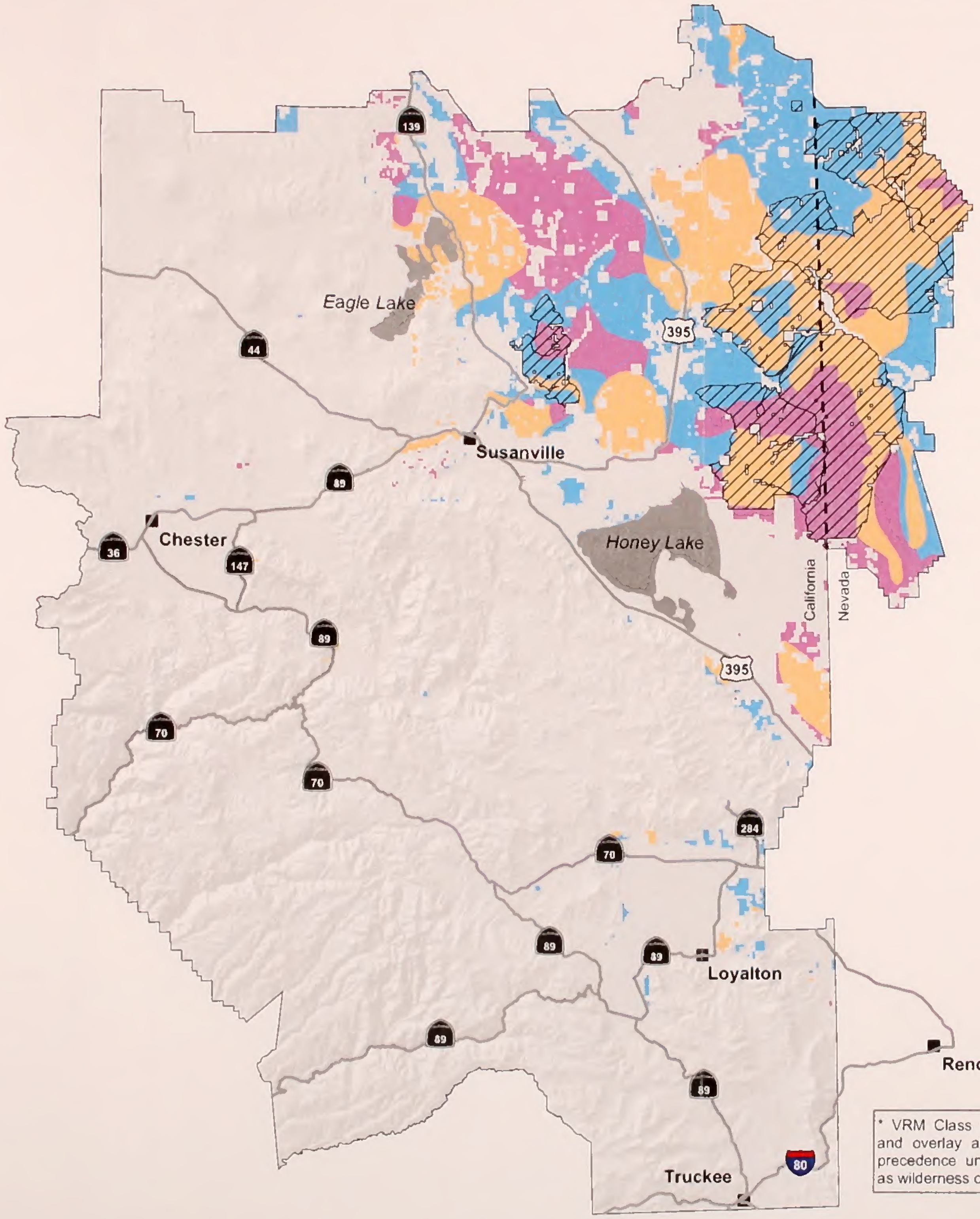
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

Kilometers
0 10 20

Miles
0 5 10 20



* VRM Class I objectives apply to all WSAs and overlay all of the other classes, taking precedence until Congress designates WSAs as wilderness or removes the WSA designations.

MAP: VRM-1

Visual Resource Management Classes
No Action and Alternative 3

LEGEND

■ Cities
— Highways
▨ Lakes
▨ Bureau of Land Management (BLM) Administered Lands
▨ Lands Other Than BLM

VRM Class Designations

● II ● III ● IV

▨ Wilderness Study Areas *
(Managed as Class I under Interim Policy)

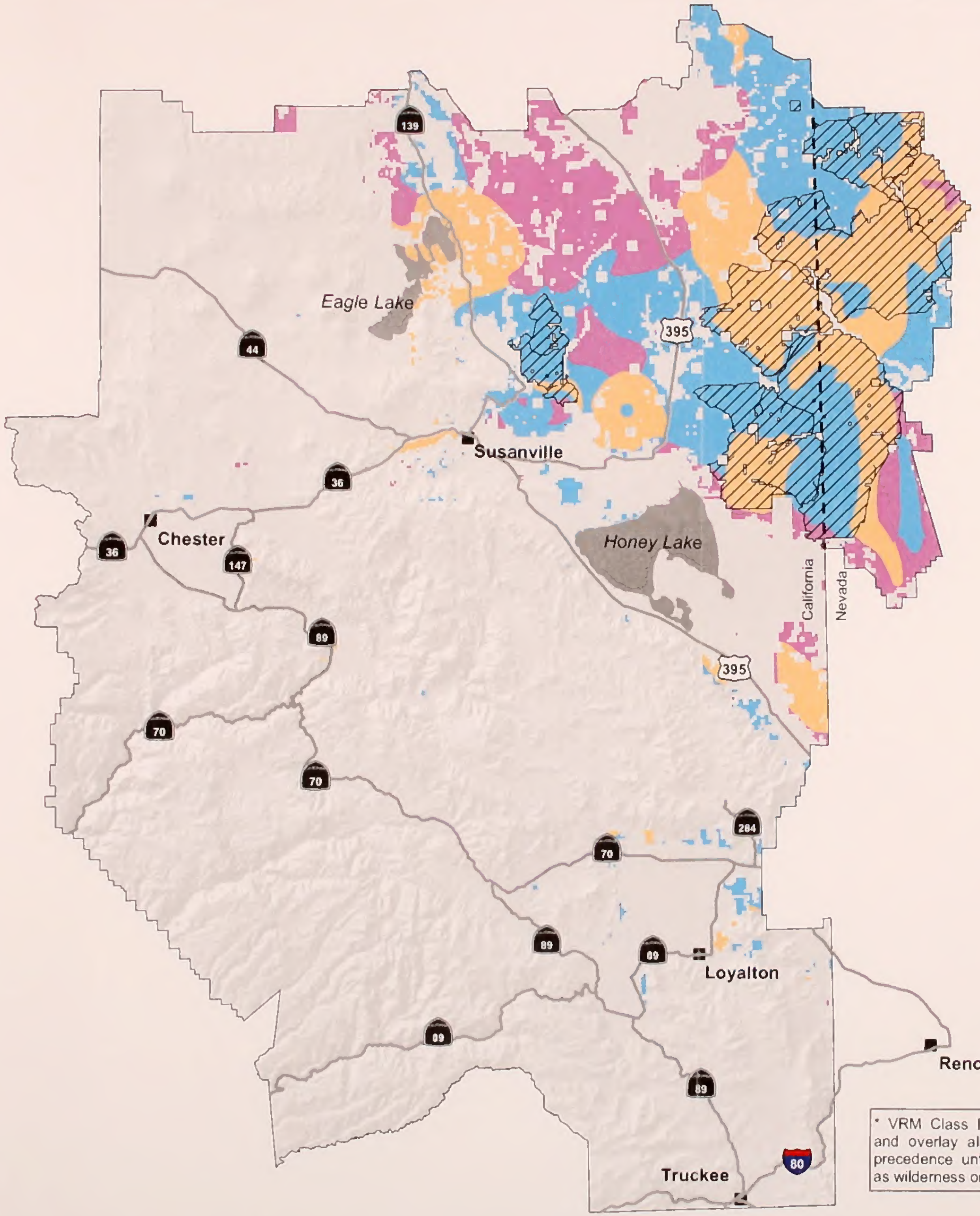
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

Kilometers
0 10 20

Miles
0 5 10 20



* VRM Class I objectives apply to all WSAs and overlay all of the other classes, taking precedence until Congress designates WSAs as wilderness or removes the WSA designations.

MAP: VRM-2

Visual Resource Management Classes Alternative 1

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM

VRM Class Designations

● II ● III ● IV

▨ Wilderness Study Areas*
(Managed as Class I under Interim Policy)

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

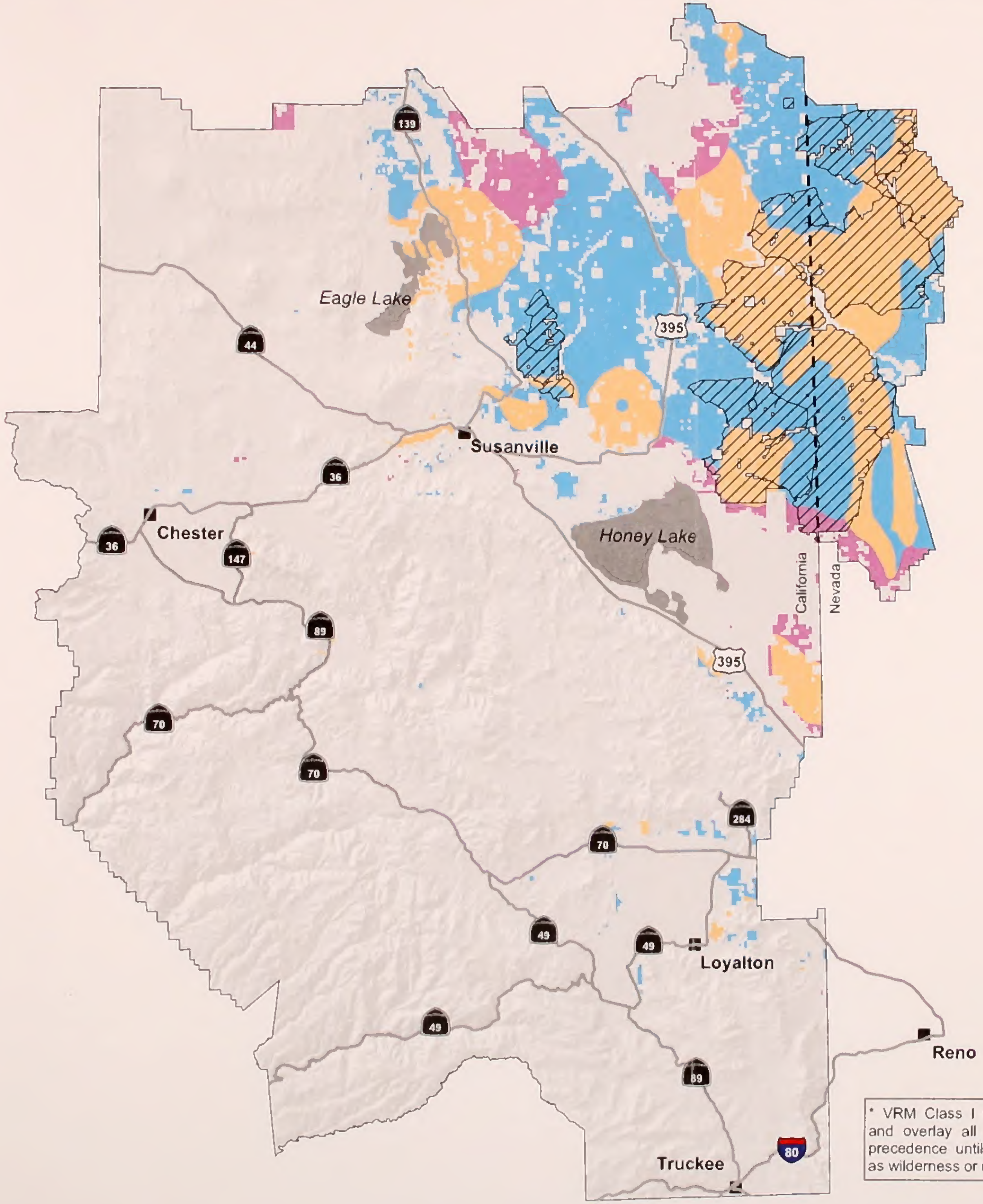
Fall 2005

N
W E
S

Nevada
California

Kilometers 0 10 20

Miles 0 5 10 20



* VRM Class I objectives apply to all WSAs and overlay all of the other classes, taking precedence until Congress designates WSAs as wilderness or removes the WSA designations.

MAP: VRM-3

Visual Resource Management Classes Alternative 2

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▭ Bureau of Land Management (BLM) Administered Lands
- ▭ Lands Other Than BLM

VRM Class Designations

● II ● III ● IV

▨ Wilderness Study Areas*

(Managed as Class I under Interim Policy)

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

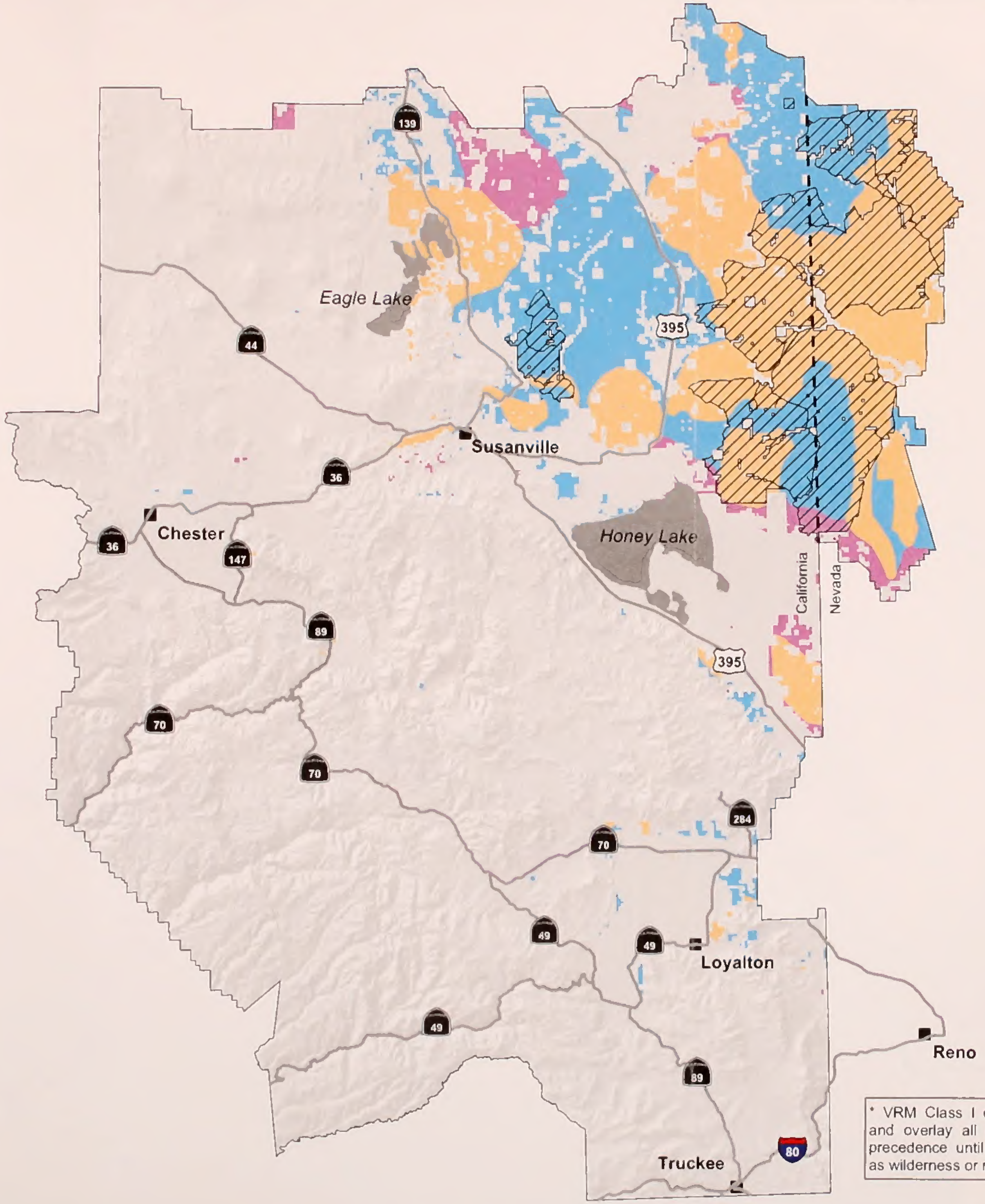
Fall 2005

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregated use with other data. Original data was compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notice.

N
W E
S

Kilometers
0 10 20

Miles
0 5 10 20



* VRM Class I objectives apply to all WSAs and overlay all of the other classes, taking precedence until Congress designates WSAs as wilderness or removes the WSA designations.

MAP: VRM-4

Visual Resource Management Classes Preferred Alternative

LEGEND

■ Cities
— Highways
▨ Lakes
▨ Bureau of Land Management (BLM) Administered Lands
▨ Lands Other Than BLM

VRM Class Designations

● II ● III ● IV

▨ Wilderness Study Areas *
(Managed as Class I under Interim Policy)

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

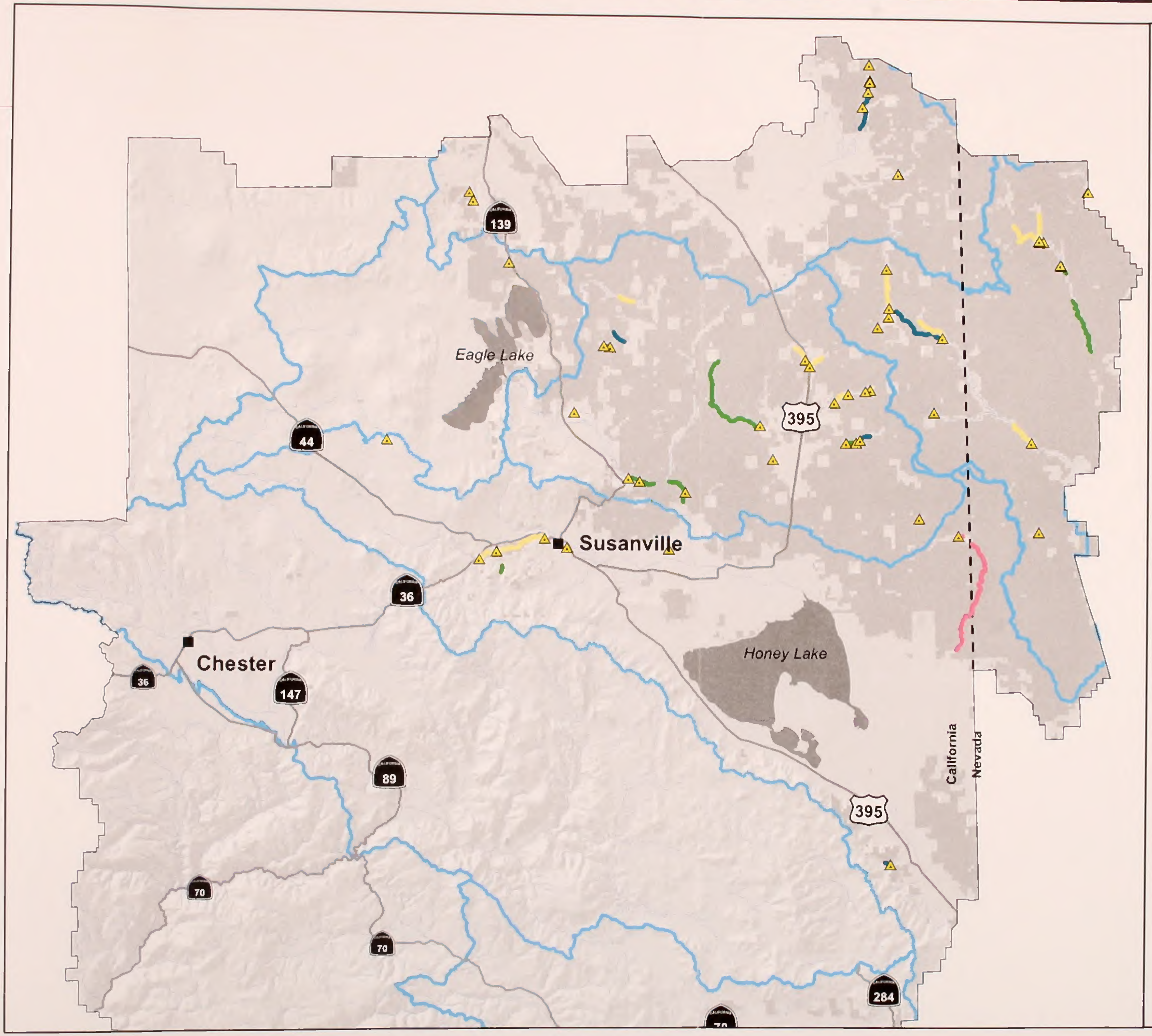
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

Kilometers
0 10 20

Miles
0 5 10 20



MAP: WATER-1

Water Quality Status

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM
- △ Water Quality Stations
- ~ Streams
- — Watershed Boundaries

Water Quality Based on State Standards

- — Meets Standard
- — At Risk of Not Meeting Standard
- — Does Not Meet Standard
- — Impaired Waterbody

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

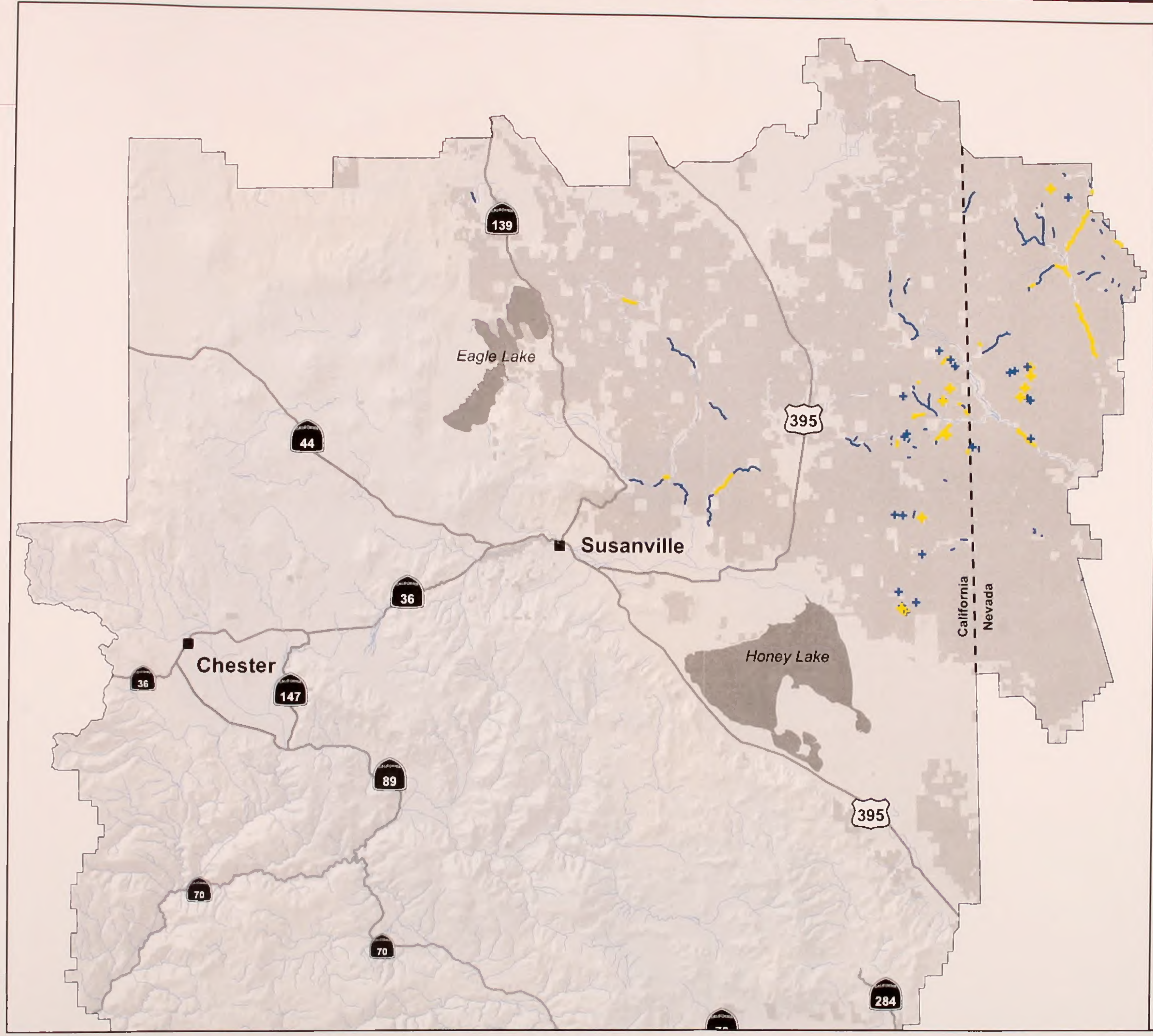
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

Kilometers
0 10 20

Miles
0 5 10 20



MAP: WATER-2

Riparian Functioning Condition

LEGEND

■ Cities
— Highways
▨ Lakes
▨ Bureau of Land Management (BLM) Administered Lands
▨ Lands Other Than BLM

+ — ▨ Functioning at Risk
+ — ▨ Properly Functioning Condition

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

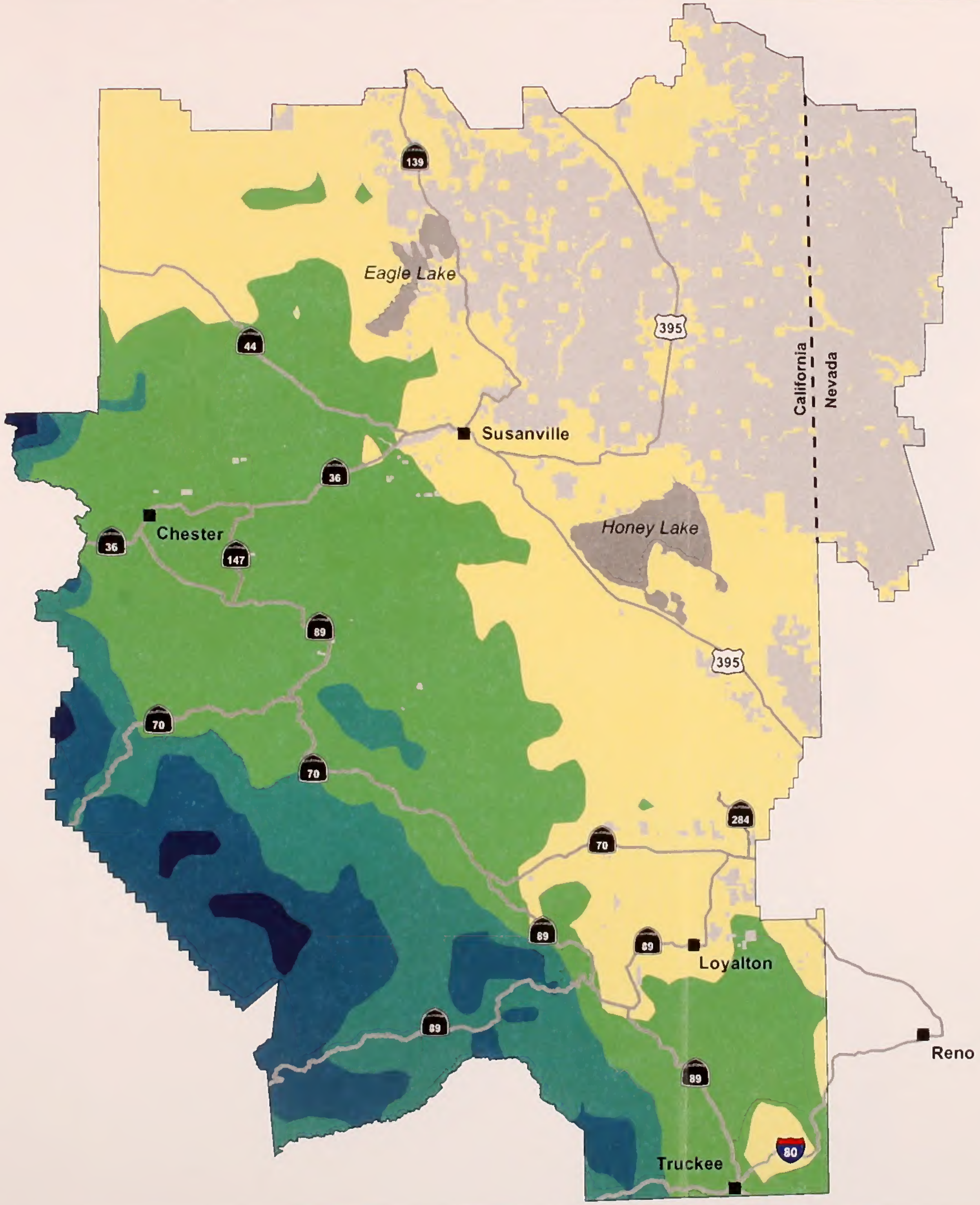
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

0 10 20 Kilometers

0 5 10 20 Miles



MAP: WATER-3

Annual Precipitation 1961 - 1990

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM

ANNUAL PRECIPITATION IN INCHES

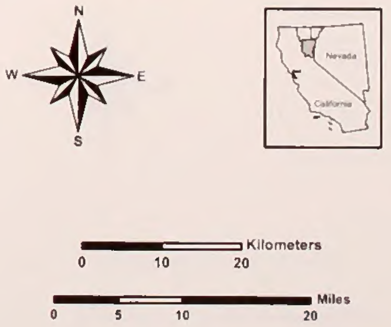
Precipitation Range

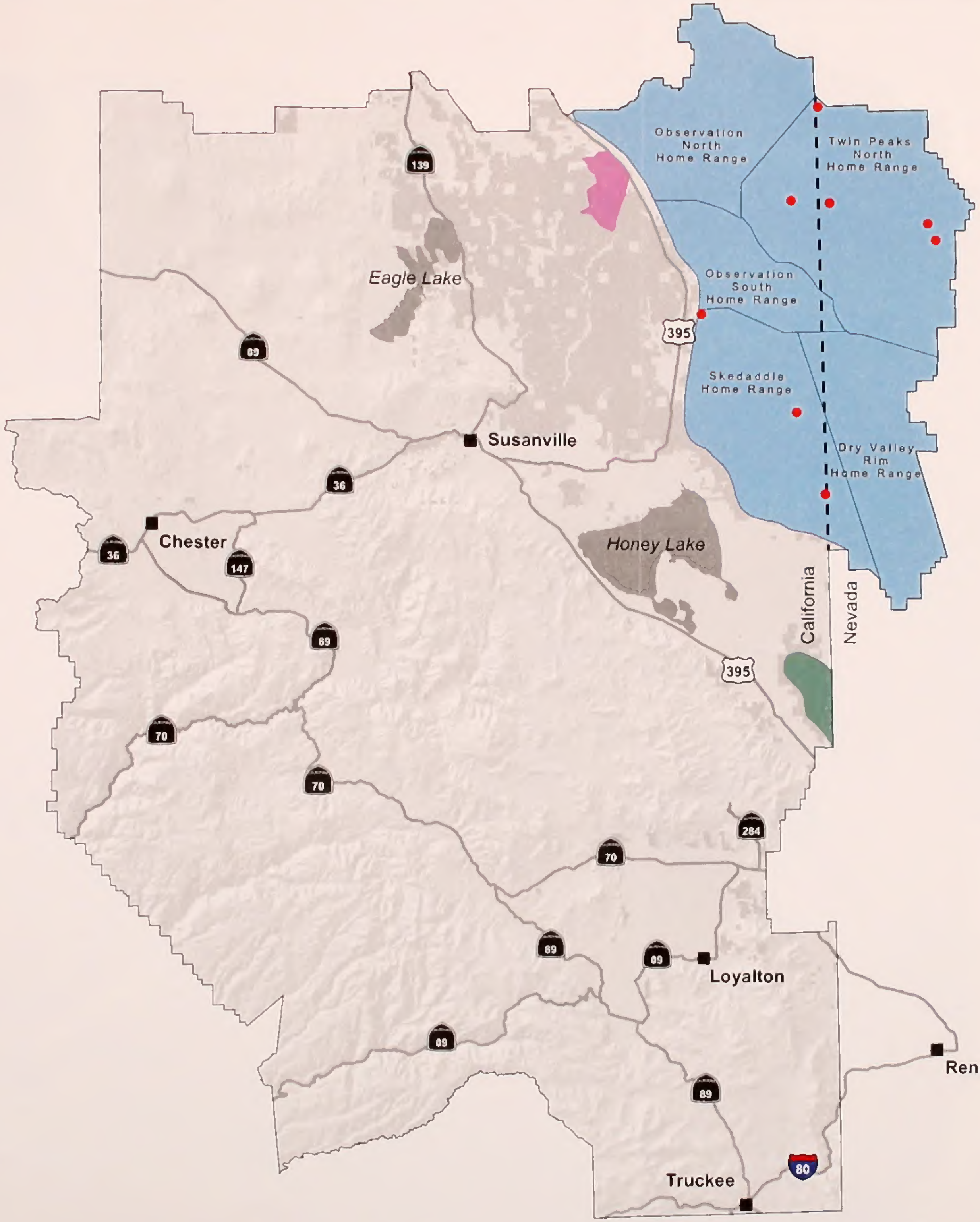
- 🟨 7 - 27
- 🟩 28 - 49
- ▨ 51 - 67
- ▨ 68 - 83
- ■ 84 - 109

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005





MAP: WHB-1

Wild Horse and Burro Herd Management Areas No Action and Preferred Alternative

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▢ Bureau of Land Management (BLM) Administered Lands
- ▨ Lands Other Than BLM
- ● Approved Gather Sites

Herd Management Area

- 🟩 Fort Sage
- 🟪 New Ravendale
- 🟦 Twin Peaks

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

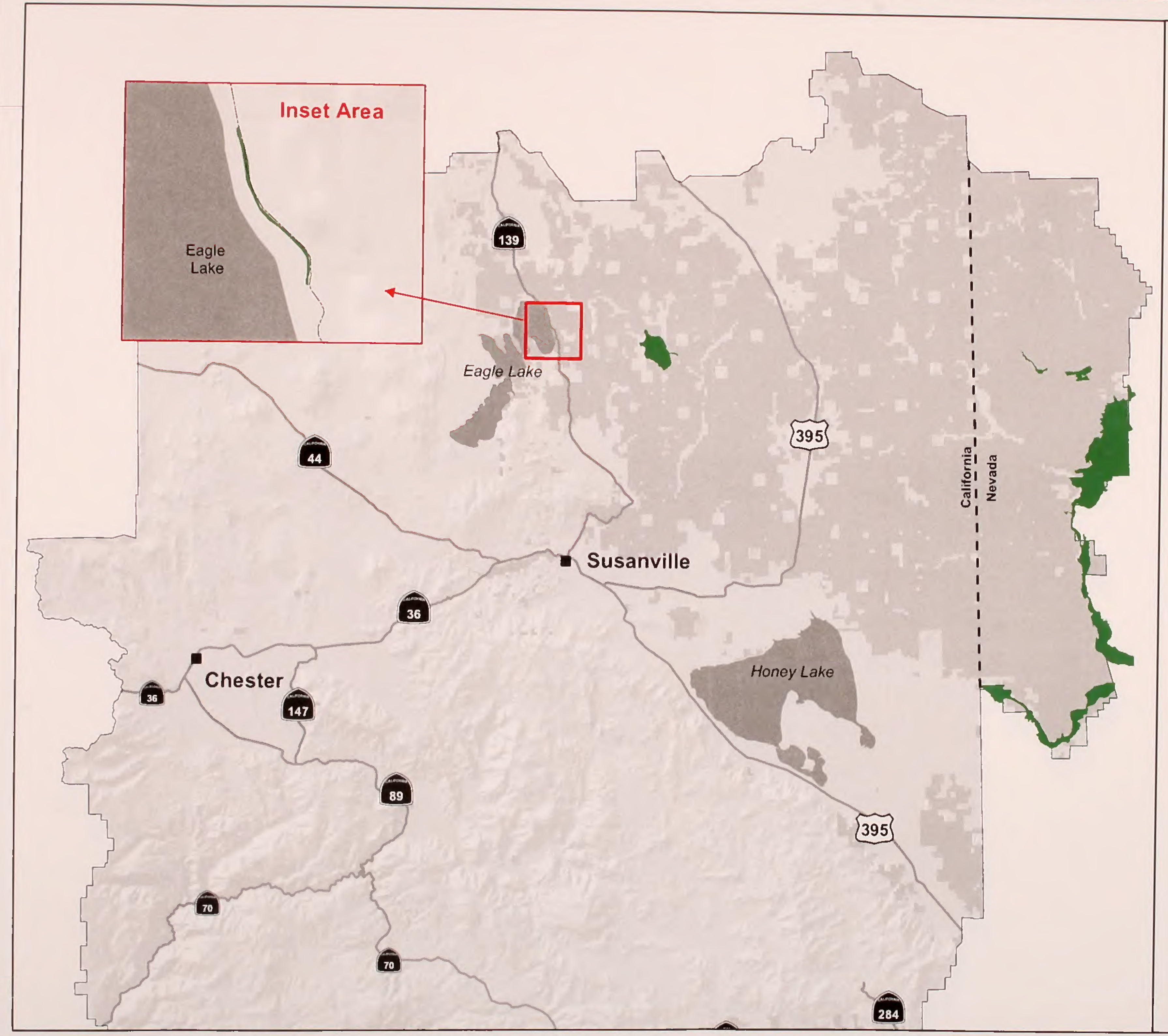
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

0 10 20 Kilometers

0 5 10 20 Miles



MAP: WL-1
Carson Wandering Skipper Potential Habitat

LEGEND

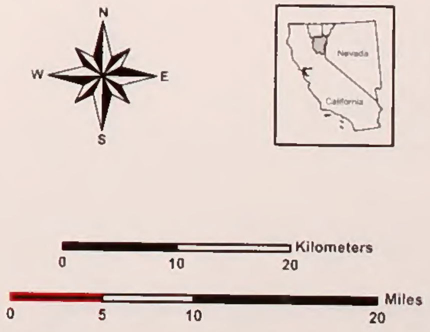
■ Cities
— Highways
▨ Lakes
▨ Bureau of Land Management (BLM) Administered Lands
☐ Lands Other Than BLM

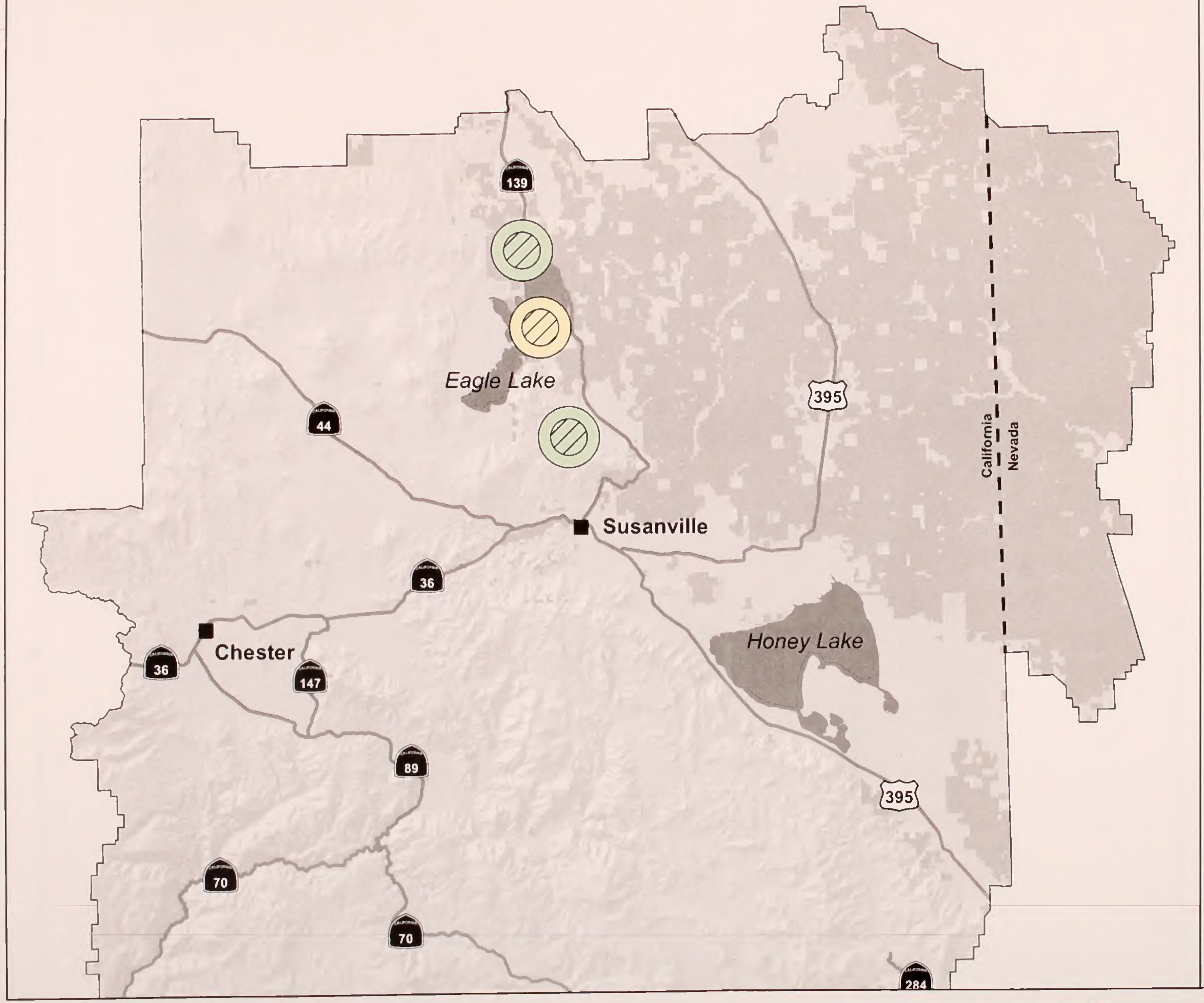
🟩 Potential Habitat

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005





MAP: WL-2
Bald Eagle
Home Range and Nesting Territory

LEGEND

■ Cities
— Highways
▨ Lakes
▨ Bureau of Land Management (BLM) Administered Lands
☐ Lands Other Than BLM

▨ Nesting Territory

Home Range Status

🟩 Current
🟨 Historic

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

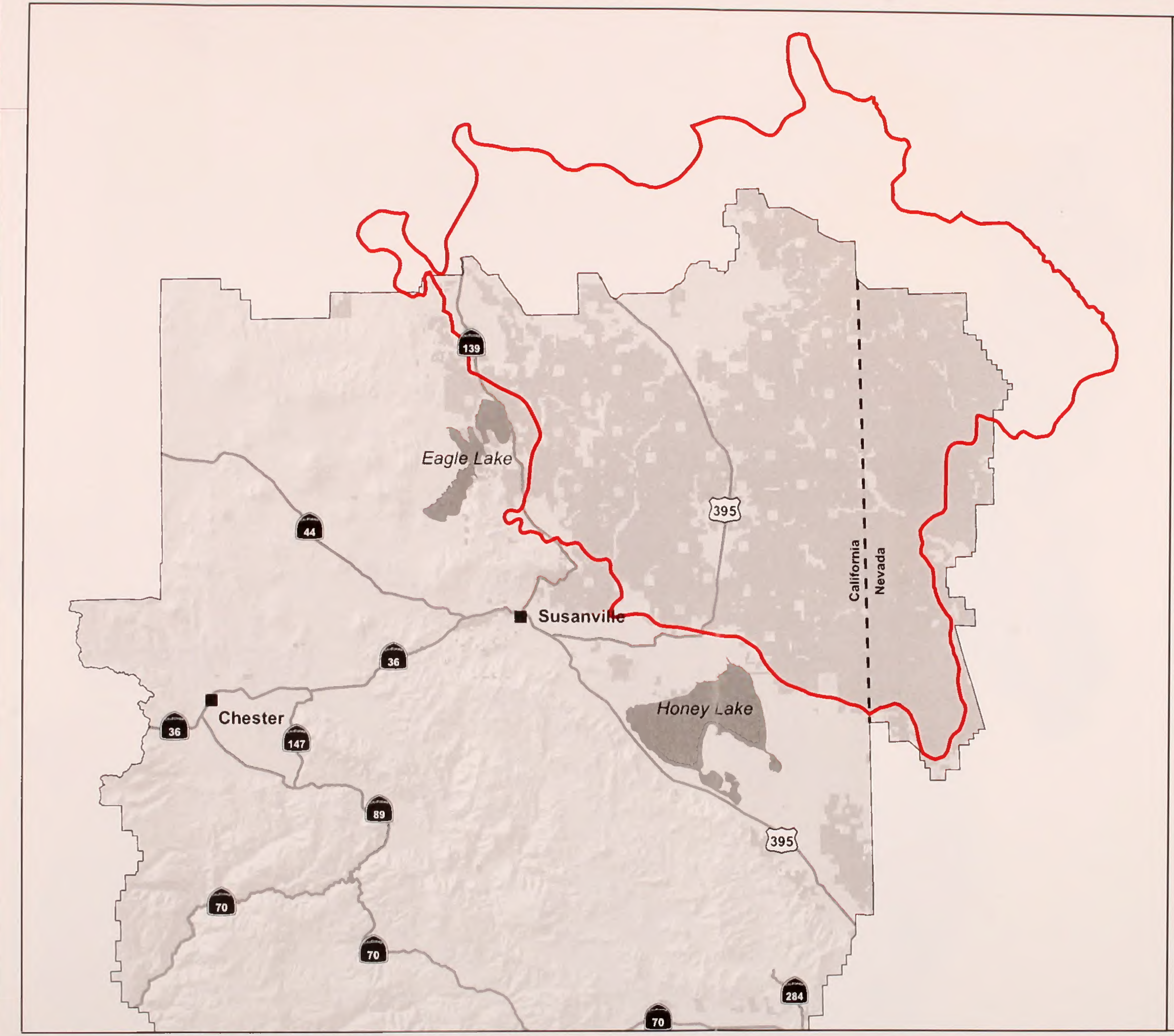
Fall 2005

N W E S

Kilometers
0 10 20

Miles
0 5 10 20

MAP: WL-3
Sage-Grouse
Population Management Unit



LEGEND

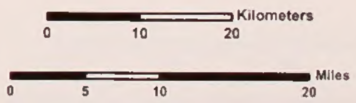
- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM

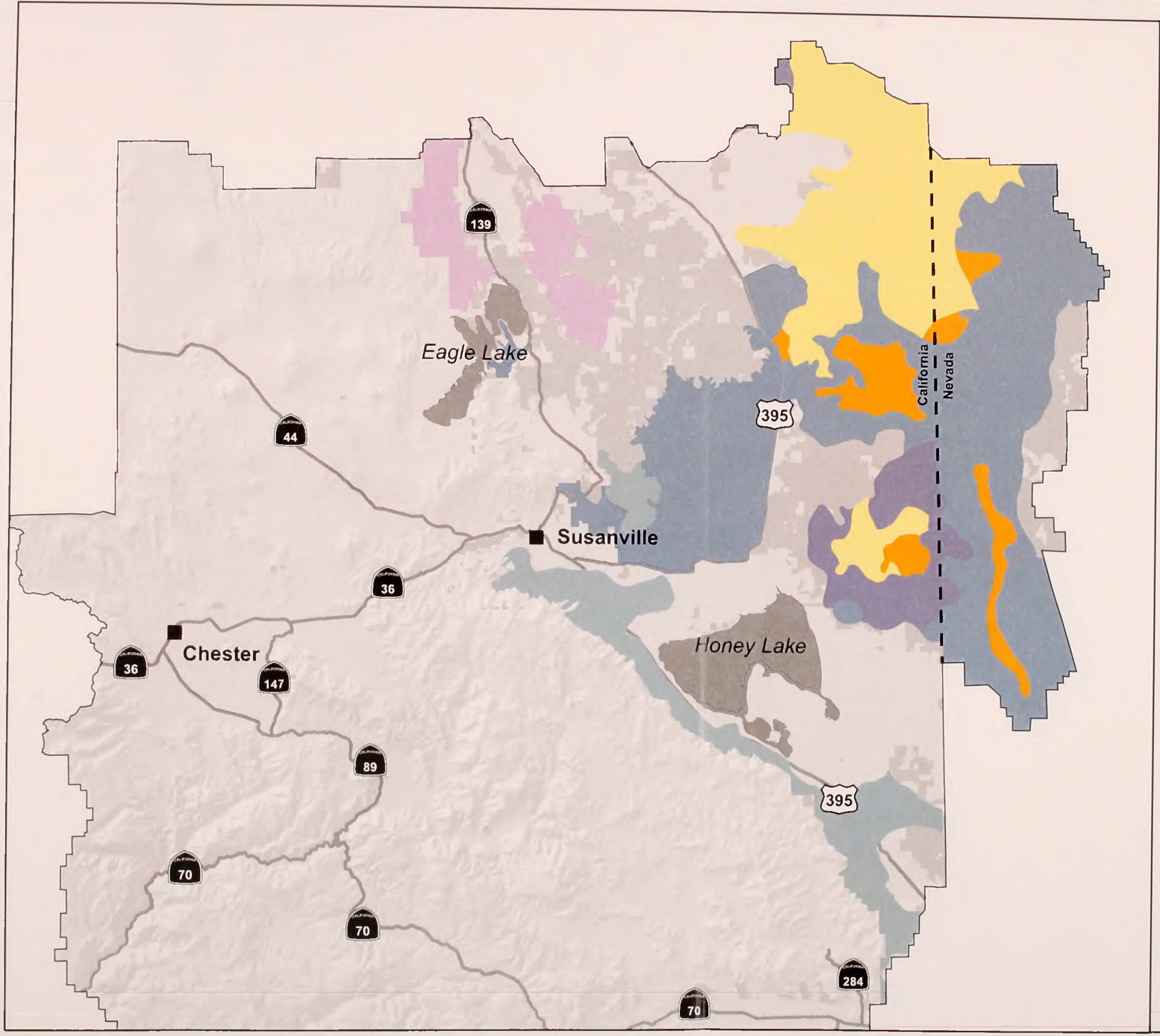
Buffalo-Skedaddle

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005





MAP: WL-4
Deer Priority Habitat Areas

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ☐ Lands Other Than BLM

Habitat by Seasonal Use

- ▨ Key Fawning Habitat
- ▨ Priority Winter Habitat
- ▨ Summer Habitat
- ▨ Transition Habitat
- ▨ Winter Habitat
- ▨ Yearlong Habitat

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

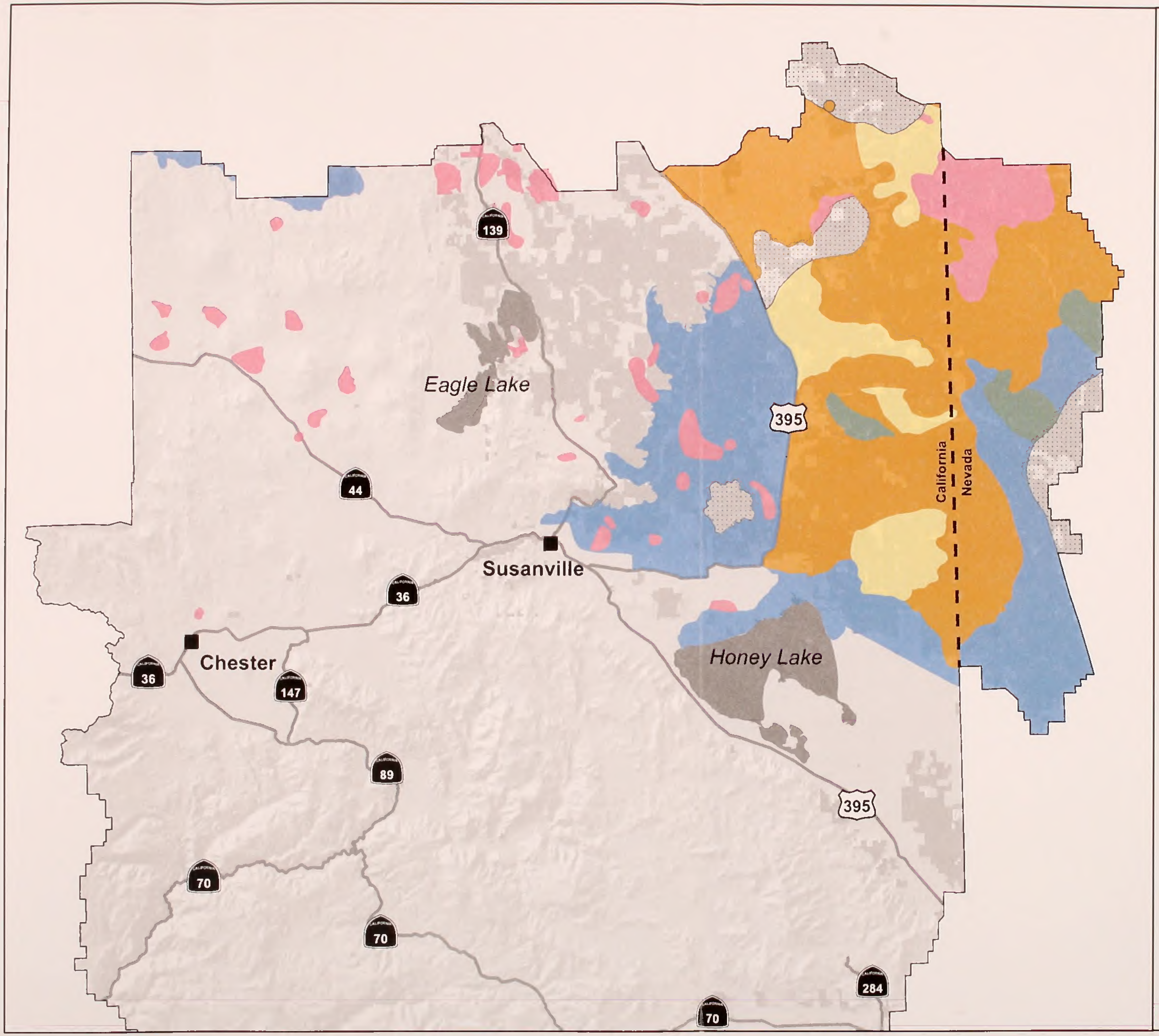
EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

0 10 20 Kilometers

0 5 10 20 Miles



MAP: WL-5
Pronghorn Priority Habitat Areas

LEGEND

- ■ Cities
- — Highways
- ▨ Lakes
- ▨ Bureau of Land Management (BLM) Administered Lands
- ▨ Lands Other Than BLM

Habitat by Seasonal Use

- ▨ Little or no use
- 🟥 Fawning Habitat
- 🟩 Priority Winter Habitat
- 🟨 Spring/Summer/Fall Habitat
- 🟦 Winter Habitat
- 🟧 Yearlong Habitat

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

EAGLE LAKE FIELD OFFICE
Draft Resource Management Plan / EIS

Fall 2005

N
W E
S

Kilometers
0 10 20

Miles
0 5 10 20

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Eagle Lake Field Office
2950 Riverside Drive
Susanville, CA 96130

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE $300

PRIORITY MAIL
Postage and Fees Paid
Bureau of Land Management
Permit No. G-76

News bytes

Subscribe to News.bytes a
FREE Weekly Email Newsletter.
http://www.ca.blm.gov