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SALT LAKE DISTRICT
BUREAU OF LAND MANAGEMENT
U.S. DEPARTMENT OF THE INTERIOR

APRIL, 1985

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

SALT LAKE DISTRICT OFFICE
2370 SOUTH 2300 WEST
SALT LAKE CITY, UTAH 84119

IN REPLY
REFER TO:

1792
Box Elder RMP
(U-210)

Dear Reviewer:

This Draft Environmental Impact Statement (DEIS) on the preliminary Box Elder Resource Management Plan is submitted for your review and comment. It assesses the impacts of implementing four possible alternatives to be used in the future management of all natural resources on the public lands in Box Elder County.

We welcome your comments on the content of this document. Those comments addressing the adequacy of the scope of the draft EIS or the impact analyses will be responded to in the final EIS. Specific comments will be the most useful. Comments may be submitted in writing at any time within the April 25 - July 25 review period. Comments may also be submitted in writing or presented verbally at a public hearing in Brigham City on June 6, 1985. The hearing will begin at 7:00 p.m. in the Box Elder County Commission Chambers, Box Elder County Courthouse. In order to be considered in the final EIS, all comments must be recieved by July 19, 1985.

Please keep this copy of the draft EIS, as an abbreviated final EIS may be issued in accordance with the Council on Environmental Quality (CEQ) regulations. Copies of the final EIS will be sent to all those who provide comments on the draft EIS or request a copy.

All written comments should be sent to:

Mr. Dennis Oaks
Box Elder Resource Management Plan Team Leader
Bureau of Land Management
2370 South 2300 West
Salt Lake City, Utah 84119

Sincerely yours,

Frank W. Snell
Salt Lake District Manager

Enclosure:
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DRAFT
BOX ELDER RESOURCE MANAGEMENT PLAN
AND
ENVIRONMENTAL IMPACT STATEMENT

Prepared by
Department of the Interior
Bureau of Land Management
Salt Lake District

Roland Robinson

State Director
Utah State Office

Abstract: This Draft Resource Management Plan/Environmental Impact Statement discusses resource management on approximately 1 million acres of public land administered by the Bureau of Land Management in the Salt Lake District. This RMP/EIS analyzes the consequences of implementing the various components of four alternatives. The alternatives address four resource issues: (1) landownership conflicts, (2) vegetation management, (3) mineral development, and (4) off-road vehicle use. The document focuses on impacts to minerals, vegetation, livestock grazing, water and watershed, soils, wildlife, forest products, recreation, cultural resources, and socio-economics. A detailed description of the affected environment and the analysis of impacts which would result from each alternative are identified.

For more information contact: Dennis Oaks, Team Leader
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Comments on the Draft RMP/EIS are due July 25, 1985.

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Illustrations and Photography by James Kirk Gardner.

SUMMARY

Four multiple use alternatives for management of the public lands in the Box Elder Planning Area have been developed and analyzed in accordance with the Bureau's planning regulations issued under authority of the Federal Land Policy and Management Act of 1976. The purpose of the alternatives is to present and evaluate options for managing, protecting, and enhancing resources associated with the public lands. Each alternative is a complete plan within which future, more site-specific decisions would be made to direct resource management.

The four alternatives cover all aspects of resource management that apply in the planning area. Features common to all alternatives are portrayed. Each alternative then addresses four major issues: landownership conflicts; vegetation management; minerals development; and off-road vehicle (ORV) use.

The four alternatives considered are:

Alternative 1

This alternative describes the current management in the planning area. Since it does not include any changes in current management, it is the 'no action' alternative.

This alternative assumes that all public lands would be retained in public ownership.

Current levels of forage use by livestock would continue. This level is based on average licensed use from 1979 to 1984. Current levels of big game use would also continue. Forage distribution would include 37,793 Animal Unit Months (AUMs) for livestock and 16,356 AUMs for wildlife. No range improvements or changes in livestock seasons-of-use would occur. Sixty bighorn sheep would be reintroduced to native range in the Pilot Mountains.

No new areas would be withdrawn from locatable mineral entry. The current withdrawal of 6,840 acres would continue.

The following fluid mineral leasing categories would be maintained: Open - 928,563 acres, Open with Special Stipulations - 52,730 acres, Open with No Surface Occupancy - 3,520 acres, and Closed to Leasing - 33,506 acres.

The entire planning area (1,011,794 acres) would remain open to ORV use.

Alternative 2

This alternative provides for development of resources while protecting or enhancing environmental values. The alternative seeks to resolve issues in the most balanced, cost-effective manner and is BLM's "preferred alternative."

A total of 4,975 acres would be placed in the disposal category and the remaining 1,006,819 acres would be in the retention category. Under this alternative, BLM would encourage land exchanges which would result in an increase of lands with significant multiple-use resource values and improved management capabilities. To improve public access and management, 8 miles of physical access would be constructedand 10 miles of easements for legal access across private land would be sought.

Forage use by livestock would be at active preference levels and forage use by big game would be at current levels. Forage distribution would include 45,704 AUMs for livestock and 16,536 AUMs for wildlife. This alternative allows for a trial reintroduction of elk (about 50 animals) on the Grouse Creek and Raft River Mountain ranges if certain conditions can be met. As in Alternative 1, bighorn sheep would be reintroduced on the Pilot Mountains. A bighorn sheep reintroduction would be permitted on the Newfoundland Mountains if the existing livestock grazing permit were discontinued or converted to cattle. An increase and reintroduction of pronghorn would be permitted. Allotments would be monitored so that a total of 5 years of data could be used to determine future stocking levels. Livestock season-of-use would be changed on 17 allotments under this alternative. Decisions for specific rangeland improvements would not be made. Improvements would be formulated as part of activity plans at a later date and would probably be selected from those outlined in Alternatives 3 and 4. Improvements would be subject to the mitigating measures outlined in Appendix 1 and 2.

The current withdrawal of 6,840 acres would continue and 980 additional acres would be withdrawn to protect the threatened Lahontan cutthroat trout on the Pilot Mountains.

Fluid mineral leasing categories would be established at: Open - 725,794 acres, Open With Special Stipulations - 288,065 acres, Open With No Surface Occupancy - 6,380 acres, and Closed to Leasing - 0 acres.

Public lands would be designated for ORV use as follows: Open - 983,174 acres, Limited - 28,550 acres, and Closed - 70 acres.

This alternative includes several other management proposals unrelated to the issues.

The following three areas are proposed as ACECs under this alternative: the Pilot Mountains (107,200 acres), the old Central Pacific Railroad grade (250 acres), and Red Butte Mountain (7,360 acres).

Criteria for avoidance areas for utility and transportation corridors are identified in Alternative 2. Other areas would generally be open for use by such facilities.

Five allotment boundary changes are proposed that would result in better geographic distribution and more efficient grazing management.

Two grazing allotments contain lands which were not involved in the 1967 forage adjudication process. Under this alternative, BLM proposes to authorize use of an additional 290 AUMs in the Matlin Allotment, and 400 AUMs in the Red Dome Allotment.

Improve (I) category allotments would receive top priority for completion of Allotment Management Plans (AMPs). Maintain (M) category allotment AMPs would be completed as time and funding permit. AMPs would not normally be prepared for a Custodial (C) category allotment unless conditions arise which would warrant changing the allotment to the M or I category.

Habitat Management Plans would be prepared for seven priority areas.

The old Central Pacific Railroad grade would be proposed as a candidate for the National Register of Historic Places and for designation as a National Historic Trail.

A fire management plan would be developed by an interdisciplinary team that would determine full suppression and modified suppression areas. This plan would direct natural and prescription fires that would reduce costs, protect valuable resources and improve resource conditions within the planning area.

Alternative 3

This alternative provides protection or enhancement of environmental values (wildlife, watershed, visual resources, nonmotorized recreation). Resource development would be permitted to the extent it would be compatible with environmental values.

This alternative would emphasize retention of public lands. Therefore, no lands are identified for the disposal category. Exchanges that would increase or enhance important environmental values would be allowed.

Under this alternative, resources other than livestock grazing would be given priority for management and use of forage. Forage would be distributed for UDWR's prior stable (optimum) levels for deer and long-term objective levels for elk, pronghorn and bighorn sheep. These levels include the reintroduction of elk and bighorn into 13 allotments and 2 allotments, respectively, and an increase of pronghorn in 11 allotments. Remaining forage would be given to livestock. Total forage distribution would include 43,855 AUMs for livestock and 18,672 AUMs for wildlife. Season-of-use for livestock would be changed on 24 allotments under this alternative. Only rangeland improvements which benefit wildlife habitat and/or watershed protection would be implemented under this alternative. Long-term forage increases would be used by wildlife.

The current withdrawal of 6,840 acres would continue, and 980 additional acres would be withdrawn to protect the threatened Lahonton cutthroat trout on the Pilot Mountains.

Environmental values would receive preference in designating fluid mineral leasing categories. Categories would be established at: Open - 714,544 acres, Open With Special Stipulations - 280,180 acres, Open With No Surface Occupancy - 23,595 acres,and Closed to Leasing - 0 acres.

ORV use would be prohibited in areas where it would conflict with wildlife habitat and scenic values. The ORV designations would include: Open - 630,548 acres, Limited - 379,946 acres , and Closed - 1,300 acres.

Alternative 4

This alternative gives priority to resource use and

commodity production (mineral development, livestock grazing, motorized recreation). Other resources would be protected to the extent required by laws, executive orders, and other mandates.

A total of 11,597 acres are recommended for the disposal category under this alternative. The remaining 1,000,197 acres would be placed in the retention category. This alternative emphasizes land exchanges which benefit resource use and commodity production.

To improve public access and management, 8 miles of physical access would be constructed, and 10 miles of legal access across private land would be sought.

This alternative gives livestock grazing first priority for management and use of forage. Total grazing preference would be the minimum authorized livestock use under this alternative. Remaining forage would be provided for big game use. No big game would be reintroduced or increased under this alternative. Forage distribution would be 51,260 AUMs for livestock and 14,374 AUMs for wildlife. Seasons-of-use for livestock would not be changed under this alternative. Rangeland improvements which would enhance livestock grazing would receive priority, and long-term forage increases would be used by livestock.

No new areas would be withdrawn from mineral entry under this alternative. The current withdrawal of 6,840 acres would continue.

Mineral resource values would receive preference in designating fluid mineral leasing categories. Categories would be established at: Open - 988,599 acres, Open With Special Stipulations - 16,500 acres,Open With No Surface Occupancy - 3,220 acres, and Closed to Leasing - 0 acres.

All areas not mandated to be closed would be open to ORV use. Public lands in the planning area would be designated as Open - 1,010,784 acres, Limited - 910 acres, and Closed - 70 acres.

Environmental Consequences

Lands

No environmental consequences would occur to lands as a result of any of the alternatives.

Minerals

Mineral extraction would result in an irreversible or irretrievable loss of mineral resources from their natural place in the environment. The impacts would tend to occur in small, localized areas within the planning area. Based on present trends, these impacts would be considered insignificant.

Range Resources

Grazing management efficiency would be improved by the disposal of isolated parcels and proposed new access in Alternatives 2 and 4.

Vegetative seral stage (i. e. ecological development) would change from middle to late (up) or remain static on all allotments in Alternative 1. In Alternative 2, seral stage would not change. Seral stage would change from late to middle (down) on 11 allotments in Alternative 3, while all other allotments would remain the same or change from middle to late (up). In Alternative 4, seral stage would change from late to middle (down) on 26 allotments, with the other allotments remaining static or changing from middle to late (up).

Livestock forage conditions would be improved by season-of-use changes proposed in Alternatives 2 and 4 and rangeland improvements proposed in Alternatives 3 and 4.

Livestock would graze at levels equal to an average of the past 5 year's licensed use in Alternative 1. This use would be 11 percent below the active preference level shown in Alternative 2. In Alternative 3, livestock use would be 4 percent below active preference. A reinstatment of suspended forage in Alternative 4 would result in livestock grazing at 12 percent above the active preference level.

Air, Soil, and Watershed

Under all alternatives, impacts to air quality from particulate matter and visible smoke resulting from all activities would be very minor and temporary, and thus are not considered significant.

Erosion in four critical or severe areas would continue under Alternatives 1, 2, and 4. Land treatments would decrease erosion in one of these areas in Alternative 3.

Erosion rates would not change as a result of grazing levels in Alternatives 2 and 3. Grazing levels in Alternative 1 would improve vegetative cover and reduce erosion. Grazing above proper levels in Alternative 4 would reduce vegetative cover and increase erosion. Localized erosion would result from a continuation of early spring grazing in Alternatives 1 and 4. Seasons-of-use changes in Alternatives 2 and 3 would stabilize soils in the affected areas because livestock would be removed during critical plant growth periods.

Mineral exploration would result in soil loss and erosion under all alternatives.

Limiting or closing areas to ORV use would reduce surface disturbance in Alternatives 2, 3, and 4.

Wildlife Habitat

Big game would remain at current levels under Alternatives 1 and 2. Alternative 3 would allow elk, antelope, and bighorn sheep to increase to the Utah Division of Wildlife Resource's objective levels. Big game would be decreased from current levels in Alternative 4. As a result of grazing levels, habitat conditions would improve in Alternative 1, remain static in Alternative 2, and decline in Alternative 4.

Continued early spring livestock grazing would improve sage grouse and mule deer habitat under Alternatives 1 and 4, while habitat for other species would decline. Under Alternatives 2 and 3, a reduction of spring grazing would decrease habitat conditions for sage grouse and mule deer; other species would benefit. Rangeland improvements proposed under Alternative 3 would improve or not impact wildlife habitat in most cases. One watershed improvement would result in a loss of habitat. Proposed range and water developments would improve habitat under this alternative. Better livestock distribution as a result of improvements proposed in Alternative 4 would improve habitat conditions. The other impacts of the improvements in Alternative 4 would be variable.

Unrestricted ORV use could result in wildlife disturbance in Alternative 1. Habitat would be protected to various degrees by the ORV designations proposed in Alternatives 2, 3, and 4.

Disposal of isolated public land tracts could result in a loss of wildlife habitat in Alternative 4, and to a lesser extent in Alternative 2.

The proposed withdrawal of 980 acres would protect critical habitat for the threatened Lahontan cutthroat trout under Alternatives 2 and 3. Other crucial wildlife habitats would also be adequately protected by the fluid mineral leasing categories proposed under Alternatives 2 and 3. Some crucial habitats would be inadequately protected in Alternatives 1 and 4.

Recreation

Recreationists could use the entire planning area for ORV travel under Alternative 1. ORV use would be restricted to various degrees in the other alternatives. Alternative 3 would be most restrictive, with more than 380,000 acres in a limited or closed category. Hunting and wildlife viewing opportunities would improve as a result of the big game reintroductions and/or increases in Alternatives 1, 2, and 3.

Visual Resources

Certain portions of the planning area may experience slight short term degradation of visual quality under all alternatives. Project specific design features, as well as VRM program procedures and constraints, would minimize landform and vegetative contrast. In the long term, visual quality would remain static or improve.

Cultural Resources

Appropriate measures would be taken to identify and protect cultural sites prior to ground-disturbing activities. No impacts would occur to known cultural sites of signficiance.

Forest Resources

No impacts to forest resources would occur under Alternatives 1 and 2. Commercial harvests proposed in Alternatives 3 and 4 would offer additional cutting areas and provide minimal benefits to the local economy. Disposal of isolated tracts in Alternative 4 would result in a loss of forest resources.

Fire Management

Changes in vegetation as a result of the grazing levels in Alternative 1 could increase the potential for natural and man-caused fires. Limiting or closing areas to ORV use would reduce fire danger in Alternatives 2, 3, and 4.

Socioeconomics

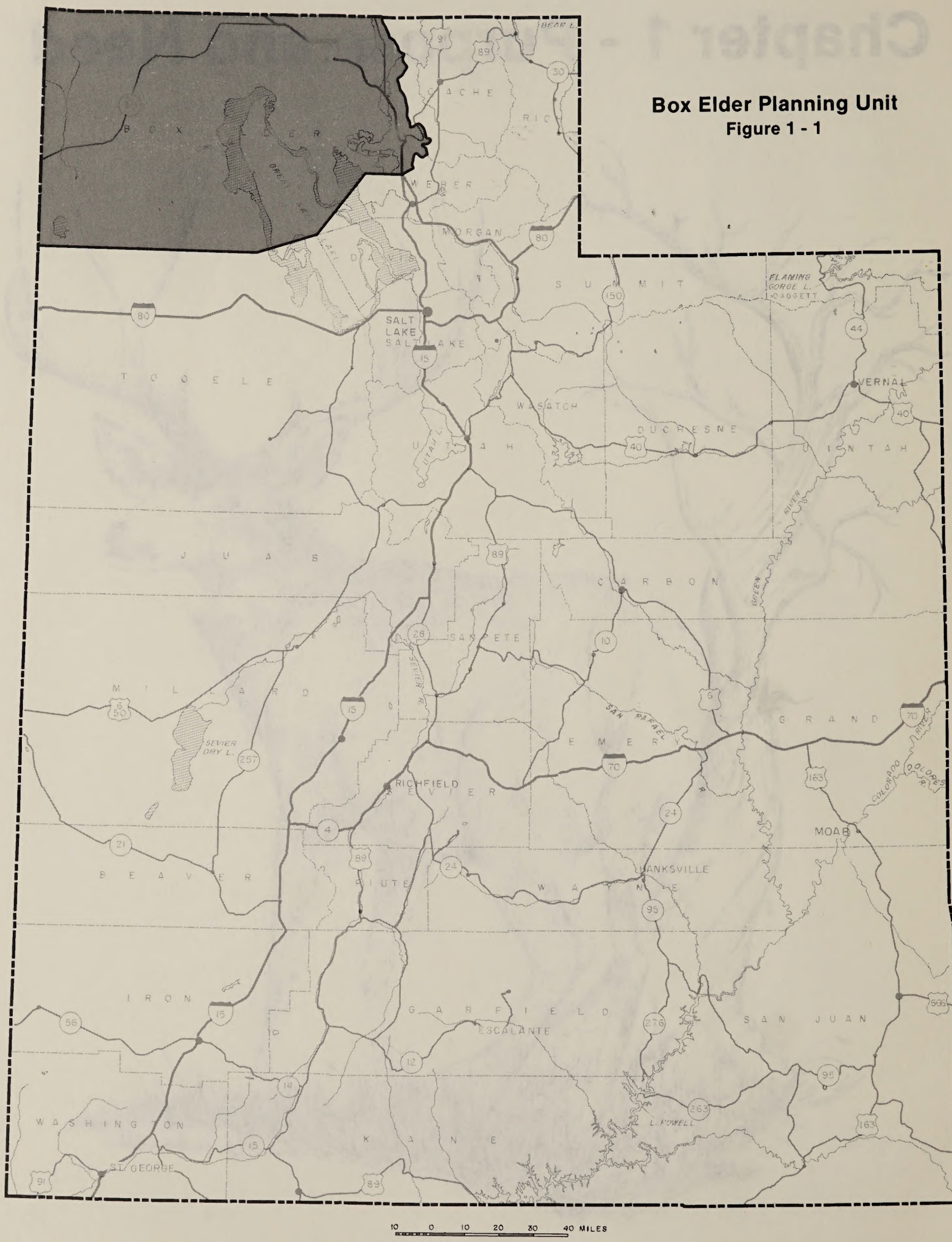
Other than the livestock industry, the regional and local economics would not be impacted by any of the alternatives.

Alternative 1 would not affect ranch income. Reductions from livestock active preference would reduce ranch capital value under this alternative. Alternative 2 would result in increases to ranch income but ranch capital value would remain the same. No significant impacts would occur to ranch income or capital value in Alternative 3. Ranch capital value and income gains are expected in Alternative 4.

Agency-Preferred Alternative

Alternative 2 is BLM's preferred alternative. This choice is not final because public input during the Draft RMP/EIS comment period could modify this selection.

Chapter 1 - Purpose and Need



Box Elder Planning Unit
Figure 1 - 1

Chapter 1
Purpose and Need

Introduction

The Box Elder Resource Management Plan (RMP) is being prepared to provide management direction for the public lands and resources in Box Elder County, Utah. The planning area includes more than 1 million acres administered by the Bureau of Land Management (BLM). The planning area is located within BLM's Salt Lake District and is administered by the Bear River Resource Area (see Figure 1-1).

Section 202 of the Federal Land Policy and Management Act of 1976 (FLPMA) states "The Secretary shall, with public involvement and consistent with the terms and conditions of this Act, develop, maintain, and when appropriate, revise land use plans which provide by tracts or areas for the use of the public lands." The guidance for preparing this RMP is contained in 43 CFR Part 1600, Public Lands and Resources; Planning, Programming, and Budgeting.

The National Environmental Policy Act of 1969 (NEPA) requires Federal agencies to prepare statements documenting environmental consequences of Federal actions significantly affecting the human environment. Resource management plans qualify as significant actions and thus require the preparation of an environmental impact statement (EIS). The Council on Environmental Quality's Regulations for implementation of the procedural provisions of the National Environmental Policy Act (40 CFR Part 1500) provide guidance for the preparation of environmental impact statements. This document combines the alternative resource management plans, including the preferred alternative, and the environmental impact statement into one package.

Planning Process

The BLM resource management planning process consists of nine basic steps and requires the use of an interdisciplinary team for the completion of each step. The planning steps described in the regulations and used in preparing this plan are described below.

Step 1. Identification of Issues

This step is intended to identify resource management problems or conflicts that can be resolved through the planning process.

Step 2. Development of Planning Criteria

During this step, preliminary decisions are made regarding the kinds of information needed to clarify the issues, the kinds of alternatives to be developed, and the factors to be considered in evaluating alternatives and selecting a preferred resource management plan.

Step 3. Inventory Data and Information Collection

This step involves the collection of resource, environmental, social, economic, or institutional data needed for completion of the process.

Step 4. Analysis of the Management Situation

This step calls for an assessment of the current situation. It includes a description of current BLM management guidance, a discussion of existing problems and opportunities for solving them, and a consolidation of existing data that is needed to analyze and resolve the identified issues.

Step 5. Formulation of Alternatives

During this step several complete, reasonable resource management alternatives are prepared; including one for no action and several that strive to resolve the issues while placing emphasis either on environmental protection or resource production.

Step 6. Estimation of Effects of Alternatives

The physical, biological, economic, and social effects of implementing each alternative are estimated in order to allow for a comparative evaluation of impacts.

Step 7. Selection of the Preferred Alternative

Based on the information generated during Step 6, the District Manager identifies a preferred alternative. The draft RMP/EIS document is then prepared and distributed for public review.

Step 8. Selection of the Resource Management Plan

Based on the results of public review and comment, the District Manager will select a proposed resource management plan and publish it along with a final EIS. A final decision is made after a 30-day protest period on the final EIS.

Step 9. Monitoring and Evaluation

This step involves the collection and analysis of long-term resource condition and trend data to determine the effectiveness of the plan in resolving the identified issues, and to assure that implementation of the plan is achieving the desired results. Monitoring continues from the time the RMP is adopted until changing conditions require a revision of the whole plan or any portion of it.

Issues

Resource management plans deal with all resource programs in a planning area. However, only those aspects of current resource management which are felt to be issues are examined through the formulation and evaluation of alternatives. An issue may be defined as an opportunity, conflict, or problem regarding the use or management of public lands and resources.

Four major issues will be addressed in the Box Elder Resource Management Plan. These issues were identified based on input from the public, BLM resource specialists and managers, and other government agencies.

Issue 1: Landownership Adjustments

The Box Elder Planning Area is currently an intermingled, checkerboard pattern of Federal, State, and private lands. This pattern has resulted in resource management problems concerning livestock grazing, watershed, wildlife habitat, off-road vehicles, forest products, and historic/cultural resources (e. g. the old Central Pacific Railroad grade), along with trespass and vandalism. Access difficulties, for both BLM and the public, also occur. Effective on-the-ground improvements may be precluded in some areas because of a lack of public land blocks. Landownership adjustments are needed to achieve more efficient management for protection and utilization of public resources in the area.

Needed decisions include:

What public lands should be retained in public ownership?

What public lands should be disposed?

Where is access needed to improve resource management?

Issue 2: Vegetation Management

Management changes appear to be needed in some areas to improve the condition of the vegetation resource and its relationship to wildlife habitat and livestock forage. Conflicts between livestock grazing, wildlife habitat, watershed, and other uses may be responsible for problems with vegetation. Riparian habitat is considered especially important because of its relationship to watershed protection, water quality, wildlife habitat diversity, and forage production. Protection of crucial wildlife habitat is needed in some areas. Possibilities exist for reintroduction of wildlife into historic range; implications of these reintroductions must be addressed.

Needed decisions include:

How should forage be distributed for wildlife and livestock and to meet watershed needs?

What seasons-of-use should be established on the grazing allotments?

Where would vegetative condition and watershed be improved by land treatments?

Where can management of livestock grazing and wildlife habitat be improved by range and water developments?

How should crucial wildlife habitats be managed?

Where should wildlife be reintroduced into historic ranges?

Issue 3: Mineral Development

It is BLM's continuing mineral resource policy to "foster and encourage. . . the orderly and economic development of domestic mineral resources."

Oppor tunities exist within the Box Elder Planning Area to develop these minerals under the principles of balanced, multiple-use management while protecting other resources.

Needed decisions include:

Which areas should be open for mineral exploration and development?

Should any areas be withdrawn from mineral entry or can impacts be mitigated by other, less restrictive means?

How should the area be categorized for fluid mineral leasing?

Issue 4: Off-Road Vehicle Use

Off-road vehicle (ORV) use causes conflicts with other resources and uses in portions of the planning area. Wildlife such as mule deer and sage grouse are sometimes harassed by ORV users during crucial periods. ORV use has resulted in the deterioration of existing roads and trails and has created new trails because of cross-country travel. This cross country use has aggravated the erosion of the watershed in some areas. ORV users have harassed livestock during the critical lambing and calving periods. Trespass and associated damage on private lands is a major concern of the local public. Appropriate levels of motorized use in these conflict areas need to be determined.

Needed decisions include:

What portions of the planning area should be designated as closed, limited, or open to ORV use?

Planning Criteria

1. The overall objective of land use planning for Box Elder Planning Area will be sustained multiple use of the public land.

2. The RMP will be consistent to the maximum extent with the plans and management programs of local and State governments, consistent with Federal laws and regulations, and coordinated with other Federal agencies.

3. Participation by the public will be a key factor in decision-making.

4. Social and economic impacts to local communities resulting from public land management will be considered.

5. The effect of public land management on neighboring land will be considered.

6. The planning process will identify those lands which will best serve public needs by being retained in Federal ownership, and those lands which are difficult or uneconomical to manage or would best serve important public objectives by their disposal. All public land tracts in the planning area will be placed in a disposal or retention category.

Types of realty actions will be prioritized according to how well they serve the public and resolve management conflicts. Realty actions which do not serve the public interest or resolve problems will be eliminated from consideration.

Decisions will not be made in the RMP about specific realty cases.

7. Exploration and development of minerals will continue to be a priority, subject to those measures necessary to adequately protect other values and uses.

8. A decision will be made for each allotment and will include:

a. Allotment boundaries.

b. Permittees in the allotment.

c. Class of livestock.

d. An identification of authorized forage for livestock, wildlife, watershed, or other necessary purposes.

e. Season-of-use. More detailed parts of the grazing program will be made in the allotment management plans.

9. Adjustments of the grazing preference of permittees will only be made if adequate data exists and demonstrates a need for change. If adequate data does not exist, the decision will be to monitor. Objectives, types of studies, key species, and other basic components of the monitoring program will be established.

10. Decisions about specific range, wildlife, or watershed improvements will not be made in the RMP, but rather will be made in the activity plans. Improvements are considered in this plan for environmental impact assessment purposes. The RMP will develop standard requirements for improvements.

11. Decisions will be made for the designation of:

a. Areas of Critical Environmental Concern.

b. Off-road vehicle use areas.

c. Fluid mineral leasing categories.

d. Visual Resource Management classes.

12. The management, use, and protection of water sources, water, riparian zones, and other related values will be given a high priority.

Interrelationships With Other Agencies, Groups, and Individuals

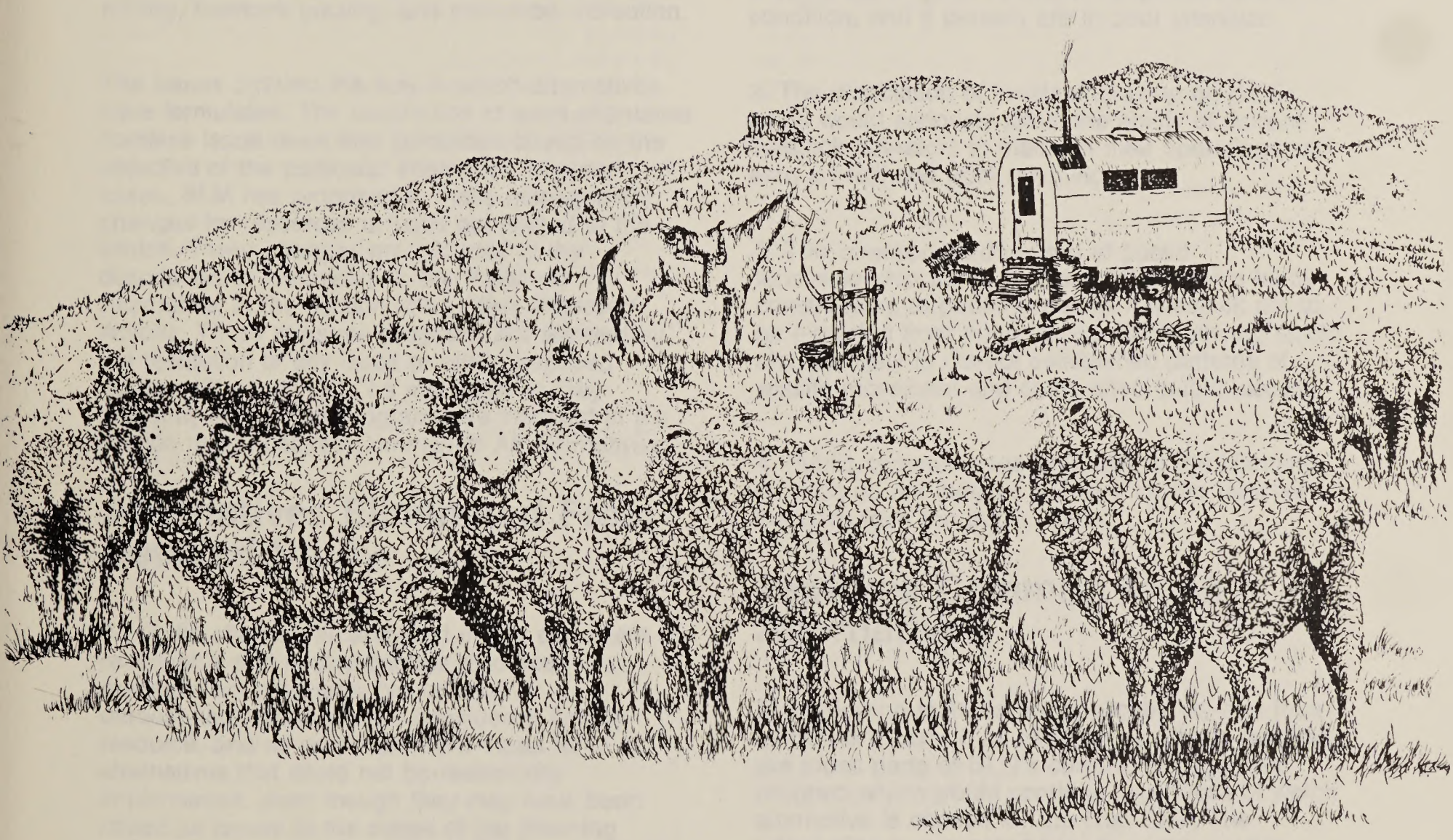
Public land in the Box Elder Planning Area is interspersed with other federal, state, and private land. This landownership pattern makes close coordination necessary to accomplish goals and avoid resource use conflicts. Table 1-1 identifies interrelationships between BLM's resource management programs and other groups and government agencies.

Table 1-1

BLM Planning and Resource Management Interrelationships

AGENCY/GROUP	INTERRELATIONSHIP
FEDERAL AGENCIES	
Fish and Wildlife Service (FWS)	FWS issues a biological opinion on the effects of this RMP on endangered species. BLM authorizes predator control on planning area allotments. The actual control work is done by FWS under an ongoing predator control program.
U. S. Forest Service (USFS)	Administers adjacent lands in Sawtooth and Caribou National Forests.
National Parks Service (NPS)	Administers Golden Spike National Monument.
STATE AGENCIES	
Department of Natural Resources Division of Wildlife Resources Division of Water Rights Division of State Lands & Forestry Division of Oil Gas & Mining	Administers resource management program on adjacent State of Utah lands.
Division of Environmental Heatlth	Administers solid wastes, water quality and air quality programs.
Local Government	
Box Elder County	Administers zoning and implements county master plan.

Chapter 2 - Description of the Alternatives



Chapter 2
Description of the Alternatives

Alternative Formulation Overview

Four alternative resource management plans, including BLM's preferred alternative, are detailed in this chapter. Each of the four alternatives represents a complete plan to guide future management of public lands and resources. One alternative must represent no action, which is a continuation of present levels of resource use. The other alternatives provide a range of choices from those favoring protection or enhancement of environmental values such as wildlife habitat, watershed, and aesthetics, to those favoring resource use or commodity production such as mining, livestock grazing, and motorized recreation.

The issues dictated the way in which alternatives were formulated. The description of each alternative contains issue resolution guidelines based on the objective of the particular alternative. In some cases, BLM has proposed to make management changes for resources or uses not related to the issues. These changes are included in the description of Alternative 2, the Preferred Alternative, in the section titled *Other Proposed Actions*. Those resource programs not affected by the resolution of any issue or other proposed actions will continue to be managed as they presently are. These programs are included in the section titled *Features Common to All Alternatives*.

Alternatives Eliminated From Detailed Study

All of the alternatives analyzed in this document are reasonable and implementable resource management programs. No extreme or unreasonable options were considered for any resource, and no proposals were made for alternatives that could not be realistically implemented, even though they may have been raised as issues at the outset of the planning process. For example, members of the public have suggested that the entire planning area should be open to fluid mineral leasing. This suggestion was determined to be unrealistic because BLM is required by law to protect certain natural resources from impacts such as those from oil and gas exploration and development. Similarly, a recommendation that all crucial mule deer winter range be designated as Areas of Critical Environmental Concern (ACEC) was not analyzed in detail because such designation would not be implementable or consistent with the ACEC guidelines.

The no grazing alternative was considered, but eliminated from further study for the following reasons:

1. Resource conditions, including vegetation, watershed, and wildlife habitat, do not warrant a planning area-wide prohibition of livestock grazing. An ecological condition inventory (U. S. Department of the Interior [USDI], BLM, 1982) of the planning area shows that approximately 11 percent of the public lands surveyed are in excellent condition, 52 percent are in good condition, 30 percent are in fair condition, and 6 percent are in poor condition.

2. The elimination of livestock grazing on public lands would seriously affect the ability of current livestock operators to maintain their operations and earn a livelihood from ranching.

3. The checkerboard pattern of public landownership would necessitate extensive fence construction, at public expense, if livestock are to be excluded from public lands. Such fencing would also be likely to disrupt established patterns of wildlife movement and could affect public access.

4. Public comments received during the planning process do not indicate a desire for the removal of livestock from the public lands.

Features Common to All Alternatives

The following features are applicable to, and thus comprise a part of, all alternatives. These features are those parts of BLM's current management program which would continue regardless of which alternative is chosen for the final RMP. The information is presented here to avoid repetition.

Lands Program

Lands Actions

Decisions made in the final step of the planning process will determine which public land will be retained in Federal ownership, and which land meets the criteria for disposal.

Public land in the retention category would be retained in Federal ownership, except for two specific kinds of actions. These actions are (1) exchanges, and (2) leases and conveyances under the Recreation and Public Purposes (R&PP) Act.

Land exchanges are analyzed on a value-for-value basis. Resource values may be incorporated into the fair market value of the land. Decisions will not be made in the RMP to exchange specific tracts. Criteria for exchanges, but not specific land tracts, will be identified in the alternatives. In addition to the specific criteria listed under the alternatives, the following criteria, listed in priority, will be evaluated for all exchange proposals:

(1) Acquire areas that have common property lines, not corners, with existing public land, and that increase the efficiency of public land management.

(2) Attempt to exchange public lands with serious unauthorized use and boundary dispute problems if every reasonable attempt under existing law has been made to resolve the problem without a suitable solution and the lands are not needed for any important resource value.

(3) Attempt to exchange to acquire important access routes, springs, water sources, streams, or other areas needed for public purposes if the lands acquired provide a valuable public need and do not create isolated tracts with management problems.

Public lands can be conveyed to the State, any of its political subdivisions, and nonprofit corporations and associations for recreational or public purposes (R&PP), if the proposal meets the requirements of the 43 CFR 2740 regulations.

Generally, conveyances under the R&PP Act are authorized by lease with an option to purchase at a later time, often 5 to 10 years. The initial leasing period allows for the implementation of the developed plan by the lessee and monitoring by BLM. If a serious problem or conflict arises with the implementation of the development plan, BLM could take more immediate corrective measures, including termination of the lease, than would be possible after a patent has been issued.

No other disposals would be made of lands in the retention category, including sales, leases, Desert Land Entries, or other actions that grant the exclusive occupancy of public land. The proper use of public land in the retention category would continue under rights-of-way, easements, permits, licenses, or other nonexclusive use authorizations.

Public land in the disposal category will include areas suitable for sale or other forms of disposal. The criteria for disposal are defined as follows in Section 203 of the Federal Land Policy and Management Act of 1976:

such land must be difficult and uneconomic to manage as part of the public lands, and must not be suitable for management by another Federal department or agency;

such land must have been acquired for a specific purpose and must no longer be required for that or any other Federal purpose; or

disposal of such land will serve important public objectives that can only be achieved prudently or feasibly if the land is removed from public ownership, and if these objectives outweigh other public objectives and values that would be served by maintaining such land in Federal ownership.

Trespass Abatement

Existing unauthorized uses of public land will be resolved either through termination, authorization by lease or permit, or sale. Decisions will be based on consideration of the following criteria:

the type and significance of improvements involved;

conflicts with other resource values and uses, including potential values and uses; and

whether the unauthorized use is intentional or unintentional.

New cases of unauthorized use generally will be terminated immediately. Temporary permits may be issued to provide short-term authorization, unless the situation warrants immediate cessation of the use and restoration of the land. Highest priority will be given to abatement of the following unauthorized uses:

new unauthorized activities or uses where prompt action can minimize damage to public resources and associated costs; cases where delay may be detrimental to authorized uses;

cases involving special areas, sensitive ecosystems, and resources of national significance;

cases involving malicious or criminal activities.

Withdrawal Review

Review of other agency withdrawals will be completed by 1991. These withdrawals will be continued, modified, or revoked. Upon revocation or modification, part or all of the withdrawn land will revert to BLM management. Current BLM policy is to minimize the acreage of public land withdrawn from mining and mineral leasing, and, where applicable, to replace existing withdrawals with rights-of-way, leases, permits, or cooperative agreements.

Minerals Program

In the Box Elder Planning Area, BLM administers 830,506 acres of public land with subsurface minerals owned by the Federal government and another 183,446 acres of Federal mineral estate without public land surface.

Locatable Minerals

Mining claims may be located on unreserved, unappropriated public land. Exploration and development of minerals are regulated under 43 CFR 3800 to prevent unnecessary and undue degradation of the land. Public land will be opened to mineral entry where mineral withdrawals are revoked through the withdrawal review process.

Common Variety Mineral Materials

Applications for the removal of common variety mineral materials, including sand and gravel, will continue to be processed on a case-by-case basis. Stipulations to protect important surface values will be required based on interdisciplinary review of each proposal.

Leasable Fluid Minerals

Both public lands and other lands with underlying Federal minerals will be categorized for fluid mineral leasing. Fluid minerals include oil and gas and geothermal resources. The following categories will be considered:

Category 1 - Open Lease Areas: This category includes lands that possess the resource values which would not be in serious conflict with fluid mineral exploration and development. These lands are leased subject to standard stipulations which provide for the protection of the resource values and environmental components commonly associated with the public lands and require the lessee to take certain measures to mitigate possible impacts that might be created by fluid mineral exploration and development. These stipulations do not impose major restrictions but provide for operations under controlled conditions.

Category 2 - Open Lease Areas Subject to Special Stipulations: Some areas contain resource values where serious conflict with fluid mineral exploration and development might occur; therefore, leasing in this category is subject to special stipulations that provide additional protection to the watersheds, specific crucial wildlife habitat areas, unique archeological and historical sites, etc. The special stipulations may limit exploration to various times of the year, prescribe special construction techniques, limit the location of developments, or require other similar special resource protections. These stipulations are described in Appendix 2.

Category 3 - Open Lease Areas Subject to No Surface Occupancy: These areas have special resource values or land uses with which fluid mineral operations would not be compatible. These areas could include scenic areas, R&PP patents and leases, significant historical and archeological areas, or areas of critical environmental concern. Exploratory drilling is permitted but is limited to whipstocking or slant drilling from off-site locations. Special stipulations which can be applied in Category 3 are described in Appendix 2.

Category 4 - No Lease Areas: This category includes areas which are excluded from mineral leasing by (1) law or regulation, (2) formal withdrawal or eligibility for withdrawal, (3) formal policy, or (4) existing commitments made to the public in planning or other documents. Lands would be selectively closed to fluid mineral leasing only when other available alternatives would not adequately protect other resources.

Other Leasable Minerals

Applications to remove other types of leasable minerals, such as phosphate and potash, will continue to be processed on a case-by-case basis. Stipulations to protect important surface values will be required based on interdisciplinary review of each proposal.

Soil, Water, and Air Progam

General

Soil, water, and air resources will continue to be evaluated on a case-by-case basis. Such an evaluation will consider the impacts of any proposed project to soil, water, and air resources in the affected area. Stipulations will be attached as appropriate to ensure compatibility of projects with soil, water, and air resource management and compliance with applicable Federal and State air and water standards, regulations, and implementation plans.

Soils

Soils will be managed to maintain productivity and to stay within tolerable limits of erosion.

Water

Water quality will be maintained or improved in accordance with State and Federal standards, including consultation with State agencies on proposed projects that may significantly affect water quality. Management actions on public land within municipal watersheds will be designed to protect water quality and quantity.

Management activities in riparian zones will be designed for maintenance of water quality standards and stream-side vegetation needed to maintain these standards.

Air

Air quality will be maintained or improved in accordance with State and Federal standards, including consultation with State agencies on proposed projects that may significantly affect air quality. Management actions on public land will be designed to protect against significant air quality deterioration.

Close coordination will be maintained with the State in the development or modification of their air quality implementation plans to assure BLM management options such as prescribed fire and smoke management are maintained. Coordination with the State will be continued on appropriate air quality classifications whenever BLM-managed areas of special concern (e. g. ACECs, wilderness study areas, and scenic areas) have been identified as significant features or characters.

Range Program

Allotment Categorization

All grazing allotments in the planning area have been assigned to one of three management categories based on present resource conditions and the potential for improvement. The M allotments generally will be managed to maintain current satisfactory resource conditions. I allotments generally will be managed to improve resource conditions. C allotments will receive custodial management to prevent resource deterioration. The tentative categorization of allotments is shown in Table 2-1. Table 2-2 shows the resource conflicts and/or problems for the Category I allotments.

Implementation Program

Details of the selected grazing management program will be outlined in a subsequent document called the Rangeland Program Summary. BLM personnel and affected permittees will develop Allotment Management Plans (AMPs) to implement the grazing management program. Livestock grazing levels and recommended patterns of use will be specified in the individual AMPs, as will BLM's range users' responsibilities for developing and maintaining rangeland improvements and monitoring programs. Each AMP will be implemented by BLM's area manager and the livestock permittees as it is completed. Rangeland improvements could vary from those described in this document. Significant changes (locations, scale, etc.) would be subject to site-specific environmental assessment prior to implementation/construction. Appendix 1 and 2 show the mitigating measures which would be followed for all rangeland improvement projects.

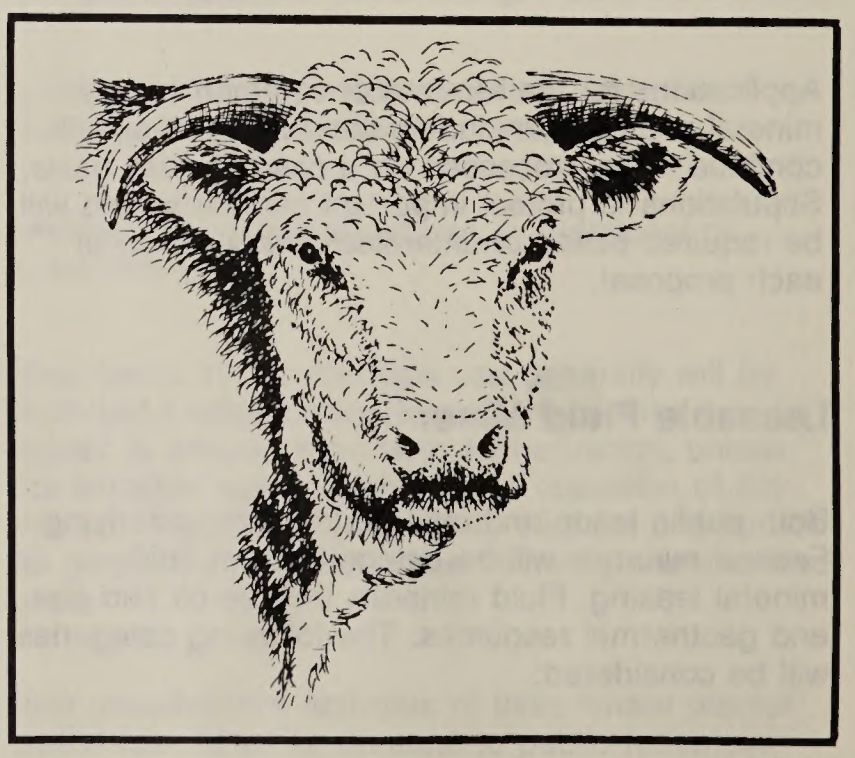


Table 2-1

Proposed Categories of Allotments

Maintain (M)

No special management needs are noted. Allotments are in satisfactory condition and no major conflicts are evident. Permittees will be encouraged to invest in rangeland improvement projects.

Vipont
Yost Pasture
Ingham
White Lakes
U & I
Red Butte
Young Brothers
Mann
Red Dome
Peplin
Snowville
Junction Creek
Lynn
Ingham Pass
Owl Springs
Buckskin
Newfoundland
Ward
Matlin
Selman
Black Rock

Improve (I)

This category will receive first priority for rangeland improvements as funding becomes available. Allotments have major resource conflicts or grazing problems. Potential for improved productivity and positive return from investment exists. Permittees will be encouraged to invest in rangeland improvement projects.

Goose Creek
Janey's Spring
Grouse Creek
Kimball Creek
Pine Creek
Warm Springs
Terrace
Baker Hills
North Kelton
Raft River
Hardesty Creek
Dry Canyon
Cycle Springs
Lucin/Pilot
Basin L & L
Dove Creek
South Kelton

Custodial (C)

Allotments have limited or no potential for improvement or return on investment. Present management is satisfactory or the most logical practice for the resources involved. Permittees will be encouraged to invest in rangeland improvement projects.

Death Creek
Dairy Valley
Kilgore
Yost Isolated
Pritchet Block
Hirschi
Fisher Creek
Curlew Junction
Roselle Flats
Conner
Naf
Muddy Valley
Rosebud
Watercress
Leppe
Rosette
Shaw Spring
TenMile
Salt Wells
Golden Spike
Ida-Ute

Livestock Conversions

The BLM Salt Lake District in conjunction with the District Grazing Advisory Board has recently developed a policy (BLM, Salt Lake District Manual 4120) for both sheep-to-cattle conversions and cattle-to-sheep conversions. Each conversion will be analyzed in an environmental assessment to insure that the change in class of livestock will be consistent with the resource objectives for the area. This policy will be followed in both permittee-requested actions and BLM proposals. A trial conversion (sheep to cattle) is now being allowed in Basin Land and Livestock Allotment. Under a range agreement, the trial conversion will be evaluated for a period of time before a permanent conversion is made.

Monitoring Program

After implementation of the selected alternative or combination of alternatives, all allotments will be monitored to determine if management objectives are being met. Four primary studies basic to rangeland evaluation will be used: (1) actual grazing use; (2) vegetation utilization; (3) trend; and (4) climate analysis. These studies will be conducted according to BLM Manual procedures. In addition, studies will be established to monitor wildlife habitat, including priority riparian and aquatic areas, and key watershed areas.

Data from these studies will be evaluated to determine management effectiveness and will be the basis for making necessary adjustments in the allocation of forage to livestock, wildlife, or other purposes. Two or more data collection periods will be required prior to making any adjustments. In no case will this exceed 5 years from the date of the Final EIS.

Grazing Administration Practices

Selected options from the alternative(s) will be administered and managed using standard BLM operating procedures. Each livestock permittee will be issued temporary grazing authorizations or term permits through the BLM Salt Lake District Office. These will specify the allotment, proposed forage use, period and/or pattern of use, and numbers and kinds of livestock.

Livestock grazing will be monitored and supervised by permittees and BLM throughout the year. Marking of livestock (e. g. ear tagging or dye marking) may be required to monitor livestock movement and proper stocking levels. Permittees will be required to request, in writing, any desired changes in use prior to the grazing period because such changes could be inconsistent with management objectives. Grazing use outside of the limits of the selected alternative(s) and without prior authorization will be considered trespass. Should

Table 2-2

Resource Issues and Conflicts in Category I Allotments

Allotment	Boundary Problem	Potential for Treatment	Undesirable Ecological Stage	Overstocking	Livestock/ Wildlife Competition	Livestock Conversions	Livestock Season of Use	Grazing/ Recreation Conflicts	Livestock Distribution
Goose Creek		X			X		X		X
Raft River		X	X				X		X
Janey Spring		X	X		X				
Hardesty Cr.		X					X		X
Grouse Creek		X	X[1]	X[1]		X	X		X
Dry Canyon		X							X
Kimbal Creek		X	X[1]					X	X
Cycle Springs		X							X
Pine Creek		X	X		X		X		X
Lucin/Pilot		X	X			X	X		X
Warm Springs		X	X				X		X
Basin L & L		X				X			
Terrace	X								
Dove Creek	X	X					X		X
Baker Hills		X	X						X
South Kelton		X	X						X
North Kelton		X	X						X

[1] Occurs only at low elevations (less than 6,000 feet) within the allotment.

trespass occur, BLM will take action to ensure it is eliminated and that payment is made for vegetation consumed and/or damage done. BLM will also make adjustments in the grazing management program during drought, insect infestation, or other emergencies.

Wildlife and Fisheries Program

General

Fish and wildlife habitat will continue to be evaluated on a case-by-case basis. Such evaluation will consider the impacts of any proposed project to fish and wildlife habitat in the affected area. Stipulations will be attached as appropriate to assure compatibility of projects with management objectives for fish and wildlife habitat. Habitat improvement projects will be implemented where necessary to stabilize and/or improve unsatisfactory or declining wildlife habitat condition. Such projects will be identified through habitat management plans or coordinated resource management activity plans.

Habitat Management Plans

BLM personnel will develop Habitat Management Plans (HMPs) to protect, improve and maintain important wildlife habitat. An HMP is prepared for a specific geographic area which is a biological unit for important wildlife species and their habitats. Priority is usually placed on developing HMPs for habitat of endangered, threatened or sensitive species; species of high economic or recreation value; species highly sensitive to land use changes; or aquatic and riparian habitats. HMPs are prepared cooperatively with UDWR to assure that the State's wildlife management objectives are met. The Pilot Mountain HMP was written in 1979 and is close to being fully implemented. No other HMPs have been prepared for the Box Elder Planning Area.

Terrestrial Wildlife Habitat

Forage and cover requirements will be incorporated into AMPs and HMPs and will be specific to areas of primary wildlife use.

Range improvements will be designed to achieve both wildlife and range objectives. Existing fences may be modified and new fences will be built to allow wildlife passage. Water developments generally will not be established for livestock where significant conflicts over vegetation would result. Water will be provided at livestock water facilities during seasonal periods of need for wildlife.

Vegetative manipulation projects will be designed to minimize impact on wildlife habitat and to improve it whenever possible. UDWR will be consulted in advance on all vegetative manipulation projects. Animal damage control programs will be coordinated with the FWS.

Management actions within floodplains and wetlands will include measures to preserve, protect, and if necessary, restore their natural functions (as required by Executive Orders 11988 and 11990). Management techniques will be used to minimize the degradation of stream banks and the loss of riparian vegetation. Bridges and culverts will be designed and installed to maintain adequate fish passage.

Riparian habitat needs will be taken into consideration in developing livestock grazing systems and pasture designs.

Wildlife reintroductions and fish stocking proposals will be evaluated and recommendations will be made to UDWR. BLM policy requires that an HMP and a cooperative agreement be prepared prior to any wildlife reintroduction.

Recreation Program

Recreation resources will continue to be evaluated on a case-by-case basis. Such evaluation will consider the impacts of any proposed project to recreation resources in the affected area. Stipulations will be attached as appropriate to assure compatibility of projects with recreation management objectives.

Public land will be categorized as open, closed, and limited for off-road vehicle (ORV) use. Public land within areas identified as open to ORV use will remain available for such use without restrictions.

Within public land areas identified as limited for ORV use, specific roads, trails, or portions of such areas may be closed seasonally or yearlong to all or specified types of vehicles.

Public land within areas identified as closed to ORV use will be closed yearlong to all vehicles.

Restrictions and closures will be established for specific roads, trails, or areas where significant existing or potential problems have been identified. Areas not designated as restricted or closed will remain open for motorized vehicle use.

Cultural Resource Program

Cultural resources will continue to be inventoried and evaluated on a case-by-case basis. Such evaluation will consider the impacts of any proposed project to cultural resources in the affected area. Stipulations will be attached as appropriate to assure compatibility of projects with management objectives for cultural resources.

For existing cultural properties, a determination of significance would be made prior to any recommended project being implemented. In project areas where resource knowledge is limited or unknown, both examination of existing data and field inventories would be done to identify the resources and evaluate the cultural value of each. Prior to any activity plan or project that may adversely affect these properties, the State Historic Preservation Office (SHPO) would be consulted in the determination of effect upon the property. For any site within the project area which would be affected by the activity plan or project, mitigation measures would be undertaken. These may include the following:

1. Adjusting of the project boundaries to avoid impacting the sites;

2. Mapping, photo documenting, and drawing the cultural resource before proceeding with project implementation;

3. Adopting methods or techniques that would minimize disturbance to the site and its environmental setting;

4. Removing and relocating the cultural property to another appropriate location after documentation of the property and the development of a management plan to maintain the historic value of the property, or

5. Excavating the archeological properties with a goal of preserving the values of the properties.

The inventory or mitigation would be directed by BLM cultural resource specialists or through contracts with individuals or institutions meeting professional standards.

Wilderness Program

No wilderness study areas have been designated in Box Elder County. In 1980, the Salt Lake District made a decision to drop the Newfoundland Mountains (UT-020-037) from further consideration for wilderness. BLM's decision to drop the 23,266-acre area was appealed to the Interior Board of Land Appeals (IBLA) and remanded to the Salt Lake District for further evaluation and recommendation. Following further study, BLM again made a decision that the unit does not meet the criteria in the Wilderness Act and therefore should not become a WSA. BLM's decision was again appealed. A decision by IBLA is pending. If IBLA decides to identify the Newfoundland Mountains as a WSA, BLM will include the area in the wilderness study process. Until a decision is made, the area will be managed under BLM's interim management policy for WSAs.

The role of the RMP during the wilderness study phase is to define how the WSAs would be managed if not designated wilderness by Congress. The Box Elder RMP will not make a recommendation regarding wilderness suitability or nonsuitability. The wilderness suitability of each WSA will be addressed in BLM's Utah Statewide Wilderness EIS.

Forestry Program

The forestry program will continue to be managed according to the 1984 Bear River Resource Area Forestry Management Plan (USDI, BLM 1984a). This plan was developed to provide for both individual and commercial use on a sustained yield basis and will be revised when needed. The plan is available for review at the Salt Lake District Office.

Description of the Alternatives

Alternative 1

Objective: This is the no action, or no change, alternative. It is a continuation of the current management situation. This alternative provides a baseline for the analysis of other alternatives and is required by the Council on Environmental Quality.

For the western half of the Box Elder Planning Area, the current management situation would be a continuation of those decisions found in the 1974 Grouse Creek Management Framework Plan, as amended. The remainder of the planning area is not covered by an existing land-use plan; therefore, the current management situation for this area was determined by projecting from past management actions.

Issue Resolution Guidelines

Issue 1: Landownership Conflicts

For analysis purposes, it is assumed that all public lands (1,011,794 acres) would be retained in public ownership under this alternative. In actuality, landownership adjustment actions would be considered on a case-by-case basis where such actions would not conflict with existing resource management programs. No new access, physical or legal, would be provided.

Issue 2: Vegetation Management

Under this alternative, the current level of livestock use would continue. The current level of livestock use is based on average licensed use for the past 5 years (1979-1984). Big game use would continue at current levels as determined by UDWR and BLM, except for a reintroduction of 60 bighorn sheep on the Pilot Mountains as authorized by the existing Pilot Mountain HMP. No forage would initially be authorized for the bighorn sheep. It is assumed that the bighorn sheep would spend the spring, summer and fall at the higher elevations which are not used by livestock and therefore would not compete with lifestock for forage. During the winter the bighorn sheep would move to lower elevations where forage competition with livestock could occur. However, the amount of forage used by the bighorns would be insignificant and dispersed, and therefore it would not be necessary to take forage away from authorized livestock use. No seasons-of-use would be changed for livestock under this alternative. No new rangeland improvements would be implemented.

Under this alternative, forage would be distributed as follows:

cattle	**28,604 AUMs**
sheep	**8,874 AUMs**
domestic horses	**315 AUMs**
mule deer	**15,570 AUMs**
elk	**344 AUMs**
pronghorn	**622 AUMs**
bighorn sheep	**0 AUMs**
TOTAL	**54,329 AUMs**

Forage use by allotment is shown in Appendix 3a. Current seasons-of-use are shown in Appendix 4.

Issue 3: Mineral Development

No new areas would be withdrawn from mineral entry. The current withdrawal of approximately 6,840 acres would continue. Fluid mineral leasing categories would be maintained as follows:

Category 1 (Open)	**928,563 acres**
Category 2 (Open With Special Stipulations)	**52,730 acres**
Category 3 (No Surface Occupancy)	**3,520 acres**
Category 4 (Closed)	**33,506 acres**

Appendix 5 describes the areas and/or resources included in the fluid mineral leasing categories under Alternative 1. These areas are shown in Figure 2-1.

Issue 4: Off-road Vehicle Designation

The entire planning area (1,011,794 acres) would remain open to off-road vehicle use.

Alternative 2

Objective: This alternative would provide for development of resources while protecting or enhancing environmental values. This alternative seeks to resolve issues in the most balanced, cost-effective manner and is BLM's preferred alternative.

Issue Resolution Guidelines

Issue 1: Landownership Conflicts

Tracts recommended for the disposal category are listed in Table 2-3 and shown in Figure 2-2. Tracts identified with the symbol '0' are identified for transfer to the adjoining federal agency. If that agency indicates in writing that it does not wish to acquire the tract(s) or refuses to take the appropriate steps necessary to acquire the tract(s) within 2 years of the effective date of this plan, the tracts will be subject to all forms of disposal. Under this alternative, the disposal category total is 4,975 acres. The remaining 1,006,819 acres would be in the retention category. In addition to following the criteria previously identified in the *Lands Actions* section (see *Features Common to All Alternatives*), BLM would encourage land exchanges within the retention category which would:

(1) Result in a net gain of wildlife habitat in public ownership, especially aquatic, riparian, spring, and marsh habitats, crucial mule deer winter range, and sage grouse breeding complexes.

(2) Increase public ownership adjacent to existing public lands in the following watersheds: Raft River (areas adjacent to existing public lands in and around T.14N., R.16W.); Donner, Bettridge, Meadow, Hardesty, Pole, Birch, Kimball, Junction, Dairy, Fisher Valley, and Etna Creeks.

(3) Increase public ownership within any areas designated as Areas of Critical Environmental Concern, Visual Resource Management Class II areas, and areas along the historic Central Pacific Railroad grade.

(4) Result in a net gain of land with higher than average potential for forage production and wildlife habitat.

(5) Increase public ownership in areas where BLM has made significant on-the-ground investments, including land treatments, range and water developments, and other facilities.

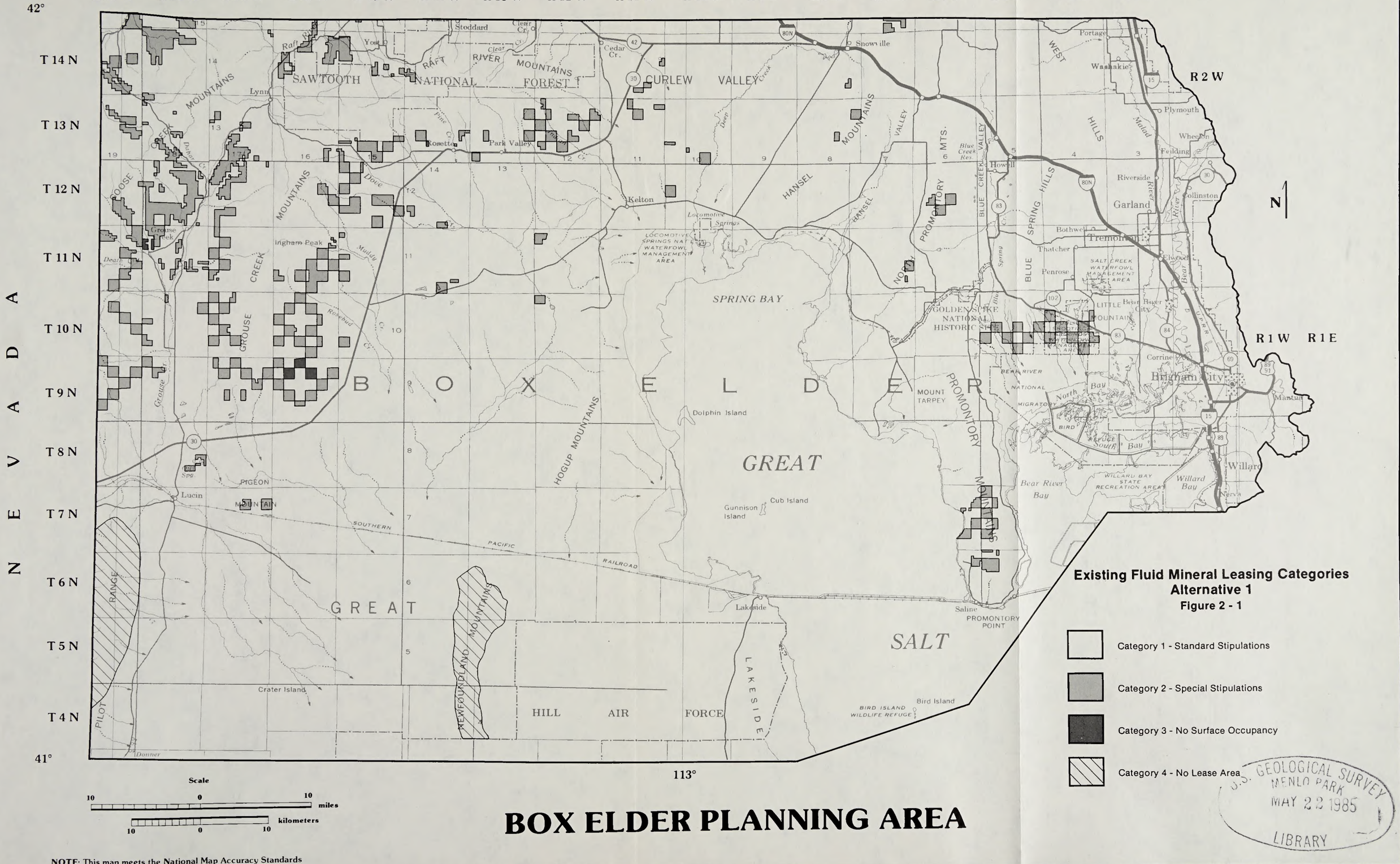
(6) Increase public ownership in the Pilot Mountain area.

New access would be provided to well blocked areas of public land. Eight miles of physical access would be constructed, and 10 miles of easements for access across private land would be sought. This proposed new access is shown in Figure 2-3 and described in Table 2-4.

Issue 2: Vegetation Management

Initially, livestock would graze at active preference levels. Big game use would be at current levels as determined by BLM and UDWR and would include the reintroduction of bighorn sheep in the Pilot Mountain (same as Alternative 1). In addition, a trial reintroduction of elk into the Grouse Creek and Raft River Mountains would be permitted on a small scale (about 50 animals) if UDWR could meet the following two criteria: (1) Increasing the herd would not displace any existing uses, and (2) Agreements for the increases could be reached between UDWR and the affected private landowners. Also, reintroduction of bighorn sheep into the Newfoundland Mountains would be permitted if the existing livestock grazing permits were discontinued, or if the permits were converted to cattle use. UDWR is proposing a reintroduction of bighorn sheep onto the Raft River Mountains on Forest Service lands. Some of these bighorn sheep could winter at the lower elevations on public lands. AUMs for this use would not need to be identified because conflicts for forage would be insignificant and the exact use areas are presently unknown. Under this alternative, a reintroduction and increase of antelope would be permitted in the sheep trail area. No additional forage would be authorized for the antelope because the livestock forage use should not be impacted. Total forage distribution on public land would be as follows:

cattle	**29,850 AUMs**
sheep	**15,539 AUMs**
domestic horses	**315 AUMs**
mule deer	**15,570 AUMs**
pronghorn	**344 AUMs**
elk	**622 AUMs**
bighorn sheep	**0 AUMs**
TOTAL	**62,240 AUMs**



NOTE: This map meets the National Map Accuracy Standards

BOX ELDER PLANNING AREA

Existing Fluid Mineral Leasing Categories
Alternative 1
Figure 2 - 1

- Category 1 - Standard Stipulations
- Category 2 - Special Stipulations
- Category 3 - No Surface Occupancy
- Category 4 - No Lease Area

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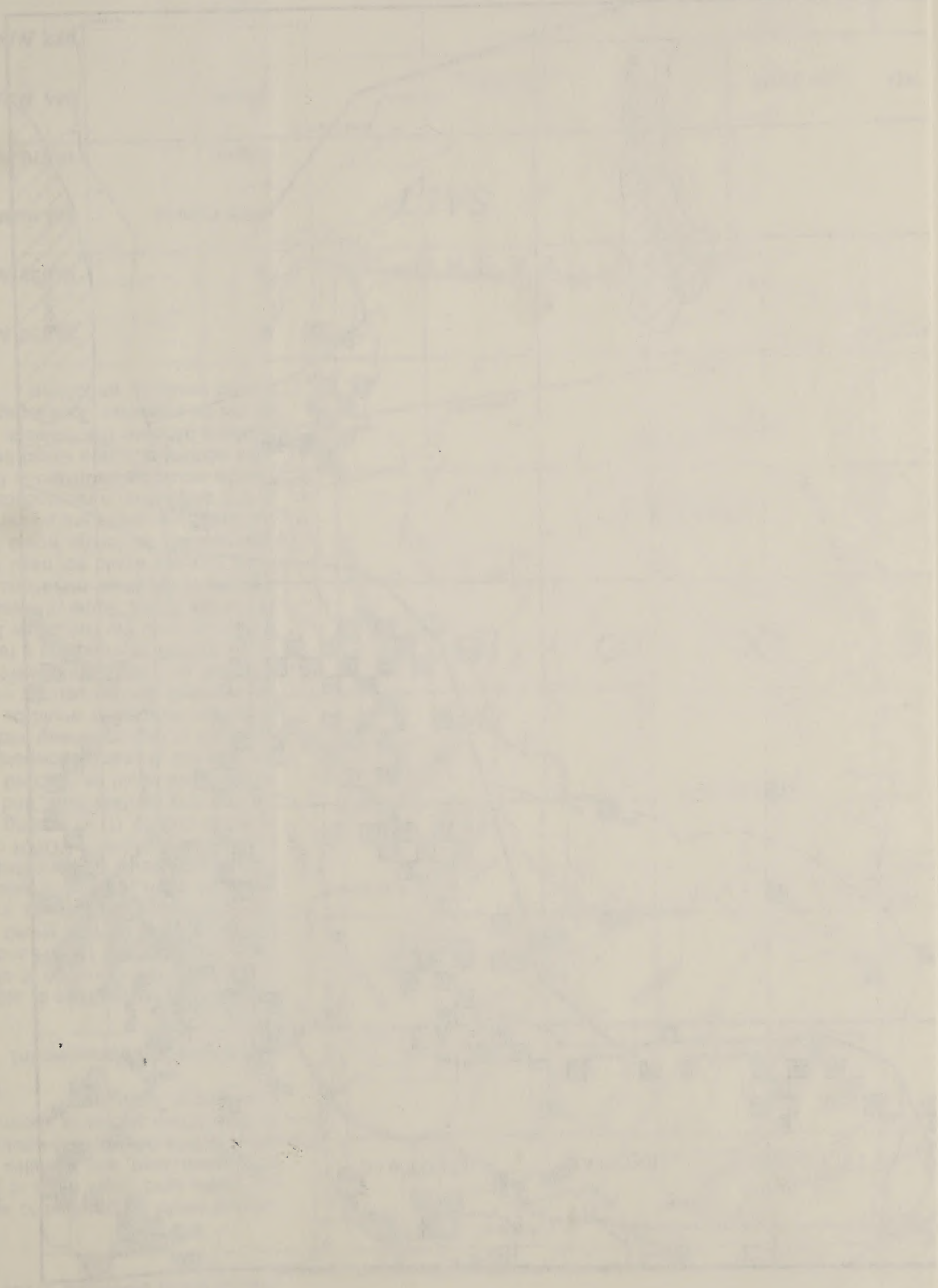


TABLE 2-3
Tracts Recommended for the Disposal Category
Under Alternatives 2 and 4

Tract Number	Alternative 2	Alternative 4	Tract Location	Acres
			T.6N., R.5W.	
1.	X	X	Sec. 6: S1/2SE1/4	80
	X	X	Sec. 7: Lots 1, 2, 5, 6, & 7 NE1/4, E1/2NW1/4, SE1/4	580.62
			T.6N., R.6W.	
2.	X	X	Sec. 12: Lots 1-4	94.8
			T.8N., R.2W.	
3.	X	X	Sec. 15: Lot 8	1.85
			T.8N., R.7W.	
4.	X	X	Sec. 8: Lots 1 & 2 E1/2NE1/4	137.96
			T.9N., R.4W.	
5.	0	X	Sec. 11: Lots 3 & 4	19
6.	0	X	Sec. 35: Lot 6	2.79
			T.9N., R.5W.	
7.	0	X	Sec. 6: Lots 1-12, SE1/4	609.58
			T.10N., R.2W.	
8.	X	X	Sec. 29: Lot 7	.50
			T.11N., R.5W.	
9.	X	X	Sec. 12: SW1/4SW1/4	40.00
			T.11N., R.6W.	
10.	X	X	Sec. 14: S1/2SE1/4	80.0
			T.11N., R.7W.	
11.	X	X	Sec. 26: E1/2SE1/4	80.0
			T.12N., R.4W.	
12.	X	X	Sec. 6: Lots 2, 3, & 10	49.5
			T12N., R.14W.	
13.		X	Sec. 1: NE1/4, E1/2NW1/4	243.52
14.	X	X	Sec. 3: E1/2SE1/4	80
			T.12N., R.15W.	
15.		X	Sec. 12: All	640

TABLE 2-3 (continued)

Tract Number	Alternative 2	Alternative 4	Tract Location	Acres
			T.12N., R.17W.	
16.		X	Sec. 34: W1/2NW1/4	80
17.		X	Sec. 1: W1/2SW1/4	80
18.		X	Sec. 12: E1/2W1/2, W1/2SE1/4, SE1/4SE1/4	240
			T.13N., R.2W.	
19.	X	X	Sec. 26: NW1/4NW1/4 E1/2SW1/4, SW1/4SW1/4	160.0
			T.13N., R.8W.	
20.	X	X	Sec. 12: All	640.0
		X	T.13N., R.11W.	
21.			Sec. 18: W1/2	320.0
			T.13N., R.12W.,	
22.		X	Sec. 18: All	642.36
			T.13N., R.13W.	
23.		X	Sec. 12: E1/2E1/2	160
24.		X	Sec. 14: W1/2NW1/4	80
25.			Sec. 21: E1/2, W1/2, W1/2E1/2	320
26.		X	Sec. 24: All	640
27.		X	Sec. 31: All	640
			T.13N., R.14W.	
28.		X	Sec. 2: W1/2W1/2	86.43
			T.13N., R.15W.	
29.	X	X	Sec. 13: Lots 11,12	3.43
			T.13N., R.18W.	
30.	X	X	Sec. 8: NW1/4SE1/4	40
			T.14N., R.3W.	
31.	O	X	Sec. 3: Lots 1 & 7	77.21
			T.14N., R.4W.	
32.	X	X	Sec. 6: Lot 4	30.45
33.	X	X	Sec. 12: NE1/4SW1/4	40.
			T.14N., R.5W.	
34.	X	X	Sec. 34: E1/2	320.0
			T.14N., R.7W.	
35.	X	X	Sec. 20: SE1/4NE1/4, NE1/4SE1/4	80.00
			T.14N., R.8W.	
36.	X	X	Sec. 26, Lots 1-7, NW1/4SE1/4	295.31

TABLE 2-3 (continued)

Tract Number	Alternative 2	Alternative 4	Tract Location	Acres
			T.14N., R.9W.	
37.	X	X	Sec. 12: S1/2NE1/4	80.0
			T.14N., R.12W.	
38.		X	Sec. 34: All	640
			T.14N., R.14W.	
39.	X	X	Sec. 1: SE1/4SE1/4	40
			T.14N., R.15 W.	
40.		X	Sec. 15: SE1/4SW1/4	40
		X	Sec. 22: E1/2NW1/4, SW1/4NW1/4, W1/2SE1/4	360
41.		X	Sec. 23: NW1/4	175.31
			T.14N., R.17W.	
42.		X	Sec. 33: SE1/4SW1/4	40
43.		X	Sec. 5: SW1/4	160
		X	Sec. 6: Lots 1,12,14,15,16,17,18, 19,20, & 21	250.62
		X	Sec. 7: Lots 5 6, 7, 8, & 9	227.85
		X	Sec. 8: NW1/4, SW1/4NE1/4	200
			T.15N., R.17W.	
		X	Sec. 31: Lots 3,4,5,6, & 8, E1/2SW1/4, W1/2SE1/4, SE1/4SE1/4	355.77
			T.15N., R.4W.	
44.	X	X	Sec. 25: Lots 1-4	13.5
	X	X	Sec. 26: Lots 1-4	12.72
	X	X	Sec. 27: Lots 1-4	15.34
	X	X	Sec. 28: Lots 1-4	18.36
	X	X	Sec. 29: Lots 1-4	17.74
	X	X	Sec. 33: N1/2	320
	X	X	Sec. 34: NW1/4NE1/4, NW1/4, N1/2SW1/4	280
			T.15N., R.6W.	
45.	X	X	Sec. 25: Lots 1-4	8.26
	X	X	Sec. 31	100.85
			T.15N., R.11W.	
46.	X	X	Sec. 30: Lots 1-4	163.39
			T.15N., R.14W.	
47.	O	X	Sec. 27: Lots 1-4	42.71
	O	X	Sec. 28: Lots 1-4	79.22
48.	X	X	T.11N., R.18W. Sec. 20: W1/2NE1/4	80

Pronghorn were trapped west of Snowville and transplanted in Southern Nevada.

Appendix 3b shows grazing use by allotment under this alternative. Allotments would be monitored so that a total of 5 years of data can be used to determine future stocking levels.

Seasons-of-use would be changed or modified on 17 allotments (see Appendix 4). On eight allotments, season-of-use will be modified to implement a range-ready situation. Range readiness is defined as "a stage of plant growth at which grazing may begin under a specific management plan without permanent damage to vegetation or soil. " (Kothmann, 1974). In those cases where a range-ready situation is proposed, a date will also be stipulated to accommodate the needs of both the permittees and the resource.

Decisions for specific rangeland improvements will not be made under this alternative. Specific improvements would be formulated as part of AMPs and HMPs. Improvements could be selected from those outlined in Alternatives 3 and 4 or could be other similar proposals which would be analyzed in environmental assessments. All improvements would be subject to the mitigating measures outlined in Appendix 1 and 2.

Issue 3: Mineral Development

Approximately 980 acres would be withdrawn from mineral entry for protection of the threatened Lahontan cutthroat trout species. The withdrawal would include T.4N., R.19W., N1/2 Section 22 (320 acres) and S1/4 Section 17 (20 acres) on Bettridge Creek and all of Section 28 (640 acres) on Donner Creek. Although sometimes called Morrison Creek, Donner Creek will be the name used henceforth in this document. The current withdrawal of 6,840 acres would also continue.

This alternative complies with BLM's policy for categorizing lands for fluid mineral leasing, i. e. areas will be categorized in the least restrictive category which will adequately protect other resources and land uses. Fluid mineral leasing categories would be established as follows:

Category 1 (Open)	**725,794 acres**
Category 2 (Open With Special Stipulations)	**288,065 acres**

BOX ELDER PLANNING AREA

Tracts Recommended for Disposal in Alternatives 2 and 4
Figure 2 - 2

Tracts Recommended for Disposal
(numbers refer to Table 2-3)

Scale
10 0 10 miles
10 0 10 kilometers

NOTE: This map meets the National Map Accuracy Standards

BOX ELDER PLANNING AREA

Proposed Physical and Legal Access Under Alternatives 2 and 4
Figure 2 - 3

Proposed Physical Access

Proposed Legal Access

(Numbers refer to Table 2 - 4)

NOTE: This map meets the National Map Accuracy Standards

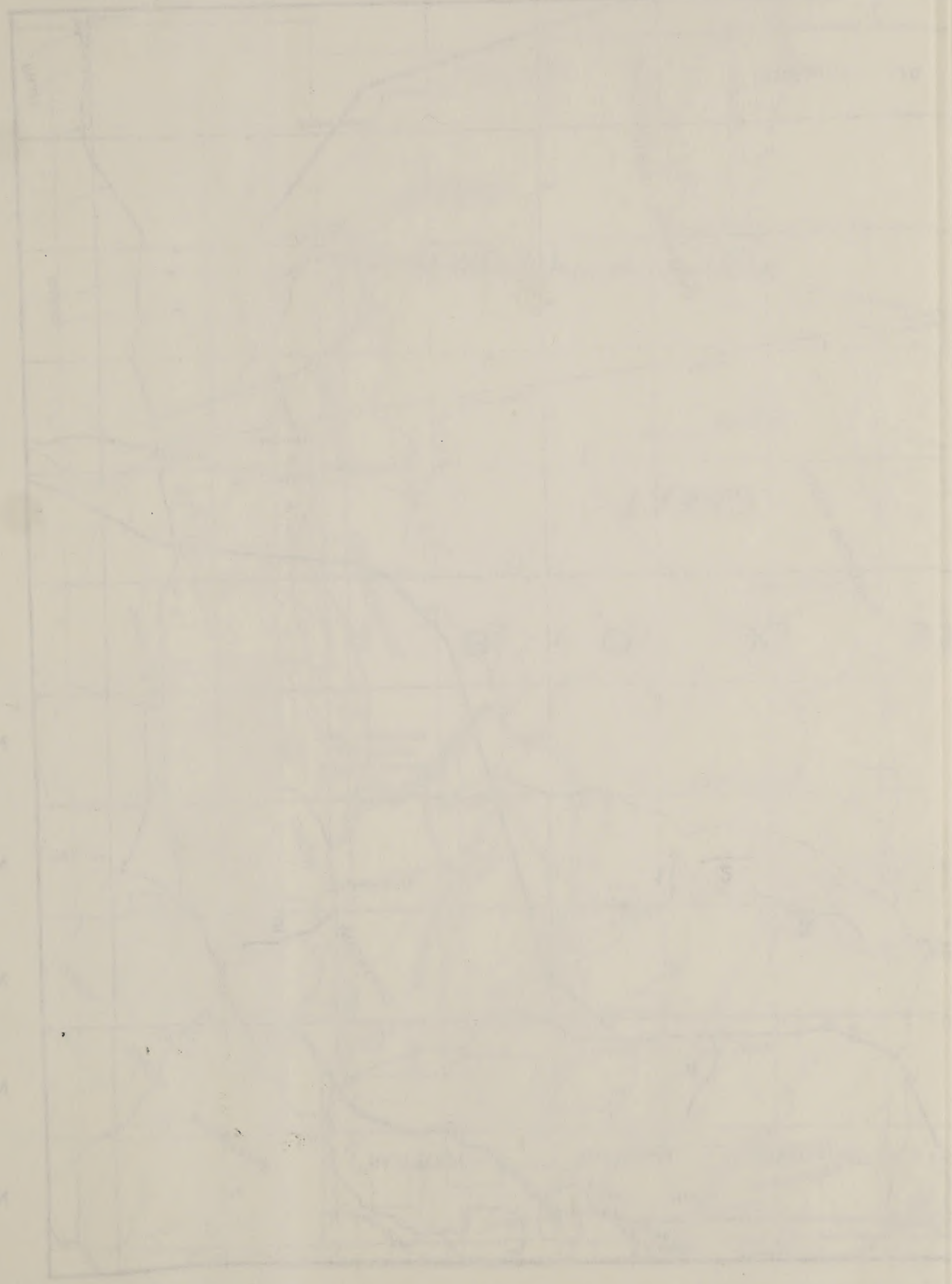


Table 2-4
Proposed Physical and Legal Access Under Alternatives 2 and 4

Area Number[1]	Legal Description	Type Needed	Miles	Purpose
1	T. 11 N., R. 13 W. Sections 6, 7, 18	physical	3	Improve management of grazing and wildlife habitat; provide access to rangeland improvements.
2	T. 11 N., R. 13 W. Sections 14, 15, 16	physical	3	Same
3	T. 11 N., R. 13 W. Section 1 T. 11 N., R. 12 W. Section 6 T. 12 N., R. 12 W. Sections 31, 32, 33, 34, 26	physical	2	Same
4	T. 13 N., R. 13 W. Sections 16, 17, 21	legal	4	Improve management of unique riparian and conifer site, provide access for better resource management
5	T. 12 N., R. 17 W. Sections 25, 26, 27, 28	legal	6	Provide additional route to Ingham Allotment. Current route is undependable.

[1] Area numbers correspond to Figure 2-3.

Category 3 (No Surface Occupancy) **6,380 acres**

Category 4 (Closed) **0 acres**

Appendix 5 describes the areas and resources included in the fluid mineral leasing categories under Alternative 2. These areas are shown in Figure 2-4.

Issue 4: Off-Road Vehicle Designations

As much land as possible would be made available for off-road vehicle use while protecting areas where damage to resource values would be unacceptable. The planning area would be categorized as follows:

Open to ORV Use **983,174 acres**

Limited to ORV Use **28,550 acres**

Closed to ORV Use **70 acres**

Appendix 6 describes the specific areas and/or resources included in the ORV designations under Alternative 2. The areas in each designation are shown in Figure 2-5.

Other Proposed Actions

Areas of Critical Environmental Concern

The Federal Land Policy and Management Act of 1976 provided that designation of Areas of Critical Environmental Concern (ACECs) be given priority in the development of land use plans. The Act defines ACECs as follows: "Places within public lands where special management attention is needed (when such areas are developed or where no development is required) to protect and prevent irreparable damage to important historical, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes or to protect life and safety from natural hazards."

Eleven areas were initially nominated to be considered for ACEC designation. An interdisciplinary team met and concluded that three of the nominated areas met the criteria to qualify as potential ACECs and therefore proposed them for ACEC designation under this alternative.

The *Pilot Mountains (107,200 acres)*were nominated for protection of scenic values, important natural systems including unique geology and vegetation types, critical habitat for a threatened fish species, important habitat for other wildlife species including the proposed population of bighorn sheep, pristine qualities, and cultural values.

The*old Central Pacific Railroad grade (250 acres)*was nominated for its national historic interest and significance. Protection is needed to prevent loss of additional historic remnants of the old route.

Red Butte Mountain (7,360 acres), the third area proposed for ACEC designation, contains many relevant and important values such as special geologic features, locally unique vegetation (subalpine fir), riparian sources, sensitive watersheds, high elevation cultural sites, and primitive recreation opportunities.

The proposed ACECs are shown in Figure 2-6.

Utility and Transportation Corridors

BLM proposes to identify the following as avoidance areas for utility and transportation corridors:

within . 5 miles of sage grouse strutting grounds,

within 100 yards of riparian/aquatic habitats,

within any narrow drainage bottoms,

along ridge tops,

within designated ACECs,

within areas designated VRM Class II,

within 100 yards of any live waters.

In addition, no construction or other activity would be allowed within crucial mule deer winter range from December 1 to April 15.

Public land within avoidance areas generally will not be available for utility and transportation corridor development. Exceptions may be permitted based on consideration of the following critiera:

type of and need for facility proposed;

conflicts with other resource values and uses; and

availability of alternative routes and/or mitigation measures.

All other land generally is available for utililty and transportation corridor development. Exceptions will be based on consideration of the criteria identified above. Applicants would be encouraged to identify existing corridors among their alternatives.

Proposed Allotment Boundary Changes

Implement the following allotment consolidations:

Goose Creek Allotment with the northeast arm of Hardesty Creek.

Combining these allotments would result in a better geographic distribution of allotment boundaries.

Raft River Allotment with Yost Pastures Allotment. Combining these allotments would result in a more efficient 5-pasture AMP system.

Divide Goose Creek Allotment into two allotments. This division has been proposed by all affected livestock permittees.

Divide Lucin/Pilot Allotment into two or more allotments. This division has been proposed by the affected livestock permittees and would increase grazing management efficiency by dividing areas based on season-of-use.

Redefine boundary between Dove Creek and Terrace Allotments. Redefining the boundary will resolve a conflict between livestock permittees in the allotments.

Forage Use on Unadjudicated Public Lands

Two allotments within the planning area contain lands which were not involved in the 1967 adjudication process. Within Matlin Allotment, BLM proposes to authorize use of 290 AUMs on 3,480 acres which were conveyed to Federal ownership and have since been used on a temporary nonrenewable basis. On Red Dome Allotment, BLM proposes to authorize use of 400 AUMs involved in a land exchange which was never consummated.

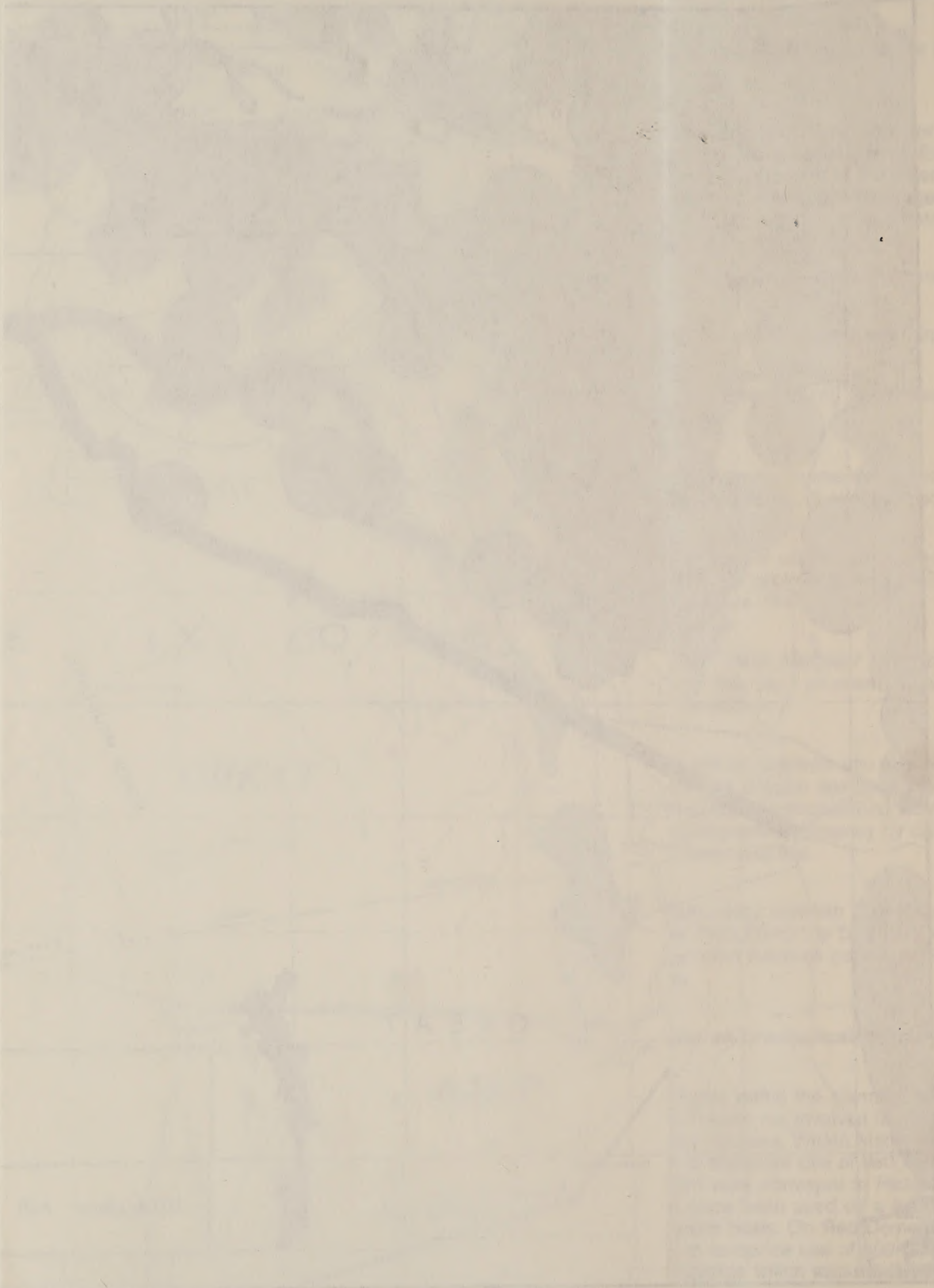
BOX ELDER PLANNING AREA

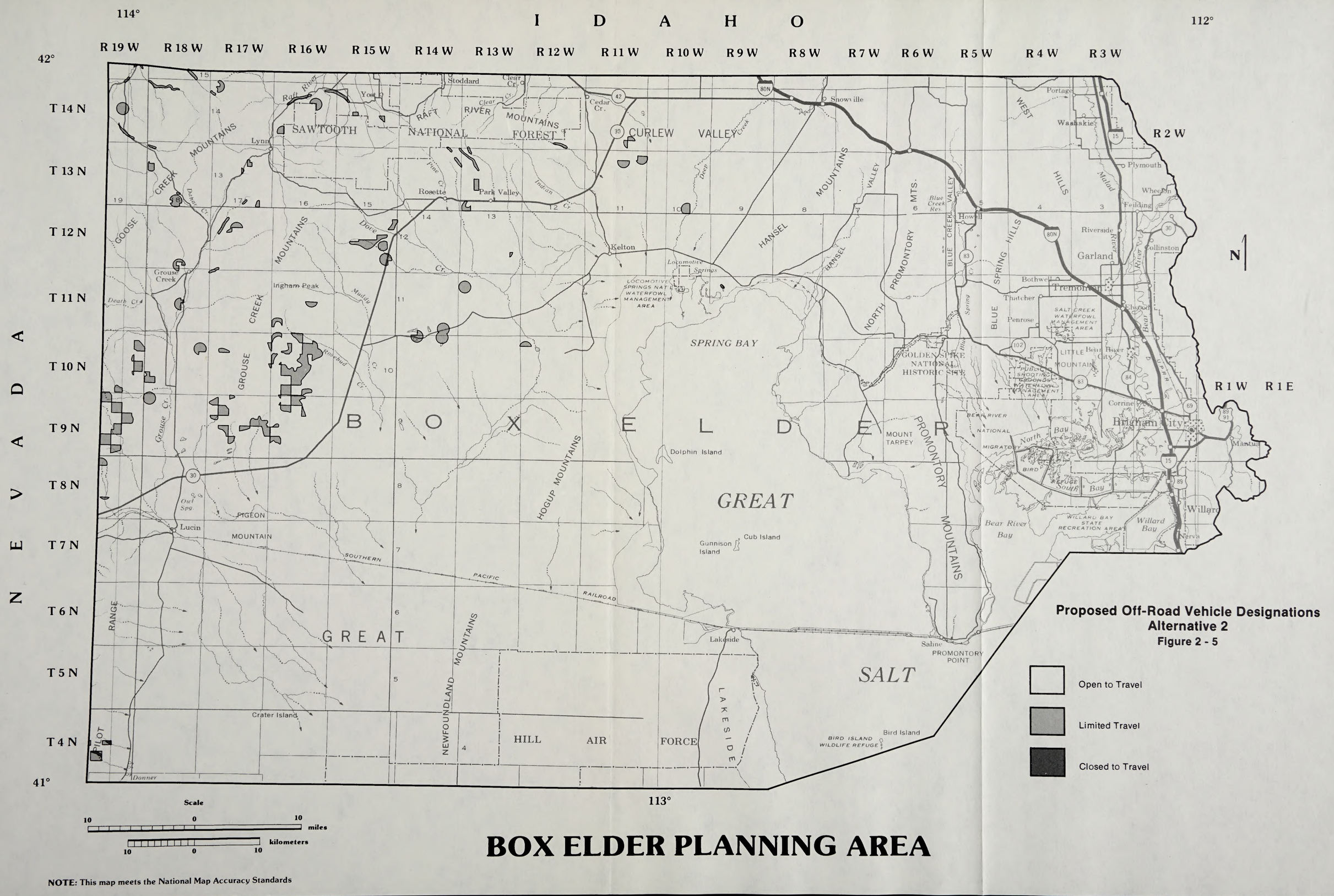
NOTE: This map meets the National Map Accuracy Standards

Proposed Fluid Mineral Leasing Categories
Alternative 2
Figure 2 - 4

- Category 1 - Standard Stipulations
- Category 2 - Special Stipulations
- Category 3 - No Surface Occupancy
- NONE — Category 4 - No Lease Area

NOTE: Shaded areas include large acreages of non-mineral lands which would not be affected by the fluid mineral leasing categories.



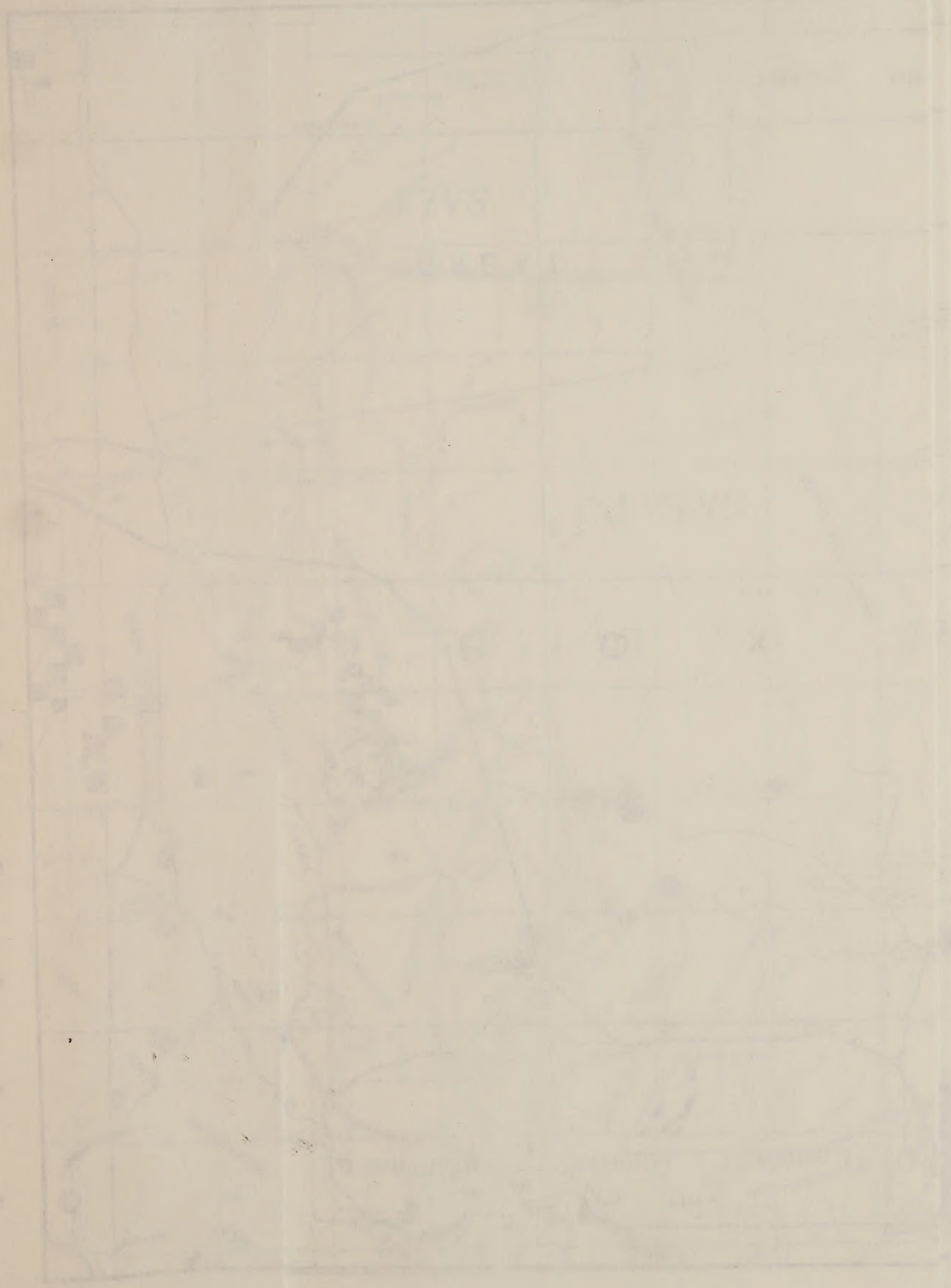


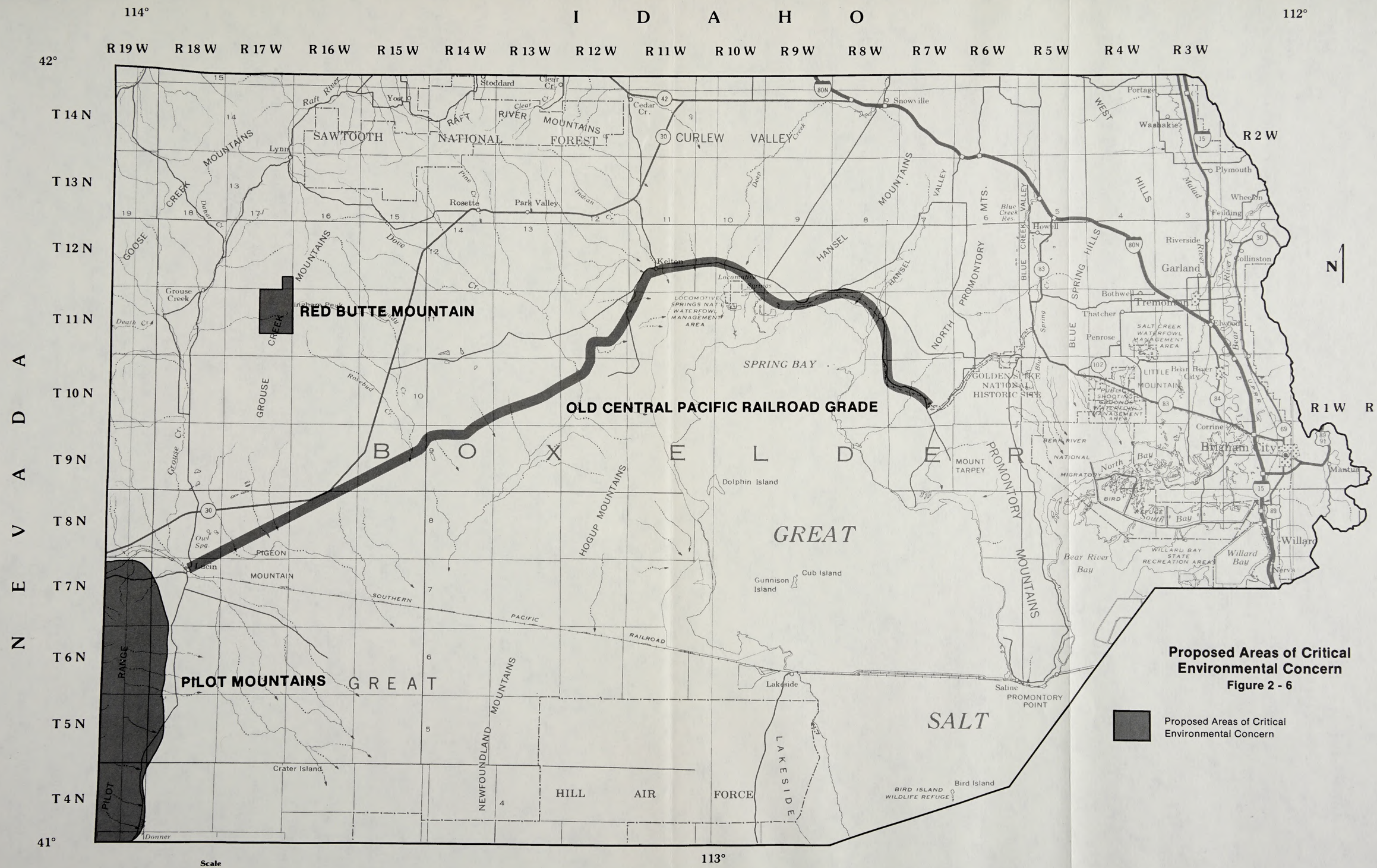
Proposed Off-Road Vehicle Designations
Alternative 2
Figure 2 - 5

- Open to Travel
- Limited Travel
- Closed to Travel

BOX ELDER PLANNING AREA

NOTE: This map meets the National Map Accuracy Standards



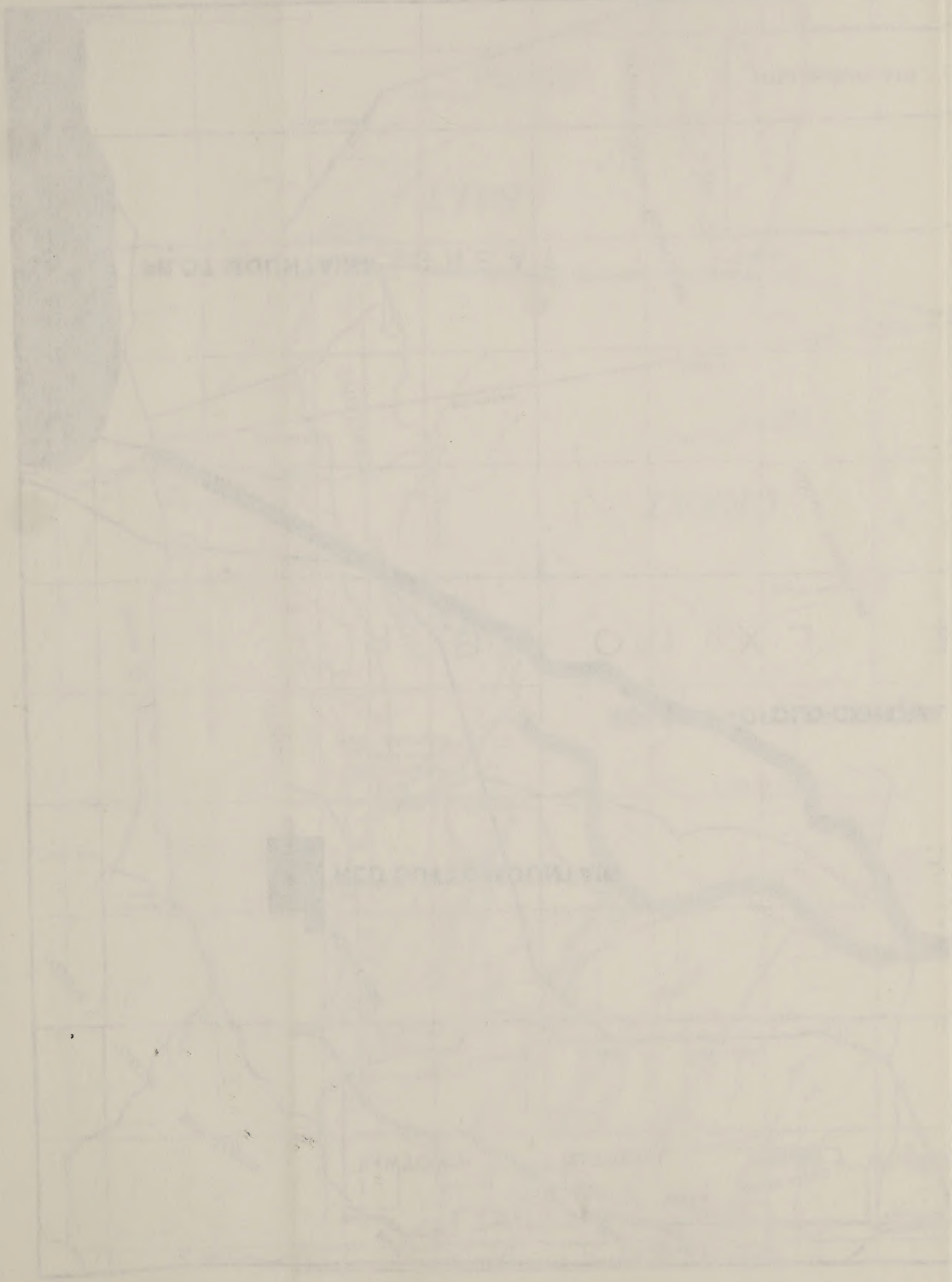


Proposed Areas of Critical Environmental Concern
Figure 2 - 6

Proposed Areas of Critical Environmental Concern

BOX ELDER PLANNING AREA

NOTE: This map meets the National Map Accuracy Standards



Noxious Weed Control

Dyers Woad, *Isatis tinctoria*, is a noxious weed which in the last 5 years has rapidly invaded foothills and other native range areas throughout northern Utah. Specific locations in the Box Elder Planning Area needing attention from BLM and county weed control are in the vicinity of:

T.12N., R.17W., Sec. 18, W1/2W1/2
T. 12N., R.18W., Sec. 12, E1/2E1/2
T.11N., R.12W., Sec. 22, SE1/4NE1/4
T.12N., R.11W., Sec. 18, W1/2W1/2
T.13N., R.11W., Sec. 30

Allotment Management Plans

Allotment Management Plans (AMPs) will be prepared according to the following guidelines:

Improve (I) category allotments will receive top priority for completion of AMPs. Maintain (M) category allotment AMPs will be completed as time and funding permit.

The general objective of each category I AMP would be to resolve existing conflicts and issues through implementation of rangeland improvement projects or other management procedures such as season-of-use adjustments, increases and decreases in livestock numbers, and grazing systems. The long-term objective for I category allotments would be to move them to the M category once problems are resolved.

AMPs for M category allotments will serve to formally document current management felt to be satisfactory.

AMPs would not normally be prepared for a C category allotment unless conditions arise which would warrant changing the allotment to the M or I category.

Habitat Management Plans

BLM has identified the following prioritized list of areas for which habitat management plans should be prepared:

Blue Springs Marsh

Grouse Creek/Raft River Mountain Ranges

Goose Creek Mountain Range

Sheep Trail/Curlew Junction Area

Newfoundland Mountain Range

Hogup Mountain Range

Silver Island Mountain Range

Old Central Pacific Railroad Grade

Pursue the following management program for the old Central Pacific Railroad Grade:

1. Nominate the abandoned Promontory Branch grade and associated sites between Lucin and Promontory to the National Register of Historic Places.

2. Recommend the grade for study and possible designation as a National Historic Trail.

3. Pursue a written memorandum of understanding with Box Elder County for preservation of all structures and historical sites associated with the grade.

4. Develop an interpretive program to help preserve the existing structures and sites associated with the grade.

5. Prepare a protection plan which would not encourage development or recreational use of the grade.

Visual Resource Management

BLM completed an inventory of visual resources in the Box Elder Planning Area in 1982. Visual resources are the combination of landform, water, color, vegetative, and man-made features and other landscape characteristics. BLM has developed a system for classifying and managing these visual resources. The system, explained in BLM Manual 8400, places landscapes into visual resource management (VRM) classes that indicate the overall significance of the visual environment and establish management objectives for determining the acceptable degree of change. BLM proposes to designate the following VRM classes and acreage in each within the planning area.

VRM Class I. This category is reserved for designated wilderness and primitive areas, some natural areas and some wild and scenic rivers. No areas are proposed for Class I designation.

VRM Class II. Management activities/modifications of the environment should not be evident in the characteristic landscape. Changes may be visible but should not attract attention. Six units (63,920 acres) are proposed for Class II designation. These units include: Devil's Playground, Grouse Creek Mountains, Newfoundland Mountains, Raft River Narrows, Meadow Creek Butte, Pilot Mountains, and White Rocks.

VRM Class III. Changes caused by management activities may be evident but should remain subordinate to the existing landscape. One unit, Junction Creek (1,920 acres), is proposed for Class III designation.

VRM Class IV. Change may attract attention and be dominant landscape features but should reflect the basic elements (form, line, color, texture) of the existing landscape. The remainder of the planning area would be designated as Class IV.

Fire Management

Develop a fire management plan for the Box Elder Planning Area according to the following general guidelines:

1. Implement full fire suppression in (a) areas where human life and/or man-made facilities are threatened, and (b) areas with important natural resource values, such as all conifer stands and riparian areas, which if lost would have a negative impact on management objectives, and (c) all salt desert shrub, black sage, or annual grass types.

2. Within all other areas, use fire (both planned and unplanned ignition sources) as a management tool to meet resource objectives.

The fire management plan would be developed by an interdisciplinary team who would identify specific resource values and associated prescriptions for specific areas.

Alternative 3

Objective: This alternative gives priority to protection or enhancement of environmental values (wildlife, watershed, aesthetics, nonmotorized recreation). Resource use and commodity production would be permitted to the extent these would be compatible with the nondevelopment uses.

Issue Resolution Guidelines

Issue 1: Landownership Conflicts

All public lands (1,011,794 acres) would be placed in the retention category. The landownership adjustment program would emphasize retention of public lands. Land actions other than sale (e. g. exchanges, R&PP leases) would be allowed if environmental values could be enhanced. In addition to following the criteria previously identified in the *Lands Actions* section (see *Features Common to all Alternatives), BLM would encourage land exchanges within the retention category which would:*

(1) Increase public ownership in the Fisher Creek Area, Pilot Mountains (especially Donner and Bettridge Creeks), sage grouse breeding complexes, crucial deer winter range, aquatic habitats, and spring and marsh habitats.

(2) Decrease public ownership in the mud flat area, low salt desert shrub areas, or any areas where the wildlife habitat values are lower than those in the area being obtained.

(3) Increase public ownership in upper elevation watersheds and maintain ownership of all surface waters on public lands.

(4) Increase public ownership in watersheds with critical erosion problems (Dove Creek Allotment, Rosebud Allotment).

(5) Increase public ownership within areas designated as areas of critical environmental concern.

Issue 2: Vegetation Management

This alternative resolves issues to the benefit of wildlife habitat and watershed protection. Resources other than livestock grazing are given priority for management and use of forage.

Initially, forage would be distributed for UDWR's prior stable levels (same as current levels) for deer and long-term objective levels for elk, antelope and bighorn. These levels include the reintroduction of elk and bighorn into 13 allotments and two

allotments, respectively, and an increase of pronghorn in 11 allotments. Deer would remain the same as in Alternative 1. Remaining forage would be given to livestock. Total forage distribution would be as follows:

cattle	**28,592 AUMs**
sheep	**14,985 AUMs**
domestic horses	**278 AUMs**
mule deer	**15,570 AUMs**
pronghorn	**1,586 AUMs**
elk	**1,254 AUMs**
bighorn sheep	**262 AUMs**
TOTAL	**62,527 AUMs**

Appendix 3c shows forage use by allotment under this alternative.

Seasons-of-use for livestock would be changed on 24 allotments. Appendix 4 shows seasons-of-use changes by allotment.

Rangeland improvements which benefit wildlife habitat and/or watershed protection would be implemented under this alternative. Long-term forage increases would be used by wildlife. Proposed rangeland improvements are shown in Table 2-5. Appendix 7 shows rangeland improvements and expected forage increases by allotment under this alternative. Figure A inserted in the back of this document depicts the land treatments under Alternative 3.

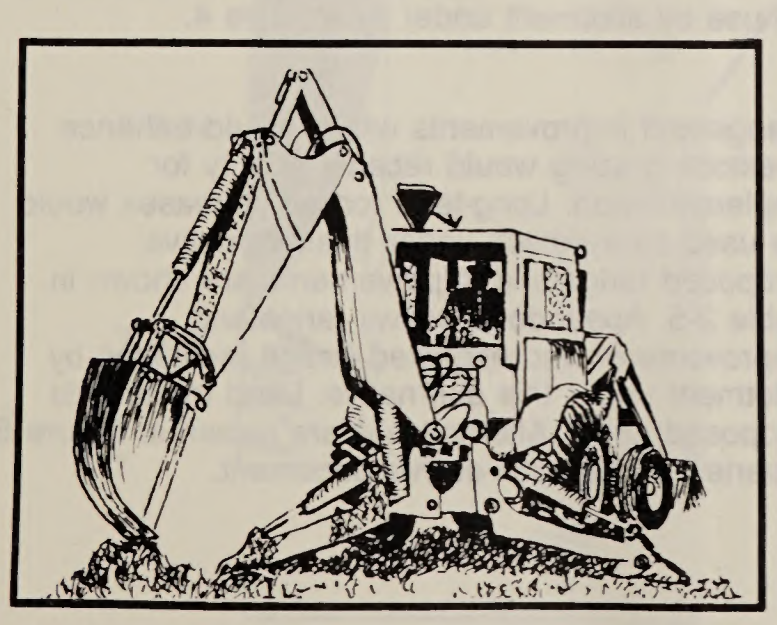


TABLE 2-5 Proposed Rangeland Improvements for Alternatives 3 and 4

Improvements	Alternative 3	Alternative 4
Chain & seed (acres)	0	15,900
Burn & seed (acres)	1,200	0
Burn (acres)	1,100	0
Interseed & burn (acres)	0	2,300
Plow & seed (acres)	200	0
Spray (acres)	0	14,543
Spray & seed (acres)	0	640
Tebuthuiron (acres)	2,000	0
Commercial harvest (acres)	4,500	9,900
Fence/riparian fence (miles)	2/15	78/0
Spring fence (number)	124	0
Wells (number)	0	2
Springs (number)	0	2
Pipelines (miles)	0	59
Guzzlers (number)	38	1
In-stream structures (number)	215	0
Reservoirs (number)	8	18
Retention berm (acres)	250	0

Issue 3: Mineral Development

Approximately 980 acres in the vicinity of Bettridge and Donner Creeks would be withdrawn from mineral entry to protect the threatened Lahontan cutthroat trout (see Alternative 2 for legal description). The current withdrawal of 6,840 acres would also continue.

Environmental values would receive preference in designating fluid mineral leasing categories. Fluid mineral leasing categories would be established as follows:

Category 1 (Open)	**714,544 acres**
Category 2 (Open With Special Stipulations)	**280,180 acres**
Category 3 (No Surface Occupancy)	**23,595 acres**
Category 4 (Closed)	**0 acres**

Appendix 5 shows the areas and resources included in the fluid mineral leasing categories under Alternative 3. Figure 2-7 shows the areas in each category.

Issue 4: Off-Road Vehicle Designation

Off-road vehicle use would be prohibited in areas where it would conflict with wildlife habitat and scenic values. The planning area would be categorized as follows:

Open to ORV use	**630,548 acres**
Limited for ORV use	**379,946 acres**
Closed to ORV use	**1,300 acres**

Appendix 6 describes the specific areas and/or resources included in the ORV designations under Alternative 3. The proposed ORV designations are shown in Figure 2-8.

Alternative 4

Objective: This alternative gives priority to resource use and commodity production(mineral development, livestock grazing, motorized recreation, etc.). Other resources would be protected to the extent required by laws, executive orders, and other mandates.

Issue Resolution Guidelines

Issue 1: Landownership Conflicts

Tracts recommended for the disposal category total 11,597 acres and are shown in Figure 2-2 and listed in Table 2-3. Under this alternative, 1,000,197 acres would be placed in the retention category. In addition to following the criteria previously identified in the *Lands Action section* (see *Features Common to All Alternatives*), BLM would encourage land exchanges within the retention category which would:

(1) Increase the efficiency of livestock grazing management.

(2) Increase public ownership in areas which are currently or potentially highly productive for livestock grazing.

(3) Increase public ownership in areas where BLM has made significant resource developments and improvements.

(4) Increase public ownership in areas where additional lands would enhance BLM's current management scheme.

(5) Improve access for mineral exploration and development.

(6) Enhance opportunities for motorized recreation.

Eight miles of physical access would be constructed and 10 miles of legal access would be sought(see Table 2-4 and Figure 2-3).

Issue 2: Vegetation Management

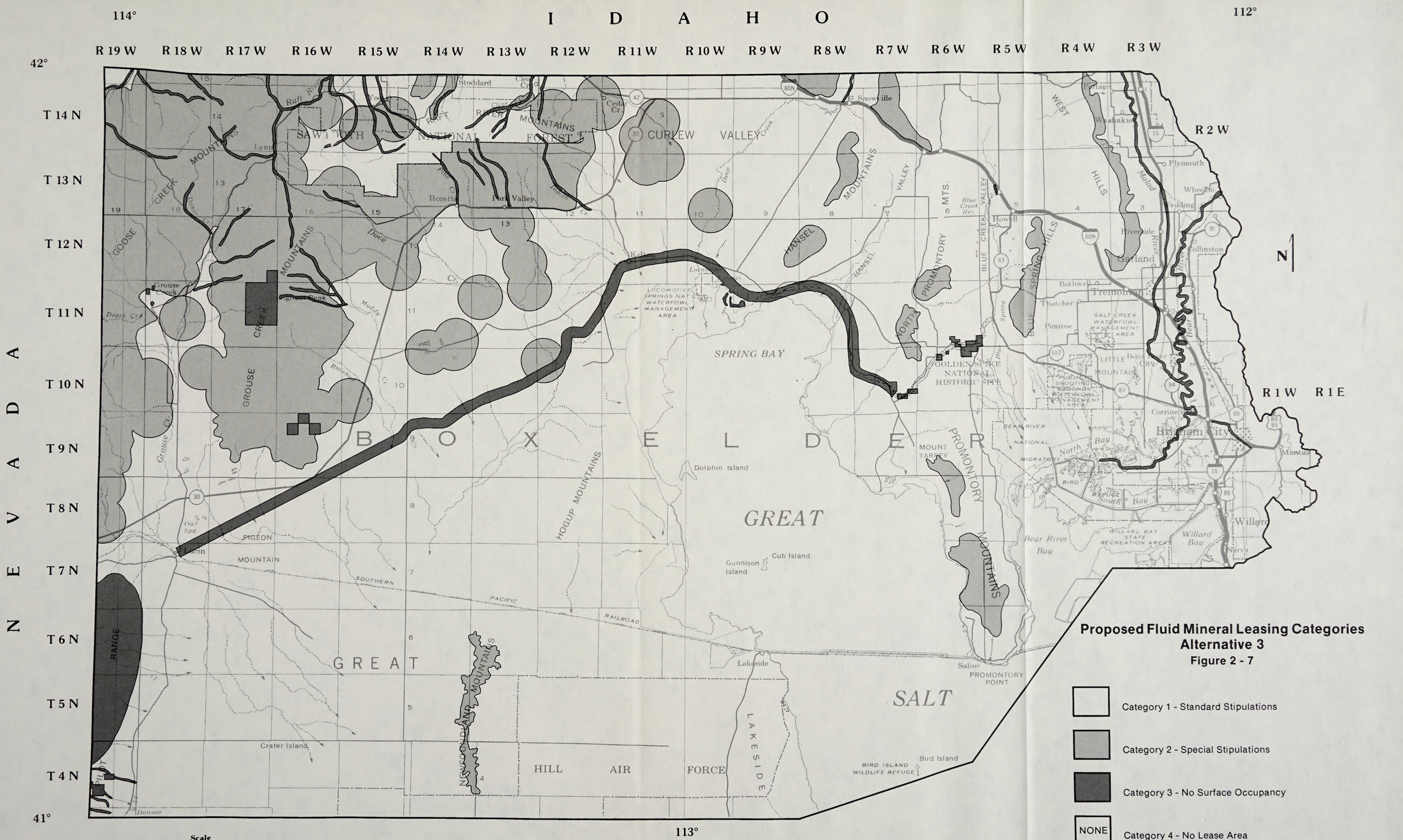
This alternative resolves issues to the benefit of livestock grazing. Livestock grazing is given the first priority for management and use of forage. Total livestock grazing preference (active preference plus suspended preference) or higher would be the authorized use under this alternative. Remaining forage would be provided to meet big game demands. No big game would be reintroduced or increased under this alternative. Total forage distribution would be as follows:

cattle	**34,030 AUMs**
sheep	**16,915 AUMs**
domestic horses	**315 AUMs**
mule deer	**14,272 AUMs**
pronghorn	**102 AUMs**
elk	**0 AUMs**
bighorn sheep	**0 AUMs**
TOTAL	**65,634 AUMs**

Appendix 3d shows forage use by allotment under this alternative.

Seasons-of-use for livestock would not be changed under this alternative. Appendix 4 shows seasons-of-use by allotment under Alternative 4.

Rangeland improvements which would enhance livestock grazing would receive priority for implementation. Long-term forage increases would be used by livestock under this alternative. Proposed rangeland improvements are shown in Table 2-5. Appendix 8 shows rangeland improvements and expected forage increases by allotment under this alternative. Land treatments proposed under Alternative 4 are shown in Figure B inserted in the back of this document.



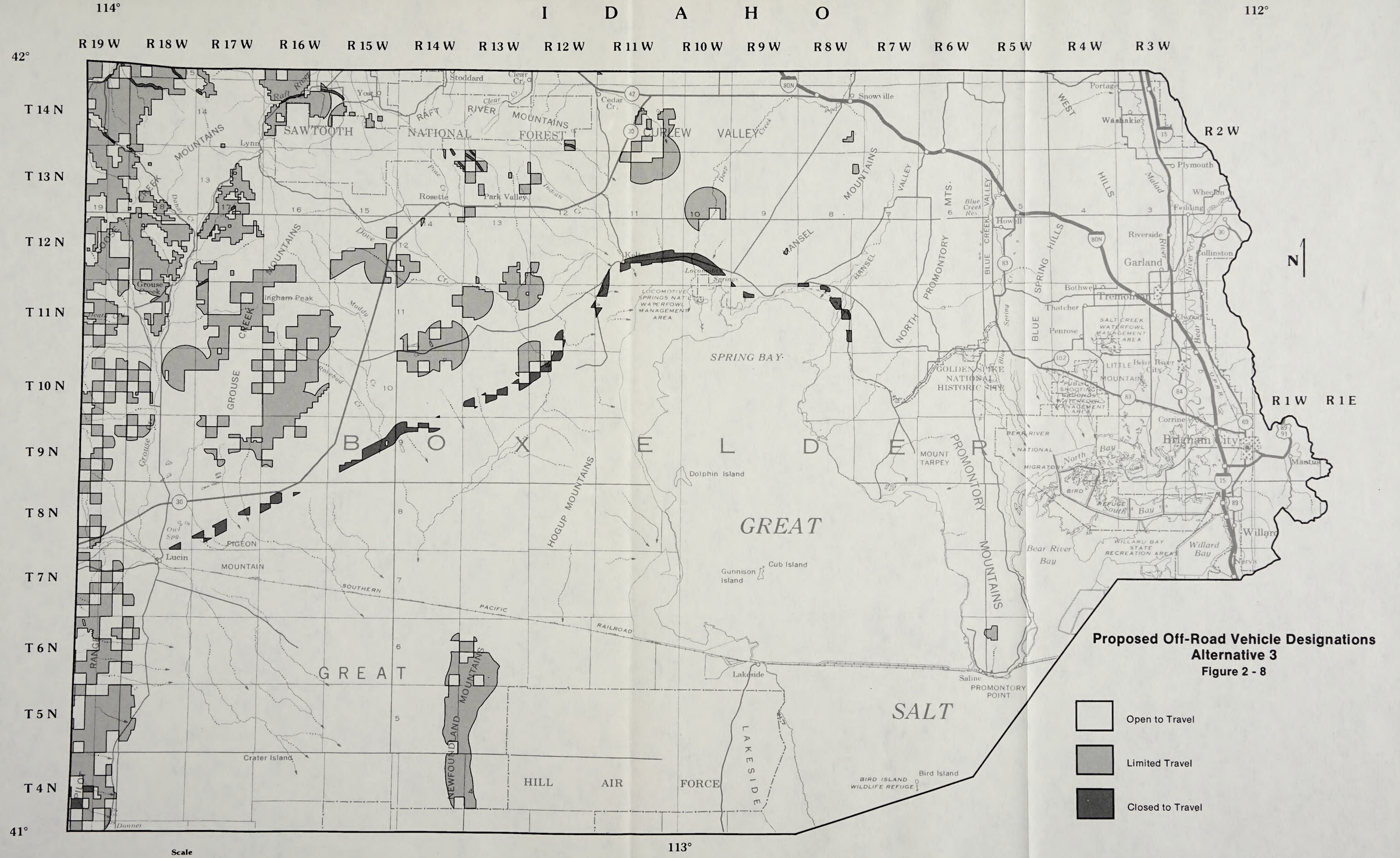
BOX ELDER PLANNING AREA

NOTE: This map meets the National Map Accuracy Standards

Proposed Fluid Mineral Leasing Categories
Alternative 3
Figure 2 - 7

- Category 1 - Standard Stipulations
- Category 2 - Special Stipulations
- Category 3 - No Surface Occupancy
- NONE — Category 4 - No Lease Area

NOTE: Shaded areas include large acreages of non-mineral lands which would not be affected by the fluid mineral leasing categories.

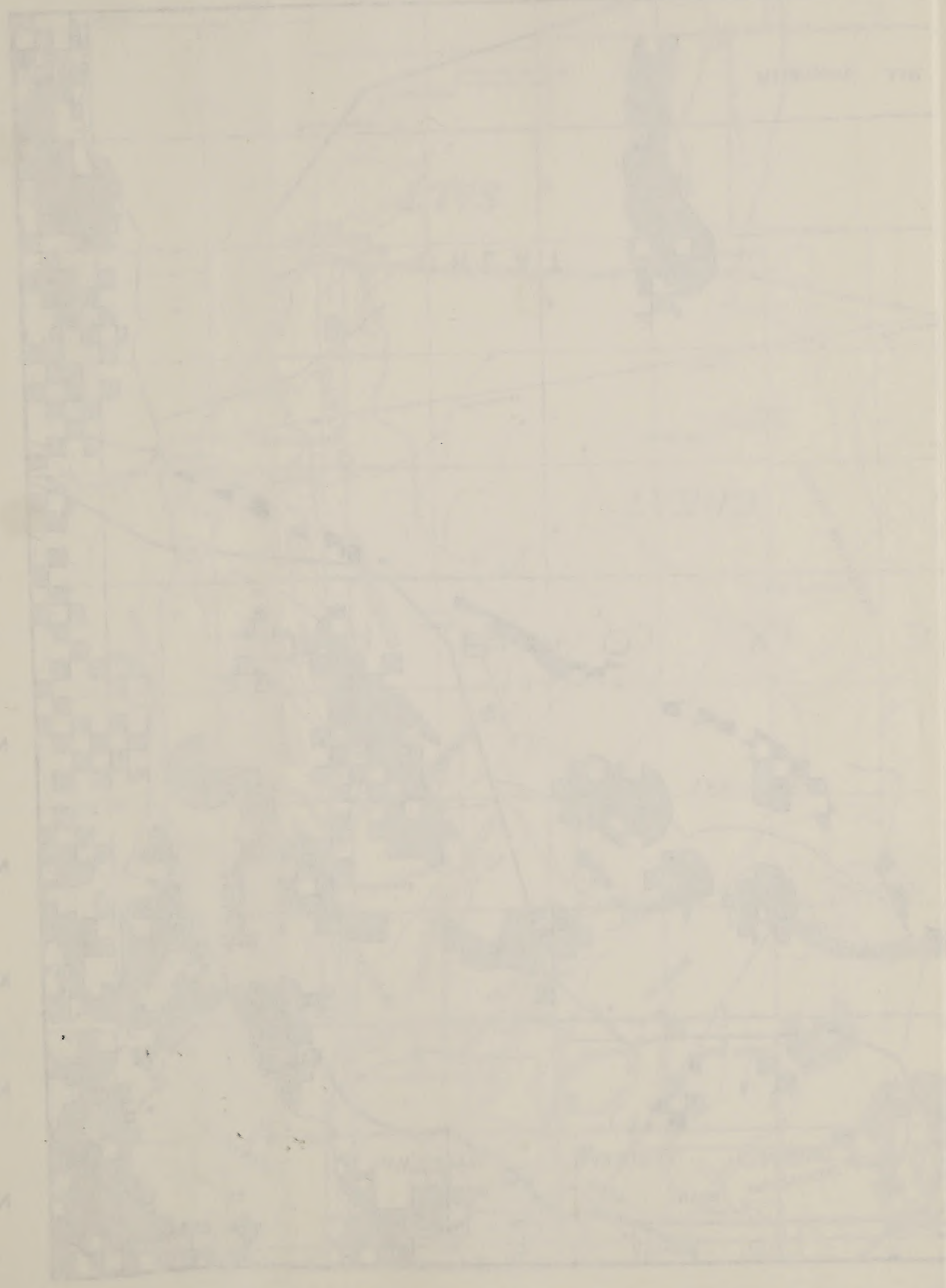


Proposed Off-Road Vehicle Designations
Alternative 3
Figure 2 - 8

- Open to Travel
- Limited Travel
- Closed to Travel

BOX ELDER PLANNING AREA

NOTE: This map meets the National Map Accuracy Standards



Issue 3: Mineral Development

No new areas would be withdrawn from mineral entry. The current withdrawal of 6,840 acres would continue.

Mineral resource values would receive preference in designating fluid mineral leasing categories. Fluid mineral leasing categories would be established as follows:

Category 1 (Open)	**988,599 acres**
Category 2 (Open With Special Stipulations)	**16,500 acres**
Category 3 (No Surface Occupancy)	**3,220 acres**
Category 4 (Closed)	**0 acres**

Appendix 5 describes the areas and/or resources included in the fluid mineral leasing categories under Alternative 4. These areas are shown in Figure 2-9.

Issue 4: Off-Road Vehicle Designations

All areas not mandated to be closed by legislation, executive order, or BLM policy would be open to ORV use. The planning area would be categorized as follows:

Open to ORV use	**1,010,784 acres**
Limited for ORV use	**910 acres**
Closed to ORV use	**70 acres**

Appendix 6 shows the areas and/or resources included in the ORV designation under Alternative 4. The proposed ORV designations are shown in Figure 2-10.

Comparison of the Alternatives

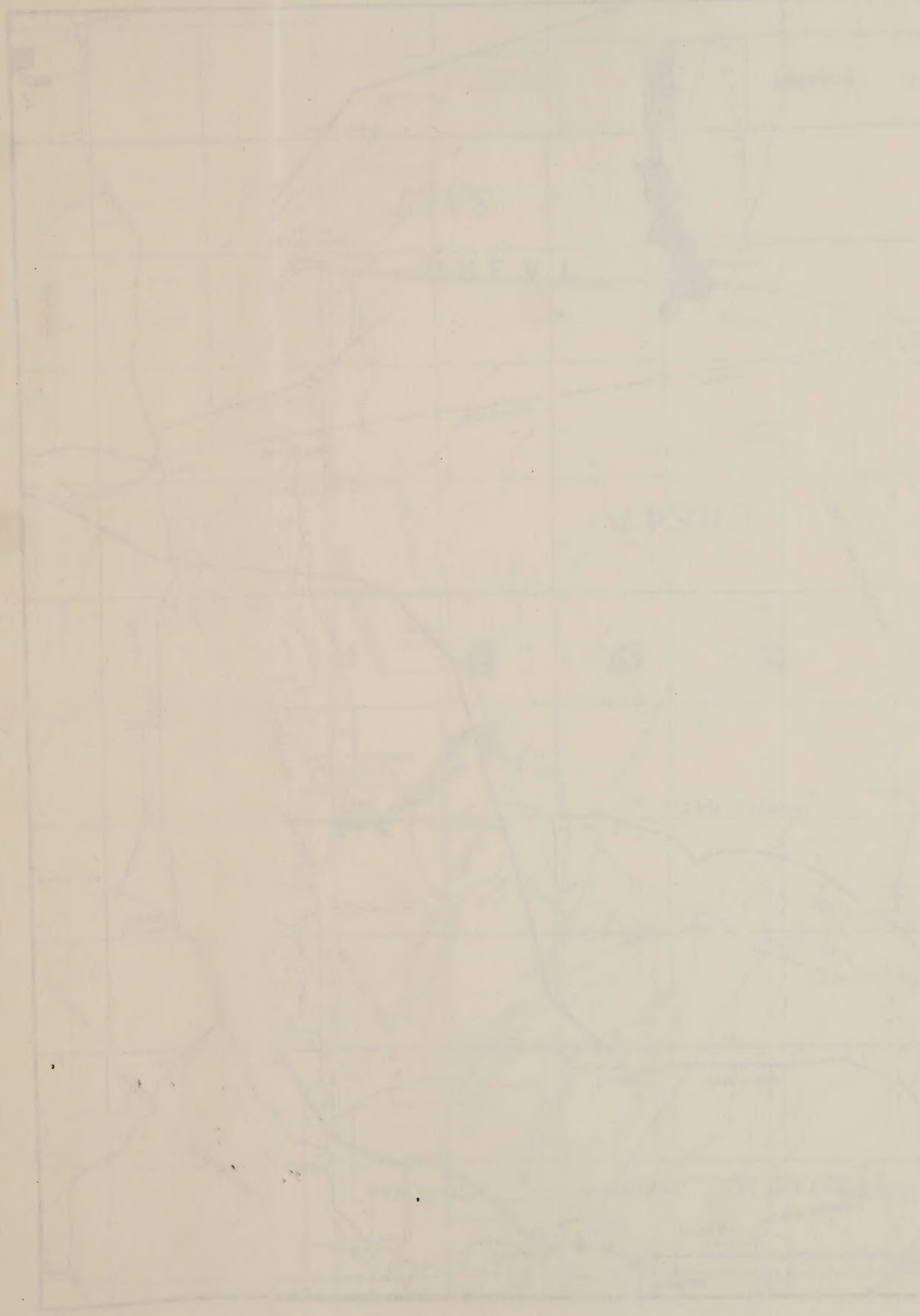
Table 2-6 summarizes the actions which would be taken under each alternative. Table 2-7 summarizes the environmental consequences of each alternative. For more detailed information on the consequences of each alternative, refer to Chapter 4.

NOTE: This map meets the National Map Accuracy Standards

BOX ELDER PLANNING AREA

Proposed Fluid Mineral Leasing Categories
Alternative 4
Figure 2 - 9

- Category 1 - Standard Stipulations
- Category 2 - Special Stipulations
- Category 3 - No Surface Occupancy
- NONE — Category 4 - No Lease Area



BOX ELDER PLANNING AREA

Proposed Off-Road Vehicle Designations
Alternative 4
Figure 2 - 10

- Open to Travel
- Limited Travel
- Closed to Travel

NOTE: This map meets the National Map Accuracy Standards

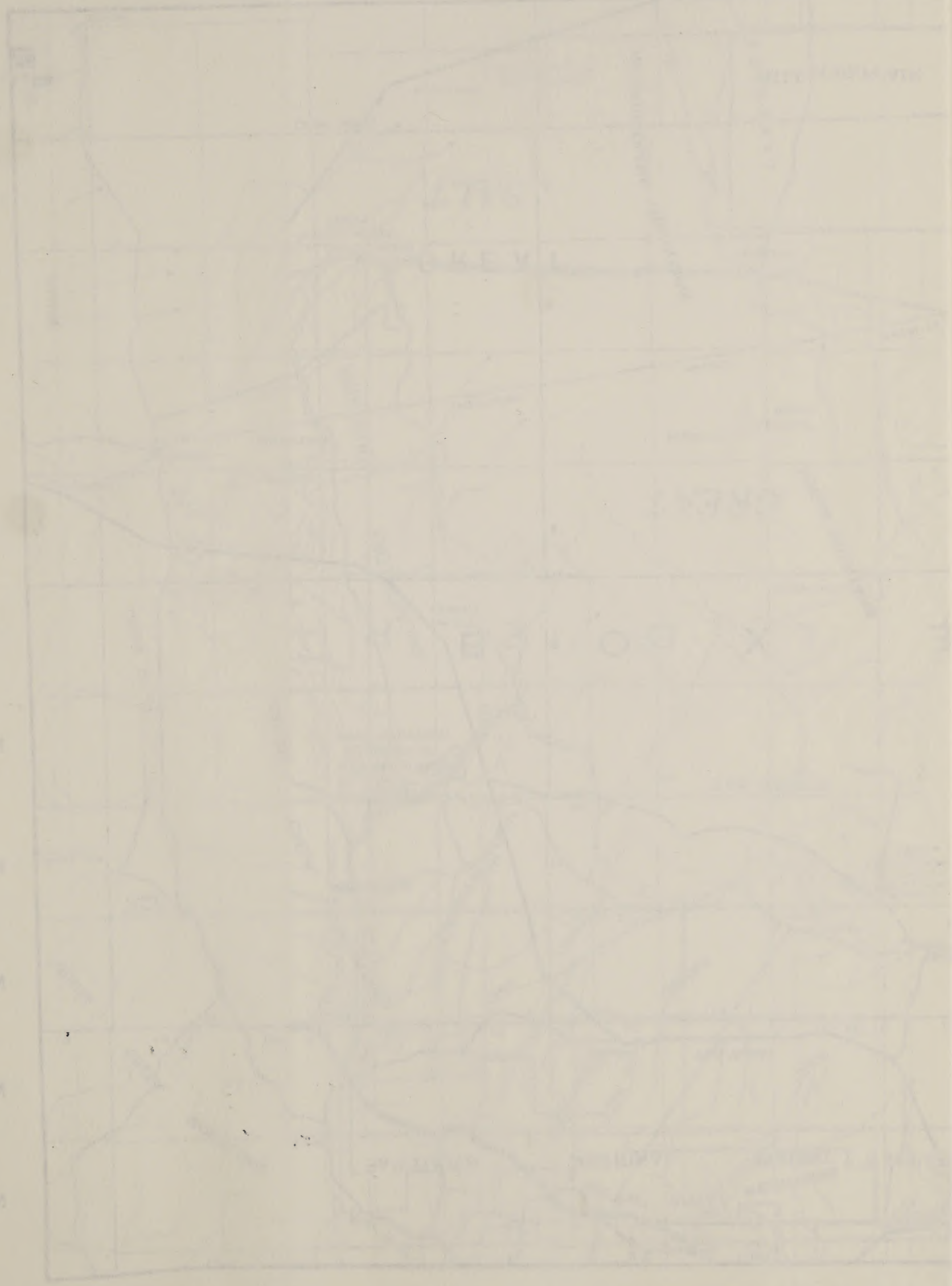


TABLE 2-6
COMPARISON OF THE ALTERNATIVES

Issue	Allocation	Unit of Measure	Alternative 1	Alternative 2	Alternative 3	Alternative 4
1. Landownership Conflicts						
Ownership	Retention Category[a]	Acres Fed. Surface	1,011,794	1,006,819	1,011,794	1,000,197
Adjustments	Disposal Category[b]	Acres Fed. Surface	0	4,975	0	11,597
Access						
Physical	Construct Access	Miles of Fed. Surface	0	8	0	8
Legal	Obtain Easements	Miles of Private Surface	0	10	0	10
2. Vegetation Management						
Forage Allocation						
Livestock	Initial use	AUMs	37,793	45,704	43,855	51,260
Wildlife	Initial use	AUMs	16,536	16,536	18,672	14,374
Changes in Season	Allotments	Number	0	17	24	0
Range/Habitat/ Watershed Improvements	Chain or Burn & Seed	Acres	0	c	0	15,900
	Burn & Seed	Acres	0		1,200	0
	Burn		0		1,100	0
	Interseed & Burn	Acres	0		0	2,300
	Plow & Seed				200	
	Spray	Acres	0		0	14,543
	Spray & Seed	Acres	0		0	640
	Other Chemical (Teb.)		0		2,000	0
	Commercial Harvest	Acres	0		4,500	9,900
	Fence/Riparian Fence	Miles	0		2/15	78/0
	Spring Fencing	Number	0		124	0
	Wells	Number	0		0	2

a Includes lands suitable for exchange and R&PP conveyances.
b Includes lands suitable for all forms of disposal.
c See policy for rangeland improvements under Description of Alternative 2.

TABLE 2-6 (continued)

Issue	Allocation	Unit of Measure	Alternative 1	Alternative 2	Alternative 3	Alternative 4
	Springs	Number	0		0	2
	Pipelines	Miles	0		0	59
	Guzzlers	Number	0		38	1
	In-stream Structures	Number	0		215	0
	Reservoirs	Number	0		8	18
	Retention Berm	Acres	0		250	0
3. Mineral Development						
Locatable Minerals	Withdrawn from entry	Acres	6,840	7,820	7,820	6,840
	Available for entry	Acres	1,026,516	1,019,696	1,019,696	1,026,516
Fluid Mineral Leasing	Category 1 - Open	Acres	928,563	725,764	714,544	998,599
	Category 2 - Open w/Spec. Stips	Acres	52,730	288,065	280,180	16,500
	Category 3 - No Surface Occup.	Acres	3,520	6,380	23,595	3,220
	Category 4 -Closed	Acres	33,506	0	0	0
4. Off-road Vehicle Use	Open	Acres	1,011,794	983,174	630,548	1,010,784
	Limited	Acres	0	28,550	379,946	910
	Closed	Acres	0	70	1,300	70

TABLE 2-7
SUMMARY OF ACTIONS AND ENVIRONMENTAL CONSEQUENCES

	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
Lands	No effects.	No effects.	No effects.	No effects.
Minerals	No effects.	No significant effects.	No significant effects.	No effects.
Range Resources	No land disposals proposed.	Grazing management efficiency would improve through disposal of 5 isolated parcels totalling 1,259 acres on 5 allotments. Ida-Ute Allotment would be eliminated.	No land disposals proposed.	Grazing management efficiency would improve through disposal of 20 isolated parcels totalling 6,575 acres on 10 allotments. Six small allotments would be eliminated.
	No improvements proposed.	No improvements proposed.	Burning of 1,100 acres on 6 allotments, burning and seeding of 1,200 acres on 1 allotment, harvesting of 4,500 acres of pinyon/juniper on 4 allotments, plowing and seeding 200 acres on 2 allotments, chemical treatment of 2,000 acres on 3 allotments and 2 miles of fence on 1 allotment would improve livestock forage conditions on 9,000 acres.	Chaining or burning and seeding 15,900 acres on 11 allotments, interseeding and burning 2,300 acres on 3 allotments, chemical treatment of 14,543 acres on 10 allotments and harvesting 9,900 acres of pinyon/juniper on 6 allotments would improve livestock forage condition on 43,283 acres. Construction or development of 78 miles of fence on 9 allotments, 2 wells on 2 allotments, 2 springs on 1 allotment, 1 livestock guzzler on 1 allotment, 59 miles of pipeline on 11 allotments, and 18 resevoirs on 4 allotments would improve livestock distribution and forage condition.
	No new access.	14 miles of new access on 3 allotments would facitate livestock management.	No new access.	Same as Alternative 2.
	Livestock would be authorized 37,793 AUMs (same as past 5 years licensed use which is	Livestock would be authorized 45,704 AUMs (100% of active preference), wildlife would	Livestock would be authorized 43,855 AUMs (96% of active preference), wildlife would	Livestock would be authorized 51,260 AUMs (112% of active preference to attain total prefer-

TABLE 2-7 (continued)

	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
	81% of active preference), wildlife would be authorized 16,536 AUMs (100% of optimum) level) for a total forage authorization of 54,329 AUMs.	be authorized 16,536 AUMs (100% of optimum level) for a total forage authorization of 62,240 AUMs.	be authorized 18,672 AUMs (13% increase to maintain deer levels and attain long-term objective levels for elk, antelope and bighorn sheep) for a total forage authorization of 62,527 AUMs.	ence or higher), wildlife would be authorized 14,374 AUMs (87% of optimum level) for a total forage authorization of 65,634 AUMs.
	Current levels of livestock use (i.e. average licensed use) would continue.	Livestock would graze at active preference levels (7,911 AUMs or 21% above current use).	Livestock would graze at 6,062 AUMs (16%) above present use or 1,849 AUMs (4%) below active preference.	Livestock would graze at 13,467 AUMs (36%) above present use or 5,556 AUMs (12%) above active preference.
	Vegetative seral stage would change from middle to late (up) on 435,656 acres in 24 allotments, and would remain static on 215,237 acres in 23 allotments. Seral stage would not decline on any allotment.	Vegetative seral stage would would not change.	Vegetative seral stage would would change from middle to late on 6,823 acres on 1 allotment, would remain static on 391,328 acres in 35 allotments, and would change from late to middle (down) on 204,517 acres in 11 allotments.	Vegetative seral stage would would change from middle to late on 10,813 acres on 4 allotments, would remain static on 312,382 acres in 17 allotments, and would change from late to middle on 248,718 acres in 26 allotments.
	No changes in season-of-use would reduce livestock forage condition on 15 allotments.	Season-of-use would change on 17 allotments, improving livestock forage condition.	Season-of-use would change on 24 allotments. On 18 of these, livestock forage condition would improve.	Same as Alternative 1.
	ORV use could damage vegetation, roads and trails (wet weather), disturb livestock during critical periods, and damage rangeland improvements on all public land.	Effects of ORV use on areas designated open would be the same as Alternative 1. On areas limited or closed to ORVs, impacts would be reduced or eliminated.	Same as Alternative 2.	Same as Alternative 2.
Air, Soils, and Watershed	Mineral exploration and development activities would cause an unquantified amount	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.

TABLE 2-7 (continued)

	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
Air, Soils, and Watershed (continued)	of erosion and loss of soil in areas not withdrawn from entry or in Categories 3 or 4 for fluid mineral leasing.			
	Localized erosion would increase on 15 spring allotments due to a continuation of early spring grazing.	Soil stabilization would improve on 9 spring allotments where season-of-use adjustments would reduce livestock grazing during critical plant-growth periods.	Soil stabilization would improve on 18 spring allotments where season-of-use adjustments would reduce livestock grazing during critical plant-growth periods.	Same as Alternative 1.
	Grazing at 7,911 AUMs below proper use would improve vegetative cover and reduce soil erosion.	Erosion rates would remain static.	Erosion rates would remain static.	Grazing at 3,394 AUMs below proper use would reduce vegetative cover and increase soil erosion.
	No improvements proposed.	No improvements proposed	The effects of 9,250 acres of treatments identified above under range resources would increase erosion for 1 to 5 years and reduce erosion for for the remaining life of treatments.	The effects of 43,283 acres of treatments identified above under range resources would increase erosion for 1 to 5 years and reduce erosion for the remaining life of the treatments.
			Fencing of 15 miles of riparian/aquatic stream habitat and 124 spring sources would reduce erosion and improve water quality.	Fencing and water developments identified above under range resources would improve livestock distribution which improves forage condition and results in reduced erosion.
	ORV use would cause soil compaction and destroy vegetation, increasing erosion and reducing watershed values.	Effects on watershed values from ORV use in areas designated open would be the same as Alternative 1. On areas limited or closed to ORV use,	Same as Alternative 2.	Same as Alternative 2.

TABLE 2-7 (continued)

	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
Air, Soils and Watershed (continued)		impacts would be reduced or eliminated.		
	Erosion would continue unabated on 1,330 acres in 5 critical or severe areas.	Same as Alternative 1.	Land treatments would improve erosion conditions on 600 acres in one area of critical erosion. Erosion would continue unabated on 730 acres in 4 areas of critical and severe erosion.	Same as Alternative 1.
	The lack of a formal municipal watershed management plan on Donner and Bettridge Creeks could jeopardize water quality.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
Wildlife Habitat	No effects on wildlife habitat.	Public wildlife habitat would be lost on 4,975 acres on 32 isolated parcels.	No effects on wildlife habitat.	Public wildlife habitat would be lost on 11,597 acres on 51 isolated parcels.
	Mineral exploration and development on about 10,000 acres in 3 areas would periodically disturb wildlife.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.
	No effects on critical habitat.	980 acres of critical habitat would be withdrawn to protect the threatened Lahontan cutthroat trout.	Same as Alternative 2.	No effects on critical habitat.
	Existing categories for fluid mineral leasing would	Categories for fluid mineral leasing would protect 294,445	Categories for fluid mineral leasing would protect 303,775	Categories for fluid mineral leasing would protect 19,720 acres

TABLE 2-7 (continued)

	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
Wildlife Habitat (continued)	protect 89,756 acres of crucial wildlife habitat and leave 266,645 acres where wildlife disturbance could occur, including 980 acres of critical habitat.	acres of crucial and critical wildlife habitat and leave 725,694 acres where wildlife disturbance could occur.	acres of crucial and critical wildlife habitat and leave 714,544 acres where wildlife disturbance could occur.	of crucial and critical wildlife habitat and leave 998,599 acres where wildlife disturbance could occur.
	Grazing at the levels identified above under range resources would increase vegetation and improve wildlife habitat.	Grazing at the levels identified above under range resources would continue the existing condition of wildlife habitat.	Grazing at the levels identified above under range resources would maintain deer levels and allow reintroductions of elk and bighorn sheep and an increase in antelope numbers. Habitat conditions would not change.	Grazing at the levels identified above under range resources would reduce wildlife use while increasing livestock use. Wildlife habitat conditions would decline.
	Continuing early spring grazing on 21 allotments would improve habitat for sage grouse and deer winter range, while decreasing habitat conditions for other wildlife species.	Reduced early spring grazing on 12 allotments would improve habitat for most wildlife species, while decreasing habitat conditions for sage grouse and deer winter range.	Reduced early spring grazing on 18 allotments would improve habitat for most wildlife species, while decreasing habitat conditions for sage grouse and deer winter range.	Same as Alternative 1.
	No improvements proposed.	No improvements proposed.	The effects of 9,250 acres of treatments identified above under range resources would affect wildlife habitat as follows: habitat on 7,800 acres would improve, the habitat values on 1,200 acres would be lost, treatment on 250 acres would not affect habitat conditions.	The effects of 43,283 acres of treatments identified above under range resources would affect wildlife habiat in varying degrees, depending upon design, size and exact treatment locations.
			Fencing 2 miles on 1 allotment, 15 miles of riparian/	The effects of improvements identified above under range resources

TABLE 2-7 (continued)

	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
Wildlife Habitat (continued)			aquatic habitat on 9 streams in 5 allotments, and 124 springs on 24 allotments; constructing 8 reservoirs on 2 allotments, 38 guzzlers on 14 allotments, and 215 in-stream structures on 6 streams would improve wildlife habitat.	would improve livestock distribution which would improve habitat conditions.
	ORV use would cause wildlife disturbance and damage on 116,220 acres of critical and crucial wildlife habitat.	ORV use would cause wildlife disturbance and damage on 87,600 acres of critical and crucial wildlife habitat. On 28,620 acres designated limited or closed to ORV use, crucial and critical habitat would be protected.	116,220 acres designated as limited or closed to ORV use would protect all crucial and critical wildlife habitat.	ORV use would cause wildlife disturbance and damage on 115,240 acres of crucial wildlife habitat. On 980 acres designated limited or closed to ORV use, critical habitat would be protected.
Recreation	No new access proposed.	18 miles of new access would improve recreation opportunities in 3 areas.	No new access proposed.	Same as Alternative 2.
	All public land would be undesignated for ORV use and available for recreational uses.	ORV use would be limited on 28,550 acres and closed on 70 acres.	ORV use would be limited on 379,946 acres and closed on 1,300 acres	ORV use would be limited on 910 acres and closed on 70 acres.
	The reintroduction of bighorn sheep on the Pilot Mountains would provide hunting opportunities.	The reintroduction of bighorn in the Pilot Mountains and a small reintroduction of elk into the Grouse Creek Mountains would provide hunting opportunity.	Hunting and fishing opportunities would be increased by reintroduction of elk and bighorn, improving 200 acres of upland bird and waterfowl habitat, fencing riparian habitat on 9 streams, and installing 215 in-stream structures.	No effect on hunting or fishing.

TABLE 2-7 (continued)

	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
Visual Resources	No effects on visual resources.	No effects on visual resources.	Land treatments on 9,250 acres would cause visible change in the short and long term.	Land treatments on 43,283 acres would cause visible change in the short and long term.
Cultural Resources	ORV use would be undesignated, which would allow the possibility of cultural resource disturbance on all public land.	Effects on cultural resources from ORV use in areas designated open would be the same as Alternative 1. On areas limited or closed to ORV use, impacts would be reduced or eliminated.	Same as Alternative 2.	Same as Alternative 2.
Forest Resources	No effects on forest resources.	No effects on forest resources	Harvest of 4,500 acres of pinyon/juniper on 4 allotments would remove this resource for several decades.	Harvest of 9,900 acres of pinyon/juniper on 6 allotments would remove this resource for several decades.
Fire Management	Grazing below active preference on 20 allotments would increase vegetation and build up fire fuels, increasing potential for fires.	No effect of fire management.	No effect on fire management.	No effect on fire management.
	Hazards of man-caused fire would continue on 1,011,794 acres presently undesignated for ORV use.	Hazards of man-cause fire would continue on 983,174 acres open to ORV use, but would be reduced on 28,620 acres designated as limited or closed.	Hazards of man-caused fire would continue on 630,548 acres open to ORV use, but would be reduced on 381,246 acres designated as limited or closed.	Hazards of man-caused fires would continue on 1,010,784 acres open to ORV use, but would be reduced on 980 acres designated as limited or closed.
Socioeconomics	Current livestock grazing levels would not change ranch income but would reduce ranch value through the reduction of active preference.	Livestock grazing at active preference would not change ranch value. Cattle operations now below this level would have short-term increased costs in achieving active preference. Small-dependency ewe-lamb operations which have taken substantial nonuse would increase income.	All operations presently operating at active preference would experience small capital value losses. Hunter expenditures would increase as a result of hunting increased and reintroduced big game.	The average ranch in all categories would increase in capital values.

Chapter 3 -
Affected Environment

Chapter 3
Affected Environment

Introduction

This chapter describes BLM-administered lands and resources as they are known to exist now, with emphasis on the environment that would be affected by this RMP. The information in this chapter is summarized from more detailed information available at the Salt Lake District Office. For most resources, more detailed data is found in the Box Elder Management Situation Analysis (USDI, BLM, 1984b).

Lands

Ownership

Landownership in the Box Elder Planning Area consists of the following acreages (also see Figure C inserted in the back of this document):

Private	1,979,537
Bureau of Land Management	1,011,794
Department of Defense	211,722
State of Utah	190,203
Forest Service	100,834
Fish and Wildlife Service	64,926
Bureau of Reclamation	12,370
National Park Service	2,164
Indian Reservation	500

The planning area can be divided into the following four areas, with distinct characteristics of landownership and land management.

(1) **Southern Box Elder County west of the Great Salt Lake.** Approximately 500,000 acres in southern Box Elder County have remained as a block of Federal land interrupted only by State sections and a few isolated private land holdings. A large segment of the area has been withdrawn since 1940 by the Department of Defense. Most of the area is either mud flats or highly saline desert land. The Lakeside, Newfoundland, Silver Island, Pigeon, and Pilot Mountains are notable exceptions. These mountains contain resource values that require a coordinated management. Livestock grazing on the northern portion of the Lakeside Mountains is managed as part of the adjacent Tooele Planning Area.

(2) **Eastern Box Elder County from R. 7W. eastward.** Comprising about one-third of the county, this area is predominately private land. Settlement commenced with the arrival of the Mormon pioneers in the late 1840's. By the late 1930's, homesteading and State selections had resulted in non-Federal ownership of more than 90 percent of the land. About 1 percent of the area is public land, and about 8 percent of the area is private surface with underlying Federal minerals. One significant block of public land is the 3,840 acres adjacent to the Public Shooting Grounds and managed as the Connor Allotment for livestock grazing.

(3) **Southwestern and Central Box Elder County.** In 1869 the Central Pacific Railroad Company constructed a railroad through western Box Elder County. As a result of legislation enacted in 1862, the United States granted the company all odd-numbered sections of Federal land for 20 miles outward on each side of the track. The resulting checkerboard landownership pattern of Federal, State, and private lands remains today, particularly south and east of the railroad grade. Some land has been blocked into single ownership through purchases and exchanges, primarily on the slopes, foothills, benchlands, and valleys near the Raft River and Grouse Creek Mountains.

(4) **Northwestern Box Elder County.** As a result of various disposal authorities, the prime agricultural lands in Box Elder County north and west of the Railroad Grant Act lands have been patented to private and State entities. The marginal to submarginal grazing lands and some high elevation areas remain under BLM management. The resulting land pattern is one of numerous blocks of interspersed public and private lands.

Access to Public Lands

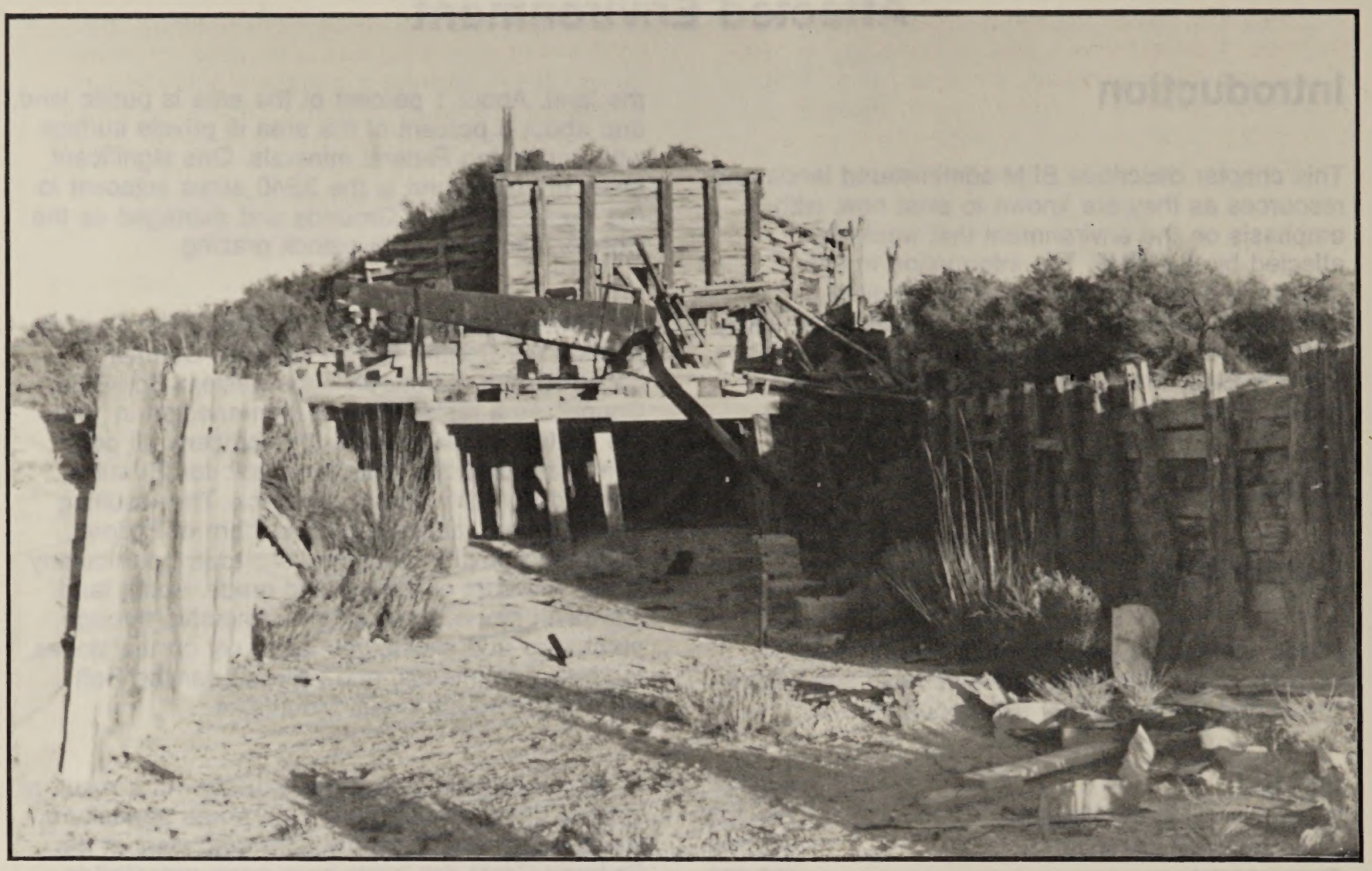
As a result of the intermingled landownership pattern, BLM and the public do not have legal access to some public lands in the planning area. Physical access is a problem in mountainous and mud flat areas. Problems exist in the areas of Grouse Creek, Park Valley, Pilot Valley, Snowville, the Newfoundland Mountains, and all mud flats.

Minerals

Locatable Minerals

Historical mining areas for locatable minerals include the Lucin, Ashbrook, Promontory, and Park Valley districts. Several other mining districts of lesser importance are located throughout the county. Over 1,500 mining claims have been staked, predominantly in the mining districts.

With ores of copper, lead, silver, zinc, and iron and minor amounts of gold and molybdenum, the Lucin district in the Pilot range has been the most important historically, and continues to be explored.



Former site of Civilian Conservation Corps Camp near Rabbit Springs.

In the Ashbrook District, silver has been the most important commodity. Exploration is now limited primarily to patented lands. The Park Valley district in the Raft River Range was once an important gold producer. Exploration is now taking place on private and Forest Service lands. Most of the other districts are presently inactive, or limited to casual exploration use.

In addition, building stone found in the Kimball Creek drainage northeast of Grouse Creek was determined in federal court to be an uncommon variety and therefore locatable under Public Law 167 (1955) and the Building Stone Placer Act of 1892.

Leasable Minerals

Oil and Gas: While most of Box Elder County is classified as prospectively valuable for oil and gas, the petroleum potential is estimated to be low, as shown in the favorability rating study at the Salt Lake District Office. BLM records indicate the existence of 237 oil and gas leases covering approximately 464,000 acres. More than 100 wells have been drilled for oil and gas throughout the county. Limited amounts of oil were once produced at Rozel Point, and the only commercial production of gas occurred at Brigham City. Rozel Point now appears to be the only center of exploration interest in the county.

Coal: Coal is located in the Goose Creek area, with a minor component in the Grouse Creek valley. The coal is not considered suitable for commercial development because of its low quality and thin seams (Doelling and Graham, 1972).

Geothermal: Several areas of Box Elder County are considered prospectively valuable for geothermal resources. The majority of the hot and warm springs are concentrated in the Wasatch Geothermal Area, which extends from north to south along the county's eastern border. Three other springs with higher than normal temperatures occur outside the Wasatch area. These are: Warm Spring, located on the east side of the Dove Creek Mountains; Etna Hot Spring, located about 2 miles northwest of Etna; and Coyote Spring, located north of the Wildcat Hills.

Other Leasable Minerals: Valuable concentrations of salts (sodium and potassium) are known to exist in the Great Salt Lake, the mud flat areas around the lake, and in the mud and sediments of the Great Salt Lake Desert. Although large areas are classified as prospectively valuable for phosphate,

only very low grade material has been found and sampled. A permit was issued to Bioic Inc. in 1983 to prospect for potash near Immigrant Pass for 2 years. The permit also allows for mining on a full section if prospecting indicates that economical quantities of potash are located at the site.

Salable Minerals

Sand and Gravel: Sand and gravel deposits are widespread throughout the county and are used by railroads, county and State governments, private contractors, and various other small users. The primary use of the material is for road construction and maintenance.

Building stone found in the county includes quartzites in the Raft River and Grouse Creek Mountains, white marble in the Newfoundland Mountains, and sandstones and tuffs in the Grouse Creek Mountains. Some of the ornamental stone in Box Elder County is classified as a locatable mineral (see *Locatable Minerals*).

Range Resources

Vegetation

Major Vegetation Zones

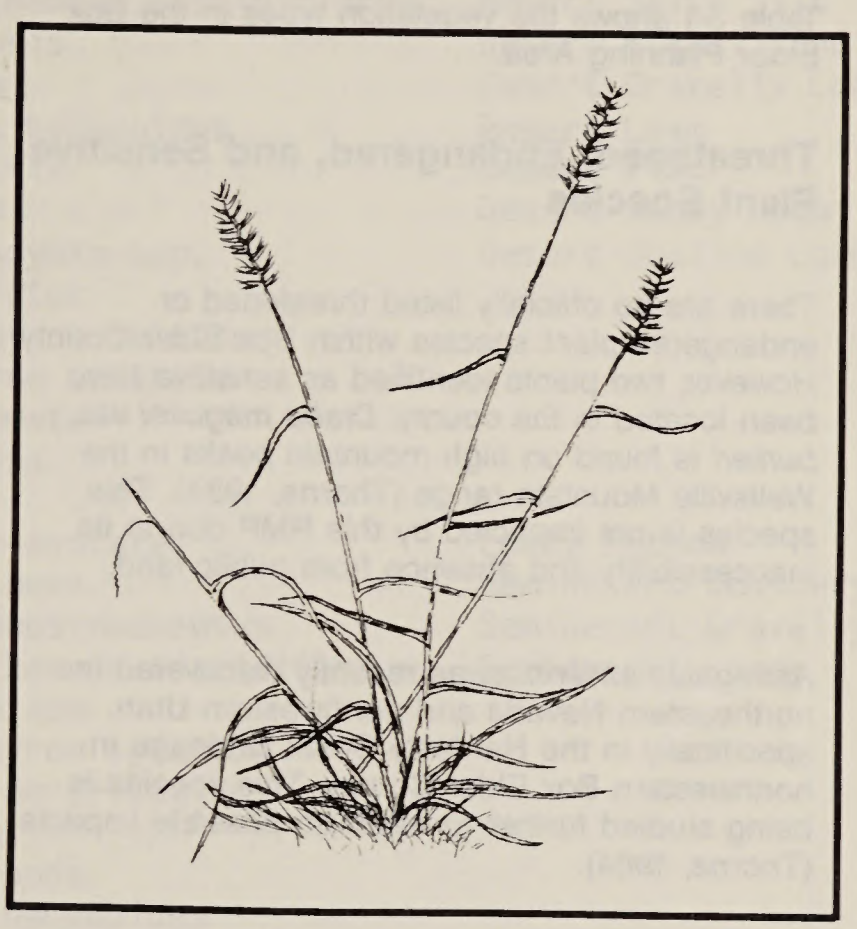
The following seven vegetation zones are found within the planning area: greasewood, desert shrub/saltbush, sagebrush, pinyon/juniper woodland, mountain shrub, conifer aspen, and riparian habitat. These zones can be divided into vegetative types.

The barren type is generally unsuitable for livestock grazing; however, most of the barren type in the county is found outside the grazing allotments. The greasewood type occurs at elevations directly above the barren type and in areas with a high water table.

Desert shrub/saltbush is one of the most common vegetative types in Box Elder County. Removal of vegetative cover within this type can sometimes result in invasion by halogeton, which is toxic to livestock. Cheatgrass is another invader and can dominate large areas.

The sagebrush type includes both big and black sagebrush. Big sagebrush occurs on benches and in drainages with deep soils. Past overutilization or incorrect utilization due to improper season-of-use has allowed these sites to deteriorate and big sage to dominate in some areas. Consequently, the productivity of these areas is reduced; however, these sites often have the highest potential for vegetative manipulation. Black sage is generally found on exposed ridge tops with coarse, shallow soils. These sites are generally in better condition; however, treatment potential is low.

Juniper without the pinyon association comprises the majority of the pinyon/ juniper type in the planning area. The juniper type has significantly invaded the sagebrush type; however, these invaded areas have the best treatment potential in the county. Pinyon pine is limited to three general areas: Raft River Narrows, Emmigrant Pass, and the Lucin/Pilot Mountain Range.



Although the mountain shrub type is limited in total area, it is the most productive vegetative type in the county. This type is significant, as it receives summer grazing use by both wildlife and livestock.

The conifer/aspen type is limited to north-facing slopes of high mountain canyons, which are very steep and generally unsuitable for livestock use. The most important use of this type is wildlife cover.

The riparian habitat type occupies a relatively small but important part of the county. Sixteen drainages have been identified to have riparian characteristics. Springs and seeps also have small amounts of associated riparian habitat. The riparian habitat type is generally in poor condition due to heavy use by livestock, wildlife, and recreationists.

The perennial grass type dominated by species such as bluebunch wheatgrass, Indian ricegrass, and needle-and-thread grass is found in several areas within the sagebrush, pinyon/juniper, and mountain shrub types.

Annual plants such as cheatgrass, halogeton, peppergrass, and Russian thistle comprise the annual type. This type has invaded disturbed areas primarily in the desert shrub/saltbush type.

Croplands in the county are found on private land, producing hay and small grains primarily for consumption by livestock.

Table 3-1 shows the vegetation types in the Box Elder Planning Area.

Threatened, Endangered, and Sensitive Plant Species

There are no officially listed threatened or endangered plant species within Box Elder County. However, two plants identified as sensitive have been located in the county. *Draba maguirei* var. *burkeri* is found on high mountain peaks in the Wellsville Mountain range (Thorne, 1984). This species is not impacted by this RMP due to its inaccessibility and absence from public land.

*Astragalus anserinus*was recently discovered in northeastern Nevada and northwestern Utah, specifically in the Hardesty Creek Drainage in northwestern Box Elder County. This species is being studied further to establish possible impacts (Thorne, 1984).

Poisonous Plants and Noxious Weeds

The following poisonous plants may be a threat to livestock on poor condition ranges where they may sometimes be eaten in toxic quantities:

Death camas (*Zigadenus paniculatus*)

Mile vetch (*Astragalus spp.*)

Larkspur (*Delphinim spp.*)

Lupin (Lupinus spp.)

Halogeton (*Halogeton glomeratus*)

Horsebrush (*Tetradymia spp.*)

Poison hemlock (*Conium maculatum*)
(U. S. Department of Agriculture [USDA], 1980).

Noxious weed control is the responsibility of Box Elder County. BLM proposes to continue to work with the county in efforts to resolve the noxious weed problem. The poisonous plant specialist from Utah State University should be involved in these cooperative efforts.

Ecological Development, Trend, and Forage Production

Table 3-2 shows the ecological development of vegetation on public lands in the Box Elder Planning Area. The four stages of ecological development are early, middle, late and climax.

The stage of ecological development may not always correspond to a site's condition for grazing. For example, a site at higher ecological stages, containing 51 to 75 percent of the plants which the site is potentially able to produce, may contain plants which are not desirable livestock or big game forage.

No information is currently available about the trend of vegetation in Box Elder County. Trend density plots were established in 43 grazing allotments in 1981, 1982, and 1983. Data will be collected from these plots beginning in 1985 when at least two growing periods will have occurred in the study areas.

Forage production data is not available for Box Elder Planning Area. Observations of the rangeland and study data collected to date generally indicate that the area is not being overgrazed. Poor livestock distribution may be causing overgrazing in highly localized areas such as around water sources and in swales.

Vegetation utilization studies have been conducted and limited data is available for most allotments. Utilization data will be used to support trend information, actual use records, and climate analysis in determining whether livestock adjustments are needed. No adjustments will be made until sufficient information is available.

Existing monitoring studies on allotments are shown in Appendix 9.

Table 3-1 Vegetation Types, Vegetation, and Ecological Sites

Type/Subtype	Common Plant Species Common Name/Scientific Name	Ecological Sites
Greasewood 143,703 acres	Greasewood / Sarcobatus vermiculatus Bud Sagebrush / Artemisia spinescens Shadscale / Atriplex confertifolia Saltgrass / Distichlis stricta Halogeton / Halogeton glomeratus Gray Molly / Kochia americana Russian Thistle / Salsola kali Alkali Sacaton / Sporobolus airoides	Alkali Flat Desert Oolitic Dunes Alkali Loam
Desert Shrub/ Saltbush 298,117 acres	Shadscale / Atriplex confertifolia Nuttall's Saltbush / Atriplex nuttalii Little Rabbitbrush / Chrysothamnus viscidiflorus Mormon Tea / Ephedra nevadensis Winterfat /Ceratoides lanata Indian Ricegrass / Oryzopsis hymenoides Squirreltail / Sitanion hystrix Cheatgrass / Bromus tectorum Spineless Horsebrush / Tetradymia spp. Halogeton / Halogeton glomeratus Bluebunch Wheatgrass / Agropyron spicatum Crested Wheatgrass / Agropyron cristatum Needle-and-Thread / Stipa comata Salina Wildrye / Elymus salina	Alkali Bottom Desert Salt Flat Desert Salty Silt Desert Alkali Sand Desert Gravelly Loam Desert Loam Desert Flat Desert Sandy Loam Desert Shallow Loam
Big Sage 432,961 acres	Big Sagebrush / Artemisia tridentata Black Sagebrush / Artemisia nova Big Rabbitbrush / Chrysothamnus nauseosus Little Rabbitbrush / Chrysothamnus viscidiflorus Bitterbrush / Purshia tridentata Bluebunch Wheatgrass / Agropyron spicatum Crested Wheatgrass / Agropyron cristatum Cheatgrass / Bromus tectorum Sandberg Bluegrass / Poa secunda Indian Ricgrass / Oryzopsis hymenoides Squirreltail / Sitanion hystrix Needle-and-Thread / Stipa comata Salina Wildrye / Elymus salina Nevada Bluegrass / Poa nevadensis Mutton Grass / Poa fendleriana Spike Fescue / Leucopoa kungii Letterman Needlegrass / Stipa lettermanii	Loamy Bottom Semidesert Bouldery Loam Semidesert Gravelly Loam Semidesert Loam
Pinyon / Juniper 152,679 acres	Utah Juniper / Juniperus osteosperma Pinyon Pine / Pinus monophylla Serviceberry / Amelanchier alnifolia Bitterbrush / Purshia tridentata Cliffrose / Cowania mexicana Big Sagebrush / Artemisia tridentata	Semidesert Shallow Loam (J) Semidesert Shallow Hardpan (JP) Semidesert Stony Sand (J)

Type/Subtype	Common Plant Species Common Name/Scientific Name	Ecological Sites
Pinyon / Juniper (continued)	Black Sagebrush / Artemisia nova Bluebunch Wheatgrass / Agropyron spicatum Indian Ricegrass / Oryzopsis hymenoides Crested Wheatgrass / Agropyron cristatum Squirreltail / Sitanion hystrix Needle-and-Thread / Stipa comata Salina Wildrye / Elymus salina	Upland Shallow Loam (J)
Mountain Shrub 81,445 acres	Mountain Maple / Acer glabrum Serviceberry / Amelanchier alnifolia Curlleaf Mahogany / Cercocarpus ledifolius Chokecherry / Prunus virginiana Bitterbrush / Purshia tridentata Snowberry / Symphoricarpos oreophilus Big Sagebrush / Artemisia tridentata Bluebunch Wheatgrass / Agropyron spicatum Kentucky Bluegrass / Poa pratensis Letterman Needlegrass / Stipa lettermanii Nevada Bluegrass / Poa nevadensis	Semidesert Very Shallow Loam Mountain Shallow Loam
Conifer / Aspen 1,839 acres	Aspen / Populus tremuloides Douglas Fir / Pseudotsuga menziesii Englemann Spruce / Picea engelmannii White Fir / Abies concolor Alpine Fir / Abies lasiocarpa Columbine / Aquilegia spp. Larkspur / Delphinium spp. Geranium / Geranium fremontii Bluebunch Wheatgrass / Agropyron spicatum Kentucky Bluegrass / Poa pratensis	High Mountain Loam Mountain Aspen
Riparian Habitat 240 acres	Bentgrass / Agrostis spp. Brome Grass / Bromus spp. Sedge / Carex spp. Rush / Juncus spp. Muhly Grass / Muhlenbergia spp. Bluegrass / Poa spp. Yarrow / Achillea millefolium Aster / Aster spp. Indian Paintbrush / Castilleja spp. Penstemon / Penstemon spp. Buttercup / Ranunculus spp.	
Unclassified 98,988 acres	Rock outcrop Pits Playas Badlands	

TABLE 3-2
Ecological Development of the Allotments

Allot. Number	Allotment Name	Total Acres	Public Land Acres	% of Public Land	Climax	% of Public Land	Late Seral	% of Public Land	Middle Seral	% of Public Land	Early Seral	% of Public Land
5034	Goose Creek	20,638	16,397	79			4,629	28	10,322	63	1,446	9
5035	Vipont	1,256	635	51			287	45	348	55		
5036	Junction Creek	7,363	6,721	91	470	7	4,335	64	1,916	29		
5037	Raft River	2,539	2,539	100	1,038	41	237	9	1,264	50		
5038	Yost Pasture	4,144	3,853	93	1,314	34	1,531	40	1,008	26		
5039	Janey Spring	1,986	1,892	95			1,321	70	571	30		
5040	Hardesty Creek	19,238	12,213	63	322	3	4,280	35	7,081	58	530	4
5041	Grouse Creek	37,698	21,128	56			10,813	51	10,315	49		
5042	Dry Canyon	13,810	7,646	55			5,105	67	2,541	33		
5043	Lynn	4,170	3,119	75	60	2	1,124	36	1,340	43	595	19
5044	Kimball Creek	8,960	6,696	75			3,295	49	2,238	34	1,163	17
5045	Death Creek	12,987	4,890	38			2,749	56	1,630	33	511	11
5046	Buckskin	8,591	4,519	53			550	12	2,065	46	1,904	42
5047	Red Butte	28,240	22,439	79			3,205	13	17,969	80	1,265	6
5048	Ingham	8,286	6,419	77	226	4	2,362	37	3,041	47	790	12
5049	Muddy Creek	17,503	4,546	26	127	3	2,396	52	2,023	45		
5050	Ingham Pass	3,442	1,246	36	99	8	619	50	528	42		
5051	Dairy Valley	26,403	9,428	36	1,701	18	2,252	24	5,456	58	19	2
5052	Cycle Springs	12,579	5,502	44	686	12	2,188	40	2,398	44	230	4
5053	Rosebud	32,457	20,867	64	779	4	2,608	12	15,593	75	1,887	9
5054	Kilgore	22,043	8,562	39	1,120	13	1,721	20	5,590	65	131	2
5055	White Lakes	72,922	28,234	39	7,563	27	13,915	49	3,872	14	2,884	10
5056	Pine Creek	3,114	1,616	52			14	9	1,602	99		
5057	Owl Springs	33,438	24,924	75	783	3	17,375	70	3,280	13	3,486	14
5058	U & I	33,213	15,823	48	1,353	9	9,773	62	4,577	29	120	.8
5059	Watercress	25,038	20,722	83	6,747	33	11,027	53	2,403	12	545	3
5060	Yost Isolated	NO DATA AVAILABLE										
5062	Lucin/Pilot	223,725	87,568	39	27,657	32	40,266	46	13,039	15	6,606	8
5063	Leppe	NO DATA AVAILABLE										
5064	Warm Springs	13,390	10,993	82			5,802	53	4,461	41	730	7
5065	Newfoundland	51,489	43,234	84	2,609	6	35,376	82	5,033	12	216	.5
5066	Basin L & L	89,468	47,983	54	589	1	42,816	89	4,480	9	98	.2

TABLE 3-2, continued
Ecological Development of the Allotments

Allot. Number	Allotment Name	Total Acres	Public Land Acres	% of Public Land	Climax	% of Public Land	Late Seral	% of Public Land	Middle Seral	% of Public Land	Early Seral	% of Public Land
5067	Young Brothers	32,795	13,514	41	496	4	10,496	78	1,965	15	557	4
5068	Ward	11,494	4,718	41	409	9	3,554	75	710	15	45	.9
5070	Mann	16,519	6,736	41	1,195	18	3,052	45	1,825	27	664	10
5071	Matlin	41,185	27,268	66	6,792	25	14,499	53	4,059	15	1,918	7
5072	Red Dome	32,865	19,186	58	2,447	13	10,167	53	5,291	28	1,281	7
5073	Selman/Goring	37,074	15,669	42			12,506	80	1,949	12	1,214	8
5074	Terrace	40,598	27,129	67	5,785	21	9,025	33	8,925	33	3,394	13
5076	Dove Creek	60,045	31,797	53	813	3	12,490	39	17,859	56	635	2
5077	Peplin	19,532	15,340	79	230	1	11,676	76	3,434	22		
5078	Baker Hills	9,117	7,570	83	402	5	1,965	26	5,203	69		
5079	Black Rock	8,124	4,535	56			3,612	80	880	19	43	.9
5080	Rosette	6,486	1,573	24			471	30	1,102	70		
5081	Hirschi	362	362	100			234	65	128	35		
5082	Shaw Spring	10,586	1,781	17			1,173	66	392	22	216	12
5083	South Kelton	14,159	6,974	49			4,985	71	1,466	21	523	7
5084	Fisher Creek	NO DATA AVAILABLE										
5085	Ten Mile	NO DATA AVAILABLE										
5086	North Kelton	13,401	5,849	44			3,368	58	1,587	27	894	15
5087	Curlew Junction	612	300	49			120	40			180	60
5088	Snowville	COMPLETE DATA UNAVAILABLE										
5090	Salt Wells	NO DATA AVAILABLE										
5091	Rozelle Falts	NO DATA AVAILABLE										
5092	Golden Spike	NO DATA AVAILABLE										
5093	Connor	NO DATA AVAILABLE										
5094	Ida-Ute	NO DATA AVAILABLE										
5095	Naf	NO DATA AVAILABLE										
TOTALS		1,195,114	642,655	53	73,812	11	337,364	52	194,759	29	36,720	6

Suitability

Not all land in the county is suitable for livestock grazing. Range is suitable if livestock can physically graze it without permanently damaging the soil and vegetation. Including nonsuitable ranges in estimates of grazing capacity can lead to overutilization of vegetation and resource damage. BLM will use the criteria outlined in Utah State Office Manual Supplement 4412 to determine suitability for Box Elder Planning Area

Livestock Grazing

Number of Livestock Operations

Presently, 96 operators or livestock companies hold permits to graze livestock on public lands in Box Elder County, representing 5 percent of 1,887 permittees who graze livestock on public lands in the State of Utah. Eighty-two operators hold cattle permits and 10 hold sheep permits. Four additional permits have both cattle and sheep use, and nine of the cattle permits also authorize domestic horse use. These permits total 51,260 AUMs, with 37,590 AUMs average licensed use during the last 5 years. Figure 3-1 compares total preference with active preference and average licensed use in Box Elder Planning Area.

Size and Kind of Livestock Operations

Permits for livestock grazing in Box Elder County range from 6 AUMs to over 4,500 AUMs, with an average of 500 AUMs per permit. All of the current sheep permits are ewe/lamb operations. Lambing generally takes place between March and mid-May, when some herds are still on public lands. Lambs are usually cut from the band and sold when they weigh between 85 and 100 pounds, generally from September through November. Almost all cattle operations are cow/calf. Some operations hold calves over the winter to sell them as yearlings.

Calves are generally born between late February and May. Year-round calving operations utilize public land at various times for this purpose. In other operations calves are sold in the fall at weights of between 250 to 450 pounds.

Level of Management

There are 59 grazing allotments located in the Box Elder Planning Area (see Figure D inserted in the back of this document).

Only Yost Pasture and Muddy Creek Allotments are now managed under AMPs. Yost Pasture is a spring (May and June) allotment with a 4-pasture rest-rotation system. Muddy Creek has three private land pastures and one public land pasture.

Livestock distribution within the remaining allotments has not been managed under grazing systems. Cattle grazing has generally been season long; livestock have been turned into the allotments with no subsequent control of movement other than fencing and some salting practices. Sheep distribution has been more controlled by herding, water hauling, and snow cover.

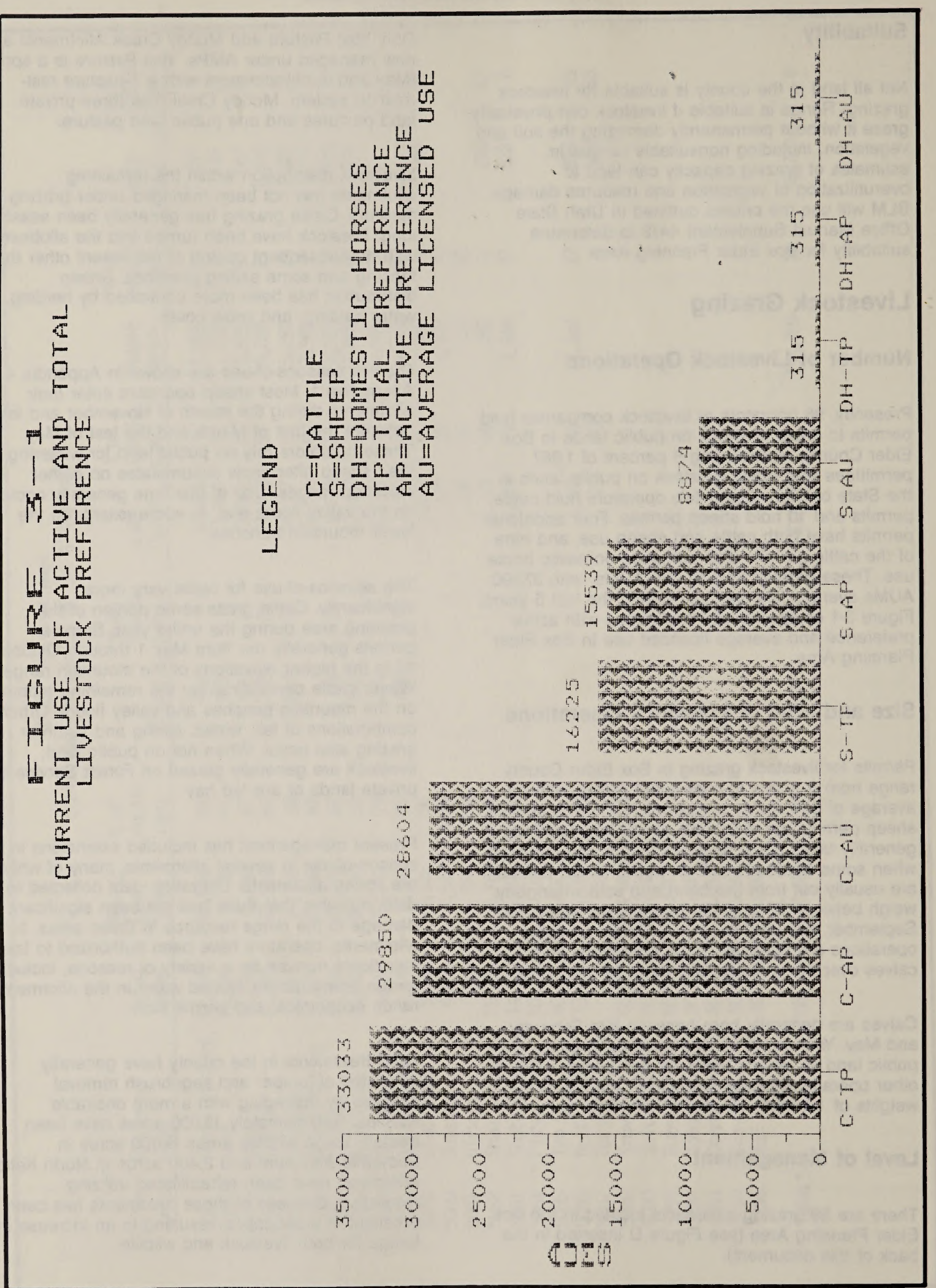
Current seasons-of-use are shown in Appendix 4, Alternative 1. Most sheep operators enter their allotments during the month of November and leave between the first of March and the last of May. These operators rely on public land for wintering their sheep after snow accumulates on higher elevation ranges. Use at this time generally occurs on the valley floors and, to some extent, on the lower mountain benches.

The seasons-of-use for cattle vary more significantly. Cattle graze some portion of the planning area during the entire year. Summer permits generally run from May 1 through October 15 in the higher elevations of the mountain ranges. Winter cattle permits run for the remaining months on the mountain benches and valley floors. Other combinations of fall, winter, spring and summer grazing also occur. When not on public land, livestock are generally grazed on Forest Service or private lands or are fed hay.

Present management has included extensions in season-of-use in several allotments, many of which are spring allotments. Utilization data collected to date indicates that there has not been significant damage to the range resource in these areas. In 30 allotments, operators have been authorized to take significant nonuse for a variety of reasons, including forage unavailability, limited water in the allotment, ranch economics, and permit size.

Land treatments in the county have generally consisted of juniper and sagebrush removal followed by reseeding with a more desirable species. Approximately 15,000 acres have been treated. Large wildfire areas (9,600 acres in Snowville Allotment and 2,400 acres in North Kelton Allotment) have been rehabilitated utilizing reseeding. Success of these treatments has been excellent in most cases, resulting in an increase in forage for both livestock and wildlife.

FIGURE 3-1
CURRENT USE OF ACTIVE AND TOTAL
LIVESTOCK PREFERENCE



Water developments in the area include wells, springs, pipelines, and reservoirs. Livestock control features include fences, cattleguards and corrals.

Air, Soils, and Watershed

Air

All of Box Elder Planning Area is within the attainment category for the National Ambient Air Quality Standards and is classified as Class II under the Prevention of Significant Air Quality Deterioration regulations. Class II air quality allows for moderate, well controlled growth and development. There are presently no Class I areas within or adjacent to the planning area.

Although no air quality monitoring has been done in the area, the area is generally considered to have good air quality and visibility because of limited development, low population, and lack of influence from upwind sources. Periodic impacts from soil particle suspension during windy conditions do occur.

Soils

Two soil surveys have been completed by the Soil Conservation Service (SCS). The first, completed in 1975, covers eastern Box Elder County where only small amounts of scattered public land are found. The second survey, developed in cooperation with BLM and completed in 1983, covers western Box Elder County. It provides specific information on soil characteristics such as texture, depth, slope, salinity, potential ecological condition, and erosion susceptibility.

Soils around the Great Salt Lake are fine textured and clayey with poor drainage qualities. These desert soils have little water erosion susceptibility. Extreme aridity and sparse vegetation cause critical natural wind erosion of these soils (Wilson et al., 1975).

Upslope from the lake, soils contain more sand and silt and annual precipitation is slightly greater. In general, erosion condition is low to moderate, although five grazing allotments have areas with critical to severe erosion conditions (U. S. Department of Agriculture [USDA] SCS, 1983). These are: South Kelton, White Lakes, Lucin-Pilot, Rosebud, and Warm Springs.

South Kelton, White Lakes, and Lucin-Pilot Allotments are primarily in a slight to moderate erosion condition class. Each has some critical erosion area where erosion is concentrated because of runoff in washes when summer thunderstorms occur. Sediments cut from banks and from surface sheet erosion are carried to adjacent flat areas and deposited. No perennial waters are involved.

Like the above three allotments, Rosebud and Warm Springs Allotments generally have slight to moderate erosion condition. Each, however, has an area of severe erosion. In Rosebud Allotment, a juniper-covered hill of about 12 percent slope experiences severe sheet erosion. Vegetation that is understory to the juniper amounts to less than 50 pounds per acre of black sagebrush, rabbitbrush, squirreltail, and cheatgrass. Understory surface is largely ladened with rock fragments (USDA, SCS, 1983).

The vegetation on the area of severe erosion on Warm Springs Allotment is predominantly widely spaced black sagebrush with almost no understory. While surface sheet erosion occurs, the principal expression of erosion is within the Runswick Wash downstream where gully headcutting, sidebranching, and sloughing banks contribute large amounts of sediment when thunderstorms occur.

Both severe erosion sites on Rosebud and Warm Springs Allotments are in a mid-elevation zone where livestock grazing and other surface disturbances are common. No perennial waters are involved. Sediments are deposited within a short distance of the sites from which they were eroded.

Soils of the steeper mountain slopes and ridges are generally shallow and rocky. Precipitation ranges from 10 to 20 inches. Natural geologic erosion is constantly occurring but, according to the recent soil survey, no critical or severe erosion areas are identified.

Watershed

The numerous watersheds of the area produce 16 perennial streams that cross 20 miles of public land (see Figure 3-2). Of these, 14 are classified for agricultural (4) and aquatic wildlife (3-A) use and two as domestic source (1-c) by the State and will continue to be managed to maintain the State water quality standards under these classifications. The watersheds help sustain some of the 208 springs on public land. BLM holds the water rights on all of these waters, as well as numerous intermittent streams. These water rights are adequate to meet the current demands for water on public land. BLM may need to acquire additional rights for future needs and developments. All of the streams and most of the springs are located on mountain flanks, adjacent foothills, or nearby lowlands. Surface water

becomes progressively more limited towards the Great Salt Lake.

Water quality in streams and springs ranges from excellent to fair for existing aquatic life, animal consumption, and irrigation in most upper elevations. Water quality deteriorates, often to a poor condition, in lower areas where water volume decreases (or terminates) while temperature, dissolved solids, and bacteria count increase.

All perennial streams and most of the 208 springs on public land are important watering locations for wildlife and livestock. Many springs have been developed for watering purposes. Usually, this development amounts to installation of a spring box and a watering trough. In some locations a pipeline has been installed to transport water from the spring source area to a distant watering site to improve animal distribution.

The 20 miles of perennial stream on public land are estimated to provide about 240 acres of riparian habitat. Riparian habitat associated with the 208 springs has not been determined, but would range from a few square yards up to several acres per spring.

Donner Creek provides municipal water for Wendover. The city also has water rights on Bettridge Creek but is not presently using them. Donner and Bettridge Creek watersheds also provide water for the threatened Lahonton cutthroat trout. There are no watershed management plans for these areas. Nonthreatened trout varieties are found in the following streams which cross public lands: Raft River; Hardesty, Rock, Birch, Dunn and Fisher Creeks.

Watersheds are important sources of vegetation. Livestock and wildlife utilize vegetation on watersheds within 59 grazing allotments. Watersheds on 15 of the 59 allotments contain public land that is crucial winter range for mule deer. Public lands on watersheds in 44 of the 59 allotments provide habitat for sage grouse in the form of strutting grounds and nesting and brooding areas.

There are an estimated 240 acres of floodplain along the 20 miles of perennial stream on public land. There are no significant structures on these floodplains. Flood hazards are greatest during summer thunderstorms which are of short duration but high intensity. Resulting flash floods can remove large volumes of sediment along stream channels and floodplains in flood-prone areas. Flood hazards also increase during the period of spring snowmelt.

Watershed drainage bottoms serve as access routes in many parts of the planning area. From these, ORVs can follow smaller drainages via jeep trails or open slopes to penetrate more remote mountainous reaches of the planning area.

Watersheds of the Goose Creek, Grouse Creek, and Raft River Mountains provide irrigation water for farmlands in Grouse Creek Valley, Park Valley, and Muddy Creek Valley. Crops include alfalfa, grass hay, and small grains grown for livestock feed. Irrigated pasture is also common. There are no prime farmlands on public land.

Wildlife Habitat

A total of 235 animal species are thought to inhabit Box Elder County, of which 138 are birds, 70 are mammals, 10 are fishes, and 17 are reptiles and amphibians (Richardson, 1984a). Most of these species are considered nongame. The following species or species groups are those thought to be most directly affected by the Box Elder RMP: mule deer, pronghorn, elk, bighorn sheep, sage grouse, waterfowl and shorebirds, raptors, and fisheries. Threatened, endangered and sensitive species and their habitat could also be affected. Riparian habitat is discussed due to its significance for wildlife in the Box Elder area.

Mule Deer

The Box Elder Planning Area falls within Mule Deer Herd Unit No. 1 - the Box Elder herd unit. Figure 3-3 shows the herd unit boundaries and crucial winter range locations. The current population level on BLM allotments is from 15,000 to 18,000 animals, depending upon the season of year, since Nevada and Idaho deer migrate into the unit during the fall and winter. The current mule deer population is considered to be at the optimum population level for management.

The herd unit contains 5,430 square miles, or 3,475,200 acres (UDWR, 1971). According to UDWR (1971), there are 194,610 acres of summer range (46,128 acres or 23. 7 percent public land), 931,650 acres of winter range (212,297 acres or 22. 8 percent public land), and 240,989 acres considered crucial deer winter range (55,000 acres or 5 percent public land). The remainder of the nearly 3. 5 million acres within the herd unit boundary is not considered mule deer range.

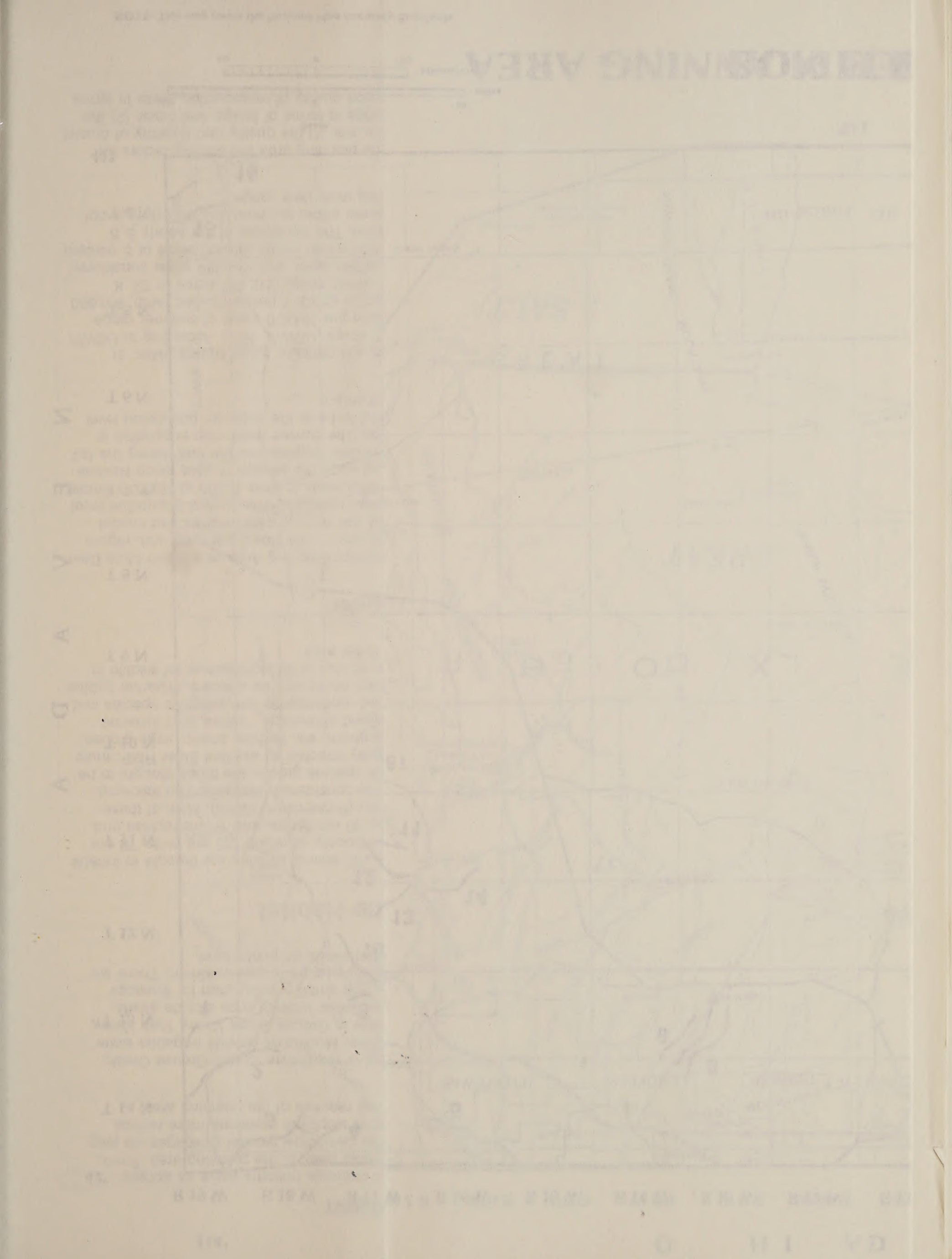
Within the planning area the limiting factors for mule deer are: (1) the quality and quantity of crucial winter range in terms of forage and cover, (2) the quantity and quality of reproduction areas in terms

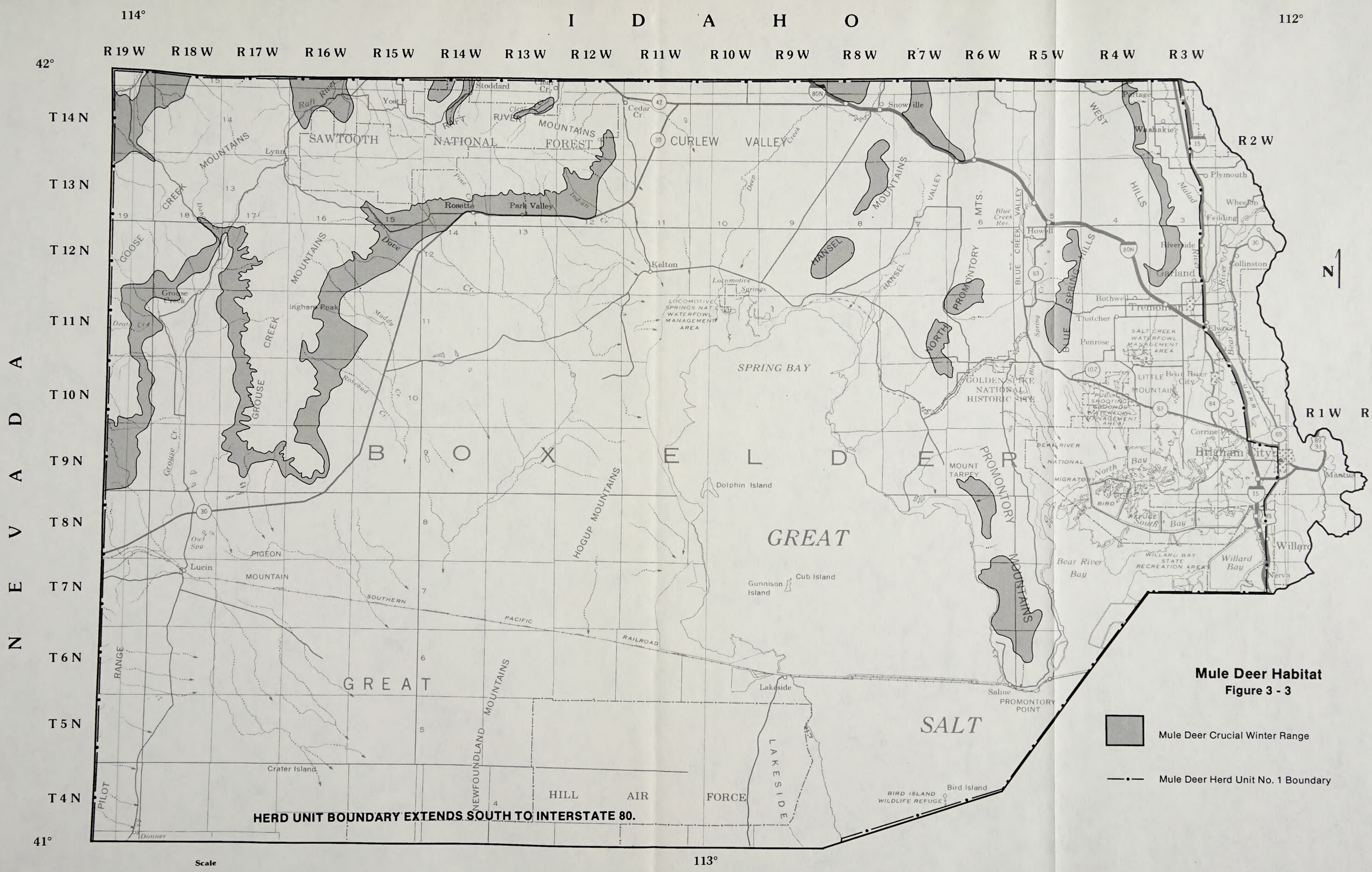
BOX ELDER PLANNING AREA

Perennial Streams
Figure 3 - 2

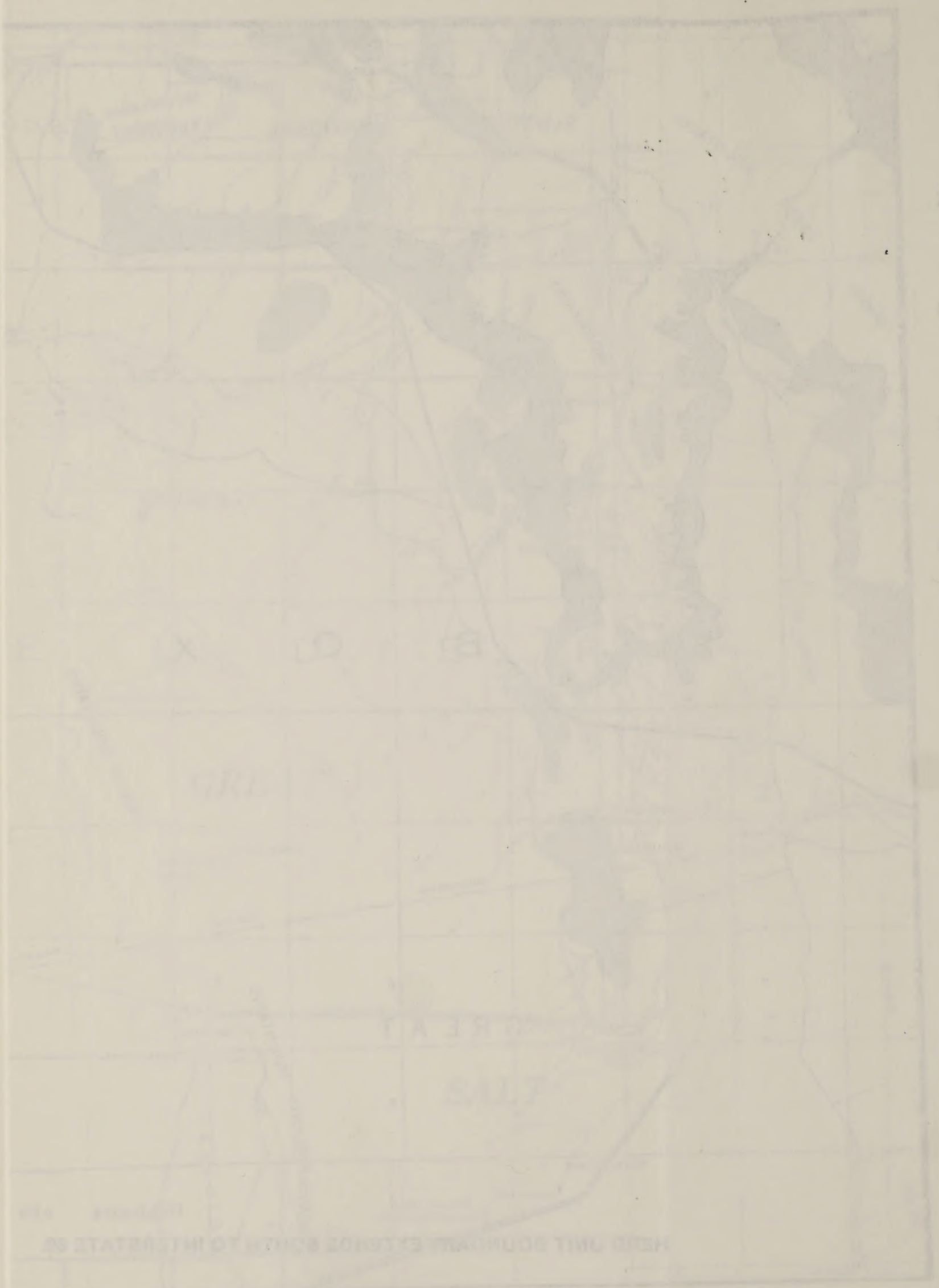
1. Meadow Creek
2. Hardesty Creek
3. Pole Creek
4. Birch Creek
5. Raft River
6. Rock Creek
7. Fisher Creek
8. Left Hand Fork Dunn Creek
9. Little Pole Creek
10. Kimball Creek
11. South Fork Red Butte Creek
12. North Fork Red Butte Creek
13. South Fork Pine Creek
14. Potters Creek
15. Bettridge Creek
16. Donner (Morrison) Creek

NOTE: This map meets the National Map Accuracy Standards





BOX ELDER PLANNING AREA



of succulent forage and hiding cover, and the presence of water in some areas, and (3) restrictions imposed by agricultural cropland and the amount of human disturbance at critical times.

Pronghorn Antelope

Pronghorn Herd Unit No. 1 is defined by UDWR as "all of Box Elder County" (UDWR, 1982a). Although the whole county is included in the legal herd unit description, only approximately 460,800 acres are considered pronghorn range, with 109,440 acres or 24 percent managed by the BLM (UDWR, 1982a). Of approximately 450,000 additional acres considered potential pronghorn range, 248,000 acres are managed by BLM.

Figure 3-4 shows pronghorn range by seasonal use and present versus potential (historical) habitat areas. The Snowville and Promontory subunits presently support huntable populations. The newly reintroduced Pilot Mountain herd has not increased up to huntable levels. The area west of Kelton along the old sheep trail has a few pronghorn present; UDWR has proposed this site for a pronghorn reintroduction to form a low density, widely scattered population. The current and optimum populations of pronghorn within the planning area are 950 and 2,250 animals, respectively.

There are three limiting factors on pronghorn within the planning area. One factor is the quantity and quality of crucial winter range. The second factor is the quality of forage on public lands for reproduction areas. High quality succulent forage is required during parturition and lactation periods. Desirable forbs provide this type of forage and are lacking on most areas of public land. Vegetative manipulation or disposal of areas with this forage would result in a decline in pronghorn. The third limiting factor is a lack of water sources over most of the public land. Pronghorn habitat could be expanded by providing additional water sources and then reintroducing animals to the more remote areas. An area proposed for additional water sources is west of Kelton along the old sheep trail.

Elk

The Pilot Mountain Elk Herd Unit No. 1 is the only elk herd unit within the planning area. The Pilot range and herd unit lie on the Utah-Nevada border. Figure 3-4 shows the herd unit boundaries and elk seasonal use areas. Elk use the whole mountain range and spend time in both states. Approximately 70,400 acres within the herd unit are located in Utah. BLM manages approximately 21,120 acres or about 30 percent of the habitat.

The Pilot Mountain HMP and UDWR (1983) call for an optimum population of 120 animals; the herd is currently at that level. Because about 50 percent of the area is in public ownership, BLM lands provide forage for about 60 animals.

UDWR has proposed to reintroduce elk into potential habitat which they have identified in the Grouse Creek and Raft River Mountains. The potential habitat would be both mountain ranges and associated foothills. Exact use areas are presently unknown and therefore have not been mapped. UDWR anticipates a herd of 200 to 250 elk in this area; however, the herd could increase up to 500 animals depending upon where the elk establish use areas and at what population level they start causing resource or depredation problems. According to UDWR, 500 elk is the level at which the herd population level would be set.

The Pilot Mountain herd is limited by the quantity of summer/reproduction areas. Wintering habitat could become limiting in the future if the housing development on the Nevada side continues to expand. Excessive, prolonged human disturbances in this area would limit elk. A loss of available water at any of the spring sources would limit elk use for that general area during the spring and fall.

Although limiting factors for the proposed Grouse Creek-Raft River Mountains herd are not known, it is assumed that winter range and depredation on private lands will determine the population level and hence be the limiting factors.

Bighorn Sheep

No bighorn sheep currently inhabit the planning area. However, UDWR has proposed reintroduction of bighorn onto the Newfoundland, Pilot, and Raft River Mountains. Figure 3-5 shows the general use areas for the proposed reintroductions of bighorn sheep.

The Pilot Mountain transplant is authorized in the Pilot Mountain HMP, which allocates forage for 30 animals on public land with a total population level of 60 bighorn. The sheep are expected to summer on the higher peaks and ridges and winter on the lower foothills which are free of human disturbances. The subspecies to be reintroduced has not been determined to date but could be either Rocky Mountain, Desert, or California bighorn sheep. These sheep would be furnished by the Nevada Fish and Game and could be transplanted onto the mountain range within the next 2 to 3 years.

The River Raft Mountain reintroduction would be on U. S. Forest Service administered lands and would involve a population of about 100 Rocky Mountain bighorn sheep. It is anticipated that up to 65 of these animals would winter on public land along the foothills of the mountain range.

Because these new flocks of native sheep would be located on isolated mountain ranges, the overriding limiting factor would be the amount of total habitat available. Domestic sheep on the Pilot and Newfoundland ranges could transmit diseases to the nonimmune native sheep. Direct forage competition could result if domestic sheep use is more than light in intensity.

The Pilot Mountain flock will be specifically limited by the amount of lambing and summer habitat in association with available water. Winter range could become limiting during severe winters for all three flocks, but especially for the Raft River population. This limitation cannot be predicted in terms of area or intensity until the sheep have been in place for a few years. Excessive or extended human disturbance will limit bighorn in any area of occurrence within bighorn habitat.

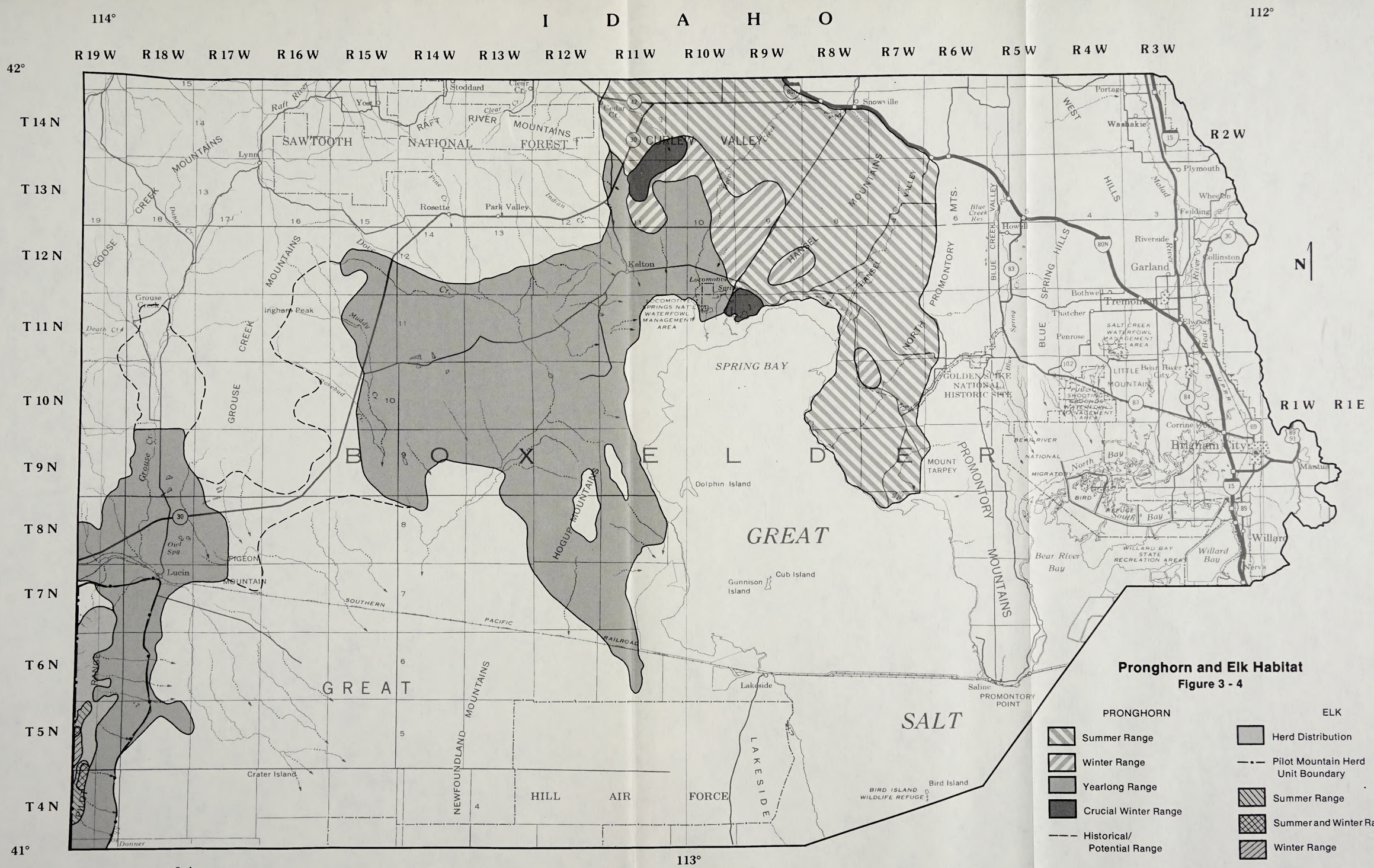
The desert bighorn subspecies is proposed to be reintroduced into the Newfoundland Mountains and would affect the whole mountain range. These sheep would probably spend the summer near water regardless of elevation and would winter on the lower slopes near the desert floor since human disturbances would not force them to higher areas. UDWR has recommended a population level of 100 bighorn.

Sage Grouse

In general, sage grouse are found within all suitable habitat west of a line running north and south from Snowville, Utah. The suitable habitat line runs along the desert shrub/sagebrush ecotone on the south border, and excludes the Hogup and Newfoundland Mountain ranges. Suitable habitat includes all areas of sagebrush and riparian areas up to forested zones. Some of these areas are more productive than others and thus support larger populations of grouse, while other less productive areas support only limited numbers of birds. Figure 3-5 delineates sage grouse use areas and indicates preferred habitat by strutting grounds (leks) and known winter concentration areas. Sage grouse generally winter as close to their lek as weather permits, but may be pushed to the lower foothills and sometimes onto the desert sagebrush hills. Black sagebrush areas are preferred winter feeding grounds.

Population trend is more important than numbers for small game species. The present trend is almost static, although the winters of 1983 and 1984 were hard on the population.

Breeding complexes (leks and associated nesting habitat) and other known wintering areas are the crucial habitats for sage grouse. Disturbance, destruction or disposal of these areas would conflict with sage grouse populations. The quality and



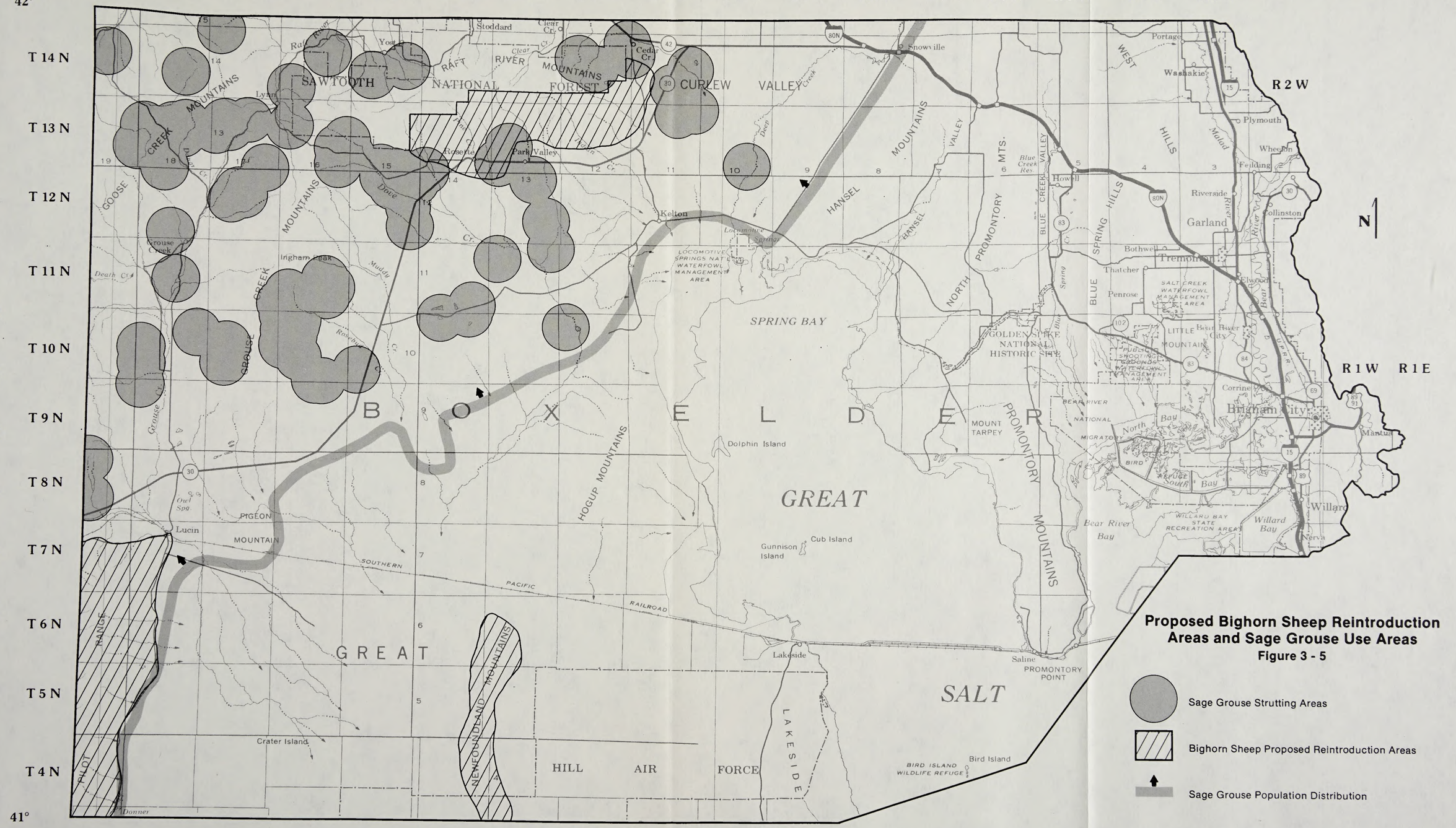
NOTE: This map meets the National Map Accuracy Standards

BOX ELDER PLANNING AREA

Pronghorn and Elk Habitat

Figure 3 - 4

PRONGHORN	ELK
Summer Range	Herd Distribution
Winter Range	Pilot Mountain Herd Unit Boundary
Yearlong Range	Summer Range
Crucial Winter Range	Summer and Winter Range
Historical/ Potential Range	Winter Range

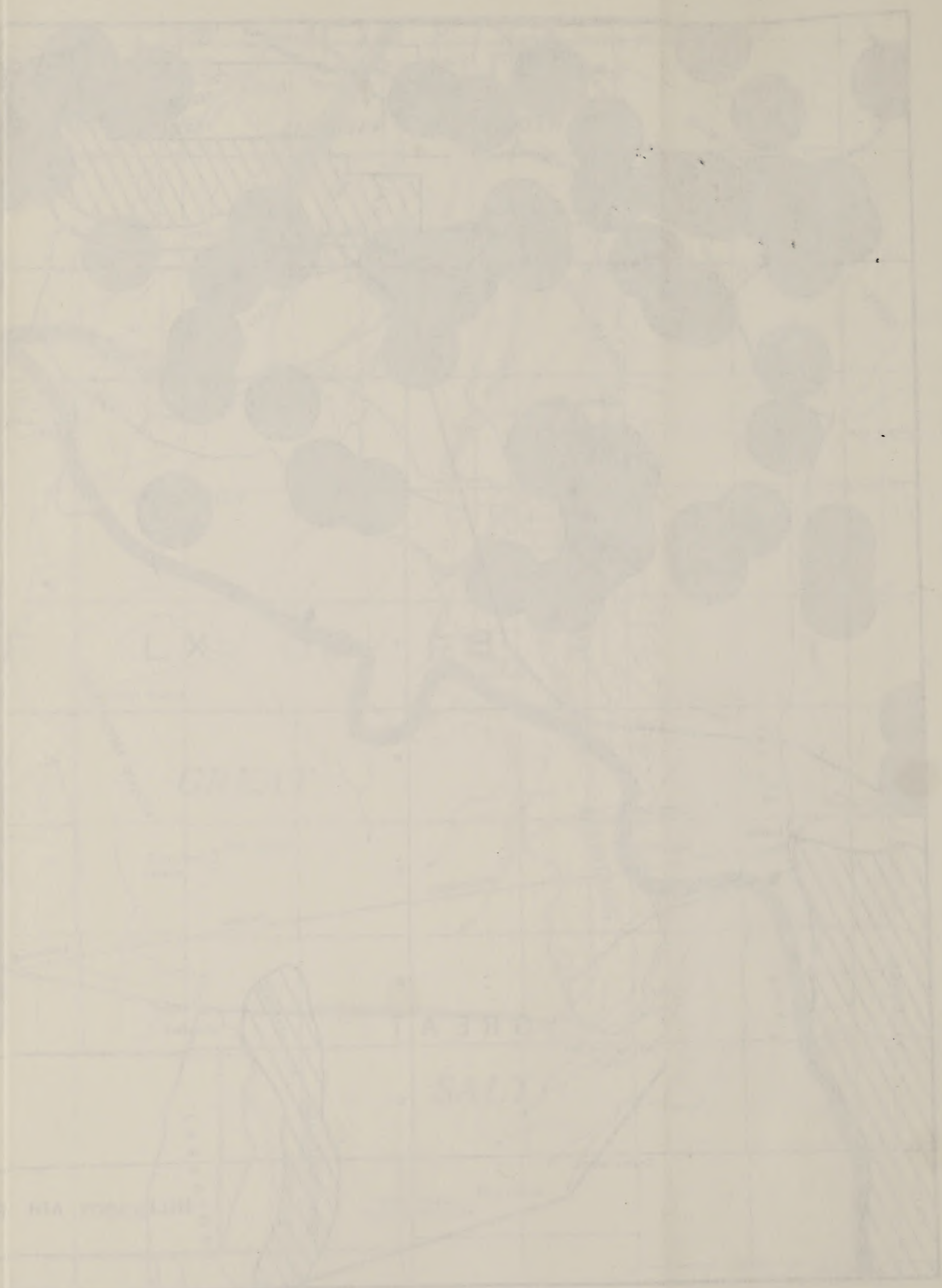


BOX ELDER PLANNING AREA

Proposed Bighorn Sheep Reintroduction Areas and Sage Grouse Use Areas
Figure 3 - 5

- Sage Grouse Strutting Areas
- Bighorn Sheep Proposed Reintroduction Areas
- Sage Grouse Population Distribution

NOTE: This map meets the National Map Accuracy Standards



quantity of nesting habitat are probably the most limiting factors. The lack of succulent forbs and their associated insect population are the weak links. During severe winters, the amount of suitable winter habitat is a limiting factor on the sage grouse population.

Excessive human or predator disturbance during the breeding/nesting period or a lack of water may also be limiting. In areas with adequate succulent forbs, lack of free water probably does not limit sage grouse. However, in western Box Elder these areas are restricted to riparian habitat which is scarce and widely scattered. Additional water is expected to expand available habitat for sage grouse.

Waterfowl and Shorebirds

The six sections of public land in the Connor Allotment near the Public Shooting Grounds and two or three sections in the Salt Wells Allotment are the only wetland habitat administered by BLM within the planning area. Figure 3-6 shows the two wetland habitat areas. In recent years, the Dove Creek Sinks have had water for resting habitat, but these tend to dry up periodically and do not warrant management for waterfowl or shorebirds.

The Connor and Salt Wells areas presently provide limited nesting habitat and are used moderately as wintering habitat. However, small amounts of development and protection in these areas could provide good to excellent wetland habitat.

Limiting factors are the seasons and levels of livestock use and the lack of manageable open water.

Raptors

Raptors inhabit the entire planning area except for the mud flats. A variety of nesting substrates are available and all are used by the various species present. Species known to use the area are the bald and golden eagles, ferruginous hawk, red-tailed hawk, Swainson's hawk, marsh hawk, prairie falcon, American kestrel, great horned owl, barn owl, burrowing owl, long-eared owl and short-eared owl. The bald eagle is a Federally endangered species and is discussed in the threatened, endangered and sensitive animal species section. Each species requires its own type of habitat and seeks out these niches. The density of raptors and their preferred habitat depend mostly on the availability of prey. The black-tailed jackrabbit is the principal prey species in the planning area and was locally very abundant several years ago. However, the last two winters have greatly reduced the number of rabbits.

The only crucial habitat areas for raptors within the planning area are the nest sites and a one-half mile buffer zone around each site. Nest sites may be on a cliff, in a tree, in or on man-made structures, on the ground or even in a burrow in the ground. Habitat conflicts occur when these nest sites or associated buffer zones are disturbed during the breeding season.

Limiting factors on raptors are thought to be the amount of prey available in the area of suitable nesting habitat and disturbances or physical harm imposed by man. Suitable nesting areas/substrates may be limiting to certain species in some areas.

Fisheries

There are five game species (trout) and five or more nongame species present on public lands in western Box Elder County. Game species include Lahontan cutthroat, cutthroat, rainbow, brown and eastern brook trout. The known nongame species include speckled and longnose dace, redside shiner, sculpin, and mountain sucker.

Utah Division of Wildlife Resources fisheries biologists sample Bettridge Creek for Lahontan Cutthroat Trout.

Sixteen streams with associated public land in western Box Elder County are considered present or potential fisheries habitat. Eight of these streams presently have some level of fisheries. There are no warm water fisheries on BLM lands within the planning area.

The aquatic inventory (UDWR, 1982b) shows that fish populations range from a high of nearly 3,400 fish per mile of stream on Fisher Creek to no fish in eight of the streams. These fisheries do not migrate and spend their entire life within a short distance of stream.

Donner and Bettridge Creeks are critical habitat for the federally threatened Lahonton cutthroat trout. All other streams containing fish or having the potential to support fish are considered crucial aquatic habitats.

Conflicts with fisheries vary from stream to stream since each is its own small ecosystem. Conflicts and limiting factors are listed below:

- Reduced watershed conditions and riparian habitat degradation resulting from livestock grazing.

- Limited summer flows.

- Dewatering for agricultural or culinary purposes.

- Poor pool to riffle ratios.

- Fish migration barriers, either man-made or natural.

Threatened, Endangered and Sensitive Species

Richardson (1984b) determined 24 species present within these categories. They are:

Endangered

Bald eagle, American peregrine falcon and arctic peregrine falcon.

State Sensitive

Declining: Snowy plover, long-billed curlew, Lewis' woodpecker, and western bluebird.

Limited: Belding ground squirrel, yellow pine chipmunk, double-crested cormorant, osprey, American white pelican, caspian tern, purple martin and grasshopper sparrow.

Status questioned: Great blue heron, American bittern, western grebe, black-crowned night heron, mountain bluebird, yellow-breasted chat, and fox sparrow.

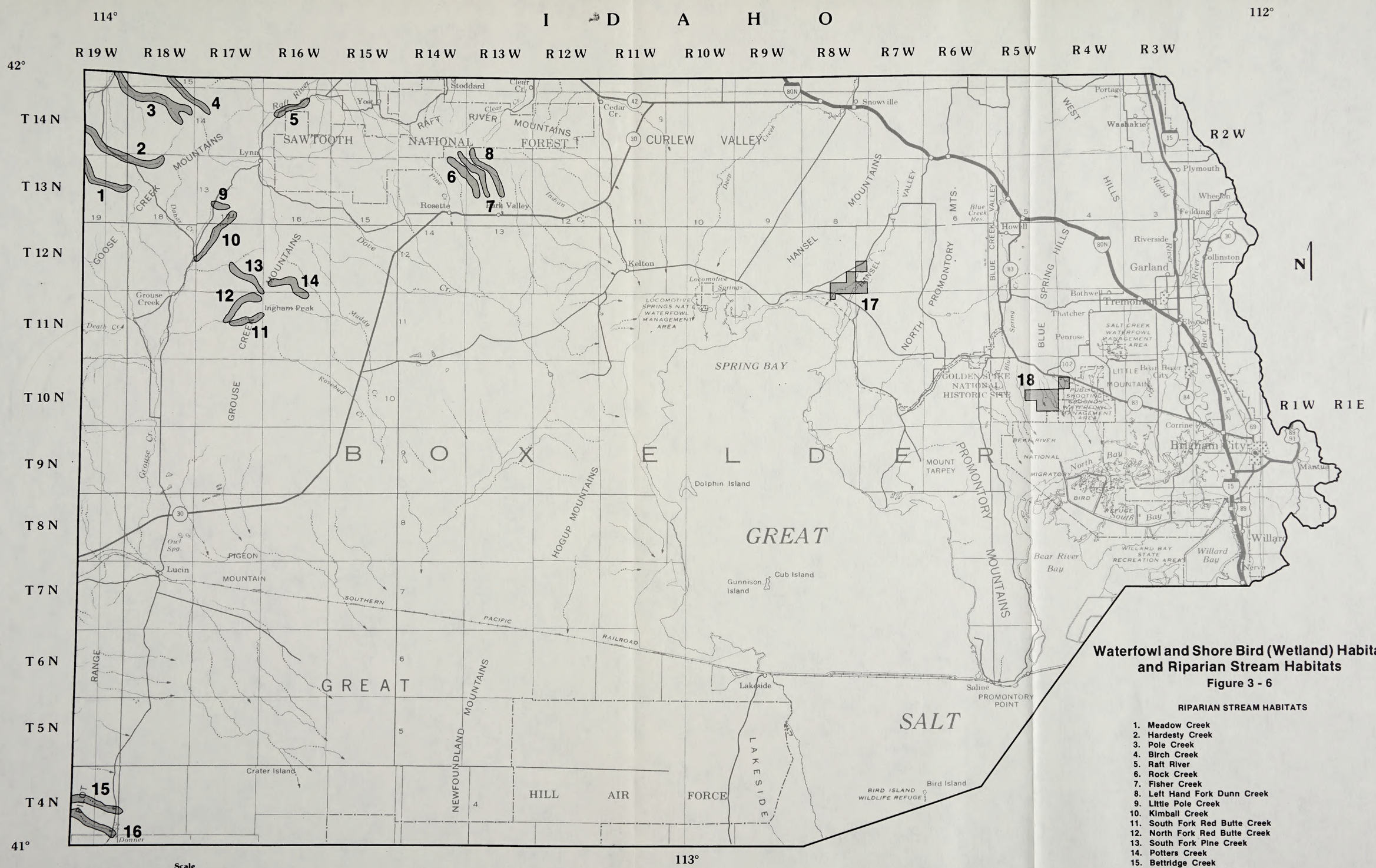
FWS has determined there are six candidate species that should be considered in addition to those listed by Richardson (1984b) (USDI, FWS, 1984). These candidate species for federal threatened and endangered listing are: ferruginous and Swainson's hawks, long-billed curlew, mountain plover, white-faced ibis, and western yellow-billed cuckoo. The western snowy plover, considered by Richardson (1984b), is also listed by FWS (1984) as a candidate species. According to BLM policy, these seven candidate species must be treated as listed threatened and endangered species until they have been formally dropped as candidates by the FWS.

Although Richardson (1984b) did not consider aquatic species, the federally threatened Lahonton cutthroat trout also needs to be considered.

Bald eagles winter in limited numbers in the western part of the planning area and are also known to concentrate around Willard Bay and Bear River Migratory Bird Refuge.

The arctic peregrine is known to migrate through Box Elder County. The American peregrine would be the local resident, but none are known to inhabit BLM lands. Peregrines have been hacked (raised) from an artificial site at the Bear River Migratory Bird Refuge. Rhyolite Butte near the Nevada border has been considered as a possible reintroduction area for peregrines, but a transplant is unlikely in the near future.

Ferruginous and Swainson's hawks are summer residents and are known to nest nearly areawide in very low densities. Both species generally nest in juniper trees within western Box Elder County. Ferruginous hawks usually select small, isolated, low elevation patches of junipers to nest in while Swainson's hawks usually prefer junipers that form a more continuous overstory cover at higher elevations. Ferruginous hawks are also well noted for nesting on the ground, on low hilltops, or on low man-made objects.



BOX ELDER PLANNING AREA

Waterfowl and Shore Bird (Wetland) Habitat and Riparian Stream Habitats

Figure 3 - 6

RIPARIAN STREAM HABITATS

1. Meadow Creek
2. Hardesty Creek
3. Pole Creek
4. Birch Creek
5. Raft River
6. Rock Creek
7. Fisher Creek
8. Left Hand Fork Dunn Creek
9. Little Pole Creek
10. Kimball Creek
11. South Fork Red Butte Creek
12. North Fork Red Butte Creek
13. South Fork Pine Creek
14. Potters Creek
15. Bettridge Creek
16. Donner (Morrison) Creek

WETLAND HABITATS (WATERFOWL AND SHORE BIRD HABITAT)

17. Salt Wells Wetland Area
18. Blue Springs Wetland Area

NOTE: This map meets the National Map Accuracy Standards

Each nest site and a one-half mile buffer strip around the nest is considered critical habitat. Conflicts occur when these nest sites or associated buffer zones are disturbed during the breeding season.

Limiting factors for raptors are thought to be the amount of prey available in the area of suitable nesting habitat, and disturbances or physical harm imposed by man. Suitable nesting areas/substrates may be limiting in some areas.

The Lahontan cutthroat trout only occurs in Donner and Bettridge Creeks. Other local areas are being sought for introductions of this threatened fish. Use areas for this species are considered critical, since only a few individuals exist in each stream. Limiting factors for these fish are the small size of the streams they inhabit, the aquatic habitat conditions, and the short length of each stream before being dewatered.

Most of the other species in the threatened, endangered, and sensitive species category occur in the eastern part of the planning area where BLM administers very little land, or on public land where BLM has no data on their habitat or use areas.

Riparian Habitats

Riparian habitats are areas of maximum potential conflict between resource activities and are disproportionately important to most resource uses. The linear nature of these habitats and their vegetative diversity make them the most important types for wildlife. This is evident from the high diversity (number of species) and populations (number of individuals within a species) found in these areas.

Twenty miles of stream/riparian habitat occur on BLM administered lands in western Box Elder County (see Figure 3-6), totalling approximately 240 acres.

Thomas, Maser,and Rodiek (1976) list several reasons why riparian areas are crucial wildlife habitat:

- The presence of water per se is critical. Wildlife habitat is composed of food, cover, water and living space. Riparian zones generally offer all four habitat components.

- Greater availability of water and deeper soils increase both plant and animal biomass production. Faster plant growth is also evident.

- The dramatic contrast of the plant complex to the general surrounding vegetation adds greatly to the diversity of the area.

- The linear shape of most riparian areas maximizes the production of "edge" which is so productive of wildlife.

- Horizontal and vertical stratification of vegetation adds dramatically to the amount of edge and to diversity.

- Different microclimates are produced in riparian zones due to combinations of increased humidity and transpiration, shading and air drainage. These microclimates are attractive to certain species at crucial times for particular purposes.

- Linear riparian zones provide travel lanes for wildlife

- Linear riparian zones serve as 'connectors' between other habitat types that can serve as routes of species dispersal.

Thomas, Maser, and Rodiek further state that riparian areas are very sensitive to habitat manipulation and must be considered fragile. The more narrow the riparian zone, the more easily it is altered by management action. Improper grazing can result in elimination of streamside shrubs, compaction, loss of ground vegetation (grasses and forbs) and decline in water quality.

Riparian areas are important to most local species of wildlife during part or all of their life cycle. Riparian areas in good to excellent condition will support far more species and populations than will similar areas in poor to fair condition. Based upon site potential, most of the riparian/aquatic habitats in Box Elder County are only in fair to poor condition (Richardson, 1984a; UDWR, 1982b; BLM, 1982-3 Box Elder County Stream Surveys). Fair and poor riparian habitat conditions can be attributed largely to the activities of man (livestock grazing, mining, overharvest of beaver, unregulated ORV use, dewatering streams for agricultural and culinary uses, etc.). Ames (1977) lists several reasons why riparian zones are preferred by cattle:

- Riparian vegetation is more palatable.

- Water is readily available.

- Terrain is usually gentler than surrounding terrain.

- Tree-lined riparian zones provide shade in summer and shelter in winter.

Recreation

The Box Elder Planning Area is currently managed as part of BLM's Salt lake District-wide extensive recreation management area. In addition, the old Central Pacific Railroad Grade has been designated as a special management area. BLM has not developed any recreation sites in the planning area.

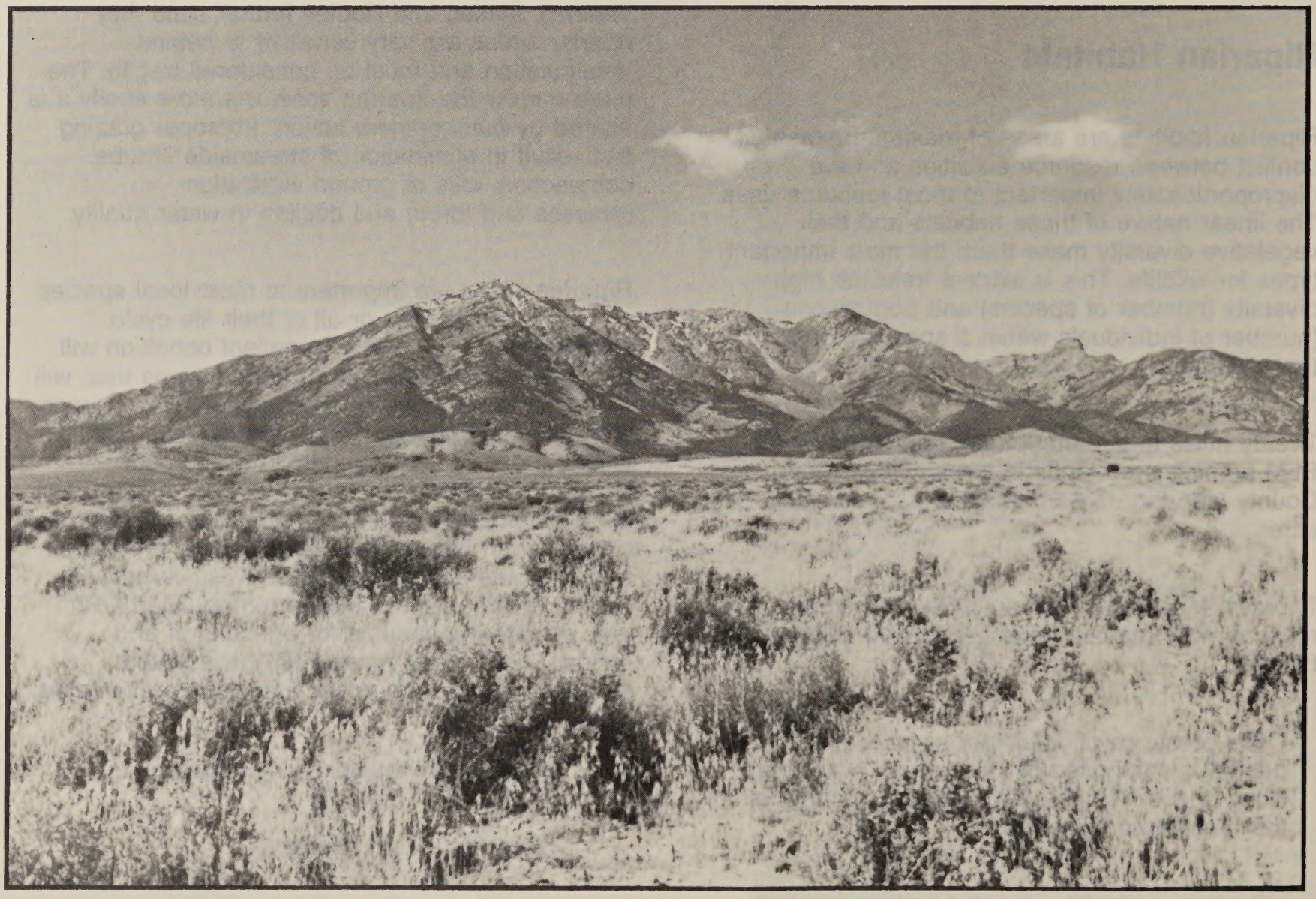
Many opportunities for dispersed forms of recreation are found on public lands in the Box Elder Planning Area, including hunting, camping, hiking, rock climbing, sightseeing, nature study, off-road vehicle use, rock collecting, wood gathering, and exploring historic sites. However, actual use of the area is minimal. Most use occurs during the mule deer hunt in the Goose Creek and Grouse Creek Mountains. Organized recreation groups have not recognized the area as a viable location for staging events, primarily because of harsh weather conditions and because permits are more difficult to obtain in areas of mixed ownership.

The old Central Pacific Railroad grade may provide an opportunity for interpretive services. However, BLM manages only 20. 5 miles of the 54. 7 miles of grade between the old railroad towns of Kelton and Lucin. Since 1982, BLM has corresponded with Southern Pacific Railroad, who now controls the railroad lands, to negotiate a transfer of these lands to Federal management. Acquisition of these lands would consolidate public ownership and simplify recreation management of the old railroad grade.

Cultural Resources

Numerous archeological and historical sites have been located on public lands. None are presently on the National Register of Historic Places, but a 1981 computer analysis showed that some of these sites are potential nominees (Holmer, 1981).

Archeological sites indicate a fairly constant occupation from about 8,000 years ago. Early Archaic occupants (6,000 B. C. to 300 A. D.) harvested marsh resources around the Great Salt Lake and hunted in upland areas. The introduction of pinyon pine into the higher mountains to the northwest about 3,500 years ago resulted in



The Pilot Mountains in Western Box Elder County.

seasonal use of that resource as well. The Fremont people (300 to 1300 A.D.) also gathered marsh resources around the lake, hunted the uplands for bison and antelope, and grew corn and perhaps other crops. Numic or Shoshone people (1300 A.D. to the advent of white settlement) seem to have utilized the entire county as did preceding cultures, although for some reason they did not grow crops.

Historically, Box Elder County was the scene for some significant events in American history. Early fur trappers were the first white men in the area. They were followed by emigrants on their way to the Pacific Coast. Part of the California Trail (which split from the Oregon Trail at Fort Hall) passes through the northwest part of the county. Segments of the old trail can still be seen.

The greatest happening, however, was the completion of the first transcontinental railroad at Promontory Point in 1869. The activity brought by construction of the railroad resulted in much of the settlement of the Park Valley area. The railroad opened up the western frontier to settlement. Many of the ruins of towns along the railroad are still visible, as are good examples of construction (trestles and culverts) along the abandoned grade.

Forest Resources

Forest resources in Box Elder County are comprised of timber species such as subalpine fir, Douglas fir, Engleman spruce, and aspen on approximately 1,804 acres and pinyon/juniper on 122,077 acres. Timber stands are isolated, generally occurring in steep canyons with limited access. Due to limited quantity and access and a nonexistent local saw log market, the only practical uses include firewood and Christmas trees. Pinyon pine is found on a total of 20,825 acres in only three areas in Box Elder County: Raft River, Emmigrant Pass, and the Pilot Mountain Range. Uses have traditionally been pine nuts, firewood and Christmas trees. Juniper occurs on 94,252 acres and an additional 27,825 acres in association with pinyon pine. Juniper has been used for posts and firewood.

Fire Management

Fire occurrence on public lands in Box Elder County since 1973 has varied from 1 to 14 fires per year, with an average of 5. 6 fires annually. Because area residents are reluctant to report fires, actual fire occurrence is probably greater. However, average size is probably not greater, as the unreported fires are usually Class A and B. Fires on public lands in the county range in size from less than 1 acre to over 14,000 acres (Class G), averaging 251 acres per fire. These fires have burned an average total of 4,200 acres each year. The majority of the large fires (Class D+) have occurred between the Kelton Road and Promontory Point. A total of 111,998 acres have burned in Box Elder County, of which 42 percent or 46,600 acres have burned on public lands.

Fire management techniques employed in Box Elder County have primarily consisted of immediate maximum suppression. The county is divided into three areas of initial attack and/or suppression responsibilities as follows:

Utah State Lands and Forestry - east of Highway 30 and the Kelton Road,

Burley District BLM - north of Highway 30,

Salt Lake District BLM - south of Highway 30 and west of the Kelton Road.

In recent years, prescribed burning in the county has been limited to one fire in 1979 treating 300 acres and one fire in 1981 treating an additional 150 acres in the same location. Regeneration of preferred wildlife and livestock plant species has been excellent. Seventy-five acres were reseeded in 1981; success has been fair to moderate to date. Recent wildfires in the Snowville Allotment have been reseeded.

Socioeconomics

Introduction

The public lands in Box Elder County add value to the regional economy through in-lieu-of-tax payments, recreation-related expenditures, forest products, minerals production, and grazing fees and other ranching related factors. In-lieu payments made to Box Elder County amounted to $746,666 in 1983. The value of recreation activities can only be inferred since there are many forms and considerable expenditures are made, but they are not identifiable as such. However, hunting for deer, antelope, chukar, sage grouse and rabbits is a popular recreation activity in the planning area. Hunting produced expenditures of $2,400,000 in western Box Elder County from all lands in 1983. What portion of this amount could be attributed to hunting on public lands has not been determined. The value of forest products and minerals removed from public lands is low at the present time.

Livestock grazing fees for 1983 came to $52,436, of which about $25,000 probably entered the regional

economy. Other ranch-related ecomonic conditions are more significant economically and are discussed below.

Ranch-Related Economic Conditions

The livestock industry is a multi-million dollar economic activity in the county. The amount added from use of public lands forage is unknown but would be significant. The factors which affect an operator's ranch income are (1) price per unit weight at sale; (2) weight per animal; (3) number of animals; and (4) cost of raising the animal to marketability. BLM management could affect all of these factors except price per unit weight at sale. Changes in active preference can affect the overall capital value of ranch property and the livestock operator's ability to secure a loan.

Public land AUMs may be transferred from one operator to another. The dollar value given by the buyer to convince a present operator to transfer his BLM permit is known as the market value of an AUM. The current market value of an AUM is estimated to range from $15 to $50 (average $32. 50) per AUM ownership in the Box Elder Planning Area.

The analysis of ranch related economics in this EIS is based on the operation's dependence on the use of public land forage. The percent dependency given for each category is that portion of forage which the operator obtains from public land.

The cattle operations were divided into categories of small (0-29 percent) and medium (30-59 percent) dependence on public land forage. No cattle operations in the planning area are more than 59 percent dependent on public land forage. The sheep operations are in a small (0-29 percent) dependency class.

Average ranch budgets were developed for each category. These budgets, displayed in Appendix 10, show the revenues and expenses for the "average ranch" in each category and provide baseline data for subsequent analysis. The assumption inherent in this approach is that individual operations within any one category would be sufficiently represented; therefore, any conclusions applied to the "average ranch" would also apply to most of the individual operations. It should be noted, however, that wide differences may occur among individual operations.

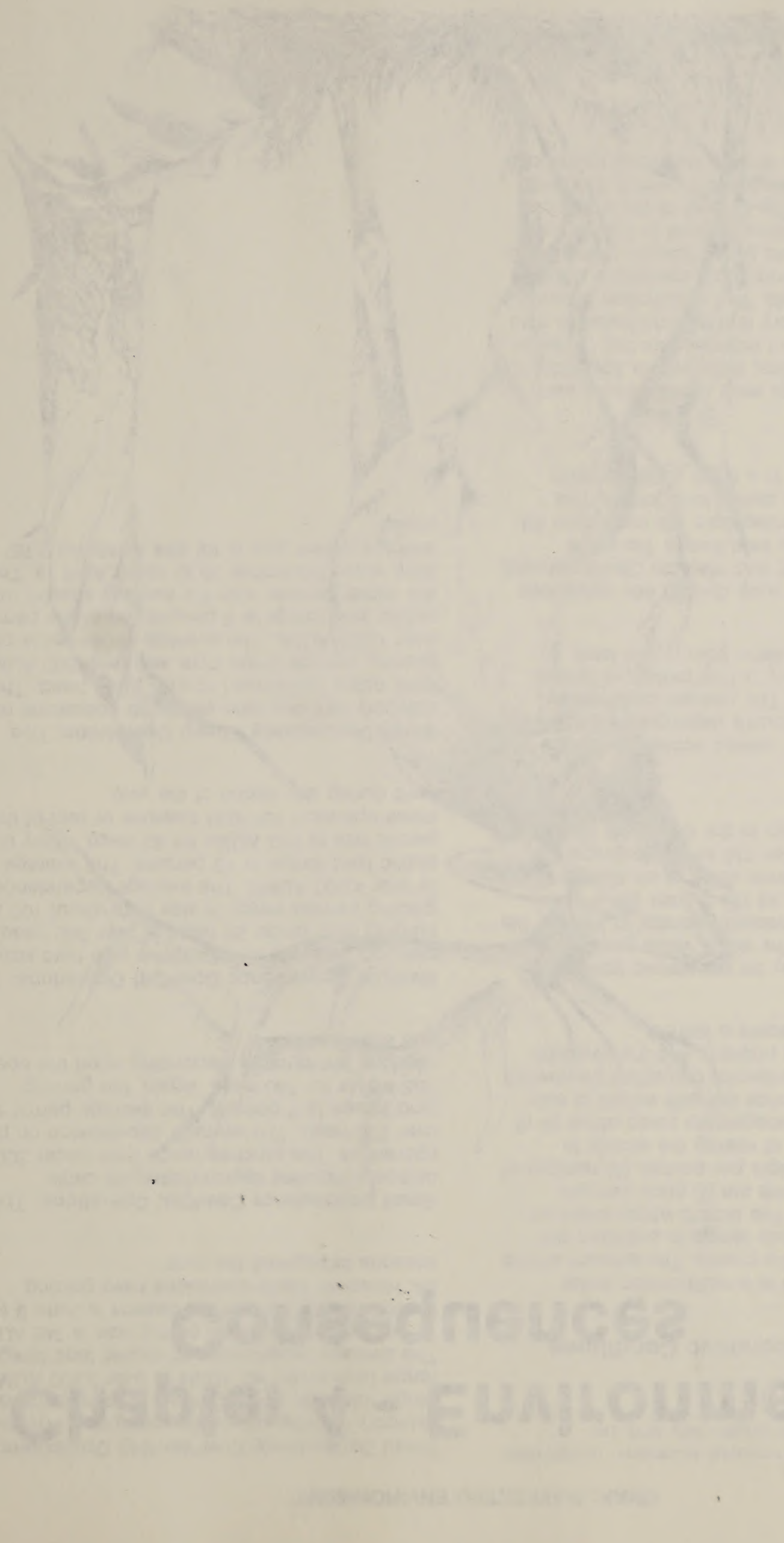
Small Dependency Cow/Yearling Operations: This category includes six cattle operations. The ranches range from 220 to 1,800 head; grazing permits range from under 40 AUMs to over 3,900 AUMs. The average dependence on public land forage is 10 percent. The average permit size is 748 AUMs for 500 head. The average season is June 9 to July 24. However, these operations have grazing seasons throughout the year.

Small Dependency Cow/Calf Operations: This category includes approximately 39 cattle operations. The ranches range from under 300 to over 700 head. The average dependence on public land forage is 7 percent. The average permit size is 356 AUMs for 380 head. Again, the grazing seasons are variable, depending upon the operator and allotment.

Medium Dependency Cow/Calf Operations: This category includes 15 operations with herd sizes ranging from under 20 head to over 300 head. The grazing permits range in size from about 100 AUMs to over 4,000 AUMS. The average dependence on public land forage is 43 percent. The average permit size is 503 AUMs for 82 head. Many of these operators run split seasons or part of their herd during any period of the year.

Small Dependency Sheep Operations: This category includes nine ewe/lamb operations ranging from about 1,000 head to over 9,000 head. The grazing permits range from less than 300 AUMs to over 1,600 AUMs. The average dependence on public land forage is 9 percent. All of the permits are winter permits with the average season running from about December 15 to about April 15. The average permit size is for 684 AUMs for 3,767 sheep.

Chapter 4 - Environmental Consequences



Chapter 4
Environmental Consequences

Introduction

This chapter describes the significant environmental consequences that would result from implementing each of the alternatives. These environmental consequences (impacts) are compared to the existing situation. The impacts of each alternative are grouped by resource.

Knowledge of the area and professional judgement, based on observation and analysis of conditions and responses in similar areas, have been used to estimate environmental impacts where data is limited.

Analysis Assumptions

Any planning effort is, to some degree, an attempt to foresee the future. Such an attempt involves assumptions about the extent to which social, economic, political, or technological circumstances will change or whether they will remain the same as they were at the time of planning. In this RMP, the following assumptions were made in order to estimate environmental impacts of the different alternatives presented:

1. Throughout this chapter the words "short-term" and "long-term" are used to mean, respectively, up to 5 years and more than 5 years after an action within the plan is fully implemented.

2. Economic conditions would remain stable, with no changes that would stimulate great increases in exploration and prospecting for different minerals, or would cause major changes in demands for other marketable products produced on public lands, such as timber and livestock.

3. In the absence of sufficient data regarding rangeland resources, this RMP/EIS assumes that the currently authorized grazing levels in the planning area are proper. These levels are shown in Appendix 3b, Forage Use by Allotment, Alternative 2. For analysis purposes, it is therefore assumed that no appreciable environmental impacts would result from grazing under Alternative 2 because it occurs at proper levels equal to the rangeland's capacity. In reality however, this level may exceed grazing capacity in some areas and be below capacity in other areas. As noted in Chapter 2 in the description of Alternative 2, a monitoring program will be implemented as part of the RMP to determine proper grazing levels before any adjustments in use are made.

4. No specific rangeland improvements are proposed in Alternative 2. If Alternative 2 is selected, decisions for improvements would be made at the activity planning level. However, it is assumed that these future improvements would be of the same type and have the same kinds of environmental consequences as those discussed under Alternatives 3 and 4.

5. Each alternative would be fully implemented, proposed changes would occur, and standard stipulations and mitigating measures as described in Appendix 1 and 2 would be followed.

6. BLM would have the manpower and funds to implement the alternative or combination of alternatives chosen.

Impacts on Minerals

Locatable Minerals

No new areas are proposed for withdrawal from locatable mineral entry in Alternatives 1 and 4. A total of 980 acres is proposed for withdrawal in Alternatives 2 and 3. The 980 acres includes the portions of Bettridge and Donner Creeks on public land on the east side of the Pilot Mountains. The closest mining area to these creeks is the Lucin District, located 12 miles to the north, in Mississippian limestone and surrounding rocks. Thousands of feet of other rocks overlie economically minable limestone within the proposed withdrawal area. Because no mining is likely to occur in the alluvial placers on the east side of the Pilot Range, the proposed withdrawal would not significantly affect mineral development.

Any large scale exploration or mining operation may require additional analysis and special operating stipulations. ACEC designations as proposed in Alternative 2 would require detailed mining plans.

Fluid Minerals

Alternative 1

About 91 percent (928,563 acres) of the Federal mineral estate would be open (Category 1) for fluid mineral leasing. There would be no adverse impacts to exploration or development since there would be no restrictions on these lands.

Category 2 areas would be open, with special stipulations as appropriate. No activities would be allowed on 15,170 acres during certain seasons to protect wildlife values. Of this acreage, 2,740 acres of crucial winter range for mule deer would be closed from December 1 through April 15 each year. The remaining 12,430 acres would be closed from March 1 through July 15 to protect sage grouse breeding complexes. These lands would be available for fluid minerals activities through the remainder of the year, although subject to any other special stipulations that may be required to protect resource values. Another 37,560 acres would be subject to special stipulations including those necessary to protect riparian habitat and aquatic areas. These stipulations could affect the locations and costs of fluid mineral development.

No surface occupancy (Category 3) would be permitted on 3,520 acres. This would require slant drilling from adjacent lands to recover any mineral reserves that may be present. In some cases where slant drilling would be impractical, the development of reserves could be precluded.

About 3.3 percent (33,506 acres) of the Federal mineral estate would be closed (Category 4). No development would occur. Minerals within the closed areas would not be recovered. This would affect 10,240 acres of the Pilot Mountains and 23,266 acres of the Newfoundland Mountains.

Alternative 2

About 71 percent (725,764 acres) of the Federal mineral estate would be open for fluid mineral leasing. Another 28 percent (288,065 acres) would be open with special stipulations. Of this, 281,600 acres would be open most of each year but closed during the following periods: 179,840 acres from March 1 through July 15 (sage grouse breeding); 83,840 acres from December 1 through April 15 (crucial winter range for deer); and 17,920 acres from March 15 through June 15 (raptor nesting).

On five locations (see Appendix 5) totalling 6,310 acres, surface occupancy for fluid mineral development would not be allowed. No land would be closed through Category 4 classification. The impacts of these fluid mineral categories on the above lands would be of the same nature as those identified in Alternative 1.

Alternative 3

The impacts to minerals on 714,544 Category 1 acres, 280,180 Category 2 acres, and 23,595 Category 3 acres would be the same as those identified in Alternative 1. No land would be placed in Category 4 and so no impacts would result.

Alternative 4

About 98 percent (998,599 acres) of the Federal mineral estate would be open for fluid mineral leasing; 16,500 acres would be open with special stipulations, and 3,220 acres would be open for lease with no surface occupancy. The impacts of these lease categories would be the same as described in Alternative 1. No land would be closed to leasing.

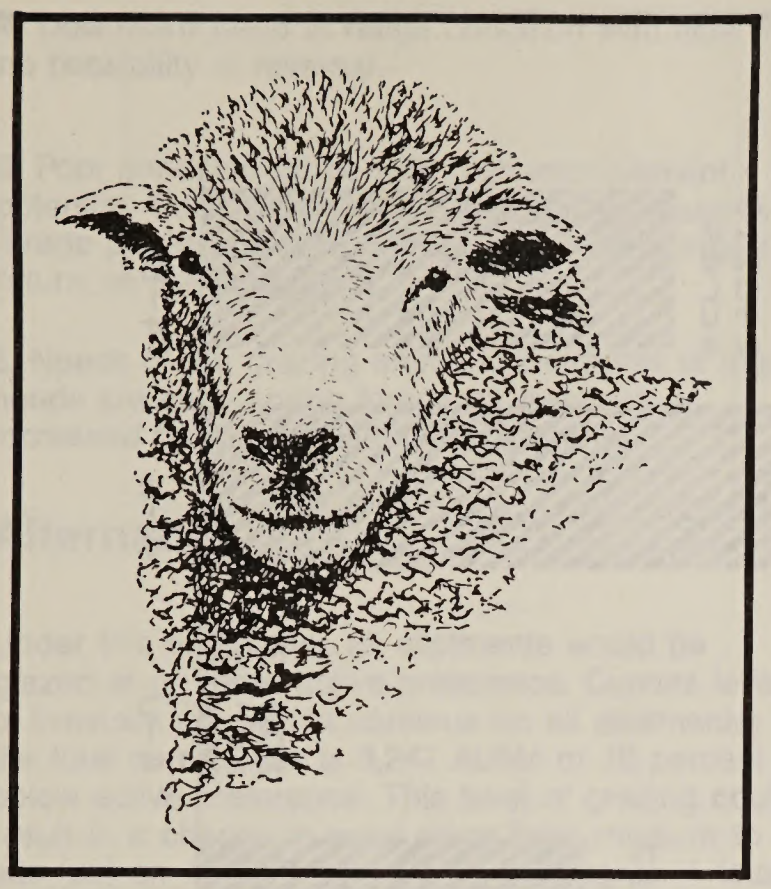
Impacts on Range Resources

Introduction

As stated in the analysis assumptions, sufficient data is not available to determine the proper grazing capacity for each allotment. Therefore, for analysis purposes, this document assumes that the currently authorized grazing levels (active preference for livestock and current numbers for big game) are proper. This level of grazing is found in Alternative 2; therefore, all allotments are grazed at 100 percent of capacity under Alternative 2. Continuation of present monitoring studies and establishment of new studies will allow BLM to determine the true capacity of an allotment before any decisions are made.

Proper rates of vegetation utilization are basic to range management. Continued overutilization results in the loss of plant vigor and death of desirable plants due to reduced carbohydrate reserves, loss of live root mass, and a general reduction of plant growth and reproduction (Heady, 1975). As shrubs, grasses and forbs are lost from the plant community, less palatable species such as bottlebrush squirreltail, big sagebrush, and greasewood increase. Eventually, the most undesirable species such as juniper, rabbitbrush, halogeton, horsebrush, Russian thistle, and snakeweed invade and spread throughout the plant community.

On an area-wide basis, plant utilization of greater than 50 percent of the current year's growth constitutes overutilization, also called overgrazing (Workman, 1979; USDA, SCS, 1967). Generally, the 50 percent utilization rule holds true for spring and summer allotments; however, individual plant species vary in their tolerance to grazing effects. Factors which can influence a species' ability to withstand the effects of grazing at more than 50 percent include season-of-use such as winter (low potential for impact) versus spring (high potential for impact), livestock type and distribution, duration of



use, plant community composition and palatability, weather patterns, soil conditions and intensity of management. Season-of-use and grazing animal distribution are the most significant factors which could contribute to overutilization within the Box Elder Planning Area.

Distribution refers to the degree to which livestock will graze throughout the entire allotment and is controlled by factors such as availability of water, type of livestock, and topography. Poor distribution results in the overutilization of parts of an allotment with little or no utilization of other areas.

Therefore, utilization levels, distribution of livestock, and timing of use must be monitored and grazing use designed to lessen impact to susceptible plants during these critical growth periods.

The four stages of ecological development in a plant community are early, middle, late, and climax condition. Climax condition is the highest ecological development of a plant community capable of perpetuation under the prevailing climate and soils. Optimum management and manipulation potential usually occurs in the late and middle seral stages. In some cases, the climax and late stages may be represented by an undesirable community such as the pinyon/juniper association or big sagebrush. Therefore, treatment will probably result in a change in seral stage from the late or climax stage to the middle stage. This change would remove undesirable overstory plants and replace them with preferred species within the treatment area. Thus, although the seral stage has been changed from a higher to lower stage, the change can be positive in that grazing or use capacity has probably been increased. This change would aid distribution of livestock and overall utilization of preferred plant species. At a minimum, this will maintain the allotment in a static range condition and, in many cases, could change a downward trend to an upward trend.

For purposes of analysis, it is assumed that the most significant changes would be realized in the middle and late stages; therefore, all changes addressed in this RMP are from middle to late, or late to middle. Generally, a decrease in use would change the seral stage from middle to late. In addition, a change from late to middle would probably occur if an increase in use occurred. Proposed seasons-of-use changes would not have a significant impact on seral stages.

Range and wildlife improvement projects (land treatments) would impact seral stages. Water projects would affect distribution of livestock, but would not affect seral stage.

Land treatments are designed to improve the composition and condition of vegetation by replacing dense stands of sagebrush, juniper and other undesirable species with a mixture of more desirable grasses, forbs and shrubs. Treatments also reduce livestock grazing pressure on the surrounding native range. Fencing the land treatments allows for rest or deferment from livestock grazing on the seeded areas.

Each site proposed for land treatment would be evaluated for its need and probability of success with the following critiera:

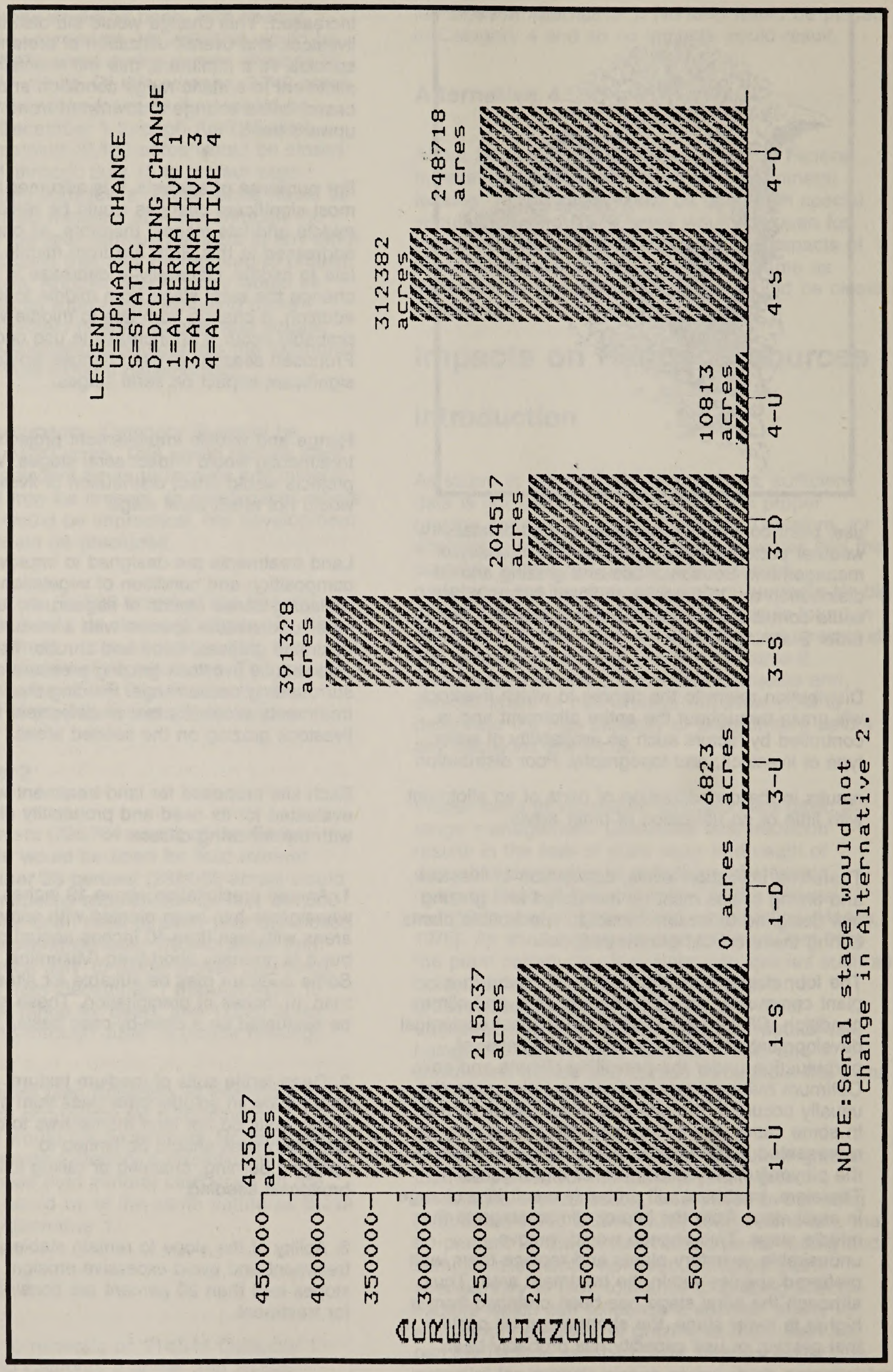
1. Annual precipitation above 10 inches. Crested wheatgrass has been planted with some success in areas with less than 10 inches annual precipitation, but it is normally short-lived (Vallentine, 1975). Some cultivars may be suitable for sites with less than 10 inches of precipitation. These situations will be evaluated on a case-by-case basis.

2. Deep fertile soils of medium texture. Soils should also be low in soluble salts (less than 1 percent). Rocky soils do not lend themselves to drill seeding, and such sites should be limited to spraying,burning, chaining or railing followed by broadcast seeding.

3. Ability of the slope to remain stable after treatment and avoid excessive erosion. Generally, slopes less than 20 percent are considered suitable for treatment.

FIGURE 4 — 1L

CHANGES IN ECOLOGICAL DEVELOPMENT BY ALTERNATIVE



4. Downward trend in range condition with little or no possibility of reversal.

5. Poor condition range with high improvement potential. Such sites give the greatest increase in forage production and, consequently, the greatest return on the investment.

6. Needs of the grazing animals. Examples of these needs are early spring forage for livestock or increased browse for wintering big game.

Alternative 1

Under this alternative, all allotments would be grazed at or below active preference. Current levels of livestock use would continue on all allotments; the total current use is 8,247 AUMs or 19 percent below active preference. This level of grazing could result in a change in seral stage from medium to late (up) on 435,656 acres in 24 allotments. A total of 23 allotments, or 215,237 acres, would remain at a static level. No allotments would experience a decline in seral stage (see Figure 4-1 and Appendix 11).

No season-of-use adjustments for livestock would be made under this alternative. On 15 spring allotments used in spring and/or summer, grazing would result in a decrease in understory grass and forbs and an increase in the shrub overstory, primarily big sagebrush, greasewood and rabbitbrush. Present seasons-of-use could also result in increased soil disturbance and a subsequent invasion of undesirable plant species, such as halogeton, which is toxic to livestock; cheatgrass, which increases fire danger; and other invaders such as Dyers woad, which can displace valuable forage and crops.

No rangeland improvements would be implemented under Alternative 1. Dense juniper and sagebrush sites and the poor understory production generally associated with these sites would remain in their present condition.

Continued ORV use and associated surface disturbance would result in a short and long-term decrease in vegetation, both in the immediately impacted sites and other areas surrounding the sites because oferosion. Removing either soil-holding or desirable plant species would result in a significant invasion of undesirable plants such as halogeton, cheatgrass and rabbitbrush. This not only diminishes site potential, but increases the probability of fire (cheatgrass) and the loss of livestock by poisoning (halogeton).

Continued vehicle use during times of adverse weather would result in deterioration of public access roads from erosion damage. Unrestricted cross-country ORV use would continue to result in harassment of livestock during the critical calving and lambing periods and in the winter when livestock are subject to environmental stress. Vandalism to facilities and maintenance costs for both BLM and affected livestock operators would increase.

Alternative 2

Land exchanges for the purpose of consolidating public ownership (blocking) would facilitate range management and eliminate administrative problems dealing with exchange-of-use, cooperative agreements, trespass, and maintenance of improvements. Increased grazing management efficiency should result in better livestock distribution, which in turn would increase available livestock forage in the short and long term. Disposal of 1,259 isolated acres of public land would eliminate the Naf Allotment and improve management efficiency in four other allotments by eliminating administrative problems associated with these areas.

Eight miles of new physical access and 6 of the 10 miles of legal access proposed would facilitate ongoing range management practices such as monitoring, construction of range improvement projects, and use supervision. New access would also provide corridors for livestock movement and aid in maintenance of facilities such as fences and water troughs. This alternative should result in better distribution of livestock because permittees would have better access to other parts of the allotments, which would ease the tasks of salting and herding livestock. Increased distribution of livestock should result in better dispersed utilization of forage, which would ease grazing impacts in traditional grazing areas. Diminishing the impact on these areas and opening new grazing areas should increase vegetation over the long term.

Under this alternative, grazing occurs at proper levels (see Analysis Assumptions) and therefore existing seral stages of vegetation would remain static.

Seventeen allotments would have some adjustment of season-of-use, including 6 spring, 5 summer, 3 spring and summer, 2 winter and 2 fall allotments. The proposed adjustments would provide protection for vegetation during the critical growing season. These new seasons-of-use should result in both short- and long-term increases in both quantity and quality of livestock forage.

Impacts of designating areas open to ORV use would be the same as those discussed for undesignated ORV use under Alternative 1. Closing areas or limiting ORV use to existing roads and trails would reduce and probably eliminate harassment of livestock during calving and lambing periods in those public land areas.

Alternative 3

Landownership adjustments (exchange) would be not made for range purposes. Some beneficial impacts could result from adjustments made for watershed or wildlife purposes as a result of blocking public lands.

Livestock grazing would be reduced by a total of 1,849 AUMs on 34 allotments in which big game populations would be reintroduced or increased. On eight of these allotments, resulting use would exceed currently authorized levels by a total of 430 AUMs. In this alternative, 6,823 acres in one allotment would change from middle to late seral stage (up). A total of 35 allotments would remain at a static level, affecting 391,328 acres. A change from late to middle seral stage (down) could occur on 204,517 acres in 11 allotments (see Figure 4-1 and Appendix 11).

Under this alternative, 18 of 24 proposed changes in season-of-use would result in reduced livestock use during the critical growing season in the spring. No reduction in livestock AUMs would result from these changes. Therefore, a gain in preferred vegetation could be expected.

A number of treatments for wildlife habitat and watershed purposes would have incidental impacts on livestock forage. Burning 1,100 acres on six allotments and burning and seeding 1,200 acres on another allotment would result in a loss of vegetation for 2 to 3 years until rehabilitation is achieved, after which an increase in vegetation would be realized. Removal of overstory vegetation would enhance regeneration of forbs and grasses by removing competition for nutrients and moisture, as well as increasing available nitrogen through heat release during the fire.

Harvesting pinyon and/or juniper from 4,500 acres on five allotments would disturb and reduce vegetation. Removal (harvest) of pinyon/juniper would result in a short-term reduction of forbs and grasses and an increase in this understory vegetation in the long term.

Plowing and seeding of 200 acres on two allotments would result in a 2 to 3 year loss of

GAMBEL OAK

grazing because vegetation would be eliminated. This would be followed by a period of time in which seedlings would become re-established and vegetation ground cover would expand. Assuming that the areas are incorporated into a management plan, the long-term effects should be an increase in desirable forage species.

Use of tebuthiuron as a treatment on 2,000 acres in three allotments would result in a short-term decrease in understory vegetation in the treatment areas. There would be a long-term increase in livestock forage due to removal of overstory competition.

Fencing of 15 miles of riparian/aquatic habitat along 9 miles in five allotments will eliminate livestock use within the fenced areas. A livestock-fishery study in the Randolph Planning Unit in Rich County indicates that a threefold increase in pounds per acre can be realized (Platts and Nelson, 1983).

Two miles of new fence in Connor Allotment would result in a new 640-acre pasture. This would result in an increase of vegetation in both the short and long term, as livestock use would be restricted and controlled by the fences and any management systems initiated. However, traditional movement of livestock and use by the permittee would be significantly altered, forcing the permittee to modify his present management strategy.

Fencing 124 springs on 24 allotments would eliminate livestock grazing in the fenced areas, but livestock water would remain available at each site. Eliminating trampling by livestock will increase or protect water availability because the springs would not be shut off by surface compaction.

Impacts of ORV designations to range resources would be the same as those discussed under Alternative 1.

Alternative 4

Of the 11,597 acres recommended for disposal in this alternative, 6,575 acres of grazing land in nine allotments are involved. Six of the nine allotments are small or fragmented and would be eliminated by this disposal. A total of 158 AUMs would be lost in these six eliminated allotments. Impacts of land exchanges would be the same as those discussed under Alternative 2.

Impacts of new physical and legal access would be the same as those discussed under Alternative 2.

Proposed livestock grazing will include an increase of 2,442 AUMs in 21 allotments. Most of the increases would result from the reactivation of suspended livestock preference. The increased grazing would decrease preferred vegetation such as forbs and grasses and increase undesirable vegetation such as sagebrush, rabbitbrush, cheatgrass and halogeton. A change from the middle to the late seral stage would occur on four allotments, affecting 10,813 acres. A total of 17 allotments (312,382 acres) would remain static, and 248,718 acres in 26 allotments would decline from the late to the middle seral stage (see Figure 4-1 and Appendix 11).

Impacts of proposed seasons-of-use would be the same as those discussed under Alternative 1.

Chaining or burning of 11,900 acres on 10 allotments would result in a loss of vegetation for 2 to 3 years until seeding would increase shrubs, forbs and grasses in the area. Available livestock forage could increase.

Burning followed by seeding of 4,000 acres in the Dove Creek Allotment would result in a decrease in available forage for 2 to 3 years. After seeding species desirable as livestock forage, there should be an increase in available livestock forage in the treated areas. An increase in available forage could lead to some increase in livestock AUMs and consequently livestock use in the allotment where this rangeland improvement is proposed.

Interseeding of high potential big sagebrush sites on three allotments (2,300 acres) followed by burning after grasses and forbs are well established should result in decreases of shrubs, especially big sagebrush, in the treated areas. A gain in grasses, both interseeded varieties and native species, would be realized in the area. This is due to (1) removal of overstory competition, (2) increasing the preferred species seed source, and (3) release of nitrogen during burning. An increase in available AUMs should be realized as a result of the treatment. This should, in turn, result in an increase in livestock use on treated allotments.

Spraying 2-4D on 4,500 acres of four previously untreated allotments and 10,043 acres of previously treated areas in six allotments would have both an immediate and long-term detrimental impact on all shrubs in the treatment areas. Removal of the overstory competition would result in natural regeneration of native and seeded grasses, which should continue into the long term. This increase in grasses and forbs should result in an increase in available AUMs, which could result in increased livestock use.

Harvesting of pinyon and/or juniper on 9,900 acres in six allotments will result in the same impacts as described in Alternative 3.

Building 78 miles of fence would result in pasture systems in nine allotments. Livestock distribution would be enhanced by these pasture systems, resulting in dispersed utilization of vegetation. Dispersed utilization and the associated decrease in grazing pressure should significantly increase vegetation.

Distribution of livestock could be controlled by the development of water from two new wells in two allotments, 18 reservoirs in four allotments, two springs in one allotment, and construction of a livestock guzzler on one allotment. Water from wells, reservoirs, springs, or guzzlers can be used to move livestock by controlling flow into pipelines and/or troughs.

Water distribution for livestock would be improved on 11 allotments by constructing 59 miles of pipeline. This would improve livestock distribution and consequently improve range conditions.

Impacts of ORV designations would be the same as those discussed under Alternative 1 for open designation and Alternative 2 for limited and closed designations.

Impacts on Air Quality

Under all of the alternatives, impacts to air quality would occur from particulate matter and visible smoke resulting from such things as rangeland improvements, road construction, mineral development, and off-road vehicle use. Because the impacts would be of short duration, they are not considered significant.

Impacts on Soils and Watershed

Introduction

When surface disturbance is sufficient to alter vegetative density and/or composition or disturb soil through compaction or tillage, erosion by wind and water will increase.

The amount of increased erosion is subject to factors including wind patterns, precipitation patterns, topography (especially slope), soil characteristics, and vegetation types and densities. Decreased surface litter and ground cover and increased soil compaction or tillage increase wind transport of suspended soil and reduce water infiltration into soil, increasing surface runoff (Colman, 1953). Increased wind erosion results in blowouts, surface pavement (a high density of surface rock fragments), sand dunes, loess deposits, and altered soil depths. The results of increased runoff are gullying, rilling, sheet movement of soil downslope, outwashes, alluvial fans, and altered soil depths.

Alternative 1

Erosion on about 1,330 acres of critical and severe erosion areas on the Lucin-Pilot, White Lakes, South Kelton, Rosebud, and Dove Creek Allotments would continue unabated. Over time, the amount of acreage involved would gradually increase. Rangeland, watershed, and wildlife values would continue to gradually decline as soil and vegetation would be removed by erosion. However, rangeland, watershed, and wildlife habitat values are relatively low in those areas and are of local significance only.

Grazing of 7,911 AUMs below proper levels would cause less disturbance of vegetation and allow an increase in strength, density, and diversity of plant life. This would stabilize soils and reduce erosion.

Erosion would increase on 15 spring allotments where livestock grazing during critical growth periods under current seasons-of-use would reduce grass and forb species and increase shrubs. Shrubs offer less stabilization to soils, resulting in increased runoff and sediment transport by wind and water. Erosion at a significant rate would occur only where steep slopes and reduced vegetation coincide. The extent and location of the resulting erosion is not quantifiable.

Exploration and prospecting for minerals would require roads and facility sites that would disturb surface soils and vegetation. Increased erosion on disturbed areas would be manifested as rills, gullies, and increased sedimentation. The amounts and locations where exploration and prospecting activity could lead to increased erosion through surface disturbance is unknown. There has been recent interest in locatable mineral exploration in the areas of Lion Mountain, and Kimball Creek, U & I, and Kilgore Allotments involving approximately 10,000 acres.

The entire planning area would be designated as open to ORV travel. ORVs are responsible for increasing the number of vehicle trails, resulting in soil compaction and destruction of vegetation in wheel paths. In steeper areas, erosion would occur and ruts would develop within a short period of time. Watershed values decline as surface runoff, sedimentation and soil loss increase. Acreage affected cannot be determined, but the impact could be significant.

Alternative 2

Land exchanges which block public lands would enhance watershed management by increasing the feasibility of improvement projects.

Impacts of critical and severe erosion on 1,330 acres in five areas would be as described under Alternative 1.

No impacts would occur to watersheds from grazing levels since they are at the rangeland's capacity. Season-of-use adjustments on 9 of 12 allotments would reduce grazing during the critical growth period causing grass and forb species to increase and shrubs to decrease. This would benefit affected watersheds by increasing soil stability and water retention capability over the long term. Grass and forb species would not increase on the remaining three allotments (Warm Springs, Rosette, and the north part of Dove Creek) because of a current lack of understory vegetation.

The effects of surface disturbing activities associated with fluid mineral exploration would be the same as described in Alternative 1, except the Pilot and Newfoundland Mountains would change from Category 4 to Category 2, and increase the possibility of surface disturbance in those areas. The areas available to exploration would be susceptible to the impacts described in Alternative 1. Also, 980 acres withdrawn from locatable mineral entry on Donner and Bettridge Creek watersheds would protect municipal water by preventing surface disturbance that could reduce water quality.

ORV use would not be allowed on 70 acres. This closure would protect the immediate area around Donner and Bettridge Creeks from surface disturbance by ORVs. ORVs would be limited to existing roads and jeep trails on 28,550 acres (see Appendix 6). This limitation would eliminate the problem of new trails being created by ORVs traversing untravelled areas.

The impacts to watersheds in the remaining 983,174 acres open to ORV use would be the same as discussed in Alternative 1.

Alternative 3

About 730 of 1,330 acres with critical and severe erosion would be impacted as described in Alternative 1. The remaining 600 acres would improve in erosion condition as a result of surface treatments. Retention berms would be placed along Warm Springs Wash. The berms would trap eroded sediments and reduce transport of sediments down the wash. Headcutting, side branching, and bank cutting would be significantly reduced. The berms would protect about 250 acres at the upper area of the wash. About 1,200 acres of watershed area associated with the wash but located on Warm Springs Allotment would be burned and seeded with soil stabilizing vegetation such as hi-crest, Ephraim or western wheatgrass; Indian ricegrass; bud sage; prostrate kochia; small burnett or scarlet globemallow. Burned areas would be subject to increased erosion for 2 to 3 years until revegetation would be achieved. Thereafter, watershed condition would be improved and surface runoff would decrease as plant cover provides soil stability.

Reduced spring use of forage on 18 allotments during critical growing periods would result in increased plant vigor and stronger root systems. This would benefit watershed values such as soil stability and water retention capacity, particularly during the period of spring runoff.

Burning 1,100 acres on six allotments would improve watershed condition and erosion protection on slopes and in draws and valley bottoms. Burning would occur in small patches of 10 to 50 acres. The removal of vegetation would expose soil in burned areas, and erosion would increase for 2 to 3 years until new vegetation could become established. Watershed condition would improve in the long term as soil would be stabilized and erosion potential reduced. Impacts would be highly localized because of the small acreage burned in any given location.

Pinyon/juniper harvest on 4,500 acres in five allotments would remove the overstory and cause disturbance of understory vegetation. Soil would be exposed where cutting, moving, and loading of trees would remove protective understory vegetation. Erosion would increase for 2 to 3 years after harvest until vegetation would be re-established sufficiently to stabilize soils. Ersoion would then be reduced in the long term on the harvested area.

Plowing of 200 acres on two allotments would remove vegetation and expose turned soil to erosion by water and wind. The impact would be short term only since the area would be seeded immediately and plant cover would be re-established in 2 to 3 years.

Tebuthiuron treatment on 2,000 acres in three allotments would be targeted to kill juniper trees. Understory would also be decreased, allowing surface runoff to increase moderately. Some soil would be carried away;however, litter would remain in place and temper soil loss. Natural revegetation of understory species would result in long-term watershed improvement.

Fifteen miles of riparian/aquatic habitat along nine streams in five allotmentswould be fenced to protect and enhance riparian vegetation by excluding livestock grazing. This would improve streambank stability, reduce sedimentation, and improve water quality.

A total of 124 springs on 24 allotments would be fenced to keep livestock from trampling or contaminating the water source. This would prevent the possible loss of the water supply or reduction of water quality at the spring sites. The possibility of groundwater contamination would also be reduced.

The effects of surface disturbance from activities associated with mineral exploration would be the same as described in Alternative 1. The effects of the 980-acre mineral withdrawal on Donner and Bettridge Creek watersheds are as described in Alternative 2.

The impact of designating 630,548 acres open to ORV use would be the same as identified in Alternative 1. The impacts of designating 379,946 limited, and 1,300 acres closed to ORV use would be the same as identified in Alternative 2. This alternative would also close 60 acres in the Raft River Narrows and 250 acres along the historic Central Pacific Railroad grade. The effects would be as described in Alternative 2 for closed areas.

Alternative 4

Land exchanges which block public lands would enhance watershed management by increasing the feasibility of improvement projects.

Grazing above the currently authorized levels on 21 allotments would cause a decrease in grass and forb composition and an increase of shrubs. Based on erosion susceptibility and grazing rates, it is estimated that 2,000 acres would be affected. Impacts would be of the same nature as described in Alternative 1.

Chaining or burning 11,900 acres on 10 allotaments and burning 4,000 acres on Dove Creek Allotment would remove vegetation and expose soil to wind and water erosion. All acres would be seeded, but until revegetation is achieved in 2 to 3 years, erosion would increase. After revegetation is accomplished, soil erosion would be below pre-treatment levels.

Interseeding 2,300 acres in three allotments would not increase soil erosion significantly. Seeded areas would be burned, removing vegetation. Erosion would increase for 1 to 3 years until the seeded grasses regenerate and fill in where sagebrush previously grew. The grass root network would increase soil stability over that provided by sagebrush.

Spraying 14,543 acres on 10 allotments with 2-4,D would remove overstory shrubs and consequently cause grasses to increase in density. Increased grass density would increase soil stability, reducing erosion susceptibility.

The effects of surface disturbance from activities associated with fluid mineral exploration would be the same as described in Alternative 1.

The effects of closing 50 acres along Donner Creek and 20 acres along Bettridge Creek to ORV use would be the same as described in Alternative 2. ORV use on other public lands (910 acres) within the watersheds of Donner and Bettridge Creek would be limited to existing roads and trails. This would include 620 acres in Donner Creek and 290 acres in Bettridge Creek. These actions would helpmaintain water quality for important uses such as habitat for the threatened Lahontan cutthroat trout andmunicipal water for Wendover.

The impacts of designating 1,010,784 acres as open for ORV use would be the same as described in Alternative 1.

Impacts on Wildlife Habitat

Alternative 1

Current levels of livestock and big game grazing would continue under this alternative. Livestock grazing levels would be a total of 8,247 AUMs below active preference on 30 allotments. On 10 allotments, grazing at 9 percent or less below active preference is assumed not to make a significant change in vegetative condition. On the 20 allotments grazed at 9 percent or more below active preference, 8,096 less AUMs would be consumed. Grazing at these lower levels on 20 allotments would increase the vegetative resource, thereby improving the wildlife habitat conditions in the short and long term. Increased habitat conditions could allow wildlife use to increase by a corresponding amount (8,096 AUMs), depending upon other variables such as population cycles, species use areas, wildlife depredation, weather and hunting pressure.

Continuing the current spring season-of-use for livestock on 21 allotments identified in Appendix 4 favors shrub growth, mainly big sagebrush, at the expense of grass and forb production. Increased big sagebrush would improve the sage grouse and mule deer winter range habitats. The decreased grass and forb production would negatively affect other terrestrial wildlife species' habitat conditions. These conditions will start in the short term and increase into the long term.

Minerals exploration and development would have a negative impact on wildlife on approximately 10,000 acres in the Lion Mountain and Kimball Creek areas and within the U & I and Kilgore Allotments.

The continuation of the existing categories for fluid mineral leasing (see Appendix 5) would leave 266,645 acres of critical and crucial wildlife habitats without adequate safeguards. This lack of protection could negatively impact wildlife at critical periods on 81,100 acres of crucial mule deer winter range, 167,410 acres of sage grouse breeding complexes, and 16,760 acres of raptor nesting habitat. Habitat protection would be lacking on 980 acres of critical habitat for the threatened Lahontan cutthroat trout along Donner and Bettridge Creeks, and on 395 acres of important riparian/aquatic stream habitat. This lack of protection and subsequent wildlife disturbance would increase winter mortality for deer and reduce reproduction for sage grouse and raptors. The lack of protection along riparian areas would result in riparian aquatic habitat disturbance and reduced fish populations. Not protecting the 980 acres of critical habitat for the Lahontan cutthroat trout along Donner and Bettridge could result in the loss of these populations of a Federally listed threatened species.

At present, the whole planning area is undesignated for ORV use. A continuation of this situation would leave 116,220 acres of crucial and critical wildlife habitat without protection. This lack of protection could result in wildlife disturbance at critical periods on 55,000 acres of crucial mule deer winter range, 52,000 acres of sage grouse breeding complexes, and 8,000 acres of raptor nesting habitat. The lack of protection and resulting disturbance at critical periods seriously stresses or disrupts wildlife. The result is increased stress mortality or a reduction in reproduction. Either situation results in reduced wildlife populations. Habitat protection would be lacking on 980 acres of critical habitat for the threatened Lahontan cutthroat trout along Donner (640 acres) and Bettridge (340 acres) Creeks, and on 240 acres of important riparian/aquatic stream habitat. ORV use in and along riparian/aquatic habitats would disturb the vegetative cover, streambank stability and aquatic bottom habitat. Water quality would be reduced as a direct result of the vehicle in the stream or indirectly as erosion would increase on the disturbed banks and riparian zone. Stream sedimentation can eliminate the fisheries by cementing the bottom strata to the point that no forage in the form of aquatic invertebrates can be produced. Should this happen, the fish would eventually disappear.

Alternative 2

This alternative proposes to dispose of 32 parcels totalling 4,975 acres of public land. Approximately 830 acres of this total is proposed for transfer to other governmental agencies such as USFS, FWS, or UDWR. These 830 acres would be available for public use and would still be afforded habitat protection. Therefore, no habitat loss would occur. However, if these agencies are not interested in acquiring these lands, they would be sold into private ownership and habitat loss could occur. The remaining 4,145 acres would be sold to private interests and the public habitat values would be considered lost. These 4,975 acres were selected from the total 11,597 acres identified for disposal in Alternative 4 because they have the least wildlife habitat values.

The remaining 1,006,819 acres would be placed in the retention category. These acres would be subject to exchange if the criteria identified under the description of Alternative 2 are met.

The creation of 8 miles of new physical access in the Black Rock/Baker Hills/Dove Creek Allotment area and 10 miles of legal access would increase motorized vehicle access. However, this new access should not significantly impact wildlife in the short or long term.

Early spring grazing would be reduced on 12 allotments (see Appendix 4). Reduced spring grazing could cause a shift in succession, favoring grasses and forbs, and would reduce shrubs over the long term. Most wildlife species' habitat conditions would improve, especially in the long term. However, any changes in the composition favoring grasses and forbs would reduce sage grouse habitat and browse in mule deer winter range.

Early spring grazing would continue on 9 allotments. The impacts on these allotments would be as described under Alternative 1.

The impacts of locatable mineral development would be the same as those discussed under Alternative 1, with one exception. This alternative includes a withdrawal of 980 acres from locatable mineral entry on Donner and Bettridge Creeks to provide protection of critical habitat for the threatened Lahontan cutthroat trout. This withdrawal would exclude exploration and mining from this area and help insure the existence of this Federally threatened fish.

As a result of the fluid mineral leasing categories (see Appendix 5), impacts to wildlife would be reduced on 83,840 acres of crucial mule deer winter range, 179,840 acres of sage grouse breeding

complexes and 17,920 acres of raptor nest sites. The condition of important wildlife habitats would be protected on 395 acres of riparian/aquatic habitat and 980 acres of critical habitat for the threatened Lahontan cutthroat trout (640 acres along Donner Creek and 340 acres along Bettridge Creek).

This alternative would close 70 acres along Donner and Bettridge Creeks to ORV use to ensure the protection of critical habitat for the federally threatened Lahontan cutthroat trout. Protection would allow the habitat to remain undisturbed by ORVs. The remaining 910 acres along these streams would be limited for ORV use and protection would not be as effective as under full closure.

ORV use would be limited during critical wildlife periods and on important habitat areas to protect wildlife and habitat conditions. Seasonal closures would be imposed from December 1 through April 15 on 20,300 acres of crucial mule deer winter range, from March 1 through June 15 on 5,100 acres of sage grouse breeding complex habitat, and from March 15 through July 15 on 2,000 acres of raptor nesting habitat. This elimination of disturbance from ORV use would reduce wildlife stress and corresponding mortality.

Habitat would be protected on 240 acres of riparian/aquatic habitat and 910 acres of the Donner and Bettridge Creek areas. Restricting ORVs to existing roads and trails would assure that the habitat would not be degraded by vehicular traffic. This restriction would also reduce the level of wildlife disturbance. Impacts to wildlife should not be significant on the 983,174 acres left open to ORV use under this alternative.

Alternative 3

Under this alternative, criteria have been established that restrict exchanges to those that would increase environmental values, such as wildlife habitat. No areas have been proposed for the disposal category under this alternative. Therefore, the result of landownership adjustments would be increased or improved wildlife habitat values including wildlife forage, cover, water and living space.

Forage use by wildlife would increase by 2,136 AUMs from current use on 32 allotments. This increase in wildlife use comes from the reintroduction of elk into 13 allotments on the Grouse Creek/Raft River Mountain ranges, bighorn sheep on the Pilot and Newfoundland Mountain ranges, and an increase of pronghorn on 11 allotments in the desert shrub area along the old sheep trail. Forage available for deer would remain the same as in Alternative 1. The wildlife increase would necessitate a 1,849 AUM decrease in livestock forage. Elimination of livestock grazing on three allotments (Ida-Ute, Conner and Naf) and reduction of livestock grazing on other allotments would not provide enough forage to accommodate increased wildlife in all cases. Currently authorized grazing levels would be exceeded on eight allotments (see Appendix 3). These forage use changes could impose a hardship on livestock operators, and the overutilization would reduce vegetative conditions in the long term.

Depredation on private agricultural lands could increase as the result of building an elk herd to optimum numbers on the Grouse Creek and Raft River Mountain ranges. This depredation would have to be controlled by UDWR and would probably necessitate limiting the population of elk in this area somewhere below their projected optimum level.

Reduced spring grazing on 18 allotments (see Appendix 4) would favor the production of grasses and forbs and would reduce the composition of big sagebrush over the long term. Most wildlife species' habitat conditions would improve, especially in the long term. However, reduced sagebrush composition would reduce the habitat conditions for sage grouse and mule deer winter range.

The proposal to burn 1,100 acres of big sagebrush involves the following six grazing allotments: Grouse Creek, Dry Canyon, Buckskin, Red Butte, Rosebud and Warm Springs. From 100 to 300 acres could be burned in each allotment in small 10-to 50-acre patches. This treatment would break up otherwise large monotypic habitats and add diversity, or change draws or valley bottoms from rank big sagebrush stands to a more mesic grass and forb habitat type. Sage grouse habitat would be improved. Burning these small plots would initially eliminate all habitat values on the small patches. In 1 to 2 years, however, the treatment would improve habitat conditions into the long term.

The proposal to burn, or rail, and seed 1,200 acres of black sagebrush in the Warm Springs Allotment (T.12N., R.15W., Sections 14, 22, 23, and 26) is within crucial sage grouse habitat. The black sagebrush areas are used as strutting habitat and at least two leks would be destroyed. Crucial year-round habitat for sage grouse would also be lost.

The 1,200 acres also are mule deer winter range, part of which is considered crucial. Black sagebrush is a major component in the winter diet of deer within this area. Converting these 1,200 acres from black sagebrush to a mix of soil stabilizing species would destroy the crucial winter mule deer habitat within the treatment area.

The proposal to plow and seed involves 100 acres each on the Connor and Salt Wells Allotments. The tops of small hummocks or dry land mounds in or near these wetland habitats would be plowed. These areas would then be planted to a perennial grass mix or in some areas to shrubs or grain crops. This treatment would improve waterfowl and shorebird nesting and feeding habitat.

Initially, all habitat values within the 100 acres would be lost following plowing, but within 3 to 5 years the habitat conditions would be greatly improved throughout the whole marsh area.

The proposal to chemically treat 2,000 acres of dense juniper stands with tebuthiuron involves three allotments - Grouse Creek (500 acres), Rosebud (1,000 acres) and Warm Springs (500 acres). Small, irregularly-shaped patches of up to 50 acres would be treated to reduce the juniper overstory and allow desirable shrubs to increase. This treatment would improve mule deer winter range conditions since travel lanes, adequate escape, and hiding and thermal cover would be left, while available winter forage would be increased. In the short term, habitat conditions could be reduced since a few shrubs would be killed along with the junipers. In the long term, however, shrubs would increase many times over the present level of composition.

Commercial pinyon and/or juniper harvest would be used on five allotments, totalling approximately 4,500 acres. The impacts would generally be the same as those discussed for tebuthiuron treatment. Commercial harvest would initially reduce the existing browse understory. After 2 to 3 years, an increase in browse would be realized. The allotments involved are: Junction Creek (1,500 acres), Kimball Creek (500acres), Dairy Valley (500 acres), Kilgore (500 acres) and White Lakes (1,500 acres).

Fencing would be constructed on 15 miles of priority riparian/aquatic stream habitat along nine streams in five allotments. The streams by allotment are:

Allotment	Miles of Fence	Stream
Goose Creek	4.75	Birch Creek Pole Creek
Junction Creek	2.5	Raft River
Kimball Creek	1.25	Kimball Creek
Ingham	2.25	North Fork Red Butte Creek South Fork Pine Creek
Fisher Creek	4.25	Fisher Creek Left Hand Fork Dunn Creek Rock Creek

Fencing would remove livestock use in the short and long term, which would greatly increase the riparian vegetation and thereby increase the quality of riparian habitat. Grasses, forbs and shrubs would increase in size, density and diversity. The streambanks would stabilize, reducing siltation. The banks would gradually undercut and form excellent fisheries habitat as well as help shade and cool the water. Water quality would improve since siltation and livestock wastes would be reduced. The combination of improved water quality, bank stability and riparian habitat would improve the terrestrial and aquatic habitats. Once these habitats have improved, the aquatic and terrestrial wildlife densities and diversities would increase.

The 2 miles of proposed fence for the Connor Allotment would effectively fence Section 18 in T.10N., R.4W, forming a pasture within the allotment. The section is bordered on two sides by the UDWR-managed Public Shooting Grounds Waterfowl Management Area (WMA) and is considered highly valuable for waterfowl, shorebird and pheasant habitat. Fencing would eliminate livestock trespass while allowing licensed livestock use during the winter grazing season. Removing the spring trespass grazing would improve the habitat condition. Once the habitat conditions have improved, wildlife densities and diversity will also increase dramatically.

Fencing 124 springs (involving approximately 30 acres) on 24 allotments would eliminate livestock trampling of the springs. Reduction of both trampling and livestock waste contamination of the springs would improve and increase the amount of water. A small area of excellent condition riparian habitat could become available for wildlife use around each fenced spring.

Construction of eight reservoirs on two allotments would create waterfowl feeding and nesting habitat, which would improve the marsh habitat for shorebirds and waterfowl.

Most of the 38 guzzlers on 14 desert shrub allotments would be constructed to increase potential habitat for pronghorn. Some guzzlers would also expand available water for sage grouse and bighorn sheep. This increased water would allow for better wildlife distribution into potentially suitable habitats.

The development of 250 acres of retention berms for watershed stabilization would not significantly affect wildlife habitat if the development was not done during the sage grouse nesting season of March 1 through July 15.

Approximately 215 in-stream structures would be constructed on six priority streams within the planning area. These structures could be man-made or created by introducing beaver to these areas. They would increase the pool-to-riffle ratio in these streams, thereby improving the aquatic habitat amd increasing the number and size of game fish and fishing opportunities. Increased fisheries could be locally significant, but probably would have little effect upon the regional fisheries opportunities.

Impacts from locatable mineral development, mineral withdrawal, and fluid mineral leasing categories would be the same as those discussed under Alternative 2.

Impacts of designating areas closed to ORV use are the same as those discussed in Alternative 2, except that the acreage closed to ORV use would increase to 980 acres in Donner and Bettridge Creek drainages.

The impacts of designating areas open to ORV use under this alternative would be the same as those discussed in Alternative 2.

Alternative 4

Wildlife habitat values could be lost on 51 parcels totalling 11,597 acres proposed for disposal. Of the 11,597 acres, 4,975 acres are thought to have little wildlife value or are so small and isolated that management is impractical. The 6,622 acres remaining have higher wildlife values.

Land exchanges under this alternative are designed to increase development potential and do not consider wildlife needs. The values of the tracts traded would have to be assessed on an individual basis to determine the actual gain or loss of habitat values.

Impacts of proposed new access under this alternative are the same as those discussed in Alternative 2.

Wildlife forage use would decrease by 2,162 AUMs from current levels on 21 allotments. The livestock increase of 5,556 AUMs under this alternative would necessitate a wildlife reduction and no wildlife reintroductions would occur. Increased livestock use could result in overgrazing the vegetation resource on 25 allotments, which would reduce the wildlife habitat forage conditions in both the short and long term. This downward trend in forage condition could further increase the need to reduce big game numbers on these allotments.

Impacts of livestock seasons-of-use are the same as those discussed in Alternative 1.

Small, irregularly shaped vegetative treatments that leave some native understory and are seeded to a mixture of desirable forage species usually improve wildlife habitat conditions. In contrast, large, blocked treatments reseeded to a monoculture of crested wheatgrass are of little value as wildlife habitat. In general, the chainings in pinyon/juniper would benefit habitat conditions if properly designed, and the burning in sagebrush would be detrimental to habitat unless done in small blocks of 100 acres or less.

Burning and seeding 4,000 acres in Dove Creek Allotment would provide some diversity within the large sagebrush habitat and could benefit sage grouse and pronghorn. However, if large, continuous areas are burned and reseeded to domesticated wheatgrasses, habitat would be lost in the short and long term. By using stipulations in the treatment plans to assure wildlife considerations, these habitat losses could be reduced or eliminated and the habitat increased in the long term. Impacts

would be similar for the proposed interseed and burn on 2,300 acres in three allotments.

The target species of the 14,543 acres of 2-4D spraying is big sagebrush. This shrub is important as sage grouse habitat and winter forage for mule deer and pronghorn. Decreasing this shrub on the 10 allotments proposed would reduce the wildlife habitat in the short and long term. However, within 15 to 20 years, some sagebrush reinvasion would be expected.

Commercial harvest of 9,900 acres of pinyon/juniper on six allotments would improve the habitat conditions on mule deer winter range. Treating small, irregularly shaped patches of up to 50 acres would reduce the juniper overstory and allow desirable shrubs to increase. This would improve the available forage for wintering deer while preserving both important travel lanes and hiding and thermal cover. Habitat conditions should be improved in both the short and long term.

The construction of two wells in Dove Creek and Peplin Allotments, two springs in Warm Springs Allotment and 18 reservoirs in four allotments wouldincrease water availability for wildlife, especially pronghorn. These new water sources would turn potential pronghorn habitat into suitable habitat and thereby increase the number and distribution of the species. Sage grouse would also benefit from the spring developments in Warm Springs Allotment. The livestock guzzler proposed for the Cycle Springs Allotment would also increase the water available for wildlife, especially sage grouse and mule deer. The population and distribution of these species would be expanded within this summer range habitat.

Construction of 59 miles of pipelines would greatly increase water available for wildlife, especially pronghorn , and expand their numbers and distribution into areas only potentially suitable at present. These pipelines would also improve livestock distribution, which would improve the habitat conditions on areas presently receiving most of the grazing pressure.

Impacts of locatable mineral development are the same as those discussed in Alternative 1.

A total of 281,995 acres of crucial wildlife habitat would be open to fluid mineral leasing. Wildlife could be seriously impacted during critical periods on 83,840 acres of crucial mule deer winter range, 179,840 acres of sage grouse breeding complexes, and 17,920 acres of raptor nesting habitat. Riparian/aquatic habitat would not be protected on 395 acres. The 980 acres of critical habitat for the threatened Lahontan cutthroat trout along Donner and Bettridge Creeks would be protected since no surface occupancy would be allowed.

Nearly the whole planning area (1,010,784 acres) would be open to ORV use, leaving 115,240 acres of crucial wildlife habitat without protection. This lack of protection could result in wildlife harassment at critical periods on 55,000 acres of crucial mule deer winter range, 52,000 acres of sage grouse breeding complexes, and 8,000 acres of raptor nesting habitat. Habitat protection would be lacking on 240 acres of riparian/aquatic stream habitat.

Of the 980 acres of critical habitat for the threatened Lahontan cutthroat trout, 910 acres would be categorized as limited instead of closed to ORV use. Only 70 acres of the most critical habitat for this fish would be adequately protected with a closed designation.

Impacts on Recreation

Alternative 1

All public land would be undesignated for ORV Use. Recreationists would be allowed to travel on all roads, trails, or roadless areas on public lands for purposes such as hunting, fishing, sightseeing, cross-country motorcycling, snowmobiling, hill climbing, rock hounding, or searching for cultural or historical sites. Hunting and fishing opportunities on public lands would not change.

Alternative 2

On 28,550 acres designated as limiting ORVs to roads and trails, recreationists would not be permitted to enter roadless public land. The areas that comprise the limited acreage are identified in Appendix 6. On a total of 27,400 acres, winter and spring ORV use on roads and trails would not be allowed essentially closing these areas during these times. The impacts of these seasonal ORV closures would not be significant because summer and fall use would be available and are the desirable periods for ORV use. Deer and sage grouse hunting, both fall season activities, would not be impacted. These hunting activities are responsible for most of the annual recreation-related ORV use on the 28,550 acres. Limited and closed designations on the remaining 1,220 acres would not significantly affect recreationists.

Recreation access would improve with 8 miles of new road in the Baker Hills area, 4 miles of new legal access in the Fisher Creek area, and 6 miles

of new legal access in the Pine Creek area. This access would provide increased area for hunting and fishing. The reintroduction of bighorn sheep in the Pilot Mountains and elk in the Grouse Creek Mountains would provide new hunting opportunities.

Alternative 3

Recreation use would continue unrestricted on the 630,548 acres designated open to ORV use. Of 379,946 acres designated limited, 115,000 acres would be seasonally closed. The impacts of the seasonal closures would be as described in Alternative 2. The remaining 264,946 acres would be accessible only on existing roads and trails. This would preclude access to some areas. The areas designated as limited are given in Appendix 6. On 1,300 acres designated closed to ORV use, the recreation-related impacts would not be significant since no unique recreation opportunities are found on those lands.

Bighorn sheep and elk reintroductions in the Pilot and Grouse Creek Mountains, respectively, would impact recreation in the same manner as described in Alternative 2.

The plowing and seeding of 100 acres on the Connor Allotment and another 100 acres on the Salt Wells Allotment would result in improved habitat for waterfowl and upland birds. Hunting and viewing opportunities of these birds would improve.

Alternative 4

Only 980 acres would be designated as limited or closed to ORV use; this would not significantly affect recreation opportunities. The remaining 1,010,784 acres would be designated open to ORV use and would be available for recreational pursuits.

Eight miles of new physical access and 10 miles of new legal access would affect recreation as described under Alternative 2.

Impacts on Visual Resources

No impacts would result from Alternatives 1 and 2.

Alternative 3

The impacts of burning 1,100 acres in six allotments and the burning and seeding of 1,200 acres in one allotment would impact scenic values. The aftermath of stubble, ash and blackened understory would dramatically contrast with the surrounding landscape. The 1,100 acres to be burned would be in numerous separate locations of 50 acres or less. Therefore, disruption of scenic values would be minimal in the short term. There would be no long term visual improvement from these small burns. Burning and seeding of 1,200 acres in a single location would blacken and destroy the natural vegetation of the area and could be visually intrusive in the short term. Within the long term, however, forbs, shrubs and seeded grasses should replace fire scars with an acceptable combination of natural color and vegetative texture.

Pinyon/juniper would be killed on a total of 2,000 acres treated with tebuthiuron. These treatments would be in small blocks of about 50 acres on three allotments. The remaining gray-silver silhouettes of standing dead trees would locally impair scenic quality into the long term.

Pinyon/juniper would be harvested on 4,500 acres on five allotments. The harvest would be clear-cutting that would remove most of the woody vegetation from the sites. Harvested areas would be easily discernible from the surrounding landscape. However, visual impacts would be reduced because a mosiac harvesting pattern of about 50 acres per opening with irregular boundaries would be utilized. The visual impacts would extend into the long term.

Fifteen miles of fenced riparian/aquatic habitat would enhance the scenic values of the protected area. Initially, fences would be visible at close distance but would become less prominent as riparian vegetation developed in the first few years.

Scenic values would continue to improve in the long term as larger plant species such as willows and aspen become established in the exclosure.

The development of berms to control erosion on Warm Springs Wash would disturb 250 acres. Soil and vegetation would be disturbed within the immediate area of berm construction. This disturbance would be visible for only a short distance for approximately 2 years. Regrowth of natural and seeded vegetation would then eliminate impacts to scenic quality at the control site.

Alternative 4

The chaining, or burning, and seeding of 15,900 acres on 11 allotments would cause impacts to scenic values. In areas burned, a blackened landscape would contrast with the undisturbed areas until new seedlings cover fire scars. In most cases, this would be accomplished in five years. In areas chained, there would be a large amount of

dead litter which would contrast with the surrounding landscape. This would be highly visible until reseeded vegetation matures and obscures the chained debris, returning the area to a more harmonious color and texture. Long-term impacts would not be significant.

The visual impacts of interseeding and burning 2,300 acres in three allotments would be the same as described above. However, the initial seeding could cause minor to moderate scenic impairment for 1 to 2 years as a result of disruption of soil and vegetation by equipment.

Scenic values would be affected in 10 allotments where 14,543 acres would be sprayed with 2-4,D. Sagebrush killed by the spray would leave skeletal remains of woody stems for several years. The treated areas would gradually fill in with new vegetation and the remains of dead plants would be covered. Until this process occurs (about 5 years), the sprayings would be highly visible, thus impairing scenic quality.

The impact on scenic quality of spraying and seeding 640 acres on Dove Creek Allotment would be of the same nature as those described above. The impacts of harvesting 9,900 acres on pinyon/juniper on six allotments would be of the same nature as those discussed in Alternative 3.

DESERT SIDE-NOTCHED POINT 1200-1900 AD

McKEAN LANCEOLATE POINT 5700-4200 BC

Impacts on Cultural Resources

Alternative 1

Prehistoric and historic cultural sites would remain accessible in all areas where ORVs could operate. This would affect numerous sites found on ridgelines, benchlands, foothills, and stream valley bottoms. The old Central Pacific Railroad grade and associated historic sites could also continue to be easily accessible with ORVs. As a result, some cultural sites could be disturbed or destroyed, either by unwitting disturbance or willful tampering and theft. Such actions would continue in the long term.

Alternative 2

Closure of 70 acres to ORVs along Donner (20 acres) and Bettridge (50 acres) Creeks would increase protection to any cultural resources that may be present. This would result from the complete inaccessibility of the areas to vehicles. ORV limitations would confine vehicles to existing roads and jeep trails year-round on 1,150 acres. No cultural sites are known to exist within the limited-access areas. If any are present, they would benefit in both the short and long term from lack of discovery and subsequent intentional damage and from less unintentional disturbance from vehicles. Another 27,400 acres would have seasonal limitation for ORVs but no significant protection would result because these lands would be open to ORVs in the summer and autumn when off-road travel is most common.

Impacts to cultural resources on 983,174 acres open to ORVs would be the same as described in Alternative 1.

Alternative 3

Closure of 980 acres to ORV use in the areas of Donner Creek (640 acres), Bettridge Creek (340 acres), the old Central Pacific Railroad grade (250 acres), and 60 acres in the Raft River Narrows would affect cultural resources as described in Alternative 2.

ORV use would be limited on 264,946 acres year-round and 115,000 acres seasonally. The effects of this limited use would be of the same nature as described in Alternative 2.

The open designation on 630,548 acres would result in the type of impacts described in Alternative 1.

Alternative 4

Closing 70 acres along Donner and Bettridge Creeks to ORVs and limiting ORVs on 910 adjacent acres would result in impacts similar to those described in Alternative 2. Impacts from designating 1,010,784 acres open to ORV use would be the same as described in Alternative 1.

Impacts on Forest Resources

No impacts to forest resources would result from Alternatives 1 and 2.

Alternative 3

Utilizing commercial harvesting of woodlands products as a land treatment on 4,500 acres in four allotments would offer additional areas for commercial cutters to obtain firewood. Increasing cutting areas would result in a modest short-term benefit to the economies of Grouse Creek and Park Valley to the extent that food, fuel, and supplies would be purchased in those locations.

Alternative 4

Disposal of some isolated tracts under this alternative would result in a permanent loss of isolated forest resources, including Douglas fir, Engleman spruce and subalpine fir. Although these resources can be found to greater abundance on U. S. Forest Service lands, they are a limited resource on BLM land in Box Elder County.

The impacts of commercial harvesting on 9,900 acres of pinyon-juniper in six allotments would be as described in Alternative 3.

Impacts on Fire Management

Alternative 1

Continued grazing at a rate of at least 9 percent below active preference on 20 allotments would result in increased vegetation. This would increase understory fire fuels such as grasses, forbs, and litter buildup. The potential for fires from both human and natural causes would increase. Cross-country ORV use throughout the planning area would continue the hazard of man-caused fire on 1,011,794 acres open to ORV use.

Alternative 2

Limiting ORV use on 28,550 acres and closing 70 acres would reduce the potential for man-caused fires by restricting vehicles from cross-country travel, thus decreasing or eliminating vehicular and other recreation-related ignition sources. As a result, watershed would be protected and fire suppression costs would be minimized in these areas. The hazards of man-caused fire would continue on 983,174 acres open to ORV use.

Alternative 3

Limiting or closing ORV use on 381,246 acres would reduce the likelihood of man-caused fire. The 630,548 acres designated open would be subject to fire hazards from the ORV users.

Alternative 4

Limiting or closing ORV use on 980 acres would reduce the likelihood of man-caused fire. The 1,010,784 acres designated open would be subject to fire hazards from the ORV users.

Impacts on Socioeconomics

Introduction

This analysis will include impacts to ranch income and capital values. Although the analysis quantifies impacts to the average ranch in each category, actual impacts on individual operators may not be reflected. Tables 4-1 and 4-2 summarize the economic impacts from grazing levels to the various ranch categories.

The ranch values and the operators' ability to borrow could be affected by the levels of use in the alternatives, the methods by which adjustments would be administered, and the operators' capability to mitigate adverse impacts. The value of a BLM grazing permit is normally incorporated into total ranch capital value. In addition, grazing permits for livestock greater than a ranch's carrying capacity may have speculative or market value. Consequently, any adjustment from active preference would impact the ranch value and the operator's ability to borrow money.

Table 4-1
Ranch Capital Value Changes

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Small Dependency Cow-yearling operation	- $2,177	$0	- $228	+ $4,875
Small Dependency Cow-calf operation	- $1,040	$0	- $130	+ $2,308
Medium Dependency Cow-calf operation	- $1,463	$0	- $163	+ $3,283
Small Dependency Ewe-lamb operation	- $15,795	$0	- $975	+ $22,133

Table 4-2
Ranch Income Changes

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Small Dependency Cow-yearling operation	$0	+ $94	- $10	+ $24,636
Small Dependency Cow-calf operation	$0	+ $45	- $6	+ $1,700
Medium Dependency Cow-calf operation	$0	+ $63	- $7	+ $2,409
Small Dependency Ewe-lamb operation	$0	+ $27,182	+ $22,164	+ $32,597

Alternative 1

There would be no predictable change to net ranch income because the current level of use, as defined by this alternative, is used as the baseline, and the permittees would be allowed to graze their livestock at this level. However, ranch values would be impacted by the adjustments in active preference.

The small dependency ewe/lamb operation would experience a $15,795 loss in ranch value as a result of a 57 percent (486 AUM) reduction from active preference. The losses in ranch value to the cattle operations as a result of the 4 percent reduction in active preference (67 AUMs for small dependency cow-yearling; 32 AUMs for small dependency cow-calf, and 45 AUMs for medium dependency cow-calf) are shown in Table 4-1.

Alternative 2

Ranch capital value would not change under this alternative because active livestock preference would remain the same.

Cattle operations would increase their actual use by an average of 4 percent above current levels. Activating this increase would result in increased costs, or income losses, to the operators as shown in Table 4-2.

The small dependency ewe-lamb operation would experience an average increase in income of $27,182 as a result of a 75 percent increase in active preference. Although all sheep operations are figured into this average, only those operations which have taken substantial nonuse would experience a significant increase in income.

Alternative 3

Under this alternative, all operations would experience small capital value losses and insignificant ranch income losses as shown in Tables 4-1 and 4-2. These changes are the result of a 1 percent reduction from active preference for cattle operations and a 4 percent reduction for sheep operations.

Alternative 4

In this alternative, the average ranches in all categories would be increased over the present active preference. The capital value gains range from $2,308 (71 AUMs) for the small dependency cow-calf operation to $22,133 (681 AUMs) for the small dependency ewe-lamb operation. Changes in net income are shown in Table 4-2.

Unavoidable Adverse Impacts

Land disposals in Alternatives 2 and 4 would cause the permanent loss of 4,975 acres and 11,597 acres respectively. Any resource values on these lands would be lost except minerals.

Minerals, if present, would not be recovered on acreage withdrawn from locatable mineral entry or closed to fluid mineral leasing. This would apply to 40,346 acres in Alternative 1 and 980 acres in Alternatives 2 and 3.

Adjustments of season-of-use for livestock grazing in Alternatives 2 and 3 could result in operators having to feed livestock longer from other sources until later spring turnout dates are reached.

Treatments on 9,000 acres in Alternative 3 would cause visible disturbance, accelerated erosion, and loss of forage for livestock and forage and/or habitat for wildlife for up to 5 years. On 1,200 of these acres proposed for watershed improvement, crucial sage grouse habitat would be lost and deer winter range, some of it crucial, would be reduced in quality. Removal of pinyon/juniper from 4,500 acres would result in the loss of production of these trees on the harvested areas for several decades.

Treatments on 43,283 acres in Alternative 4 would cause visible disturbance, accelerated erosion, and a loss of forage for livestock forage and/or habitat for wildlife for up to 5 years. On 14,543 of these acres where spraying with 2-4D would destroy big sagebrush, year-round habitat for sage grouse, winter deer habitat, and antelope habitat would be heavily impacted. Removal of pinyon/juniper from 9,900 of these acres would result in the loss of production of these trees on the harvested areas for several decades.

In Alternative 3, fencing 15 miles of riparian habitat would eliminate livestock use within the exclosures. Construction of 8 reservoirs, 38 guzzlers, and 250 acres of retention berms would damage or destroy some soil and vegetation. In Alternative 4, construction of 78 miles of fence, 2 wells, 18 reservoirs, and 59 miles of pipeline would damage or destroy some soil and vegetation.

Erosion would continue on 1,330 acres in five critical or severe areas in Alternatives 1, 2 and 4. Erosion would continue on 730 acres in four critical or severe areas in Alternative 3.

Forage authorized in Alternative 4 would be 3,390 AUMs above proper levels and result in a decline in wildlife habitat conditions.

Designation of areas as limited or closed to ORV use would reduce recreation opportunities on 28,620 acres in Alternative 2, 381,246 acres in Alternative 3, and 980 acres in Alternative 4.

Some cultural or historical sites would be damaged or destroyed by willful or unwitting disturbance by ORVs and ORV users in the entire planning area in Alternative 1 and in areas designated open in Alternatives 2, 3, and 4.

Irreversible and Irretrievable Commitment of Resources

Disposal of public lands in Alternatives 2 and 4 would result in an irreversible and irretrievable loss of disposed lands and their resources, except for mineral values.

Any minerals extracted would be irreversibly and irretrievably lost. Soil lost through ground disturbing activities would be irretrievable and, in most cases, irreversible within the span of several decades.

In areas of land treatments, land and vegetation would be committed for the lives of the projects. Vegetation production lost on treated areas prior to rehabilitation would be irretrievable. Where surface activities permanently remove vegetation, vegetation production would be irreversibly and irretrievably lost.

The loss of wildlife habitat through land disposal or other actions that would permanently alter the character of the land would be an irreversible and irretrievable loss. Lost habitat for game animals would permanently remove those areas from hunting opportunities.

Short-term Use Versus Long-term Productivity

Disposals of public land proposed in Alternatives 2 and 4 would increase resource management efficiency in the short and long term. Resources found on these tracts would be lost from public use; however, most of these resources are currently unavailable because of the location and limited access to the parcels.

Proposed new access in Alternatives 2 and 4 would facilitate resource management and improve recreation opportunities in the short and long term.

Allowing the critical habitat for the threatened Lahontan cutthroat trout to remain open to mineral entry in Alternatives 1 and 4 could result in a long term loss of this species. In areas which are open to locatable mineral development, periodic wildlife disturbance and soil erosion could occur in the short and long term.

Designation of lands in Categories 2, 3, or 4 for fluid mineral leasing would reduce or eliminate both wildlife disturbance and soil erosion in the short and long term. In areas designated open to fluid mineral leasing, these impacts would continue.

Grazing levels in Alternative 1 would result in long-term improvements of the vegetation, reduced erosion, and both increases and decreases in wildlife habitat. Grazing levels in Alternative 3 and 4 could result in a localized decrease in vegetation productivity at the expense of wildlife and livestock, respectively. Grazing at proper levels in Alternative 2 would cause no change in vegetation productivity.

Land treatments and range developments proposed in Alternatives 3 and 4 could result in reduced vegetation, increased soil erosion, visual disturbance, and a loss of forest products in the short term. In the long term, wildlife habitat conditions would improve in Alternative 3 and livestock forage would increase in Alternative 4.

Designating public lands open for ORV use would result in loss of vegetation, increased fire, and disturbances of wildlife and livestock in the short and long term. Impacts would be reduced or eliminated in areas designated closed or limited for ORV use.

Increases in big game and associated hunting opportunities would require a decrease in livestock use in the short and long term under Alternative 3.

Appendices

Appendices

Appendix 1 General Mitigating Measures

If necessary, disturbed areas will be reseeded to provide ground cover and minimize soil losses.

A survey of potential habitat for threatened or endangered species (including any sensitive species under consideration for formal designation as threatened or endangered) will be made prior to taking any action that could affect these species. Should BLM determine that there might be an effect on listed species, formal consultation with the FWS will be initiated.

Cultural surveys and clearances will be required for all project sites (as specified in BLM Manual 9111. 14) prior to new construction.

When necessary, land treatments will be designed to supply cover, runways, and edge effect necessary for wildlife use.

Land treatments will be contoured into the terrain in mosaic patterns compatible with the visual resource management objectives of the area.

A mixture of plant species adapted to the specific site would be used for reseeding. The seed mixture could contain a variety of grass, shrubs, forbs and browse species as prescribed by the Resource Area's range conservationists and wildlife biologists.

On allotments receiving land treatment, grazing by livestock will not be allowed until vegetation becomes well established. Two growing seasons with no livestock grazing will be required for sprayed areas. Rest for one full year plus the following growing season will be required for burned, plowed, chained, or seeded areas.

The appropriate Federal officials will be notified if paleontological remains are encountered during any land treatment or construction activities. Recovery, protection and preservation measures will be implemented, as necessary, to mitigate adverse impacts.

Prior to the development of projects, provisions of the Memorandum of Understanding of April 1, 1979 between the BLM, FS, UDWR and Soil Conservation Service (SCS) and the master Memorandum of Understanding between BLM and UDWR of June 1979 will be met. These memoranda provide for coordination in the development and establishment of guidelines for buffer zones for water and other developments.

In crucial wildlife habitat areas such as deer winter range, fawning areas, raptor nesting sites, and strutting grounds, construction activities will be scheduled during seasons which would not conflict or adversely impact those wildlife activities.

Protection of the watershed will consist of gully plugging, reseeding, and other watershed preserving practives where applicable.

Appendix 2 Specific Mitigating Measures and Stipulations

Land Treatments,Water Developments, and Management Facilities

Prescribed Burns

The pattern of vegetation modification would be designed to blend into the landscape in a mosaic pattern, to maintain the natural appearance of the area and minimize impacts to the visual resources and enhance edge effect. Unburned interior vegetation stands would be left unburned to enhance the mosaic pattern.

Soil moisture and the season of the burn would be selected to benefit the survival of desired species.

Fire lines and breaks would be built to create a feathered edge, utilizing methods which minimize surface disturbance. Following treatment, fire lines would be rehabilitated, berms smoothed, disturbed areas reseeded, etc. as necessary to conform to the original conformation of the site.

Burning would be conducted in such a manner as to allow convection to vent smoke and provide the most complete combustion of material, thus restricting air pollution.

Temporary fencing where necessary would be used to protect certain sites.

Chemical Treatment

Projects would conform to State and Environmental Protection Agency (EPA) pollution standards. Applications of chemicals would conform to EPA regulations and BLM requirements.

The patterns of the vegetation modification would be designed to blend into the landscape to maintain the natural appearance of the area.

The initial flight adjacent to buffer strips will be flown parallel to the buffer strip and prior to application on the rest of the treatment area. Since these treatments are for wildlife habitat improvement, they would be designed to improve habitat conditions for big game while minimizing habitat loss to other species dependent upon juniper areas.

A buffer strip of at least 100 yards on each side of the designated waterways will be left unsprayed. The buffer strip would be determined on a case-by-case basis and would be designed to fully protect the riparian zones and the aquatic habitat.

A 500-foot buffer strip will be left along inhabited dwellings unless waived, in writing, by the resident. A buffer strip of at least 400 feet will be left along adjacent land used for pasture, crop land, dwellings or barns.

Applications to hard surfaced roads will be avoided.

Application nozzles will be equipped with automatic shutoff devices to prevent loss of herbicide along non-spray routes. The contractor will not wash out any spray tanks in or near any of the streams, or dispose of any chemical containers on the contract area.

All chemicals must be labeled for forestry or range use.

It shall be understood that the government, through the Contracting Officer's Authorized Representative (COAR) during his day-to-day administration of the contract on the ground, shall decide when spraying operations shall begin or cease.

Spraying operations will usually be prohibited when any of the following conditions exist on the spray area:

a. Wind velocity exceeds 6 miles per hour.

b. Temperature exceeds 70F.

c. Snow or ice covers brush.

d. Raining or rain is imminent.

e. Foggy weather.

f. Relative humidity is less than 50 percent.

g. The air turbulence (thermal updraft, etc.) is so great as to seriously affect the normal spray pattern.

h. Soil moisture is less than 12 percent in the top 24 inches of soil.

Applications of spray material will be confined to the designated area.

Spray solution shall be applied as uniformly as possible.

Spray application shall be made at an average airspreed of 45 mph. The allowable range in airspeed is from 40 to 50 mph, safety permitting.

The effective spray swath to be flown will be considered as two times the width of the spray boom, unless the contractor can demonstrate to the COAR by an approved checking method that his equipment can spray an effective swath wider than above specified.

The spray will be turned off at the end of the spray runs and during the time when a turn is being made to start another spray run. The spray will be turned off when flying over flagmen.

The contractor shall provide at least one qualified ground supervisor for each mixing truck to supervise fueling, mixing spray solutions, and loading and maintenance and protection of equipment and materials. The ground supervisor should be equipped and trained to take action in an emergency.

Chainings

The patterns of the vegetation modification would be designed to blend into the landscape to maintain the natural appearance of the area. Irregular patterns would be implemented to increase the edge effect. Cleared areas would be no larger than 50 acres in size.

Steep drainages (over 20 percent slope) would not be chained.

Vegetation would be left in place. Permits would be given for salvage of woodland products following treatment.

Commercial Harvest

All trees with a stump over 3 inches would be cut, except for those marked for wildlife use.

All cutting area boundaries will be blue lined. The size and designs will follow the Bear River Resource Area Forestry Management Plan which states that mosaic patterns, feathered edges and islands will be used and that each cleared area will be less than 50 acres.

Cutting and harvesting areas would be closed when weather conditions would result in excessive erosion, soil compaction, and rutting or roads.

Stump height would not exceed 6 inches.

Reservoirs

The borrow areas and reservoir dikes would be revegetated. Fencing to protect dike and potential riparian area without excluding access by livestock will be considered in design. Depth to surface ratios will be designed to enhance water storage.

BLM earthwork guidelines and specifications would be followed for the construction of small retention dams and reservoirs.

Seeps-Springs

The sites would be restored to the original conformation of the site. Seeding of adapted species would be used to restore disturbed areas.

Some water would be left at the original source for wildlife purposes.

A wildlife escape device(s) would be installed in all open water troughs capable of trapping wildlife.

Water troughs and above-ground tanks and facilities would be designed and painted to blend with the natural environment. Water troughs would be anchored with wooden posts.

Seep or spring site will be fenced to prevent surface and/or aquifer damage.

Guzzlers

The location and color of guzzlers would blend with the natural environment.

A wildlife escape ramp would be installed in conjunction with all open water troughs capable of trapping wildlife.

Fencing to restrict livestock and wildlife from the collection and storage areas would comply with BLM fence stipulations.

Fencing

Design and material will blend with the natural environment.

All fences would be built according to BLM manual specifications and applicable technical notes.

Clearing of fence lines prior to construction would be limited to brush removal. Use of surface disturbing equipment such as a dozer and blade will be prohibited.

Gates would be installed along the fence at intersections of all official access roads or trails, in natural passes, and other strategic places to facilitate planned movement of livestock.

Water Pipelines

The pipeline route will be restored to the original conformation of the land. Seeding of adapted species would be used to restore disturbed areas.

A wildlife escape device would be installed in all watering troughs capable of trapping wildlife.

Water troughs and above-ground tanks and facilities would be designed and painted to blend with the natural environment. Water tanks would be anchored with wooden posts.

Riparian Fence

Important riparian areas will be fenced to prevent livestock trampling or other damage, and to protect wildlife habitat, aesthetics and water quality.

These areas will be identified in subsequent HMPs.

Water gaps will be provided at traditional livestock watering areas or every half mile as needed.

Design and construction of the riparian fences will minimize livestock and wildlife hazards and will insure that fences do not form a barrier to livestock movement.

Plowing

On slopes greater than 5 percent or in soils with a

moderate to high erosion potential, plowing will follow natural contours.

Seed mixture will be determined by site specific need.

Special Stipulations for Oil and Gas Leasing

The following special stipulations are in addition to the lease terms and standard stipulations, and are necessary to protect specific resource values on the lease area. If found to be in the public interest, these stipulations may be made less restrictive when specifically approved in writing by the authorized officer.

Special Stipulations to be Applied at Time of Lease

1. All or part of the land in this lease is included in a critical area for a threatened and endangered species. Therefore, no occupancy or disturbance of the surface of the land described in this lease is authorized. The lessee, however, may exploit the oil and gas resources in this lease by directional drilling from sites outside the lease. If the proposed drilling site lies on land outside of the lease boundaries administered by the BLM, a right-of-way for use of the site must be obtained from the BLM District Manager before drilling or other development begins.

If the lessee can demonstrate that operations can take place without impact to the resource being protected, an exemption to this stipulation may be granted, if approved in writing by the authorized officer in consultation with the U.S. Fish and Wildlife Service.

2. All or part of the land in this lease is included in the Golden Spike National Monument. Therefore, no occupancy or disturbance of the surface of the land described below is authorized. The lessee, however, may exploit the oil and gas resources in this lease by directional drilling from sites outside the lease. If the proposed drilling site lies on land outside of the lease boundaries administered by the BLM, a right-of-way for use of the site must be obtained from the BLM District Manager before drilling or other development begins.

If the lessee can demonstrate that operations can take place without impact to the resource being protected, an exemption to this stipulation may be granted, if approved in writing by the authorized officer with concurrence of the National Park Service.

3. All or part of the land in this lease is included in a significant historical site. Therefore, no occupancy or disturbance of the surface of the land described below is authorized. The lessee, however, may exploit the oil and gas resources in this lease by directional drilling from sites outside the lease. If the proposed drilling site lies on land outside of the lease boundaries administered by the BLM, a right-of-way for use of the site must be obtained from the BLM District Manager before drilling or other development begins.

If the lessee can demonstrate that operations can take place without impact to the resource being protected, an exemption to this stipulation may be granted, if approved in writing by the authorized officer with concurrence of the State Historic Preservation Officer.

4. All or part of the land in this lease is included in a geologically unique and special area. Therefore, no occupancy or disturbance of the surface of the land described below is authorized. The lessee, however, may exploit the oil and gas resources in this lease by directional drilling from sites outside the lease. If the proposed drilling site lies on land outside of the lease boundaries administered by the BLM, a right-of-way for use of the site must be obtained from the BLM District Manager before drilling or other development begins.

If the lessee can demonstrate that operations can take place without impact to the resource being protected, an exemption to this stipulation may be granted, if approved in writing by the authorized officer.

5. All or part of the land in this lease is included in a geologically unique and special area. Therefore, no occupancy or disturbance of the surface of the land described below is authorized. The lessee, however, may exploit the oil and gas resources in this lease by directional drilling from sites outside the lease. If the proposed drilling site lies on land outside of the lease boundaries administered by the BLM, a right-of-way for use of the site must be obtained from the BLM District Manager before drilling or other development begins.

If the lessee can demonstrate that operations can take place without impact to the resource being protected, an exemption to this stipulation may be granted, if approved in writing by the authorized officer.

6. In order to protect crucial mule deer winter range, exploration, drilling and other development activity will be allowed only from April 16 to November 30. This limitation does not apply to maintenance and operation of producing wells.

If the lessee can demonstrate that operations can take place without impact to the resource being protected, an exemption to this stipulation may be granted, if approved in writing by the authorized officer in consultation with the Division of Wildlife Resources.

7. In order to protect crucial raptor nesting sites, exploration, drilling and other development activity will be allowed only from July 16 to February 28. This limitation does not apply to maintenance and operation of producing wells.

If the lessee can demonstrate that operations can take place without impact to the resource being protected, an exemption to this stipulation may be granted, if approved in writing by the authorized officer in consultation with the Division of Wildlife Resources.

8. In order to protect crucial sage grouse breeding complexes, exploration, drilling and other development activity will be allowed only from June 16 to March 14. This limitation does not apply to maintenance and operation of producing wells.

If the lessee can demonstrate that operations can take place without impact to the resource being protected, an exemption to this stipulation may be granted, if approved in writing by the authorized officer in consultation with the Division of Wildlife Resources.

Special Stipulations to be Applied at the Time of the APD Approval

1. No occupancy or other surface disturbance will be allowed within 500 feet of live water. This distance may be modified when specifically approved in writing by the authorized officer.

2. No occupancy or other surface disturbance will be allowed on slopes in excess of 30 percent. This slope may be modified when specifically approved in writing by the authorized officer.

3. In order to minimize watershed damage, during muddy and/or wet periods, the authorized officers may prohibit exploration, drilling or other development. This limitation does not apply to maintenance and operation of producing wells.

Information Notices

1. The lessee is hereby notified that this lease contains important riparian habitat and/or live water. Any operations proposed to be conducted under this lease that is located within the riparian habitat area or within 500 feet of live water will be subject to special conditions of approval, including the required relocation of the proposed operations.

2. The lessee is hereby notified that this lease contains steeply sloped lands. Any proposal to occupy slopes in excess of 30 percent and where watershed damage or the creation of hazardous slope conditions might occur will be subject to special conditions of approval including the required relocation of the proposed operations.

3. The lessee is hereby notified that this lease contains lands with unstable soil conditions when wet. Significant time delays may be encountered as to when operations may be allowed. Any proposal to occupy these lands under these conditions may be subject to special conditions of approval as to when the operations may be conducted.

APPENDIX 3a
FORAGE USE BY ALLOTMENT
ALTERNATIVE 1 - NO ACTION

		LIVESTOCK USE (AUMs) (AUMs based on 5-year average of licensed use)				BIG GAME (AUMS)				
Number	Allotment	Cattle	Sheep	Domestic Horses	Total Livestock Use	Deer	Elk	Pronghorn	Total Big Game Use	Total Use
5034	Goose Creek	1,793	0	25	1,818	360	0	0	360	2,178
5035	Vipont	44	0	0	44	105	0	0	105	149
5036	Junction Creek	300	0	0	300	341	0	0	341	641
5037	Raft River	205	0	0	205	0	0	0	0	205
5038	Yost Pastures	1,027	0	0	1,027	892	0	0	892	1,919
5039	Janeys Spring	75	0		75	691	0	0	691	766
5040	Hardesty Creek	1,713	0	0	1,713	424	0	0	424	2,137
5041	Grouse Creek	3,209	0	84	3,293	2,317	0	0	2,317	5,610
5042	Dry Canyon	1,045	0	17	1,062	670	0	0	670	1,732
5043	Lynn	587	0	0	587	776	0	0	776	1,363
5044	Kimball Creek	1,179	0	22	1,201	776	0	0	776	1,977
5045	Death Creek	262	0	0	262	147	0	0	147	409
5046	Buckskin	515	0	12	527	59	0	0	59	586
5047	Red Butte	937	0	0	937	430	0	0	430	1,367
5048	Ingham	743	0	0	743	1,353	0	0	1,353	2,096
5049	Muddy Creek	501	0		501	181	0	0	181	682
5050	Ingham Pass	80	0	0	80	214	0	0	214	294
5051	Dairy Valley	109	0	0	109	414	0	0	414	523
5052	Cycle Springs	240	0	0	240	493	0	0	493	733
5053	Rosebud	521	0	0	521	732	0	0	732	1,253
5054	Kilgore	166	0	30	196	480	0	0	480	676
5055	White Lakes	0	816	0	816	859	0	0	859	1,675
5056	Pine Creek	178	0	5	183	943	0	0	943	1,126
5057	Owl Springs	1,659	0	16	1,675	0	0	12	12	1,687
5058	U & I	914	0	0	914	238	0	8	246	1,160
5059	Watercress	390	0	0	390	0	0	4	4	394
5060	Yost Iso Tract	44	0	0	44	0	0	0	0	44
5062	Lucin/Pilot	1,770	160	0	1,930	379	344	128	851	2,781
5063	Leppe	159	0	0	159	0	0	0	0	159
5064	Warm Springs	440	0	0	440	516	0	0	516	956
5065	Newfoundland	0	3,077	0	3,077	0	0	0	0	3,077

Number	Allotment	LIVESTOCK USE (AUMs) (AUMs based on 5-year average of licensed use) Cattle	Sheep	Domestic Horses	Total Livestock Use	BIG GAME (AUMs) Deer	Elk	Pronghorn	Total Big Game Use	Total Use
5066	Basin L & L	1,054	0	0	1,054	0	0	46	46	1,100
5067	Young Brothers	0	1,162	0	1,162	0	0	4	4	1,166
5034	Goose Creek	1,793	0	25	1,818	360	0	0	360	2,178
5068	Ward	0	400	0	400	0	0	4	4	404
5070	Mann	0	448	0	448	0	0	4	4	452
5071	Matlin	0	480	0	480	0	0	4	4	484
5072	Red Dome	0	384	0	384	0	0	4	4	388
5073	Selmon/Goring	0	830	0	830	0	0	4	4	834
5074	Terrace	0	369	0	369	0	0	4	4	373
5075	Pritchett Block	0	0	0	0	0	0	0	0	0
5076	Dove Creek	892	0	104	996	224	0	4	228	1,224
5077	Peplin	283	0	0	283	0	0	4	4	287
5078	Baker Hills	196	0	0	196	0	0	4	4	200
5079	Black Rock	159	0	0	159	0	0	4	4	163
5080	Rosette	19	0	0	19	172	0	0	172	191
5081	Hirschi	26	0	0	26	96	0	0	96	122
5082	Shaw Spring	75	0	0	75	14	0	0	14	89
5083	South Kelton	220	0	0	220	0	0	8	8	228
5084	Fisher Creek	410	0	0	410	109	0	0	109	519
5085	Ten Mile	16	0	0	16	75	0	0	75	91
5086	North Kelton	183	0	0	183	90	0	72	162	345
5087	Curlew Junction	50	0	0	50	0	0	0	0	50
5088	Snowville	3,208	748	0	3,956	0	0	284	284	4,240
5090	Salt Wells	401	0	0	401	0	0	4	4	405
5091	Rozelle Flat	336	0	0	336	0	0	8	8	344
5092	Golden Spike	129	0	0	129	0	0	4	4	133
5093	Conner	129	0	0	129	0	0	0	0	129
5094	Naf	7	0	0	7	0	0	0	0	7
	Ida-Ute	6	0	0	6	0	0	0	0	6
Total		28,604	8,874	315	37,793	15,570	344	622	16,536	54,329

APPENDIX 3b
FORAGE USE BY ALLOTMENT
ALTERNATIVE 2

		LIVESTOCK USE (AUMS)				BIG GAME (AUMS)					
Number	Allotment	Cattle	Sheep	Domestic Horses	Total Livestock Use	Deer	Elk	Pronghorn	Bighorn	Total Big Game Use	Total Use
5034	Goose Creek	2,140	0	25	2,165	360	0	0	0	360	2,525
5035	Vipont	44	0	0	44	105	0	0	0	105	149
5036	Junction Creek	589	0	0	589	341	0	0	0	341	930
5037	Raft River	212	0	0	212	0	0	0	0	0	212
5038	Yost Pastures	1,206	0	0	1,206	892	0	0	0	892	2,098
5039	Janeys Spring	438	0		438	691	0	0	0	691	1,129
5040	Hardesty Creek	1,713	0	0	1,713	424	0	0	0	424	2,137
5041	Grouse Creek	3,432	0	84	3,516	2,317	0	0	0	2,317	5,833
5042	Dry Canyon	1,161	0	17	1,178	670	0	0	0	670	1,848
5043	Lynn	629	0	0	629	776	0	0	0	776	1,405
5044	Kimball Creek	1,179	0	22	1,201	776	0	0	0	776	1,977
5045	Death Creek	424	0	0	424	147	0	0	0	147	571
5046	Buckskin	515	0	12	527	59	0	0	0	59	586
5047	Red Butte	937	0	0	937	430	0	0	0	430	1,367
5048	Ingham	802	0	0	802	1,353	0	0	0	1,353	2,155
5049	Muddy Creek	501	0	0	501	181	0	0	0	181	682
5050	Ingham Pass	80	0	0	80	214	0	0	0	214	294
5051	Dairy Valley	442	0	0	442	414	0	0	0	414	856
5052	Cycle Springs	399	0	0	399	493	0	0	0	493	892
5053	Rosebud	729	0	0	729	732	0	0	0	732	1,461
5054	Kilgore	268	0	30	298	480	0	0	0	480	778
5055	White Lakes	0	1,500	0	1,500	859	0	0	0	859	2,359
5056	Pine Creek	211	0	5	216	943	0	0	0	943	1,159
5057	Owl Springs	1,682	0	16	1,698	0	0	12	0	12	1,710
5058	U & I	914	0	0	914	238	0	8	0	246	1,160
5059	Watercress	390	0	0	390	0	0	4	0	4	394
5060	Yost Iso Tract	44	0	0	44	0	0	0	0	0	44
5062	Lucin/Pilot	871	1,770	0	2,641	379	344	128	0	851	3,492
5063	Leppe	160	1,120	0	1,280	0	0	0	0	0	1,280
5064	Warm Springs	440	0	0	440	516	0	0	0	516	956

Number	Allotment	LIVESTOCK USE (AUMS) Cattle	Sheep	Domestic Horses	Total Livestock Use	BIG GAME (AUMS) Deer	Elk	Pronghorn	Bighorn	Total Big Game Use	Total Use
5065	Newfoundland	0	4,593	0	4,493	0	0	0	0	0	4,593
5066	Basin L & L	1,064	922	0	1,986	0	0	46	0	46	2,032
5067	Young Brothers	0	1,660	0	1,660	0	0	4	0	4	1,664
5068	Ward	0	400	0	400	0	0	4	0	4	404
5070	Mann	0	448	0	448	0	0	4	0	4	452
5071	Matlin	0	480	0	480	0	0	4	0	4	484
5072	Red Dome	0	384	0	384	0	0	4	0	4	388
5073	Selmon/Goring	0	924	0	924	0	0	4	0	4	928
5074	Terrace	0	369	0	369	0	0	4	0	4	373
5075	Pritchett Block	0	0	0	0	0	0	0	0	0	0
5076	Dove Creek	1,025	0	104	1,129	224	0	4	0	228	1,357
5077	Peplin	0	283	0	283	0	0	4	0	4	287
5078	Baker Hills	316	0	0	316	0	0	4	0	4	320
5079	Black Rock	159	0	0	159	0	0	4	0	4	163
5080	Rosette	60	0	0	60	172	0	0	0	172	232
5081	Hirschi	25	0	0	0	96	0	0	0	96	121
5082	Shaw Spring	75	0	0	75	14	0	0	0	14	89
5083	South Kelton	220	0	0	220	0	0	8	0	8	228
5084	Fisher Creek	410	0	0	410	109	0	0	0	109	519
5085	Ten Mile	33	0	0	33	75	0	0	0	75	108
5086	North Kelton	220	0	0	220	90	0	72	0	162	382
5087	Curlew Junction	50	0	0	50	0	0	0	0	0	50
5088	Snowville	2,628	686	0	3,314	0	0	284	0	284	3,598
5090	Salt Wells	401	0	0	401	0	0	4	0	4	405
5091	Rozelle Flat	336	0	0	336	0	0	8	0	8	344
5092	Golden Spike	131	0	0	131	0	0	4	0	4	135
5093	Conner	132	0	0	132	0	0	0	0	0	132
5094	Naf	7	0	0	7	0	0	0	0	0	7
	Ida-Ute	6	0	0	6	0	0	0	0	0	6
Total		29,850	15,539	315	45,704	15,570	344	622	0	16,536	62,240

APPENDIX 3c
FORAGE USE BY ALLOTMENT
ALTERNATIVE 3

		LIVESTOCK USE (AUMS)				BIG GAME (AUMS)					
Number	Allotment	Cattle	Sheep	Domestic Horses	Total Livestock Use	Deer	Elk	Pronghorn	Bighorn	Total Big Game Use	Total Use
5034	Goose Creek	2,140	0	25	2,165	360	0	0	0	360	2,525
5035	Vipont	44	0	0	44	105	0	0	0	105	149
5036	Junction Creek	497	0	0	497	341	92	0	0	433	930
5037	Raft River	212	0	0	212	0	0	0	0	0	212
5038	Yost Pastures	1,112	0	0	1,112	892	94	0	0	986	2,098
5039	Janeys Spring	344	0		344	691	94	0	0	785	1,129
5040	Hardesty Creek	1,713	0	0	1,713	424	0	0	0	424	2,137
5041	Grouse Creek	3,432	0	84	3,516	2,317	0	0	0	2,317	5,833
5042	Dry Canyon	1,161	0	17	1,178	670	0	0	0	670	1,848
5043	Lynn	629	0	0	629	776	0	0	0	776	1,405
5044	Kimball Creek	1,179	0	22	1,201	776	0	0	0	776	1,977
5045	Death Creek	424	0	0	424	147	0	0	0	147	571
5046	Buckskin	515	0	12	527	59	0	0	0	59	586
5047	Red Butte	879	0	0	879	430	58	0	0	488	1,367
5048	Ingham	690	0	0	690	1,353	112	0	0	1,465	2,155
5049	Muddy Creek	443	0		443	181	58	0	0	239	682
5050	Ingham Pass	2	0	0	2	214	78	0	0	292	294
5051	Dairy Valley	442	0	0	442	414	0	0	0	414	856
5052	Cycle Springs	367	0	0	367	493	32	0	0	525	892
5053	Rosebud	683	0	0	683	732	46			778	1,461
5054	Kilgore	268	0	30	298	480	0	0	0	480	778
5055	White Lakes	0	1,500	0	1,500	859	0	0	0	859	2,359
5056	Pine Creek	142	0	0	142	943	74	0	0	1,017	1,159
5057	Owl Springs	1,618	0	0	1,618	0	0	192	0	192	1,810
5058	U & I	856	0	0	856	238	0	124	0	362	1,218
5059	Watercress	342	0	0	342	0	0	52	0	52	394
5060	Yost Iso Tract	44	0	0	44	0	0	0	0	0	44
5062	Lucin/Pilot	871	1,706	0	2,577	379	344	256	64	1,043	3,620
5063	Leppe	160	1,120	0	1,280	0	0	0	0	0	1,280
5064	Warm Springs	380	0	0	380	516	60	0	0	576	956

Number	Allotment	LIVESTOCK USE (AUMS) Cattle	Sheep	Domestic Horses	Total Livestock Use	BIG GAME (AUMS) Deer	Elk	Pronghorn	Bighorn	Total Big Game Use	Total Use
5065	Newfoundland	0	4,409	0	4,409	0	0	0	184	184	4,593
5066	Basin L & L	1,069	922	0	1,991	0	0	36	0	36	2,027
5067	Young Brothers	0	1,636	0	1,636	0	0	28	0	28	1,664
5068	Ward	0	376	0	376	0	0	28	0	28	404
5070	Mann	0	424	0	424	0	0	28	0	28	452
5071	Matlin	0	400	0	400	0	0	84	0	84	484
5072	Red Dome	0	352	0	352	0	0	36	0	36	388
5073	Selmon/Goring	0	900	0	900	0	0	28	0	28	928
5074	Terrace	0	329	0	329	0	0	44	0	44	373
5075	Pritchett Block	0	0	0	0	0	0	0	0	0	0
5076	Dove Creek	1,025	0	88	1,113	224	0	36	0	260	1,373
5077	Peplin	0	235	0	235	0	0	52	0	52	287
5078	Baker Hills	292	0	0	292	0	0	52	0	52	344
5079	Black Rock	143	0	0	143	0	0	36	0	36	179
5080	Rosette	60	0	0	60	172	0	0	0	172	232
5081	Hirschi	0	0	0	0	96	72	0	6	174	174
5082	Shaw Spring	75	0	0	75	14	0	0	0	14	89
5083	South Kelton	185	0	0	185	0	0	78	0	78	263
5084	Fisher Creek	364	0	0	364	109	40	0	6	155	519
5085	Ten Mile	31	0	0	31	75	0	0	2	77	108
5086	North Kelton	221	0	0	221	90	0	70	0	160	381
5087	Curlew Junction	50	0	0	50	0	0	0	0	0	50
5088	Snowville	2,612	676	0	3,288	0	0	326	0	326	3,614
5090	Salt Wells	403	0	0	403	0	0	0	0	0	403
5091	Rozelle Flat	340	0	0	340	0	0	0	0	0	340
5092	Golden Spike	133	0	0	133	0	0	0	0	0	133
5093	Conner	0	0	0	0	0	0	0	0	0	0
5094	Naf	0	0	0	0	0	0	0	0	0	0
	Ida-Ute	0	0	0	0	0	0	0	0	0	0
Total		28,592	14,985	278	43,855	15,570	1,254	1,586	262	18,672	62,527

APPENDIX 3d
FORAGE USE BY ALLOTMENT
ALTERNATIVE 4

		LIVESTOCK USE (AUMS)				BIG GAME (AUMS)					
Number	Allotment	Cattle	Sheep	Domestic Horses	Total Livestock Use	Deer	Elk	Pronghorn	Bighorn	Total Big Game Use	Total Use
5034	Goose Creek										
	Active Pref.	2,140		25							
	Suspended Pref.	0		0							
	Other	0		0							
	Total	2,140	0	25	2,165	360	0	0	0	360	2,525
5035	Vipont										
	Active Pref.	44									
	Suspended Pref.	0									
	Other	0									
	Total	44	0	0	44	105	0	0	0	105	149
5036	Junction Creek										
	Active Pref.	589									
	Suspended Pref.	0									
	Other	0									
	Total	589	0	0	589	341	0	0	0	341	930
5037	Raft River										
	Active Pref.	212									
	Suspended Pref.	0									
	Other	0									
	Total	212	0	0	212	0	0	0	0	0	212
5038	Yost Pastures										
	Active Pref.	1,206									
	Suspended Pref.	0									
	Other	0									
	Total	1,206	0	0	1,206	892	0	0	0	892	2,098
5039	Janeys Spring										
	Active Pref.	438									
	Suspended Pref.	0									
	Other	0									
	Total	438	0	0	438	691	0	0	0	691	1,129
5040	Hardesty Creek										
	Active Pref.	1,713									
	Suspended Pref.	0									
	Other	0									
	Total	1,713	0	0	1,713	424	0	0	0	424	2,137

Number	Allotment	LIVESTOCK USE (AUMS) Cattle	Sheep	Domestic Horses	Total Livestock Use	BIG GAME (AUMS) Deer	Elk	Pronghorn	Bighorn	Total Big Game Use	Total Use
5041	Grouse Creek										
	Active Pref.	3,432		84							
	Suspended Pref.	0		0							
	Other	0		0							
	Total	3,432	0	84	3,516	2,317	0	0	0	2,317	5,833
5042	Dry Canyon										
	Active Pref.	1,161		17							
	Suspended Pref.	0		0							
	Other	0		0							
	Total	1,161		17	1,178	670	0	0	0	670	1,848
5043	Lynn										
	Active Pref.	629									
	Suspended Pref.	0									
	Other	0									
	Total	629	0	0	629	776	0	0	0	776	1,405
5044	Kimball Creek										
	Active Pref.	1,179		22							
	Suspended Pref.	0		0							
	Other	0		0							
	Total	1,179	0	22	1,201	776	0	0	0	776	1,977
5045	Death Creek										
	Active Pref.	424									
	Suspended Pref.	114									
	Other	0									
	Total	538	0	0	538	90	0	0	0	90	628
5046	Buckskin										
	Active Pref.	515		12							
	Suspended Pref.	116		0							
	Other	0		0							
	Total	631	0	12	643	1	0	0	0	1	644
5047	Red Butte										
	Active Pref.	937									
	Suspended Pref.	382									
	Other	0									
	Total	1,319	0	0	1,319	239	0	0	0	239	1,558

Number	Allotment	LIVESTOCK USE (AUMS) Cattle	Sheep	Domestic Horses	Total Livestock Use	BIG GAME (AUMS) Deer	Elk	Pronghorn	Bighorn	Total Big Game Use	Total Use
5048	Ingham										
	Active Pref.	802									
	Suspended Pref.	114									
	Other	0									
	Total	916	0	0	916	1,296	0	0	0	1,296	2,212
5049	Muddy Creek										
	Active Pref.	501									
	Suspended Pref.	0									
	Other	0									
	Total	501	0	0	501	181	0	0	0	181	682
5050	Ingham Pass										
	Active Pref.	80									
	Suspended Pref.	0									
	Other	0									
	Total	80	0	0	80	214	0	0	0	214	294
5051	Dairy Valley										
	Active Pref.	442									
	Suspended Pref.	189									
	Other	0									
	Total	631	0	0	631	319	0	0	0	319	950
5052	Cycle Springs										
	Active Pref.	399									
	Suspended Pref.	170									
	Other	0									
	Total	569	0	0	569	408	0	0	0	408	977
5053	Rosebud										
	Active Pref.	729									
	Suspended Pref.	0									
	Other	0									
	Total	729	0	0	729	732	0	0	0	732	1,461
5054	Kilgore										
	Active Pref.	268		30							
	Suspended Pref.	60		0							
	Other	0		0							
	Total	328	0	30	358	450	0	0	0	450	808

Number	Allotment	LIVESTOCK USE (AUMS) Cattle	Sheep	Domestic Horses	Total Livestock Use	BIG GAME (AUMS) Deer	Elk	Pronghorn	Bighorn	Total Big Game Use	Total Use
5055	White Lakes										
	Active Pref.		1,500								
	Suspended Pref.		0								
	Other		0								
	Total	0	1,500	0	1,500	859	0	0	0	859	2,359
5056	Pine Creek										
	Active Pref.	211		5							
	Suspended Pref.	0		0							
	Other	0		0							
	Total	211	0	5	216	943	0	0	0	943	1,159
5057	Owl Springs										
	Active Pref.	1,682		16							
	Suspended Pref.	0		0							
	Other	0		0							
	Total	1,682	0	16	1,698	0	0	12	0	12	1,710
5058	U & I										
	Active Pref.	914									
	Suspended Pref.	45									
	Other	0									
	Total	959	0	0	959	238	0	8	0	246	1,205
5059	Watercress										
	Active Pref.	390									
	Suspended Pref.	0									
	Other	0									
	Total	390	0	0	390	0	0	4	0	4	394
5060	Yost Iso Tract										
	Active Pref.	44									
	Suspended Pref.	0									
	Other	0									
	Total	44	0	0	44	0	0	0	0	0	44
5062	Lucin/Pilot										
	Active Pref.	1,770									
	Suspended Pref.	0									
	Other	0									
	Total	1,770	1,685	0	3,455	0	0	0	0	0	3,455

Number	Allotment	LIVESTOCK USE (AUMS) Cattle	Sheep	Domestic Horses	Total Livestock Use	BIG GAME (AUMS) Deer	Elk	Pronghorn	Bighorn	Total Big Game Use	Total Use
5063	Leppe										
	Active Pref.	160	1,120								
	Suspended Pref.	0	140								
	Other	0									
	Total	160	1,260	0	1,420	0	0	0	0	0	1,420
5064	Warm Springs										
	Active Pref.	440									
	Suspended Pref.	0									
	Other	0									
	Total	440	0	0	440	516	0	0	0	516	956
5065	Newfoundland										
	Active Pref.		4,593								
	Suspended Pref.		210								
	Other										
	Total	0	4,803	0	4,803	0	0	0	0	0	4,803
5066	Basin L & L										
	Active Pref.	1,064	922	0							
	Suspended Pref.		0								
	Other	0	0	0							
	Total	1,064	922		1,986	0	0	46	0	46	2,032
5067	Young Brothers										
	Active Pref.		1,660								
	Suspended Pref.		68								
	Other		0								
	Total		1,728		0	1,728	0	0	0	0	1,728
5068	Ward										
	Active Pref.		400								
	Suspended Pref.		64								
	Other		0								
	Total	0	464	0	464	0	0	0	0	0	464
5070	Mann										
	Active Pref.		448								
	Suspended Pref.		67								
	Other		0								
	Total	0	515	0	515	0	0	0	0	0	515

Number	Allotment	LIVESTOCK USE (AUMS) Cattle	Sheep	Domestic Horses	Total Livestock Use	BIG GAME (AUMS) Deer	Elk	Pronghorn	Bighorn	Total Big Game Use	Total Use
5071	Matlin										
	Active Pref.		480								
	Suspended Pref.		0								
	Other[1]		290								
	Total	0	770	0	770	0	0	0	0	0	770
5072	Red Dome										
	Active Pref.		384								
	Suspended Pref.		0								
	Other[1]		400								
	Total	0	784	0	784	0	0	0	0	0	784
5073	Selmon/Goring										
	Active Pref.		924								
	Suspended Pref.		160								
	Other		0								
	Total	0	1,084	0	1,084	0	0	0	0	0	1,084
5074	Terrace										
	Active Pref.		369								
	Suspended Pref.		0								
	Other		0								
	Total	0	369	0	369	0	0	4	0	4	373
5075	Pritchett Block										
	Active Pref.										
	Suspended Pref.		0								
	Other										
	Total	0	0	0	0	0	0	0	0	0	0
5076	Dove Creek										
	Active Pref.	1,025		104							
	Suspended Pref.	144		0							
	Other	0		0							
	Total	1,169	0	104	1,273	0	0	0	0	0	1,273
5077	Peplin										
	Active Pref.		283								
	Suspended Pref.		0								
	Other		0								
	Total	0	283	0	283	0	0	4	0	4	287

		LIVESTOCK USE (AUMS)				BIG GAME (AUMS)					
Number	Allotment	Cattle	Sheep	Domestic Horses	Total Livestock Use	Deer	Elk	Pronghorn	Bighorn	Total Big Game Use	Total Use
5078	Baker Hills										
	Active Pref.	316									
	Suspended Pref.	30									
	Other	0									
	Total	346	0	0	346	0	0	0	0	0	346
5079	Black Rock										
	Active Pref.	159									
	Suspended Pref.	0									
	Other	0									
	Total	159	0	0	159	0	0	4	0	4	163
5080	Rosette										
	Active Pref.	60									
	Suspended Pref.	11									
	Other	0									
	Total	71	0	0	71	150	0	0	0	150	221
5081	Hirschi										
	Active Pref.	25									
	Suspended Pref.	5									
	Other	0									
	Total	30	0	0	30	86	0	0	0	86	116
5082	Shaw Spring										
	Active Pref.	75									
	Suspended Pref.	0									
	Other	0									
	Total	75	0	0	75	14	0	0	0	14	89
5083	South Kelton										
	Active Pref.	220									
	Suspended Pref.	60									
	Other	0									
	Total	280	0	0	280	0	0	8	0	8	288
5084	Fisher Creek										
	Active Pref.	410									
	Suspended Pref.	0									
	Other	0									
	Total	410	0	0	410	109	0	0	0	109	519

Number	Allotment	LIVESTOCK USE (AUMS) Cattle	Sheep	Domestic Horses	Total Livestock Use	BIG GAME (AUMS) Deer	Elk	Pronghorn	Bighorn	Total Big Game Use	Total Use
5085	Ten Mile										
	Active Pref.	33									
	Suspended Pref.	0									
	Other	0									
	Total	33	0	0	33	75	0	0	0	75	108
5086	North Kelton										
	Active Pref.	220									
	Suspended Pref.	123									
	Other[2]	197									
	Total	540	0	0	540	0	0	0	0	0	540
5087	Curlew Junction										
	Active Pref.	50									
	Suspended Pref.	0									
	Other	0									
	Total	50	0	0	50	0	0	0	0	0	50
5088	Snowville										
	Active Pref.	2,628	686	0							
	Suspended Pref.	580	62								
	Other[2]	800	0								
	Total	4,008	748	0	4,756	0	0	0	0	0	4,756
5090	Salt Wells										
	Active Pref.	401	0	0		0	0	0	0	0	
	Suspended Pref.	148									
	Other	0									
	Total	549	0	0	549	0	0	0	0	0	549
5091	Rozelle Flat										
	Active Pref.	336									
	Suspended Pref.	0									
	Other	0									
	Total	336	0	0	336	0	0	8	0	8	344
5092	Golden Spike										
	Active Pref.	131									
	Suspended Pref.	0									
	Other	0									
	Total	131	0	0	131	0	0	4	0	4	135

		LIVESTOCK USE (AUMS)				BIG GAME (AUMS)					
Number	Allotment	Cattle	Sheep	Domestic Horses	Total Livestock Use	Deer	Elk	Pronghorn	Bighorn	Total Big Game Use	Total Use
5093	Conner										
	Active Pref.	132									
	Suspended Pref.	0									
	Other	0									
	Total	132	0	0	132	0	0	0	0	0	132
5094	Ida-Ute										
	Active Pref.	6									
	Suspended Pref.	0									
	Other	0									
	Total	6	0	0	6	0	0	0	0	0	6
5095	Naf										
	Active Pref.										
	Suspended Pref.										
	Other										
	Total	0	0	0	0	0	0	0	0	0	0
	Total	34,030	16,915	315	51,260	14,272	0	102	0	14,374	65,634

[1]Previously unadjudicated Federal Range.

[2]Additional AUMs from Fire Rehabilitation

Appendix 4
Seasons of Livestock Use

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
5034 Goose Creek	04/01 to 04/30 C 05/01 to 09/30 C 05/01 to 12/31 C 10/01 to 11/30 C 05/01 to 09/30 DH	Range ready or 4/1-4/30 05/15 - 10/15 C 05/15 - 12/31 C 10/01 - 11/30 C Eliminate or convert horse AUMs.	Increase spring use by 75 AUMs during May and June and reduce fall/winter use 75 AUMs from Oct. 1 to Dec. 31. Eliminate all April livestock use.	Same as Alternative 1
5035 Vipont	07/01 to 08/31 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5036 Junction Creek	05/01 to 05/31 C 11/01 to 11/31 C	Range ready C or 5/15 to 6/15 Same as Alternative 1 C	Reduce spring use and increase fall/winter use.	Same as Alternative 1
5037 Raft River	03/16 to 04/15 C	Change season by incorporating into Yost Pasture system.	Reduce spring use.	Same as Alternative 1
5038 Yost Pastures	05/01 to 06/20 C 11/01 to 12/31 C	Same as Alternative 1 Same as Alternative 1	Same as Alternative 1 Same as Alternative 1	Same as Alternative 1
5039 Janey Spring	05/01 to 06/15 C 11/01 to 12/15 C	Range ready C or 5/15 to 6/30 Same as Alternative 1 C	Same as Alternative 1 Same as Alternative 1	Same as Alternative 1
5040 Hardesty Creek	04/16 to 05/16 C 10/16 to 12/16 C 05/01 to 10/15 C 06/16 to 10/31 C 05/01 to 10/15 DH	Range ready C or 4/16-5/16 11/01 - 12/16 C Range ready C or 5/15-10/15 Same C Eliminate or convert domestic horse AUMs.	Change livestock grazing in April and May to fall and winter.	Same as Alternate 1
5041 Grouse Creek	05/01 to 10/15 C 05/01 to 10/15 DH	Range ready C or 5/15-10/15 Eliminate or convert domestic horse AUMs.	Eliminate spring use prior to 06/01.	Same as Alternative 1

		Alternative 1	Alternative 2	Alternative 3	Alternative 4
5042	Dry Canyon	05/01 to 10/15 C 05/01 to 10/15 DH	Range ready or 5/15 Eliminate or convert domestic horse AUMs.	Eliminate spring use prior to 06/01.	Same as Alternative 1
5043	Lynn	06/16 to 09/30 C	Sames as Alternative 1	Same as Alternative 1	Same as Alternative 1
5044	Kimball Creek	05/16 to 09/30 C 05/16 to 09/30 DH	Range ready or 6/1-10/15 Eliminate or convert domestic horse AUMs.	Eliminate spring use prior to 06/01.	Same as Alternative 1
5045	Death Creek	04/01 to 04/30 C 04/16 to 05/15 C 11/01 to 11/30 C	05/01 - 05/30 05/01 - 05/30 Same	Eliminate spring use prior to 06-01.	Same as Alternative 1
5046	Buckskin	04/01 to 04/30 C 11/01 to 11/30 C	04/01 to 05/15 10/15 to 11/30	Eliminate spring use prior to 06/01.	Same as Alternative 1
5047	Red Butte	04/01 to 04/30 C 11/01 to 11/30 C	04/01 to 05/15 10/15 to 11/30	Eliminate spring use prior to 06/01.	Same as Alternative 1
5048	Ingham	05/01 to 09/15 C	06/01 to 09/30	06/01 to 09/30	Same as Alternative 1
5049	Muddy Creek	07/01 to 09/30 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5050	Ingham Pass	08/11 to 10/10 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5051	Dairy Valley	04/16 to 10/31 C 04/16 to 05/30 C	05/01 - 10/15 C 05/01 - 05/30 C	05/15 to 10/15 C	Same as Alternative 1
5052	Cycle Springs	06/01 to 08/31 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
5053 Rosebud	04/11 to 04/27 S 12/03 to 12/23 S 10/16 to 02/15 C 05/01 to 05/31 C 02/16 to 02/28 C 02/16 to 02/28 C 03/01 to 04/15 C 11/01 to 12/10 C 10/16 to 12/15 C 05/01 to 05/31 C	Same as Alternative 1	Eliminate spring use from March to May.	Same as Alternative 1
5054 Kilgore	11/01 to 12/31 C 03/01 to 04/30 C 11/01 to 02/28 H 03/01 to 04/30 H 11/01 to 02/28 C	Same as Alternative 1	Eliminate winter use from 12/01 to 03/01	Same as Alternative 1
5055 White Lakes	03/01 to 03/31 S 12/01 to 02/28 S	Same as Alternative 1	Eliminate use from 12/01 to 03/01.	Same as Alternative 1
5056 Pine Creek	05/01 to 10/15 C 10/01 to 10/15 C 05/01 to 05/15 C 05/01 to 05/15 H	Range ready or 5/1-10/15 Same Range ready or 5/1-5/15 Convert DH AUMs	Eliminate spring use before 06/01.	Same as Alternative 1
5057 Owl Springs	03/01 to 03/31 C 12/01 to 02/28 C 03/01 to 03/31 H 12/01 to 02/28 H	Same as Alternative 1 except convert DH AUMs.	Same as Alternative 2	Same as Alternative 1
5058 U & I	03/01 to 03/31 C 11/01 to 02/28 C	Same as Alternative 1	Eliminate winter use.	Same as Alternative 1
5059 Watercress	12/16 to 02/15 C 03/01 to 04/15 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5060 Yost Iso Tracts	06/01 to 06/15 C 06/15 to 10/30 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
5062 Lucin/Pilot	11/16 to 11/30 S 11/01 to 02/29 S 11/01 to 11/20 S 11/21 to 12/15 S 11/01 to 12/15 S 04/01 to 04/14 S 03/27 to 09/14 S 03/01 to 07/30 C 05/01 to 08/31 C 05/01 to 09/30 C 05/16 to 09/15 C 10/15 to 12/31 C	Same Same Same Same Same Same Same 06/01 to 10/15 C 11/01 to 12/31 C 06/01 to 10/15 C 06/01 to 10/15 C 11/01 to 12/31 C	Eliminate spring use prior to 06/01.	Same as Alternative 1
5063 Leppe	03/01 to 03/15 S 01/01 to 02/28 S 01/01 to 02/28 S 03/01 to 03/28 C 01/16 to 02/28 C 03/01 to 03/28 C 01/16 to 02/20 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5064 Warm Springs	02/16 to 02/28 C 02/16 to 02/28 C 03/01 to 04/15 C 11/20 to 12/20 C 04/10 to 04/30 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5065 Newfoundland	03/01 to 03/31 S 03/01 to 03/31 S 03/01 to 03/31 S 12/16 to 02/28 S 12/16 to 02/28 S 12/16 to 02/28 S	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1

		Alternative 1	Alternative 2	Alternative 3	Alternative 4
5066	Basin L & L	12/20 to 02/28 C 12/20 to 02/28 C 12/20 to 02/28 C 03/01 to 04/19 C 03/01 to 04/19 C 03/01 to 04/19 C 03/01 to 03/31 C 03/01 to 04/04 S 03/01to 03/31 S 03/01 to 04/05 S	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5067	Young Brothers	03/01 to 04/15 S 03/01 to 04/15 S 03/01 to 04/15 S 01/01 to 02/28 S 01/01 to 02/28 S 01/01 to 02/28 S	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5068	Ward	03/01 to 03/31 S 03/01 to 03/31 S 03/01 to 03/31 S 01/11 to 02/28 S 01/11 to 02/28 S 01/11 to 02/28 S	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5069					
5070	Mann	02/23 to 04/15 S 03/01 to 04/15 S 02/23 to 04/15 S 03/01 to 04/15 S 03/01 to 04/15 S 03/01 to 04/15 S	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5071	Matlin	03/01 to 04/15 S 03/01 to 04/15 S 03/01 to 04/15 S 12/16 to 02/28 S 12/16 to 02/28 S	Same as Alternative	Same as Alternative 1	Same as Alternative 1

		Alternative 1	Alternative 2	Alternative 3	Alternative 4
5072	Red Dome	03/01 to 04/15 S 12/16 to 07/28 S	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5073	Selman/Goring	03/01 to 04/15 S 03/01 to 04/15 S 02/16 to 02/28 S 02/16 to 02/28 S 03/01 to 07/15 S	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5074	Terrace	12/16 to 02/28 S 03/01 to 04/15 S 11/01 to 04/15 S 11/01 to 02/28 S	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5075	Pritchett Block	04/11 to 04/27 S 12/03 to 12/23 S	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5076	Dove Creek	04/01 to 04/30 C 11/01 to 12/15 C 03/01 to 03/31 H 12/01 to 02/28 H 11/01 to 01/31 C 11/01 to 01/31 C 11/01 to 01/15 C 10/16 to 12/31 C 11/01 to 01/15 C 03/01 to 04/30 H 12/16 to 02/28 C 12/16 to 02/28 H 03/01 to 03/31 H 12/01 to 03/01 C 12/01 to 02/28 H 10/16 to 12/31 C	Same as Alternative 3[3]	04/01 to 04/15 C Same as Alternative 1 Same as Alternative 1 Same as Alternative 1 Same as Alternative 1 Same as Alternative 1 Same as Alternative 1 Same as Alternative 1 Same as Alternative 1 03/01 to 04/15 03/01 to 04/15 Same as Alternative 1 Same as Alternative 1 Same as Alternative 1 Same as Alternative 1 Same as Alternative 1 Same as Alternative 1	Same as Alternative 1
5077	Peplin	03/01 to 04/10 S 03/01 to 04/10 S 12/25 to 02/28 S 12/25 to 12/25 S	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1

3 Increased spring use is dependent upon vegetative treatment providing increased perennial livestock forage and grazing system.

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
5078 Baker Hills	11/01 to 01/15 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5079 Black Rock	04/16 to 06/15 C	Same as Alternative 3	05/20 to 07/20 or range ready	Same as Alternative 1
5080 Rosette	10/16 to 12/31 C		Change to spring use	Same as Alternative 1
5081 Hirschi	10/16 to 12/31 C	Range ready or 05/20 to 06/15	Change to spring use	Same as Alternative 1
5082 Shaw Spring	03/31 to 03/31 C 12/01 to 02/28 C 03/01 to 03/31 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5083 South Kelton	11/01 to 12/31 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5084 Fisher Creek	05/01 to 09/30 C 05/10 to 09/30 C 09/01 to 09/30 C	Same as Alternative 1	Eliminate spring use prior to 06/01.	Same as Alternative 1
5085 Ten Mile	05/01 to 05/31 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5086 North Kelton	11/01 to 12/31 C 03/01 to 03/31 C 12/01 to 02/28 C	Same as Alternative 1	Reduce winter use. Increase spring use.	Same as Alternative 1
5087 Curlew Junction	05/01 to 05/31 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5088 Snowville	01/01 to 02/22 S 03/16 to 04/30 C 10/16 to 12/31 C 11/16 to 12/31 C 11/25 to 12/31 C 12/01 to 12/31 C 11/15 to 12/31 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5089 Golden Spike	11/01 to 11/30 C 11/16 to 12/31 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5090 Salt Wells	03/01 to 05/15 C 11/16 to 02/28 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
5091 Rozelle Flats	03/01 to 05/31 C 11/01 to 02/28 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5093 Conner	01/01 to 02/15 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1
5094 Ida-Ute	03/01 to 05/31 C	Sasme as Alternative 1	Same as Alternatiave 1	Same as Alternative 1
5095 Naf	05/15 to 09/25 C	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1

Appendix 5
Fluid Mineral Leasing Categories

AREAS	Reference Code. No.	Alternative 1 Cat.1	Alternative 1 Cat. 2	Alternative 1 Cat. 3	Alternative 1 Cat 4.	Alternative 2 Cat. 1	Alternative 2 Cat. 2	Alternative 2 Cat. 3	Alternative 2 Cat. 4
Mule Deer Crucial Winter Range			2,740[1/]				83,840[1/]		
Raptor Nests (28 sites, .5 mile radius)				1,160			17,920[2/]		
Sage Grouse Breeding Complexes (2 miles radius)			12,430[2/]				179,840[3/]		
Riparian Habitats/Aquatic Areas (16 areas)			37,560				395		
Pilot Mountains[4/]	1,2,3,6				10,240		9,260	980	
Donner Creek	1,2							(640)	
Bettridge Creek	1,2							(340)	
Devil's Playground	3			1,920				1,920	
Golden Spike National Monument	5							2,240	
Central Pacific RR Grade	5							1,240	
Raft River Narrows	3,6						1,570		
Red Butte Mountain	3,5,6						4,450		
Newfoundland Mountains	3,4				23,266		16,500		
Etna Reservoir	6			440			240		
Upper Elevation lands of the Goose Creek, Grouse Creek, Raft River, Muddy and Hogup Mountains not included in the above areas[4/]	3,6						136,740		
TOTALS[5/]		928,563	52,730	3,520	33,506	725,694	288,065	6,380	0

REFERENCE CODES:

1 - Threatened/Endangered Species
2 - Municipal Watershed
3 - VRM Class II Area
4 - Natural Values
5 - High Historic/Cultural Value
6 - Nonmunicipal Watershed

FOOTNOTES:

1/ Closed to surface activity from December 1 through April 15.
2/ Closed to surface acitivity from March 1 through July 15.
3/ Closed to surface activity from March 15 through June 15.
4/ Utah area only.
5/ Column figures do not equal column total due to overlapping acreage, primarily between mule deer winter range and sage grouse breeding complexes.

Appendix 5 (continued)

	Alternative 3				Alternative 4			
	Cat.1	Cat. 2	Cat. 3	Cat 4.	Cat. 1	Cat. 2	Cat. 3	Cat. 4
Mule Deer Crucial Winter Range		83,840[1/]						
Raptor Nests (28 sites, .5 mile radius)		17,920[2/]						
Sage Grouse Breeding Complexes (2 miles radius)		179,840[3/]						
Riparian Habitats/Aquatic Areas (16 areas)			395					
Pilot Mountains[4/]			10,240				980	
Donner Creek			(640)				(640)	
Bettridge Creek			(340)				(340)	
Devil's Playground			1,920					
Golden Spike National Monument			2,240				2,240	
Central Pacific RR Grade			2,480					
Raft River Narrows			1,600					
Red Butte Mountain			4,480					
Newfoundland Mountains		16,500				16,500		
Etna Reservoir			240					
Upper Elevation lands of the Goose Creek, Grouse Creek, Raft River, Muddy and Hogup Mountains not included in the above areas[4/]		129,460						
TOTALS[5/]	714,544	280,180[5/]	23,595	0	998,599	16,500	3,220	0

REFERENCE CODES:

1 - Threatened/Endangered Species
2 - Municipal Watershed
3 - VRM Class II Area
4 - Natural Values
5 - High Historic/Cultural Value
6 - Nonmunicipal Watershed

FOOTNOTES:

1/ Closed to surface activity from December 1 through April 15.
2/ Closed to surface acitivity from March 1 through July 15.
3/ Closed to surface activity from March 15 through June 15.
4/ Utah area only.
5/ Column figures do not equal column total due to overlapping acreage, primarily between mule deer winter range and sage grouse breeding complexes.

Appendix 6
Off-Road Vehicle Designations (Acres) for Alternatives 2, 3, and 4

AREAS	Alternative 2 Open	Alternative 2 Limited 1/	Alternative 2 Closed	Alternative 3 Open	Alternative 3 Limited 1/	Alternative 3 Closed	Alternative 4 Open	Alternative 4 Limited 1/	Alternative 4 Closed
Mule Deer Crucial Winter Range		20,300 2/			55,000 2/				
Raptor Nest Site		2,000 3/			8,000 3/				
Sage Grouse Breeding Complexes		5,100 4/			52,000 4/				
Riparian Habitat/Aquatic Areas		240				240			
Pilot Mountains		910	70		106,220	980			
Donner Creek			(20)			(640)		620	20
Bettridge Creek			(50)			(340)		290	50
Devil's Playground					2,640				
Central Pacific RR Grade						250			
Raft River Narrows					900	60			
Red Butte Mountain					7,360				
Newfoundland Mountains					23,266				
Upper Elevation lands of the Goose Creek, Grouse Creek, Raft River, and Hogup Mountains not included in the above areas					118,700				
Rosebud Allotment					1,920				
Warm Springs Wash					3,700				
TOTALS	983,174	28,550	70	630,548	379,946	1,300	1,010,784	910	70

1/ In areas not covered by seasonal restrictions (see 2, 3, 4 below) vehicles would be limited to existing roads and jeep trails.

2/ Closed to vehicles from December 1 through April 15. Open April 16 through November 30.

3/ Closed to vehicles from March 1 through July 15. Open July 16 through February 28.

4/ Closed to vehicles from March 15 through June 15. Open June 16 through March 14.

Appendix 7
Proposed Rangeland Improvements - Alternative 3

		LAND TREATMENTS (ACRES)					RANGE/HABITAT/WATERSHED DEVELOPMENT						
No.	Allotment	Burn	Burn & Seed	Plow & Seed	Other Chemical (Teb.)	Commercial Harvest	Fence/ Riparian Fence (Miles)	Springs Fenced (No.)	Reservoirs (No.)	Guzzlers (No.)	Retention Berms (acres)	Instream Structure/ Beaver Re-introduction (No.)	Additional AUMs from Treatments
5034	Goose Creek						0/4.75	12				95	10
5036	Junction Creek					1,500	0/2.50					50	16
5038	Yost Pasture							3					1
5039	Janey Spring							1					0
5040	Hardesty Creek							4					1
5041	Grouse Creek	200				500		8					16
5042	Dry Canyon	100						3					5
5043	Lynn							5					1
5044	Kimball Creek				500		0/1.25	7				25	13
5045	Death Creek							1					0
5046	Buckskin	200											7
5047	Red Butte	200						10					10
5048	Ingham						0/2.25	6				45	6
5049	Muddy Creek							7					2
5050	Ingham Pass							9					2
5051	Dairy Valley					500							8
5052	Cycle Springs							1					0
5053	Rosebud	300			1,000			4					27
5054	Kilgore					500							8
5055	White Lakes					1,500							25
5056	Pine Creek							1					0
5058	U & I									3			0
5060	Yost Iso Tracts							2					1
5062	Lucin/Pilot							10					3
5064	Warm Springs	100	1,200[1/]		500			4					20
5065	Newfoundland							9		4			2
5066	Basin L & L							1		3			2
5067	Young Brothers									2			0
5068	Ward									2			0
5070	Mann									2			0

Appendix 7 (continued)

No.	Allotment	Burn	Burn & Seed	Plow & Seed	Other Chemical (Teb.)	Commercial Harvest	Fence/ Riparian Fence (Miles)	Springs Fenced (No.)	Reservoirs (No.)	Guzzlers (No.)	Retention Berms (acres)	Instream Structure/ Beaver Re-introduction (No.)	Additional AUMs from Treatments
5071	Matlin									2			0
5072	Red Dome									2			0
5073	Selman/Goring							1		3			0
5074	Terrace									2			0
5076	Dove Creek									3	250		0
5077	Peplin									3			0
5078	Baker Hills									2			0
5082	Shaw Springs							4					1
5084	Fisher Creek						0/4.25						8
5088	Snowville							4		5			1
5090	Salt Wells			100				7	3				7
5093	Conner			100			2.00/0		5				5
TOTAL		1,100	1,200	200	2,000	4,500	2.0/15.00	124	8	38	250	215	206

1/ Burning and seeding is the preferred alternative for watershed improvement on Warm Springs Allotment because impacts would be less environmentally damaging. However, if burning is unsuccessful, railing would be considered as an alternative treatment.

2/ Fencing two sides of a section, separating it into separate pastures to improve wildlife habitat condition without removing grazing.

Appendix 8
Proposed Rangeland Improvements - Alternative 4

		LAND TREATMENTS (ACRES)					RANGE / HABITAT DEVELOPMENT						ADDITIONAL AUMS FROM TREATMENT
No.	Allotment	Chain or Burn & Seed	Interseed/ Burn	Spray	Spray/ Seed	Commercial Harvest	Fence/ Riparian Fence (Miles)	Wells (No.)	Springs (No.)	Pipelines (Miles)	Reservoirs (No.)	Guzzlers (No.)	Livestock
5034	Goose Creek	1,200		2,033 *		1,000	15/0			7			376
5036	Junction Creek			1,120 *		1,500							160
5037	Raft River	500	700										194
5038	Yost Pasture			640 *									0
5039	Janey Spring			1,200 *									0
5040	Hardesty Creek	500											115
5041	Grouse Creek	2,500		1,500			8/0						692
5042	Dry Canyon			900									76
5043	Lynn			1,200									123
5044	Kimball Creek	600				400	1/0						210
5046	Buckskin			1,050 *									116
5047	Red Butte	2,500		4,000 *		1,000							1,167
5052	Cycle Springs									2		1	0
5053	Rosebud	800	800										73
5055	White Lakes					600							127
5056	Pine Creek					400							84
5057	Owl Spring									5			0
5062	Lucin/Pilot	1,500					32/0			2.5			672
5064	Warm Springs		800							8			73
5065	Newfoundland								2		10		0
5066	Basin L & L						4/0			3			0
5076	Dove Creek	4,000		900	640		5/0	1		7	2		621
5077	Peplin							1			4		0
5078	Baker Hills	400					4/0			4			621
5083	South Kelton									2.5			0
5086	North Kelton	1,400					4/0			5			320
5088	Snowville						5/0			13	2		0
TOTAL		15,900	2,300	14,543	640	9,900	78/0	2	2	59	18	1	

* Maintenance Spray

APPENDIX-9

Monitoring Studies by Allotment in the Box Elder Planning Area

Allotment Number	Allotment Name	Public Land Acres	PHOTO TREND		UTILIZATION STUDIES
			Plots Established	Year Established	Years Established
5034	Goose Creek	16,397	2	1981	2
5035	Vipont	635			1
5036	Junction Creek	6,721	2	1981	2
5037	Raft River	2,539	2	1981	1
5038	Yost Patures	3,853	4	1982	2
5039	Janey Spring	1,892	2	1981	1
5040	Hardesty Creek	12,213	1	1981	1
5041	Grouse Creek	21,128	3	1981	2
5042	Dry Canyon	7,646	2	1981	2
5043	Lynn	3,119	2	1981	3
5044	Kimball Creek	6,696	4	1981	4
5045	Death Creek	4,890	2	1981	1
5046	Buckskin	4,519	2	1981	1
5047	Red Butte	22,439	4	1981	1
5048	Ingham	6,419	2	1982	4
5049	Muddy Creek	4,546	2	1982	3
5050	Ingham Pass	1,246	1	1982	2
5051	Dairy Valley	9,428	2	1981	1
5052	Cycle Springs	5,502	2	1982	2
5053	Rosebud	20,867	1	1982	3
5054	Kilgore	8,562	1	1983	
5055	White Lakes	28,234	1	1982	1
5056	Pine Creek	1,616	1	1982	1
5057	Owl Springs	24,924	2	1981	2
5058	U & I	15,823	1	1982	4
5059	Watercress	20,722	1	1982	3
5060	Yost Isolated	*			
5062	Lucin/Pilot	87,568	3	1982	4
5063	Leppe	*		1983	2
5064	Warm Springs	10,993	1	1982	3
5065	Newfoundland	43,234			
5066	Basin L & L	47,983	2	1982	4
5067	Young Brothers	13,514	2	1983	4
5068	Ward	4,718	1	1983	3
5070	Mann	6,736	1	1983	3
5071	Matlin	27,268	3	1983	3
5072	Red Dome	19,186	2	1983	3
5073	Selman/Goring	15,669	2	1983	3
5074	Terrace	27,129	1	1983	4
5076	Dove Creek	31,797	3	1982	3
5077	Peplin	15,340	2	1983	3
5078	Baker Hills	7,570	1	1982	3
5079	Black Rock	4,535	1	1983	1
5080	Rosette	1,573			
5081	Hirschi	362			

Monitoring Studies by Allotment in the Box Elder Planning Area
(continued)

Allotment Number	Allotment Name	Public Land Acres	PHOTO TREND Plots Established	PHOTO TREND Year Established	UTILIZATION STUDIES Years Established
5082	Shaw Spring	1,781	1	1983	
5083	South Kelton	6,974	1	1983	3
5084	Fisher Creek	*			1
5085	Ten Mile	*			
5086	North Kelton	5,849	1	1982	3
5087	Curlew Junction	300			
5088	Snowville	*	4	1983	4
5090	Salt Wells	*			
5091	Rozelle Flats	*			
5092	Golden Spike	*			
5093	Conner	*			
5094	Ida-Ute	*			
5095	Naf	*			

* NO DATA AVAILABLE

AVERAGE RANCH BUDGETS
AVERAGE CATTLE RANCH BUDGET
APPENDIX TABLE 10-1
SMALL DEPENDENCY CATEGORY
COW-YEARLING OPERATION, 506 HEAD

Receipts	Quantity	Unit	Average Weight * (lbs.)	Price/CWT	Total Value
Heifer yearlings	162	head	694	53.70	60,373.83
Steer yearlings	225	head	752	53.70	90,860.40
Cull cows	61	head	1,008	45.30	27,854.06
Cull bulls	6	head	1,200	45.30	3,261.60
TOTAL RECEIPTS (GROSS RANCH INCOME)[a]					182,349.89
TOTAL RECEIPTS PER HEAD[b]					360.38
CASH COSTS (does not include depreciation and interest on investments)			TOTAL COSTS	COST/HEAD[b]	
BLM permit (@ $1.40/AUM) 748 AUMs			1,046.96	2.07	
Forest permit (@ $1.40/AUM)469 AUMs			656.60	1.30	
Alfalfa hay, Class IV land, 235 acres[c]			28,225.85	55.78	
Barley, Class III land, 193 acres[c]			25,055.26	49.52	
Salt			278.75	.55	
Protein supplements			1,633.00	3.23	
Custom trucking			4,583.33	9.06	
Veterinary and medicine			2,483.00	4.91	
Replacement (cows, bulls)			16,583.30	32.77	
Marketing[d]			1,823.49	3.60	
Fuel and lubricants			16,800.00	33.20	
Equipment and vehicle repairs			9,833.00	19.43	
Repair and maintenance of range imp.			1,016.67	2.01	
Taxes			3,633.33	7.18	
Insurance			1,716.67	3.39	
Interest on operating capital			24,000.00	47.43	
TOTAL CASH COSTS			139,369.90	275.43	
INCOME			TOTAL INCOME	INCOME/HEAD[b]	
Net Cash Income			42,979.99	84.95	

a 1983 prices (Utah Farmer-Stockman, November 16, 1983)
b Determined by dividing by herd size, 506 head
c Costs of production for alfalfa hay and barley determined from Davis, Wheeler, 1982 (costs include labor).
d Marketing costs computed at 2 percent for sales up to $20,000; 1 percent for sales above $20,000.

APPENDIX TABLE 10-2
AVERAGE RANCH BUDGETS
AVERAGE CATTLE RANCH BUDGET
SMALL DEPENDENCY CATEGORY
COW-CALF OPERATION, 380 COWS

Receipts	Quantity	Unit	Average Weight * (lbs.)	Price/CWT	Total Value
Heifer calves	124	head	452	53.70	30,097.78
Steer calves	150	head	486	53.70	39,147.30
Cull cows	42	head	946	45.30	17,998.59
Cull bulls	10	head	1,200	45.30	5,436.00
TOTAL RECEIPTS (GROSS RANCH INCOME)[a]					92,679.67
TOTAL RECEIPTS PER HEAD[b]					243.89
CASH COSTS (does not include depreciation and interest on investments)			TOTAL COSTS	COST/HEAD[b]	
BLM permit (@ $1.40/AUM)			498.40	1.31	
BLM (non-SLDO) permit			1,337.80	3.52	
Forest permit (@ $1.40/AUM)			1,212.20	3.19	
Alfalfa hay, Class IV land, 335 acres[c]			40,236.85	105.88	
Barley, Class II land, 126 acres[c]			15,332.94	40.35	
Purchased hay, supplements			2,740.00	7.21	
Salt			78.00	.21	
Labor			3,550.00	9.34	
Custom trucking			1,867.00	4.91	
Veterinary and medicine			2,141.42	5.64	
Bull, cow replacements			2,142.85	5.64	
Marketing[d]			926.79	2.43	
Fuel and lubricants			12,557.14	33.05	
Equipment and vehicle repairs			6,142.85	16.17	
Repair and maintenance of range imp.			991.43	2.61	
Utilities					
Taxes			2,171.43	5.71	
CPA			558.14	1.47	
Insurance			1,991.57	5.24	
Interest on operating capital			3,142.85	8.27	
TOTAL CASH COSTS			99,616.59	262.14	
INCOME			TOTAL INCOME	INCOME/HEAD[b]	
Net Cash Income			-6,936.92	-18.26	

a 1983 prices (Utah Farmer-Stockman, November 16, 1983)
b Determined by dividing by herd size, 380 head
c Costs of production for alfalfa hay and barley determined from Davis, Wheeler, 1982 (costs include labor).
d Marketing costs computed at 2 percent for sales up to $20,000; 1 percent for sales above $20,000.

APPENDIX TABLE 10-3
AVERAGE RANCH BUDGETS
AVERAGE CATTLE RANCH BUDGET
MEDIUM DEPENDENCY CATEGORY
COW-CALF OPERATION, 82 COWS

Receipts	Quantity	Unit	Average Weight * (lbs.)	Price/CWT	Total Value
Heifer calves	26	head	430	53.70	6,003.66
Steer calves	33	head	465	53.70	8,240.27
Cull cows	11	head	1,050	45.30	5,232.15
Cull bulls	1	head	1,100	45.30	498.30
TOTAL RECEIPTS (GROSS RANCH INCOME)[a]					19,974.38
TOTAL RECEIPTS PER HEAD[b]					243.59
CASH COSTS (does not include depreciation and interest on investments)				TOTAL COSTS	COST/HEAD[b]
BLM permit (@ $1.40/AUM)				704.20	8.59
Forest permit					
Alfalfa hay, Class IV land, 53 acres[c]				5,687.43	69.36
Salt				50.02	.61
Custom trucking				400.00	4.88
Veterinary and medicine				375.00	4.57
Marketing[d]				399.49	4.87
Fuel and lubricants				1,250.00	15.24
Equipment and vehicle repairs				500.00	6.10
Repair and maintenance of range imp.				150.00	1.83
Utilities				375.00	
Taxes				650.00	4.57
Insurance				150.00	7.93
Interest on operating capital					1.83
				10,291.65	125.51
INCOME				TOTAL INCOME	INCOME/HEAD[b]
Net Cash Income				9,682.73	118.08

a 1983 prices (Utah Farmer-Stockman, November 16, 1983)
b Determined by dividing by herd size, 82 head
c Costs of production for hay and barley determined from Davis, Wheeler, 1982 (costs include labor).
d Marketing costs computed at 2 percent for sales up to $20,000; 1 percent for sales above $20,000.

APPENDIX TABLE 10-4
AVERAGE SHEEP RANCH BUDGET
SMALL DEPENDENCY CATEGORY
3,875 EWE-LAMB OPERATION

Receipts	Quantity	Unit	Average Weight (lbs.)	Price/CWT	Total Value
Slaughter lambs	3,586	head	104	50.00	186,472.00
Feeder lambs	633	head	84	50.00	26,586.00
Ewes	344	head	130	14.30 each	6,394.96
Wool	4,332	fleeces	10.2	.58/lb.	25,628.11
Wool incentive payment		dol.			38,339.31
Unshorn lamb[a] payment		dol.			15,638.46
TOTAL RECEIPTS (GROSS RANCH INCOME)[b]					299,058.84
TOTAL RECEIPTS PER HEAD[c]					77.17

CASH COSTS (does not include depreciation and interest on investments)	TOTAL COSTS	COST/HEAD[b]
BLM permit (@ $1.40/AUM x 748 AUMs)	1,047.20	.27
Forest permit (@ $1.40/AUM x 1,608 AUMS)	2,251.20	.58
State lease (@ .20¢/ac. x 5,879 acres)	1,175.80	.30
Alfalfa hay, Class II land, 70 acres[d]	12,306.00	3.17
Grain, Class III land, 122 acres[d]	14,640.00	3.77
Salt	433.00	.11
Custom trucking	14,375.00	3.71
Veterinary and medicine	2,337.50	.60
Fuel and lubricants	18,250.00	4.71
Equipment and vehicle repairs	6,750.00	1.74
Repair and maintenance of range imp.	2,750.00	.71
Utilities		
Shearing	9,057.75	2.34
Labor (herder)	26,800.00	6.92
Lamb promotion	2,619.67	.68
Predator control	6,875.00	1.77
Legal and accounting	1,125.00	.29
Wool handling[e]	1,750.00	.45
Ram replacements	420.00	.11
Taxes	5,500.00	1.42
Insurance	4,100.00	1.06

Interest on operating capital	26,500.00	6.84
	164,118.75	42.35

INCOME	TOTAL INCOME	INCOME/HEAD[c]
Net Cash Income	134,940.09	34.82

NOTE: Interest and debt information unavailable.

1. Prices for sheep and lambs from Utah Farmer-Stockman October 6, 1983.

a Unshorn lamb payment computed at $3.67/CWT of lamb sold

b 1983 prices (Utah Farmer-Stockman, October 6, 1983)

c Determined by dividing by herd size, 3,875 head

d Costs of production for hay and grain determined from Davis, Wheeler, 1982

e Wool handling cost determined at 8 cents per pound

APPENDIX-11

APPENDIX 11
CHANGE IN SERAL STAGE (ECOLOGICAL DEVELOPMENT) BY ALTERNATIVE

Allot-ment No.	Allotment Name	Total Acres[1]	ALTERNATIVE 1 Climax %	Climax Acres	Late %	Late Acres	Middle %	Middle Acres	Early %	Early Acres	ALTERNATIVE 2 Climax %	Climax Acres	Late %	Late Acres	Middle %	Middle Acres	Early %	Early Acres	ALTERNATIVE 3 Climax %	Climax Acres	Late %	Late Acres	Middle %	Middle Acres	Early %	Early Acres	ALTERNATIVE 4 Climax %	Climax Acres	Late %	Late Acres	Middle %	Middle Acres	Early %	Early Acres
5034	Goose Creek	20,638			U 37	7,636	53	10,938	10	2,064			28	5,779	62	12,795	10	2,064			S 28	5,779	62	12,795	10	2,064			U 34	7,017	56	11,557	10	2,064
5035	Vipont	1,256			S 37	465	63	791					37	465	63	791					S 37	465	63	791					S 37	465	63	791		
5036	Junction Creek	7,363	7	515	U 74	5,449	19	1,399			7	515	64	4,713	29	2,135			7	515	D 59	4,345	34	2,503			7	515	D 59	4,345	34	2,503		
5037	Raft River	2,539	41	1,041	U 11	279	48	1,219			41	1,041	9	299	50	1,269			41	1,041	S 9	229	50	1,269			22	559	U 30	762	48	1,218		
5038	Yost Pasture	4,144	35	1,450	U 42	1,740	23	954			35	1,450	40	1,658	25	1,036			35	1,450	S 40	1,658	25	1,036			35	1,450	S 40	1,658	25	1,036		
5039	Janey Spring	1,986			U 80	1,589	20	397			70	1,390	30	596							S 70	1,390	30	596					S 70	1,390	30	596		
5040	Hardesty Creek	19,238	3	577	S 37	7,118	57	10,966	3	577	3	577	37	7,118	57	10,966	3	577	3	577	S 37	7,118	57	10,966	3	577	3	577	S 37	7,118	57	10,966	3	577
5041	Grouse Creek	37,698			U 52	19,603	48	18,095					50	18,849	50	18,849					S 50	18,849	50	18,849					D 45	16,964	55	20,734		
5042	Dry Canyon	13,810			U 67	9,253	33	4,557					65	8,977	35	4,833					S 65	8,977	35	4,833					D 61	8,424	39	5,386		
5043	Lynn	4,170	2	83	U 41	1,710	39	1,626	18	751	2	83	40	1,668	40	1,668	18	751	2	83	S 40	1,668	40	1,668	18	751	2	83	D 29	1,209	51	2,127	18	751
5044	Kimball Creek	8,960			S 51	4,570	32	2,867	17	1,523			51	4,570	32	2,867	17	1,523			D 48	4,301	35	3,136	17	1,523			D 45	4,032	38	3,405	7	1,523
5045	Death Creek	12,987			U 55	7,143	27	3,506	18	2,338			44	5,714	38	4,935	18	2,338			S 44	5,714	38	4,935	18	2,338			D 40	5,195	42	5,454	18	2,338
5046	Buckskin	8,591			S 17	1,460	34	2,921	49	4,210			17	1,460	34	2,921	49	4,210			S 17	1,460	34	2,921	49	4,210			D 15	1,289	36	3,092	49	4,210
5047	Red Butte	28,240			S 15	4,236	78	22,027	7	1,977			15	4,236	78	22,027	7	1,977			S 15	4,236	78	22,027	7	1,977			D 11	3,106	82	23,157	7	1,977
5048	Ingham	8,286	3	249	U 34	2,817	54	4,474	9	746	3	249	32	2,651	56	4,640	9	746	3	249	S 32	2,651	56	4,640	9	746	3	249	D 31	2,568	57	4,723	9	746
5049	Muddy Creek	17,503	7	1,225	S 48	8,402	45	7,876			7	1,225	48	8,402	45	7,876			7	1,225	S 48	8,402	45	7,876			7	1,225	S 48	8,402	45	7,876		
5050	Ingham Pass	3,442	8	275	S 57	1,962	35	1,205	8	275	8	275	57	1,962	35	1,205			8	275	S 57	1,962	35	1,205			8	275	S 57	1,962	35	1,205		
5051	Dairy Valley	26,403	16	4,224	U 48	12,674	34	8,977	2	528	16	4,224	27	7,129	55	14,522	2	528	16	4,224	S 27	7,129	55	14,522	2	528	16	4,224	D 24	6,337	58	15,314	2	528
5052	Cycle Springs	12,579	14	1,762	U 48	6,037	34	4,277	4	503	14	1,762	41	5,157	41	5,157	4	503	14	1,762	S 41	5,157	41	5,157	4	503	14	1,762	D 37	4,654	45	5,660	4	503
5053	Rosebud	32,457	4	1,298	U 30	9,737	56	18,176	10	3,246	4	1,298	20	6,491	66	21,422	10	3,246	4	1,298	D 19	6,167	67	21,746	10	3,246	4	1,298	D 19	6,167	67	21,746	10	3,246
5054	Kilgore	22,043	13	2,866	U 26	5,731	57	12,564	4	882	13	2,866	17	3,747	66	14,548	4	882	13	2,866	S 17	3,747	66	14,548	4	882	13	2,866	D 16	3,527	67	14,768	4	882
5055	White Lakes	72,922	26	18,960	U 54	39,378	11	8,021	9	6,563	26	18,960	49	35,732	16	11,667	9	6,563	26	18,960	D 48	35,003	17	12,396	9	6,563	26	18,960	S 49	35,732	16	11,667	9	6,563
5056	Pine Creek	3,114			U 6	187	94	2,927					3	93	97	3,021					S 3	93	97	3,021					S 3	93	97	3,021		
5057	Owl Springs	33,438	3	1,003	S 67	22,404	14	4,681	16	5,350	3	1,003	67	22,404	14	4,681	16	5,350	3	1,003	D 64	21,400	17	5,685	16	5,350	3	1,003	S 67	22,404	14	4,681	16	5,350
5058	U & I	33,213	7	2,325	S 54	17,935	38	12,621	1	332	7	2,325	54	17,935	38	12,621	1	332	7	2,325	D 51	16,939	41	13,617	1	332	7	2,325	D 52	17,271	40	13,285	1	332
5059	Watercress	25,038	32	8,012	S 53	13,270	12	3,005	4	751	32	8,012	53	13,270	12	3,005	3	751	32	8,012	S 53	13,270	12	3,006	3	751	32	8,012	S 53	13,270	12	3,005	3	751
5060	Yost Isolated	NO DATA																																
5062	Lucin/Pilot	223,725	29	64,880	U 49	109,625	14	31,322	8	17,898	29	64,880	47	105,151	16	35,796	8	17,898	29	64,880	D 45	100,676	18	40,271	8	17,898	29	64,880	S 47	105,151	16	35,796	8	17,898
5063	Leppe	NO DATA																																
5064	Warm Spring	13,390			S 56	7,498	37	4,955	7	937			56	7,498	37	4,955	7	937			D 49	6,561	44	5,892	7	937			D 53	7,097	40	5,356	7	937
5065	Newfoundland	51,489	6	3,089	U 85	43,766	8	4,119	1	515	6	3,089	81	41,706	12	6,179	1	515	6	3,089	S 81	41,706	12	6,179	1	515	6	3,089	D 78	40,161	15	7,724	1	515
5066	Basin L & L	89,468	3	2,684	U 90	80,521	6	5,368	1	895	3	2,684	84	75,153	12	10,736	1	895	3	2,684	S 84	75,153	12	10,736	1	895	3	2,684	S 84	75,153	12	10,736	1	895
5067	Young Brothers	32,795	5	1,640	U 78	25,580	13	4,263	4	1,312	5	1,640	73	23,940	18	5,903	4	1,312	5	1,640	S 73	23,940	18	5,903	4	1,312	5	1,640	D 70	22,957	21	6,886	4	1,312
5068	Ward	11,494	7	805	S 74	8,505	18	2,069	1	115	7	805	74	8,505	18	2,069	1	115	7	805	S 74	8,505	18	2,069	1	115	7	805	D 63	7,241	29	3,333	1	115
5070	Mann	16,519	14	2,313	S 48	7,929	30	4,956	8	1,321	14	2,313	48	7,929	30	4,956	8	1,321	14	2,313	S 48	7,929	30	4,956	8	1,321	14	2,313	D 41	6,773	37	6,112	8	1,321
5071	Matlin	41,185	23	9,473	S 57	23,475	13	5,354	7	2,883	23	9,473	57	23,475	13	5,354	7	2,883	23	9,473	S 57	23,475	13	5,354	7	2,883	23	9,473	D 38	15,660	32	13,179	7	2,883
5072	Red Dome	32,365	13	4,272	S 53	17,419	26	8,545	8	2,629	13	4,272	53	17,419	26	8,545	8	2,629	13	4,272	S 53	17,419	26	8,545	8	2,629	13	4,272	D 24	7,888	55	18,076	8	2,629
5073	Selman/Goring	37,074			U 81	30,030	11	4,078	8	2,966			80	29,669	12	4,449	8	2,966			S 80	29,669	12	4,449	8	2,966			D 66	24,469	26	9,639	8	2,966
5074	Terrace	40,598	23	9,338	S 34	13,803	28	11,367	15	6,090	23	9,338	34	13,803	28	11,367	15	6,090	23	9,338	S 34	3,803	28	113,671	15	6,090	23	9,338	S 34	13,803	28	11,367	15	6,090
5076	Dove Creek	60,045	2	1,201	S 34	20,416	61	36,627	3	1,801	2	1,201	34	20,416	61	36,627	3	1,801	2	1,201	S 34	20,416	61	36,627	3	1,801	2	1,201	D 33	19,815	62	37,228	3	1,801
5077	Peplin	19,532	1	951	S 77	15,040	22	4,297			1	195	77	15,040	22	4,297			1	195	S 77	5,040	22	4,297			1	195	S 77	15,040	22	4,297		
5078	Baker Hills	9,117	5	456	U 50	4,558	45	4,103			5	456	23	2,097	72	6,564			5	456	D 21	1,915	74	6,746			5	456	D 22	2,006	73	6,655		
5079	Black Rock	8,124			S 76	6,174	23	1,868	1	82			76	6,174	23	1,868	1	82			U 84	6,823	15	1,219	1	82			S 76	6,174	23	1,868	1	82
5080	Rosette	6,486			U 50	3,243	39	2,529	11	714			41	2,659	48	3,113	11	714			S 41	2,659	48	3,113	11	714			U 43	2,788	46	2,984	11	714
5081	Hirschi	362			S 65	235	35	127					65	235	35	127					D 36	130	64	232					U 68	246	32	116		
5082	Shaw Spring	10,586			S 41	4,341	54	5,716	5	529			41	4,341	54	5,716	5	529			S 41	4,341	54	5,716	5	529			S 41	4,341	54	5,716	5	529
5083	South Kelton	14,159			S 59	8,354	15	2,124	26	3,681			59	8,354	15	2,124	26	3,681			D 50	7,080	24	3,398	26	3,681			D 43	6,089	31	4,389	26	3,681
5084	Fisher Creek	NO DATA																																
5085	Ten Mile	NO DATA																																
5086	North Kelton	13,401			U 55	7,371	20	2,680	25	3,350			53	7,103	22	2,948	25	3,350			S 53	7,103	22	2,948	25	3,350			D 26	3,484	49	6,567	25	3,350
5087	Curlew Jct.	612			S 37	226	4	25	59	361			37	226	4	25	59	361			S 37	226	4	25	59	361			S 37	226	4	25	59	361
5088	Snowville	COMPLETE DATA UNAVAILABLE																																
5090	Salt Wells	NO DATA																																
5091	Rozelle Flats	NO DATA																																
5092	Golden Spike	NO DATA																																
5093	Connor	NO DATA																																
5094	Ida-Ute	NO DATA																																
5095	Naf	NO DATA																																
TOTAL ALLOTMENTS W/DATA = 47																																		
GRAND TOTAL =		1,196,084		146,211		612,682		355,771		80,420		146,211		650,894		317,559		80,420		146,211		602,668		365,785		80,420		145,729		571,913		397,022		80,420

1 Note: Allotment acreages include private and state lands.
2 Note: Percent = the percent by seral stage of the total acres in the allotment.
3 Note: U = an increase in ecological development.
S = static ecological development.
D = a decline in ecological development.

LIST OF AGENCIES AND ORGANIZATIONS TO WHOM THIS RMP/EIS HAS BEEN SENT

Federal Agencies

U.S. Department of Agriculture
- Forest Service
- Soil Conservation Service

U.S. Department of Interior
- Geological Survey
- Bureau of Mines
- Fish and Wildlife Service
- Bureau of Reclamation
- National Park Service

State Agencies

State of Utah
- Department of Natural Resources
- Division of Geological and Mineral Survey
- Division of Parks and Recreation
- Division of Water Resources
- Division of State Lands and Forestry
- Division of Wildlife Resources
- Outdoor Recreation Agency
- Bureau of Water Pollution Control
- Utah State Historical Society
- Planning Coordinator's Office
- Department of Transportation
- Department of Agriculture
- Department of Social Services
- Division of Health
- Bureau of Air Quality

Local Government Agencies

- Box Elder County Commissioners
- Box Elder County Planning Office
- Bear River Association of Governments
- Utah Association of Counties
- Bear River Resource Conservation and Development
- Local Mayors

Nongovernment Agencies

- American Farm Bureau
- American Fisheries Society
- American Motorcycle Association
- American Right-of-way Association
- Archeological Society of Utah
- Association of Four Wheel Drive Clubs
- Bees Motorcycle Club
- Box Elder County Wildlife Federation
- Bridgerland Wildlife Federation
- Davis County Wildlife Federation
- Golden Spike Gem and Mineral Society
- Humane Society of Utah
- Intermountain Off-Road Racing Association
- Izaak Walton League
- National Audubon Society
- National Wildlife Federation
- Salt Lake County Fish and Game Association
- Salt Lake Motorcycle Club
- Sierra Club
- Trout Unlimited
- Utah Audubon Society
- Utah Bowmens Association
- Utah Cattlemen's Association
- Utah County Wildlife Federation
- Utah Farm Bureau Federation
- Utah Geological Association
- Utah Heritage Foundation
- Utah Mining Association
- Utah Petroleum Association
- Utah Recreation and Parks Association
- Utah Water Users Association
- Utah Wildlife Federation
- Utah Woolgrower's Association
- Wasatch Gem Society
- Wasatch Mountain Club
- Wilderness Society
- Wildlife Society - Utah Chapter

Congressional

- Utah Delegation

Universities

- Weber State College
- Utah State University
- University of Utah
- Brigham Young University

LIST OF PREPARERS

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Experience: BLM, 23 years.

LIST OF ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
AMP	Allotment Management Plan
AUM	Animal Unit Month
BLM	Bureau of Land Management, U.S. Department of the Interior
C	Custodial Management (Allotment Category)
CFR	Code of Federal Regulations
EIS	Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act
FS	Forest Service, U.S. Department of Agriculture
FWS	Fish and Wildlife Service, U.S. Department of the Interior
HMP	Habitat Management Plan
I	Improve Management (Allotment Category)
IBLA	Interior Board of Land Appeals
M	Maintain Management (Allotment Category)
MFP	Management Framework Plan
NEPA	National Environmental Policy Act
NPS	National Park Service
ORV	Off-Road Vehicle
RMP	Resource Management Plan
R&PP	Recreation and Public Purpose
SCS	Soil Conservation Service
SHPO	State Historic Preservation Officer
UDWR	Utah Division of Wildlife Resources
USDA	U.S. Department of Agriculture
USDI	U.S. Department of the Interior
USFS	U.S. Forest Service
VRM	Visual Resource Management
WSA	Wilderness Study Area

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GLOSSARY

Active grazing preference. The total number of AUMs that could be currently licensed.

Adjudication. Legal processing of applications, entries, claims, etc., to assure full compliance with the public land laws and regulations.

Allotment. An area of land where one or more permittees graze their livestock. Generally consists of public land but may include parcels of private or State lands. The number of livestock and season of use are stipulated for each allotment. An allotment may consist of several pastures or be only one pasture.

Allotment management plan (AMP). A concisely written program of livestock grazing management, including supportive measures, if required, designed to attain specific management goals in a grazing allotment.

Animal unit month (AUM). The amount of forage necessary for the sustenance of one cow or five sheep for 1 month.

Area of critical environmental concern (ACEC). An area of public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources; or other natural systems or processes, or to protect life or provide safety from natural hazards.

Average licensed (livestock) use. The average livestock grazing use of 5 representative years from 1979 to 1984.

Blocking. A process of consolidating or making isolated land tracts contiguous through selling or exchanging with other land holders, both public and private.

Browse. That part of the current leaf and twig growth of shrubs, woody vines, and trees available for animal consumption. Also, to graze a plant.

Carrying capacity. The maximum stocking rate possible without damaging vegetation or related resources.

Changing season of use. Adjusting the time of livestock grazing on a range area based on type of vegetation or stage of vegetation growth.

Clayey. A soil containing more than 35 percent clay.

Climax vegetation. The final vegetation community that emerges after a series of successive vegetational stages. The climax community perpetuates itself indefinitely unless disturbed by outside forces.

Community. An aggregate of organisms that form a distinct ecological unit. Such a unit may be defined in terms of plants, animals, or both.

Competitive forage. Those forage species utilized by two or more animal species.

Corridor. A linear strip of land forming a passageway between two points in which transportation and/or utility systems exist or may be located.

Cover. The material covering the soil and providing protection from, or resistance to, the impact of raindrops and the energy of overland flow, and expressed in percent of the area covered. Composed of vegetation, litter, small rock, and large rocks. These may be lying on or within 20 feet of the ground surface.

Critical wildlife habitat. That portion of the living area of a threatened or endangered wildlife species that is essential to the survival and perpetuation of the species, either as individuals or as a population.

Crucial range. Range on which a species depends for survival; there are no alternative ranges available due to climate conditions or other limiting factors. May also be called key range.

Cultivar. A new plant species that has been produced by cross-breeding species or genera.

Cultural resources. Those fragile and nonrenewable remains of human activities, occupations, and endeavors as reflected in sites, buildings, structures, or objects, including works of art, architecture, and engineering. Cultural resources are commonly discussed as prehistoric and historic values, but each period represents a part of the full continuum of cultural values from the earliest to the most recent.

GLOSSARY

Deferred grazing. Discontinuance of livestock on various parts of a range in succeeding years, allowing each part to rest during the growing season.

Desirable plants. Those plants that are palatable and productive forage species, often dominant under climax or near climax conditions. They are normally long-lived plants which can include grasses, forbs, and browse.

Directional drilling. Slant drilling or drilling on an angle. Directional drilling is utilized when the operator is not allowed to occupy the surface of a given tract of land, but still wishes to drill a structure or target beneath that tract.

Distribution. The uniformity of livestock grazing over a range area.

Easement. The right held by one person to make use of the land of another for a limited purpose.

Endangered animal species. Any animal species in danger of extinction throughout all or a significant portion of its range. This definition excludes species of insects that the Secretary of the Interior determines to be pests and whose protection under the Endangered Species Act of 1973 would present an overwhelming and overriding risk to man.

Endangered plant species. Species of plants in danger of extinction throughout all or a significant portion of their ranges. Existence may be endangered because of the destruction, drastic change, or severe curtailment of habitat, or because of overexploitation, disease, predation, or even unknown reasons. Plant taxa from very limited areas (e. g., the type localities only), or from restricted fragile habitats usually are considered endangered.

Erosion. The group of natural processes including weathering, dissolution, abrasion, corrosion, and transportation, by which earthy or rocky material is removed from any part of the earth's surface.

Fire management. The integration of fire protection, prescribed fire, and fire ecology knowledge into multiple use planning, decision making, and land management activities.

Floodplain. The flat ground along a stream covered by water at the flood stage.

Forage. Vegetation of all forms available for animal consumption.

Forb. A broad-leafed herb other than grass; a weed.

Full suppression. Taking aggressive action on all fires on or threatening the public lands, with sufficient forces to contain the fire during the early burning period.

Groundwater. Water filling all the unblocked pores of underlying material below the water table.

Habitat. A specific set of physical conditions that surround a species group or a large community.

Headcutting. The active upslope erosion of a gully or channel.

Impact. A change in the ecosystem resulting from or accelerated by human action.

Income. Employee compensation, profits, rents, and other payments to households.

Instream structure. Artificial structures installed to minimize the erosive progression of a gully or stream.

Intensity of use. Amount of vegetation consumed by grazing herbivores over a given time period.

Interseeding. The practice of seeding native or introduced plant species into native range in combination with various mechanical treatments.

Isolated tract. A parcel of vacant public lands which is surrounded by appropriated public lands.

Key species. Major forage species on which range management should be based.

Land disposal. A transaction that leads to the transfer of title to public lands from the Federal Government.

Land treatment. Alteration of the soil and/or vegetation of an area by mechanical or chemical means or by burning.

GLOSSARY

Licensed use (grazing). The number of animal unit months (AUMs) that a livestock operation actually uses and pays for during a year.

Loess. A loamy deposit formed by wind, usually yellowish and calcerous.

Management framework plan (MFP). A land use plan for public lands that provides a set of goals and constraints for a specific planning area to guide the development of detailed plans for the management of each resource.

M, I, C categorization. The grouping of allotments into three different categories (M = maintain, I = improve, and C = custodial) for management purposes.

Mineral entry. The location of mining claims by an individual to protect his right to a valuable mineral.

Mitigating measures. Methods used (often included as lease stipulations) to reduce the significance of or eliminate an anticipated environmental impact.

Monitor. To scrutinize or check systematically with a goal of collecting certain specified categories of data.

Multiple use planning. Planning for harmonious and coordinated management of the various surface and subsurface resources, without impairment of the land, that will best meet the present and future needs of the people.

Nonuse (grazing). The active grazing privileges not used or paid for by an operation during a year. Nonuse and licensed use equal active grazing preference.

Off-road vehicle (ORV). Any motorized vehicle capable of or designed for travel on or immediately over land, water, or other natural terrain, excluding (1) any nonamphibious registered motorboat; (2) any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes; (3) any vehicle whose use is expressly authorized by the authorizing officer, or otherwise officially approved; (4) vehicles in official use; and (5) any combat or combat support vehicle when used in times of National defense emergencies. (Quoted from Executive Order 11644 as amended by Executive Order 11989.)

Pasture. As used in this document, a subdivision of a grazing allotment.

Payment in lieu of taxes (PILT). Payments to local or State governments based on ownership of Federal land and not directly dependent on production of outputs or receipt sharing. Specifically, they include payments made under the Payments in Lieu of Taxes Act of 1976 by the U.S. Department of the Interior.

Perennial stream. A stream that flows throughout the year.

Permittee (grazing). A person who has livestock grazing privileges on an allotment or allotments within the Resource Area.

Plant vigor. The relative well-being and health of a plant as reflected by its ability to manufacture sufficient food for growth and maintenance.

Precipitation. As used in hydrology, precipitation is the discharge of water, in liquid or solid state, out of the atmosphere, generally upon a land or water surface.

Prescribed fire. The skillful application of fire to natural fuels under conditions of weather, fuel moisture, soil moisture, etc., that will allow confinement of the fire to a predetermined area and at the same time produce the intensity of heat and rate of spread required to accomplish certain planned benefits to one or more objectives of wildlife management, grazing, hazard reduction, etc.

Prior stable population numbers. A number of animals, by species (derived from wildlife population dynamics data and long-term observations), previously supported at or near the grazing capacity of the given wildlife herd unit.

Public land. Formal name for lands administered by the Bureau of Land Management (BLM).

Range trend. The change in vegetation and soil characteristics as a direct result of environmental factors, primarily climate and grazing.

Raptor. Living on prey; a group of carnivorous birds consisting of hawks, eagles, falcons, vultures, and owls.

Rehabilitation. Restoration of partially or totally lost biological productive capability.

GLOSSARY

Rest. Refers to seasonal resting from grazing of a range to allow plants to replenish their food reserves, seeds to ripen, seedlings to become established, and litter to accumulate between plants.

Right-of-way. The legal right for use, occupancy, or access across land or water areas for a specified purpose or purposes.

Rill. A small, intermittent watercourse with steep sides, usually only a few inches deep and, hence, no obstacle to tillage operation.

Riparian. Situated on or pertaining to the bank of a river, stream, or other body of water. Normally used to refer to the plants of all types that grow along or around springs.

Runoff. That part of the precipitation that does not immediately enter the soil or evaporate, ultimately reaching a stream channel. Runoff occurs when the rate of snowmelt or rainfall exceeds the rate of infiltration into the soil.

Saline soil. Soil containing soluble salts in an amount that impairs growth of plants.

Season of use. The time of livestock grazing on a range area based on type and stage of vegetative growth.

Sediment. Soil or mineral transported by water and deposited in streams or other bodies of water.

Sensitive plant. A plant that is not officially listed as threatened or endangered, but is being considered for such designation.

Slope. The inclination of the land surface from the horizontal.

Threatened animal species. Any animal species likely to become endangered within the foreseeable future throughout all or a significant part of its range.

Threatened plant species. Species of plants that are likely to become endangered within the foreseeable future throughout all or a significant portion of their ranges, including species categorized as rare, very rare, or depleted.

Total grazing preference. The total number (active and suspended) of animal unit months of livestock grazing on public land apportioned and attached to base property owned or controlled by a permittee.

Visual resource management (VRM). The system by which BLM classifies and manages the visual resource of public lands, based on their scenic qualities, sensitivities, and the distances from which they are viewed.

Watershed. The region draining into a river, river system, or body of water.

Wilderness study area (WSA). An area determined, through BLM's wilderness inventory, to meet the definition of wilderness established by Congress.

Wildlife. All species of mammals, birds, fish, amphibians, and reptiles found in a wild state.

Wildlife habitat. All elements of a wild animal's environment necessary for completion of its life cycle. These elements include food, cover, water, and living space.

Withdrawal. An action that restricts the disposal of public lands and holds them for specific public purposes.

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I D A H O

N E V A D A

BOX ELDER PLANNING AREA

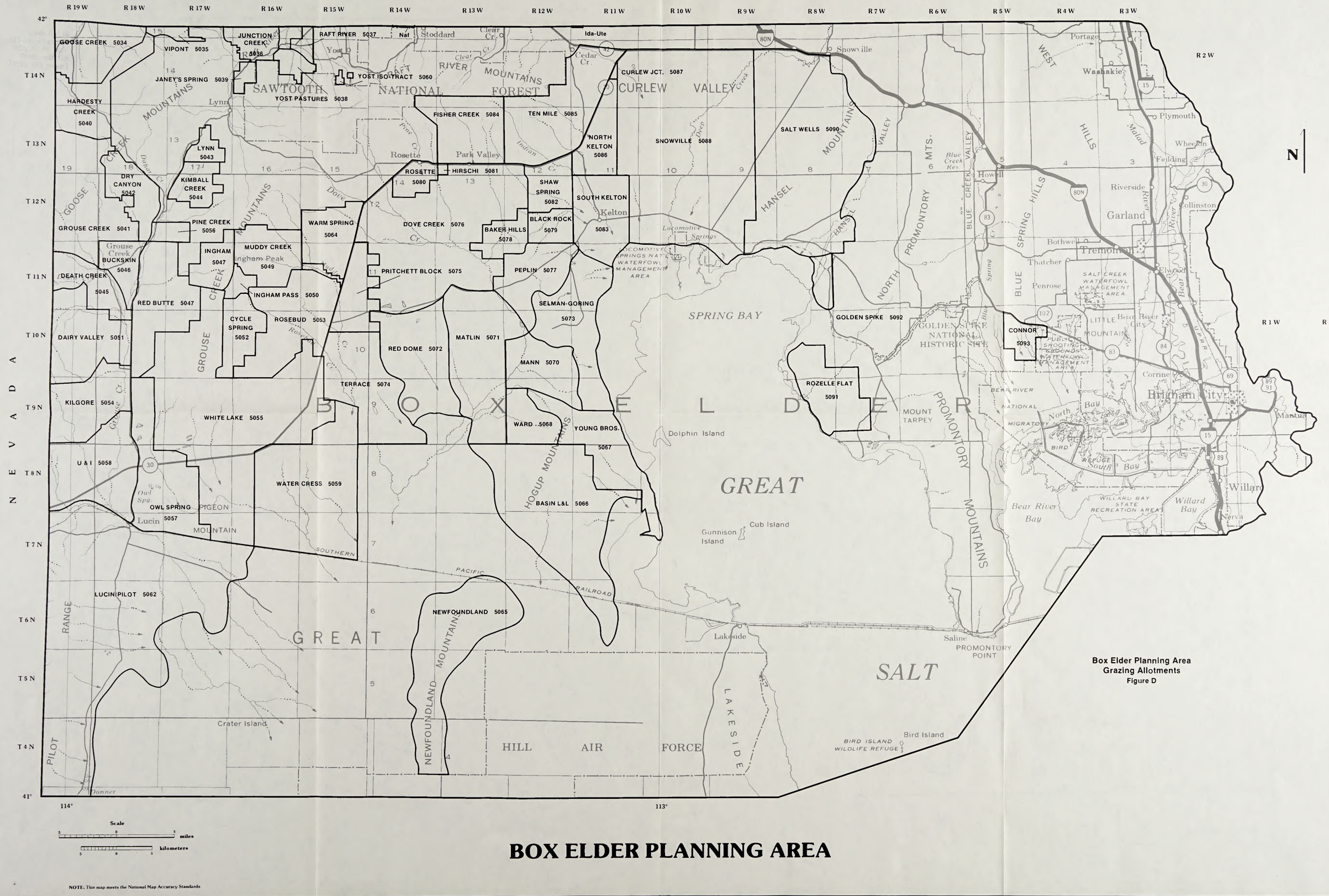
Box Elder Planning Area
Land Status
Figure C

- State Land
- Public Land (BLM)
- Forest Service, Military, National Monument, and Private Land

Scale
miles
kilometers

NOTE: This map meets the National Map Accuracy Standards

I D A H O



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Box Elder Planning Area
Grazing Allotments
Figure D

BOX ELDER PLANNING AREA

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N E V A D A

SAWTOOTH NATIONAL FOREST
RAFT RIVER MOUNTAINS
SAWTOOTH MOUNTAINS
GOOSE CREEK MOUNTAINS
GROUSE CREEK MOUNTAINS
CURLEW VALLEY
HANSEL MOUNTAINS
HANSEL VALLEY
NORTH PROMONTORY MTS.
BLUE CREEK VALLEY
SPRING HILLS
WEST HILLS
PROMONTORY MOUNTAINS
HOGUP MOUNTAINS
NEWFOUNDLAND MOUNTAINS
RANGE
PILOT
PIGEON MOUNTAIN
LITTLE MOUNTAIN
MOUNT TARPEY
BOX ELDER
GREAT SALT LAKE
SPRING BAY
GOLDEN SPIKE NATIONAL HISTORIC SITE
LOCOMOTIVE SPRINGS NATL WATERFOWL MANAGEMENT AREA
SALT CREEK WATERFOWL MANAGEMENT AREA
PUBLIC SHOOTING GROUNDS WATERFOWL MANAGEMENT AREA
BEAR RIVER NATIONAL MIGRATORY BIRD REFUGE
WILLARD BAY STATE RECREATION AREA
BIRD ISLAND WILDLIFE REFUGE
HILL AIR FORCE

Stoddard, Clear Cr., Cedar Cr., Snowville, Portage, Washakie, Plymouth, Wheelon, Fielding, Howell, Riverside, Garland, Tremonton, Bothwell, Thatcher, Penrose, Collinston, Elwood, Corinne, Brigham City, Mantua, Willard, Perry, Lynn, Rosette, Park Valley, Kelton, Locomotive Springs, Grouse Creek, Ingham Peak, Lucin, Oust Spg., Crater Island, Donner, Dolphin Island, Gunnison Island, Cub Island, Lakeside, Saline, Bird Island, Little Mountain, Blue Creek Res., Malad, Raft River, Clear Cr., Indian Cr., Dove Cr., Pine Cr., Deep Creek, Death Cr., Dunn Cr., Rosebud Cr., Mudd Cr., Grouse Cr., Spring Blue Cr., Bear River, North Bay, South Bay, Willard Bay, Bear River Bay

SOUTHERN PACIFIC RAILROAD

Proposed Land Treatments
Under Alternative 3
Figure A

- Burn
- Burn and Seed
- Plow and Seed
- Tebuthiuron
- Commercial Harvest

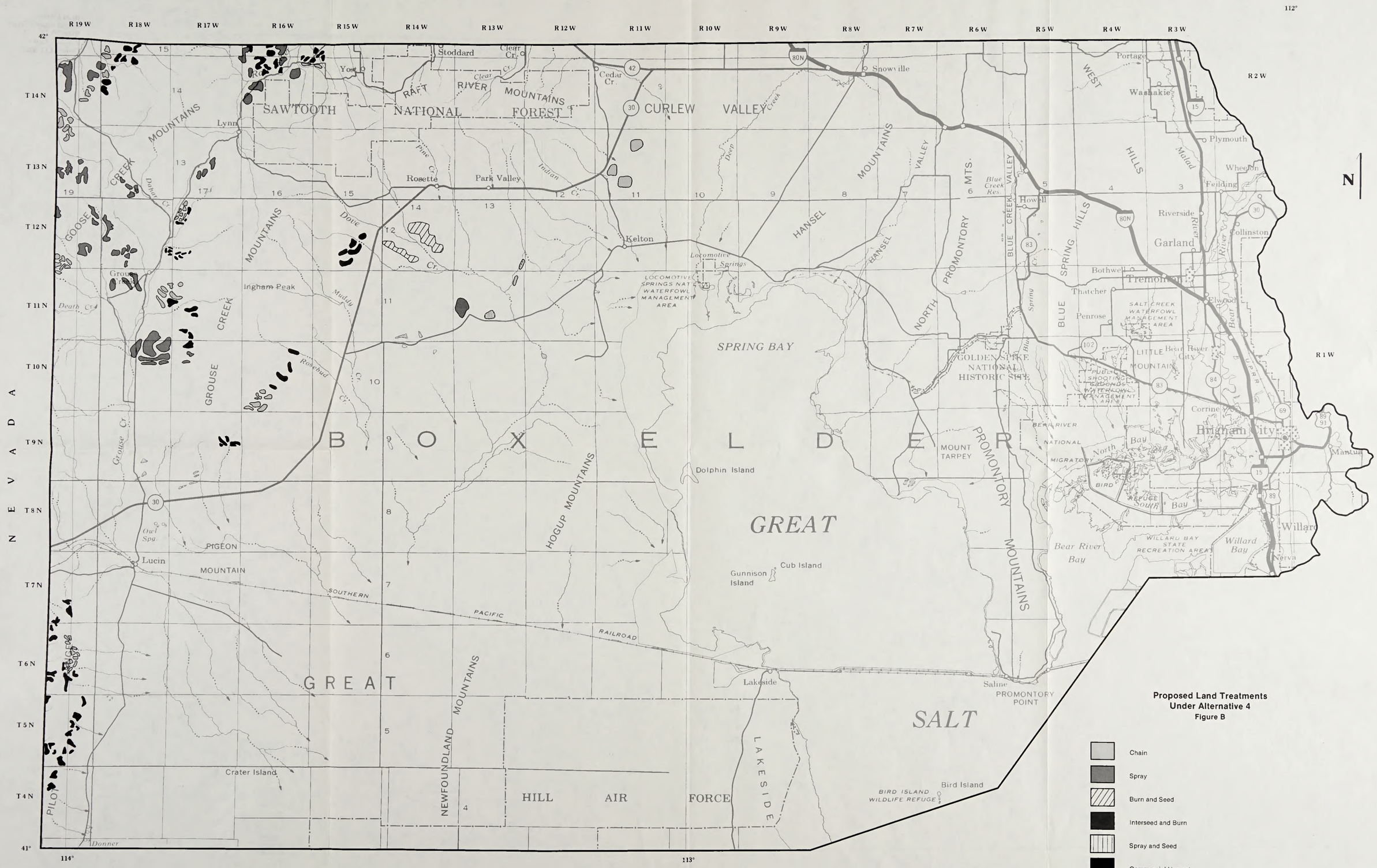
114° 113°

Scale
miles
kilometers

NOTE: This map meets the National Map Accuracy Standards

BOX ELDER PLANNING AREA

I D A H O



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Scale
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NOTE: This map meets the National Map Accuracy Standards

Proposed Land Treatments Under Alternative 4
Figure B

- Chain
- Spray
- Burn and Seed
- Interseed and Burn
- Spray and Seed
- Commercial Harvest

BOX ELDER PLANNING AREA

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