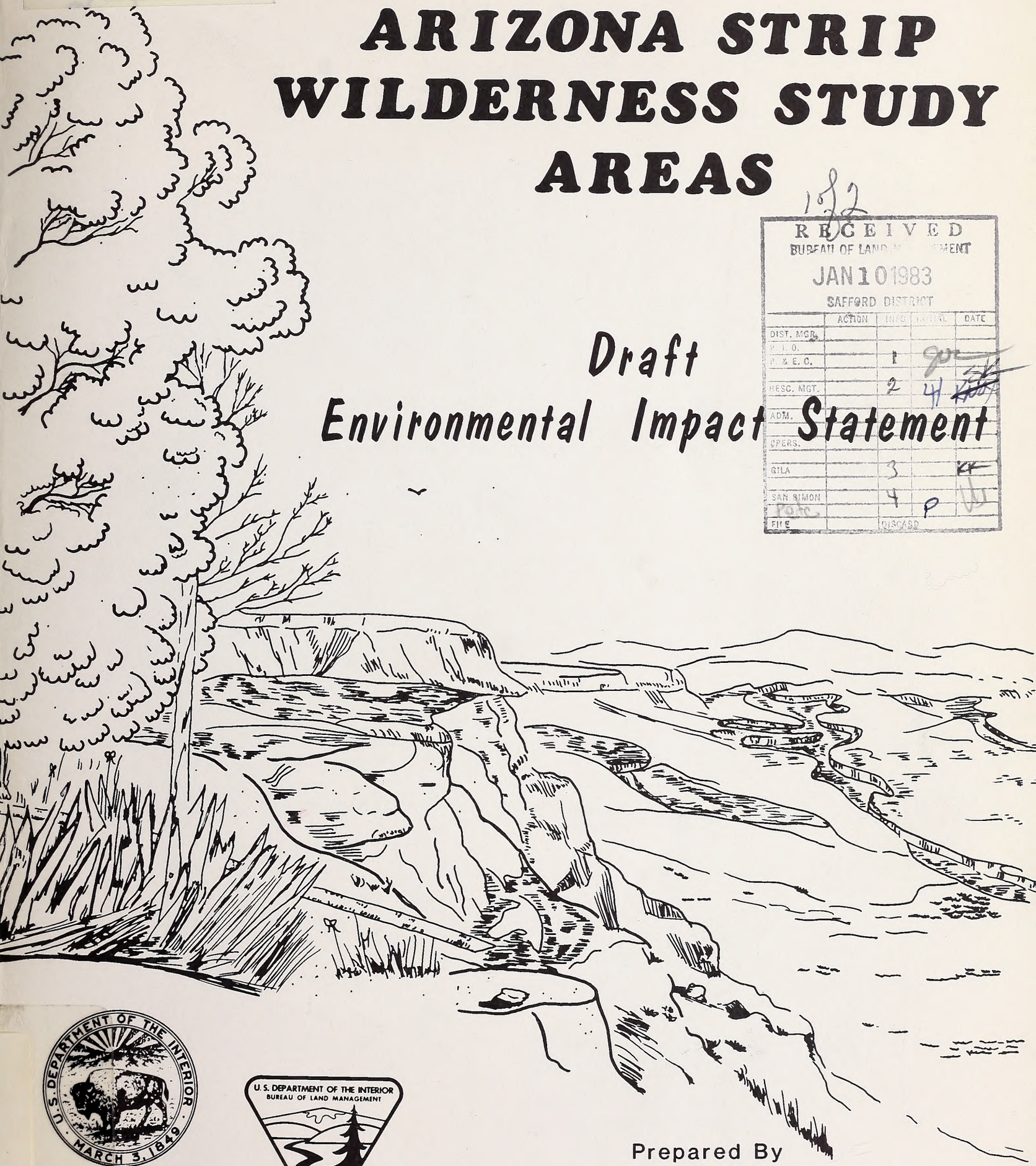
ARIZONA STRIP WILDERNESS STUDY AREAS

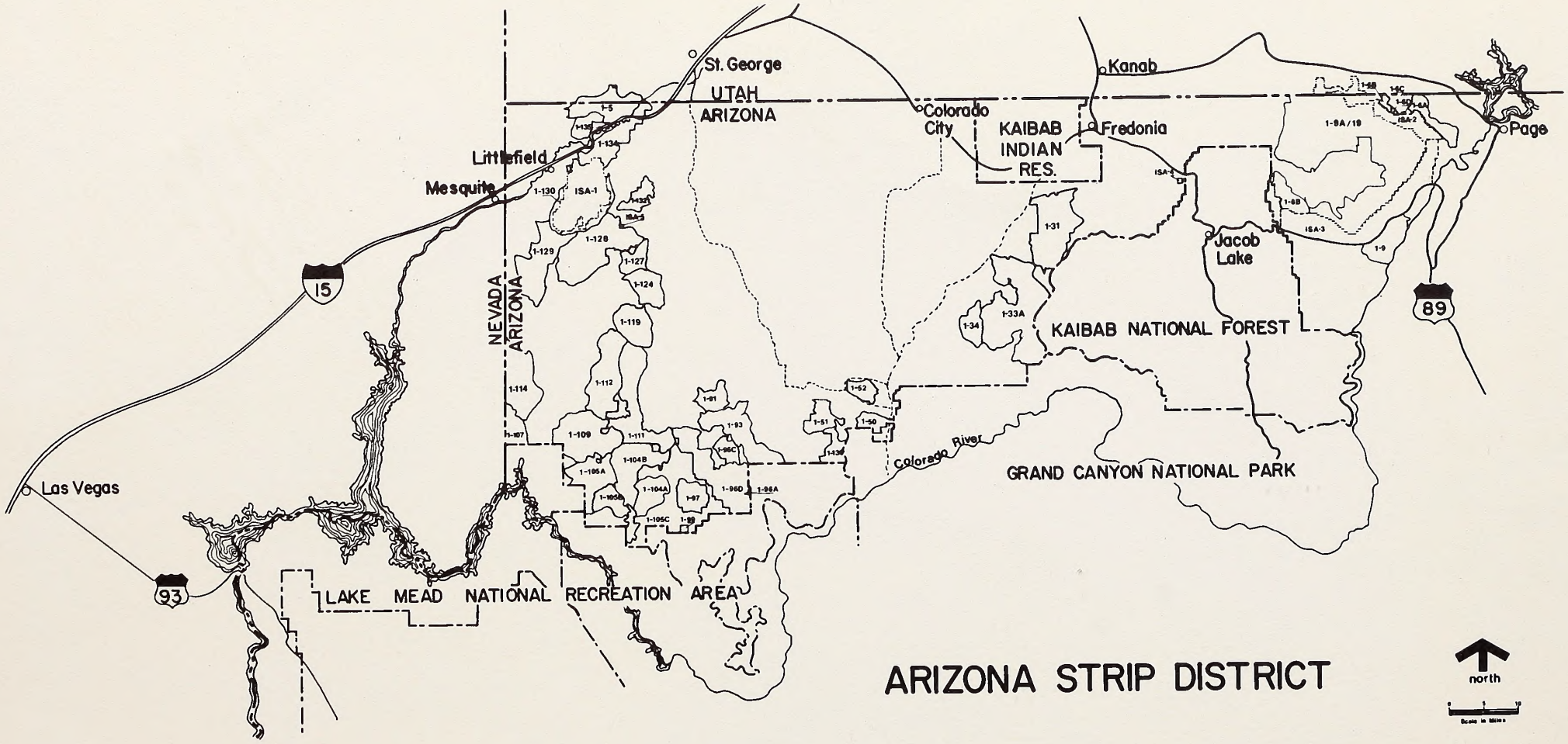
Draft Environmental Impact Statement



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

Prepared By
U.S. Department of the Interior
Bureau of Land Management
Arizona

LM-ES-004-4000-4332



WILDERNESS EIS LOCATION MAP

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Arizona Strip District Office
196 East Tabernacle, P. O. Box 250
St. George, Utah 84770-0250

IN REPLY
REFER TO:

8500 (010)

December 1982

Enclosed for your review and comment is the draft environmental impact statement (EIS) for the wilderness designation of wilderness study areas in the Arizona Strip District in Coconino and Mohave Counties, Arizona and in Washington County, Utah.

This EIS is based on information from Bureau of Land Management planning documents, inventory records, and other sources, including federal, state, and local agencies, private organizations, and interested individuals. The purpose of the statement is to disclose in advance the probable environmental impacts of the Proposed Action and its alternatives and to assure that these factors are considered along with economic and other considerations in the decisionmaking process.

We would appreciate receiving your comments on the draft statement. The comment period will run for 60 days after the draft is filed with the Environmental Protection Agency. The notice of receipt will be published in the Federal Register in December 1982. Public hearings will be held in Kingman and Flagstaff, Arizona and in St. George, Utah on dates to be published in the Federal Register.

Comments received after the 60-day review period will be considered in the later decisionmaking process, even though they may be too late to be included in the final environmental impact statement.

Please send your comments to:

District Manager
Bureau of Land Management
Arizona Strip District
P. O. Box 250
St. George, Utah 84770

Sincerely,

Julian L. Anderson

Julian L. Anderson
Acting District Manager

PUBLIC HEARING NOTICE

LOCATION	DATE	TIME
Evergreen Motel Flagstaff, Arizona	Feb. 1, 1983	7:30 p.m.
Mohave County Fairgrounds Exhibit Building Kingman, Arizona	Feb. 2, 1983	7:30 p.m.
Four Seasons Convention Ctr. St. George, Utah	Feb. 3, 1983	7:30 p.m.

DRAFT

ENVIRONMENTAL IMPACT STATEMENT

PROPOSED WILDERNESS PROGRAM

for the

ARIZONA STRIP WILDERNESS EIS AREA

MOHAVE AND COCONINO COUNTIES, ARIZONA
and
WASHINGTON COUNTY, UTAH

Prepared by

DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT
ARIZONA STRIP DISTRICT

State Director

Arizona State Office

This environmental impact statement analyzes the environmental consequences of proposed wilderness designation in northwest Arizona. The Proposed Action recommends 26,196 acres (8 units) to be incorporated into the National Wilderness Preservation System. Alternatives in addition to the Proposed Action include Enhanced Wilderness — 179,228 acres (13 units), Wildland Preservation — 540,548 acres (21 units), All Wilderness — 786,669 acres (41 units and 3 instant study areas), and No Wilderness (No Action) — no units are recommended for designation. This draft EIS includes a description of the affected environment and an analysis of the environmental impacts of the Proposed Action and alternatives.

For further information contact Dennis Carter, EIS Team Leader, Arizona Strip District Office, Bureau of Land Management, P.O. Box 250, St. George, Utah 84770 or call (801) 628-0426.

Comments on the Draft EIS are due:

NOTICE TO READERS

Please keep this draft EIS for possible use as part of the final EIS. Council on Environmental Quality regulations [43 CFR 1503.4(c)] provide for circulation of abbreviated final EISs where major changes to the draft are not required. If the public review requires only minor changes to the draft, then the final EIS will consist of this draft and a supplement containing public comments, responses to comments, and necessary changes and corrections. This procedure will cut printing costs and speed up the environmental process.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF MAPS

LIST OF PREPARERS

NAME	EIS ASSIGNMENT	POSITION	EDUCATION	EXPERIENCE
P. M. Avey	Editorial Assistance	Arizona Strip District Office, Editorial Assistant	High School	5 years BLM, 4 years newspaper
W. Booker	Wilderness and Recreation	Recreation Planner and Wilderness Specialist	B.A. Economics, San Jose State College; M.A. Economics, University of California	8 years BLM
D. R. Carter	Team Leader and Public Affairs	Arizona Strip District Office, Environmental Specialist	B.S. Botany and Range Management, Brigham Young University	11 years BLM
R. Davis	Forestry	Arizona Strip District Office, Forestor	B.S. Forest Management, University of West Virginia	18 years BLM
C. L. Horyza	Climate, Soils, and Air Quality	Arizona Strip District Office, Range Conservationist	B.S. Range Management, Washington State University	4 years BLM
L. E. Hughes	Vegetation, Livestock Grazing, Threatened and Endangered Plants	Arizona Strip District Office, Vegetation Specialist	A.S. Forestry, North Dakota School of Forestry B.S. Range and Fishery Management, Utah State University	9 years BLM
G. W. Joki	Fire Management and Control	Arizona Strip District Office, Fire Management Officer	B.A. Environmental Studies, Fort Wright College	6 years BLM, 8 years State of Idaho
J. R. Kalish	Wilderness	Arizona Strip District Office, Outdoor Recreation Planner and Wilderness Specialist	B.S. Wildlife Management, University of Missouri	3-1/2 years BLM, 2 years National Park Service
R. D. Malcomson	Cultural Resources	Arizona Strip District Office, Archaeologist	B.A. University Studies (Anthropology and Archaeology); M.A. Anthropology and Education, University of New Mexico	4-1/2 years BLM, 1 year New Mexico State University Division of Cultural Resources Management
H. K. McGinty	Editor and Technical Coordinator	Arizona State Office Writer-Editor	B.A. History, Duke University; M.A. Geography, Clark University; Certificate of Accomplishment in Editorial Practices, U.S. Department of Agriculture Graduate School	6 years BLM, 3-1/2 years U.S. Geological Survey
N. R. Middlebrook	Wildlife	Arizona Strip District Office, Wildlife Biologist	B.S. Wildlife Management, Humboldt State University	8 years BLM, 1 year California Fish and Game Department
P. L. Neal	Management Program Coordination	Arizona State Office, Wilderness Coordinator	B.S. Recreation Resource Management, Oregon State University	8 years BLM
K. L. Pearson	Social Elements	Arizona State Office, Social Scientist	B.A. History, Augustana College, Illinois; M.A. Anthropology, University of Arizona; Ph.D Social Anthropology, University of Arizona	6 years BLM, 7 years teaching in Arizona universities
J. A. Pranzo	Economic Conditions	Arizona State Office, Regional Economist	B.A. Economics, minor Sociology, Hunter College; M.A. Economics, University of Pittsburgh; 1 year's study in Natural Resource Economics, Colorado State University	6 years BLM, 5 years Army Corps of Engineers
R. W. Ray	Visual Resources, Draftsman, and Cartographer	Arizona Strip District Office, Landscape Architect	B.S. Environmental Studies, Utah State University	5 years BLM, 3 years Army Corps of Engineers
D. R. Sokal	Recreation	Arizona Strip District Office, Outdoor Recreation Planner	B.S. Conservation Studies and B.S. Forestry, Southern Illinois University at Carbondale	3-1/2 years BLM
C. W. Swapp	Geology, Hydrology, and Minerals	Arizona Strip District Office, Natural Resource Specialist	B.S. Geology, Utah State University	15 years BLM, 3 years Bureau of Reclamation, 10 years oil, gas, ground water and mineral exploration
A. E. Tower	Environmental Coordination Coordination	Arizona State Office, Environmental Coordinator	B.S. Forest Management, University of Montana	14 years BLM

LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE STATEMENT ARE SENT

BLM will request comments on the draft EIS from all affected grazing permittees, interested individuals, and the following agencies and interest groups.

Federal Agencies

Advisory Council on Historic Preservation
Environmental Protection Agency
Department of Agriculture
- Agricultural Stabilization and Conservation Service
- Forest Service
- Science and Education Administration
- Soil Conservation Service

Department of Defense
- Corps of Engineers

Department of the Interior
- Bureau of Indian Affairs
- Bureau of Mines
- Bureau of Reclamation
- Fish and Wildlife Service
- Geological Survey
- Mineral Management Service
- National Park Service

Department of Transportation
Federal Energy Regulatory Commission

Arizona and Utah Congressional Delegations

Arizona State Agencies

Arizona Agriculture and Horticulture Commission
Arizona Association of Counties
Arizona Department of Health Services
Arizona Department of Library and Archives
Arizona Department of Mineral Resources
Arizona Department of Transportation
Arizona Game and Fish Department
Arizona Indian Affairs Commission
Arizona Office of Arid Land Studies
Arizona Office of Economic Planning and Development
Arizona Office of Tourism
Arizona Outdoor Recreation Coordinating Commission
Arizona State Clearinghouse
Arizona State Historic Preservation Officer
Arizona State Land Commission
Arizona State Oil and Gas Commission
Arizona State Parks Board
Arizona State Mine Inspector
Arizona State Soil Conservation Service
Commission on Arizona Environment
Governor's Office
League of Arizona Cities and Towns
Museum of Northern Arizona
Northern Arizona University
University of Arizona

Utah State Agencies

Utah Department of Agriculture
Utah Division of Lands
Utah Division of Natural Resources
Utah Division of State Parks and Recreation
Utah Division of Wildlife Resources
Utah Environment Center
Utah Office of State Planning
Utah State Engineer
Utah State Historic Preservation Officer

Local Agencies

Chairman, Navajo Nation
Coconino County Board of Supervisors
Coconino County Engineer
Coconino County Extension Service
Coconino County Manager
Coconino County Planning Director
Five County Association of Governments
Fredonia Conservation District
Kaibab Tribal Council
Kane County Commission
Kane County Planning Commission
Mayor of Fredonia
Mayor of Kanab
Mayor of St. George
Mohave County Board of Supervisors
Mohave County Extension Service
Mohave County Engineer
Mohave County Planning and Zoning Commission
Northern Arizona Council of Governments
Office of Natural Resources, Hopi Tribe
Washington County Commission
Washington County Extension Service

Other Organizations

Arizona Cattle Growers Association
Arizona Desert Bighorn Sheep Society
Arizona Desert Racing Association
Arizona 4-Wheel Drive Association
Arizona Mining Association
Arizona Strip Grazing Advisory Board
Arizona Wilderness Alliance
Arizona Wildlife Federation
Arizona Wildlife Society
Coconino Sportsmen
Defenders of Wildlife
Desert Bighorn Council
Desert Tortoise Council
Friends of Animals, Inc.
Friends of the Earth
Izaak Walton League of America
Kane County Cattleman's Association
Mining and Oil Companies
National Audubon Society
National Council of Public Land Users
National Outdoor Coalition
Natural Resources Defense Council
Pacific Environmental Service
Public Lands Institute
Sierra Club
Society for Range Management
Southern Utah Residents Concerned about the Environment
Thunder River League
Washington County Cattlemen's Association
Wilderness Society

Wildlife Federation
Wildlife Management Institute
Wildlife Society

Copies of this draft EIS may be examined by the public at the following BLM offices:

Office of Public Affairs
Bureau of Land Management
Interior Building, 18th and C Streets, N.W.
Washington, D.C. 20240
Phone: (202) 343-5717

Arizona State Office
Bureau of Land Management
2400 Valley Bank Center
Phoenix, AZ 85073
Phone: (602) 261-3706

Arizona Strip District Office
Bureau of Land Management
196 E. Tabernacle
St. George, UT 84770
Phone: (801) 673-3545

Oral and written comments will also be received at formal public hearings to be held in the following cities:

Flagstaff, Arizona
Kingman, Arizona
St. George, Utah

Details on the public hearings will be published in the *Federal Register* and in local newspapers.

SUMMARY

SUMMARY

Purpose and Need

The Bureau of Land Management (BLM) is under congressional mandate to review roadless areas of 5,000 acres or more on public lands having wilderness characteristics and by 1991 to recommend to the President the suitability of such areas for preservation as wilderness. This environmental impact statement (EIS) assesses the environmental consequences of managing as wilderness 41 wilderness study areas (WSAs) and three instant study areas (ISAs) in BLM's Arizona Strip District. This district lies in Mohave and Coconino Counties in northwest Arizona and consists of the Shivwits and Vermillion Resource Areas.

The Arizona Strip District's wilderness inventory began in the fall of 1978 and involved the following steps.

- Identifying all roadless areas of 5,000 acres or more.
- A 90-day review period, after which lands believed to meet wilderness criteria were proposed for more intensive inventory.
- Intensive inventory involving on-the-ground inspection to verify wilderness qualities.
- Another 90-day review period during which WSAs were identified.

To help "scope" and summarize significant issues related to wilderness designation, BLM requested public comments on its wilderness inventory and planning process and wrote letters to energy and mineral industries and tribal leaders. Scoping found the following wilderness-related issues of high concern:

- Impacts on wilderness values.
- Impacts of wilderness designation on mineral and energy exploration and development.
- The ability of the public to use wilderness areas.
- Increased visitor use in wilderness areas.
- Concern for state and private inholdings and contiguous lands having wilderness character.
- Nonfederal ownership of mineral rights.

Alternatives Including the Proposed Action

BLM proposed the following five alternatives as representing the best range of options for wilderness management of the EIS area's 41 WSAs and 3 ISAs. Table 2-1 shows specific WSAs proposed for designation under each alternative.

1. The *Proposed Action,* which corresponds to recommendations in Step 2 of the Shivwits and Vermillion Management Framework Plans (MFPs) and constitutes BLM's preferred alternative, recommends designating as wilderness all or parts of eight WSAs, including 26,186 acres of public land and no state or private land.

2. *Enhanced Wilderness* corresponds to the recommendations of wilderness specialists in Step 1 of the Shivwits and Vermillion MFPs. It would designate all or parts of 13 WSAs, including 175,107 acres of public land and 4,121 acres of state land. It would require the acquisition of 6,831 acres of mineral rights.

3. *Wildland Preservation* recommends wilderness designation for 21 WSAs, including 531,268 acres of public land and 9,280 acres of state and private land. In addition, BLM would have to acquire 13,920 acres of mineral rights.

4. *All Wilderness* recommends designating as wilderness all 41 WSAs and 3 ISAs, including 774,148 acres of public land and 12,521 acres of state and private land. A total of 33,211 acres of mineral rights would also have to be acquired.

5. *No Wilderness (No Action)* would return the 41 WSAs (774,148 acres) to multiple-use management and not recommend any areas for wilderness designation. The three ISAs would remain natural areas, but that status would not be protected by law.

Under all five alternatives, the WSAs would be managed under BLM's Interim Management Policy for Lands Under Wilderness Review (Appendix 1) until either designated wilderness or released by Congress. Areas designated wilderness would be managed under provisions of the Wilderness Act, the Federal Land Policy and Management Act, and BLM's Wilderness Management Policy (Appendix 2) as amended to include requirements of the law designating the wilderness area.

Environmental Consequences

BLM based its analysis of environmental consequences on the following assumptions:

- BLM will develop and implement wilderness

management plans for areas designated wilderness.

- Range, wildlife, and other improvements installed and maintained by customary methods may be allowed after case-by-case consideration of the impact on wilderness character.
- Visual resource management (VRM) objectives will be considered in planning all improvements to be installed in wilderness areas. Class I objectives will be applied and management considerations will be given to valid existing rights and grandfathered uses.
- Livestock use will be maintained at present levels unless adjusted for reasons not related to wilderness.
- Any wilderness designation will occur after December 31, 1983.

BLM's interdisciplinary team of resource specialists determined that few if any measureable impacts would occur to climate, air quality, topography, water resources, vegetation, or wild burros. Table 2-2 summarizes significant impacts by alternative.

IMPACTS ON WILDERNESS VALUES

Wilderness designation would ensure the continued preservation and enhancement of wilderness and related plant, wildlife, scenic, and recreation resources, protecting these values from most mining and oil and gas exploration; disposal by BLM; off-road vehicle use; road building; utility corridor construction; firewood, post, and timber harvesting; and other development. *No Wilderness* designation would end the protection of wilderness values under BLM's Interim Management Policy and result in the loss of significant wilderness values in the Arizona Strip.

IMPACTS ON WILDLIFE

The impact of wilderness designation on wildlife would depend on the WSA's size, the key wildlife inhabiting a WSA, and how an alternative would contribute to meeting objectives of habitat management plans (HMPs). Except on small WSAs where little impact is expected, wilderness designation would mostly benefit wildlife, protecting habitat from the long-term cumulative losses resulting from development. For most WSAs, wilderness designation would ensure that acceptable habitat conditions are maintained, especially for raptors, bighorn sheep, desert tortoises, Gila monsters, nongame birds, and other nongame. Wilderness designation could also prevent the extension of livestock waters and potentially prevent increased mule deer-livestock forage competition.

In some WSAs, however, wilderness designation could interfere with meeting HMP objectives by prohibiting land treatment and thus preventing the increases in forbs, grasses, and browse that would increase mule deer productivity. Designation could also interfere with habitat management by restricting predator control.

IMPACTS ON LAND USE

Wilderness designation of Starvation Point and Kanab Creek WSAs could limit the expansion of the utility corridor along the Navajo-McCullough powerline on the north sides of these units. Wilderness designation would also prevent new rights-of-way from being developed in any designated wilderness areas. Most rights-of-way, however, are located around and in between communities, and the WSAs in the Arizona Strip District are mostly isolated from communities.

IMPACTS ON MINERAL EXPLORATION AND DEVELOPMENT.

The impact of wilderness designation on mineral exploration and development would depend on the areas designated wilderness. Designation would restrict the exploration needed to evaluate mineral potential and would preclude production that might result from exploration. The impact is not expected to be great under the *Proposed Action,* because the WSAs involved are believed to have less mineral potential than the rest of the EIS area's WSAs. *Enhanced Wilderness* would deter exploration in areas considered to have good potential for mineral production. Under *Wildland Preservation* further mineral exploration would be excluded from 15 WSAs having conditions considered favorable to oil and gas production and from 21 WSAs that have conditions favorable for the presence of uranium. *All Wilderness* would have the greatest impact of all alternatives, restricting exploration on 29 WSAs with conditions favorable to oil and gas accumulation and several hundred thousand acres considered favorable to uranium occurrence. *No Wilderness* would benefit the possible mineral exploration and development in the EIS area by removing the WSAs from Interim Management and returning them to multiple-use management.

IMPACTS ON RANGELAND MANAGEMENT

Wilderness designation would not prohibit grazing in WSAs that were grazed before the passage of the Federal Land Policy and Management Act (1976), but livestock increases would be allowed only if they would not impact wilderness or multiple-use values. New rangeland developments could not be built solely to ac-

commodate increased livestock numbers but only as needed for resource protection. Unless BLM, in cooperation with livestock operators, is allowed to build and maintain rangeland developments where needed in wilderness areas, wilderness designation could prevent the implementing of intensive grazing management under allotment management plans (AMPs) and prevent the range from increasing its forage production. Moreover, designation would prohibit land treatments proposed to increase forage. The following table shows how each alternative could affect intensive grazing management.

Alternative	Acres On Which Land Treatment Would Be Prohibited	Potential Forage (AUM) Increases That Might Not Be Realized
Proposed Action	560	110
Enhanced Wilderness	6,951	1,283
Wildland Preservation	13,000	2,432
All Wilderness	30,843	5,932

IMPACTS ON CULTURAL RESOURCES

Wilderness designation would generally benefit cultural resources in the WSAs by preventing new development. Such development improves access to sites and increases visitation, often resulting in artifact collection and other vandalism. In banning motor vehicles, designation would protect remote sites and stop vehicle-related damage to surface artifacts and features.

On the other hand, designation could harm cultural resources by increasing the number of hikers and backpackers in WSAs, which could increase vandalism. The ban on motor vehicles could hurt scientific study and the protection of cultural resources, because surveys heavily depend on four-wheel drive vehicles and helicopters. The ban on motor vehicles would also limit the number of sites that could be monitored and patrolled for vandalism.

IMPACTS ON VISUAL RESOURCES

Wilderness designation would benefit visual resources by designating wilderness areas visual resource management (VRM) Class I. Class I, a more restrictive class than the WSAs are now under, would protect scenic values by prohibiting widescale vegetation and surface disturbance caused by land treatments, large catchment construction, mineral exploration, and mining.

IMPACTS ON RECREATION

Wilderness designation would preserve opportunities for primitive and unconfined recreation while decreasing opportunities for recreation dependent upon motorized vehicles. The *Proposed Action* would mostly benefit recreation, protecting significant resources and little affecting recreation dependent on motorized vehicles. *Enhanced Wilderness, Wildland Preservation,* and *All Wilderness* would preserve significant acreages for primitive recreation but would adversely restrict hunting opportunities and ORV use.

IMPACTS ON FOREST MANAGEMENT

Although the *Proposed Action* would little impact BLM's forestry program, *Enhanced Wilderness, Wildland Preservation,* and *All Wilderness* would prohibit timber management, including harvest and timber stand improvement, seriously harming forest management in the Mt. Logan and Parashaunt forests.

IMPACTS ON ECONOMIC CONDITIONS

The inability to implement intensive grazing under wilderness designation would cause a loss of potential forage, resulting in a loss of potential revenue to ranchers. Moreover, the loss of potential forage would not allow ranch values to increase to their potential. The following table shows adverse economic impacts to livestock grazing and ranch values by alternative.

	Allotments Affected	Forage (AUMs) Increases Not Realized	$ Value of AUMs Precluded	Ranch Value Increases Not Realized
Proposed Action	2	110	606	13,750
Enhanced Wilderness	7	1,365	7,521	170,625
Wildland Preservation	10	2,550	14,051	318,750
All Wilderness	15	6,053	33,352	756,625

IMPACTS ON SOCIAL ELEMENTS

Wilderness designation would not greatly affect population totals or trends at the local, county, or regional levels. Nor would designation affect public perceptions of wilderness at county and regional levels. Although local populations tend to oppose wilderness designation or to be indifferent to it, only the *All Wilderness* alternative could have a significant adverse impact on public perceptions of wilderness, generating widespread and strong local opposition.

Chapter 1

PURPOSE AND NEED

CHAPTER 1

PURPOSE AND NEED

Introduction

This environmental impact statement (EIS) considers the possible consequences of five alternatives for wilderness designation of public lands in the Shivwits and Vermillion Resource Areas in the Arizona Strip District. The EIS area lies north of the Colorado River in Coconino and Mohave Counties, Arizona, and just south of the Utah State line. It extends from the Nevada State line on the west to the Colorado River and Glen Canyon National Recreation Area (location map inside front cover). One unit — Starvation Point WSA — extends into Washington County, Utah. Public lands addressed in this EIS make up 28 percent (774,148 acres) of all the lands in the EIS area.

Historically, livestock grazing has constituted the major land use in the area. Recently, outdoor recreation and mining have been increasing in many parts of the area.

Purpose and Need for Action

The Bureau of Land Management (BLM) is under congressional mandate to provide for orderly use and development of the public lands and to preserve the land and its resources from destruction or unneeded injury. The Federal Land Policy and Management Act of 1976 (FLPMA) directs BLM to periodically inventory the lands and to project present and future uses in land use plans. These plans, management framework plans (MFPs) and resource management plans (RMPs), ensure that public lands are managed on a multiple-use and sustained yield basis and that the quality of natural resources is preserved. FLPMA directs the Secretary of the Interior to review roadless areas of 5,000 acres or more having wilderness characteristics and by 1991 to recommend to the President the suitability of such areas for preservation as wilderness. Three areas of less than 5,000 acres — Dansil Canyon, G and F, and Tincanebitts — were inventoried and studied under sections 201, 202, and 302 of FLPMA. These sections require the Secretary of the Interior to inventory all public lands, giving priority to areas of critical environmental concern. Within 2 years after receiving a recommendation, the President must send a report to Congress. Congress, however, has no time limit for acting on the President's recommendation.

This EIS assesses the environmental consequences of wilderness designation of WSAs under the Wilderness Act and BLM's Wilderness Management Policy (Appendix 2).

The Wilderness Inventory

The wilderness inventory began in the fall of 1978 when Arizona Strip District wilderness specialists identified all roadless areas of 5,000 acres or more. Areas clearly lacking wilderness characteristics were sorted out from lands that might have those characteristics. After a 90-day public review period, lands believed to meet wilderness criteria were proposed for more intensive inventory. This intensive inventory involved on-the-ground inspections to verify the wilderness qualities. This intensive inventory was followed by a 90-day public review period. Those areas identified in this inventory and review are the wilderness study areas (WSAs) being analyzed in this EIS.

In addition to the 41 WSAs, the Arizona Strip District has five instant study areas (ISAs). ISAs are areas that were formally designated as natural or primitive areas before the passage of the Federal Land Policy and Management Act of 1976. Paria Canyon Primitive Area, Paiute Primitive Area, and part of the Vermillion Cliffs Natural Area were studied in the Arizona Strip Wilderness Draft EIS and Suitability Report (BLM, 1980). This EIS covers the remaining ISAs, including the part of the Vermillion Cliffs Natural Area not previously studied.

BLM Management Framework Plan

The proposed wilderness management program was developed through BLM's planning system. After the WSAs were identified in the wilderness inventory, they became the wilderness recommendations in Step 1 of the management framework plans (MFPs) for the study area.

The wilderness study criteria and quality standards were applied to each WSA between Step 1 and Step 2 of the MFP. These criteria and quality standards are as follows.

Criterion No. 1 - Evaluation of Wilderness Values

(a) Mandatory Wilderness Characteristics: Size, naturalness, and outstanding opportunities for solitude or primitive recreation.

(b) Special Features: Ecological, geologic, or other features of scientific, educational, scenic, or historic value.

(c) Multiple Resource Benefits: Benefits to other resources and uses that only wilderness designation could ensure.

(d) Diversity in the National Wilderness Preservation System:
(1) Expanding the diversity of natural systems.
(2) Assessing the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers.
(3) Balancing the geographic distribution of wilderness areas.

Criterion No. 2 - Manageability

The area must be capable of being effectively managed to preserve its wilderness character.

Step 2 of the MFP resolved conflicts among resource recommendations through public and management involvement. Area managers drafted multiple-use management recommendations, which considered the public comments. BLM then called upon the public for review and analysis of the recommendations. After public review, the recommendations were incorporated into Step 2 of the MFP. These wilderness recommendations became BLM's *Proposed Action* for the EIS.

The final phase of the MFP process is Step 3, the District Manager's decision. The District Manager will then recommend to the Secretary of the Interior, through the State Director and the Director of BLM, that selected WSAs or portions of WSAs are suitable for wilderness designation and that those areas found nonsuitable be released to multiple-use management. The Secretary will then order the Geological Survey and the Bureau of Mines to conduct a mineral survey on the areas recommended suitable for wilderness designation. The Secretary will then forward a recommendation to the President. The President has 2 years in which to send a recommendation to Congress.

Environmental Assessment

An interdisciplinary team of resource specialists analyzed the environmental consequences of the MFP Step 2 recommendations for wilderness and compared them to the environmental consequences of reasonable alternatives. This draft EIS documents the analysis and comparisons.

After receiving the public comments on the draft EIS, BLM will analyze and respond to those comments in the final EIS. The preliminary final EIS and the Wilderness Study Report will be forwarded to BLM's Washington Office for review and approval to print. The final EIS will then be filed with the Environmental Protection Agency.

Scoping (Issue Identification)

Scoping is the early and open process for determining the scope of issues to be addressed in an EIS and for identifying the significant issues related to a proposed action. Scoping determines in depth the scope and the significant issues to be analyzed in the EIS and identifies and eliminates from detailed study insignficant issues or issues addressed in earlier environmental reviews. The public involvement in the wilderness program began as early as the fall of 1978 and has continued since. The decision to prepare an EIS on the Arizona Strip study area was published in the *Federal Register* on February 5, 1982.

Information gained through scoping is then integrated with data from the environmental analysis. Scoping thus reduces the length of the EIS and emphasizes the real alternatives and impacts.

The scoping process for the EIS area involved several phases, extending from the fall of 1978 to January 1982:

- The initial wilderness inventory and public comment period — 1978-1979.
- The intensive wilderness inventory and public comment period — 1980.
- The BLM study and planning process — 1980-1982.
- Public review of MFP Step 2 recommendations for wilderness — 1982.
- Notice of Intent to prepare an EIS — 1982.
- Letters to the energy and mineral industries and individual claim holders — February 1982.
- Letters to tribal leaders — February 1982.

Results of Scoping

In preparing this draft EIS, the interdisciplinary team and resource managers considered the major areas of public interest and concern identified through scoping. The team then used this analysis to determine which concerns would be signficantly impacted by the *Proposed Action* or alternatives. The scoping process identified the following as areas of significant concern.

- Impacts on wilderness values.
- Impact of wilderness designation on mineral and energy exploration and development.
- Control of vehicular access.

- Impact of wilderness designation on grazing use and future range developments.
- Ability of the public to use wilderness areas.
- Increased visitor use on the areas.
- Concern for state and private inholdings and contiguous lands having wilderness character.
- Nonfederal ownership of mineral rights.

The scoping process identified the following resources or issues that would not be significantly impacted by the *Proposed Action* or the alternatives analyzed in the EIS: geology, topography, soils, air quality, climate, water resources, vegetation, and fire management. Most of the above are discussed in Chapter 3 (Affected Environment) to help the reviewer understand the area and its environment.

Identification of Alternatives

After analyzing public comments, identifying resource conflicts in the planning process, and applying the wilderness criteria, the interdisciplinary team selected the following five alternatives:

1. *Proposed Wilderness Management Program (Proposed Action)* — All or portions of eight WSAs, 26,186 acres of public land.

2. *Enhanced Wilderness* — All or portions of 13 WSAs, 175,107 acres of public land.

3. *Wildland Preservation*—21 WSAs, 531,268 acres of public lands.

4. *All Wilderness* — 41 WSAs and three Instant Study Areas (ISAs), 774,148 acres of public land.

5. *No Wilderness (No Action)* — No wilderness areas recommended.

These alternatives will provide BLM managers a wide range of options from which they can develop wilderness recommendations. The *Proposed Action* and *Enhanced Wilderness* alternatives include the wilderness management recommendations developed during the planning process. The *No Wilderness* and *All Wilderness* alternatives are required by the BLM wilderness study policy. To provide a full range of alternatives, the team reviewed the public comments, resource conflicts, and the wilderness criteria. From this review they developed the *Wildland Preservation* alternative.

Chapter 2

ALTERNATIVES

Chapter 2

ACTIVITIES

CHAPTER 2

ALTERNATIVES INCLUDING THE PROPOSED ACTION

Introduction

Chapter 2 describes in detail the five alternatives selected for analysis in this study. The description of the alternatives allows the reader to compare and weigh the merits of each. To provide the public and decisionmaker with a convenient tool for comparing impacts, defining issues, and reaching conclusions, Chapter 2 ends with a comparative summary of the alternatives.

Several policy requirements will apply to all WSAs and to the WSAs or portions of WSAs designated wilderness. Some of these requirements are briefly described here. For detailed descriptions, see Appendices 1 and 2.

Until either released or designated by Congress, all 41 WSAs and 3 instant study areas (ISAs) will be managed under the Interim Management Policy and Guidelines for Lands Under Wilderness Review (Appendix 1). These guidelines and policy will guide BLM staff in decisions that arise in everyday management of lands under wilderness review. In addition, some grandfathered uses will be allowed within an area. Such uses occurred on the lands before the passage of the Federal Land Policy and Management Act (FLPMA) on October 21, 1976. The uses described by Congress were existing mining and grazing and mineral leasing in the same manner and degree in which they were being conducted on the date of FLPMA's passage.

BLM will manage newly designated wilderness areas under the provisions of the Wilderness Act, FLPMA, and BLM's Wilderness Management Policy (Appendix 2). The Wilderness Management Policy will be amended to include requirements of the law designating the wilderness area. (See Appendix 2.) Section 4 of the Wilderness Act states that wilderness areas should be devoted to recreation, scenic, scientific, educational, conservation, and historic use. Subpart c of this section sets the limit on use, and subpart d identifies provisions allowing specific activities.

Following are some of the activities that would be allowed in designated wilderness areas.

- The use of aircraft or motorboats, where these uses have already become established, may be allowed to continue, and aircraft and motorboats could be used for fire, insect, and disease control. These activities would be subject to conditions deemed desirable by the managing department head.
- If compatible with the preservation of wilderness, mineral prospecting would be allowed until December 31, 1983 or until designation, whichever occurs later. Mining and mineral leasing laws in effect before designation would remain in effect, subject to Department of the Interior regulations governing access. Mechanized ground and air equipment may be allowed, but disturbed land surfaces must be restored.
- If in the public interest, the President may authorize establishing and maintaining reservoirs, power projects, transmission lines, roads, and other such facilities in wilderness areas.
- Lifestock grazing can continue subject to Department of the Interior regulations.
- Commercial activities could be allowed within wilderness areas to serve recreation or other wilderness purposes.
- The Wilderness Act does not exempt the affected resources from state water laws or the state jurisdiction and responsibilities for wildlife and fish in the area.
- Access to state or privately owned land surrounded by wilderness will be guaranteed.

BLM managers have reviewed each WSA and ISA to determine how a given area would be managed should it be designated wilderness. The following management considerations will be used in the analysis of impacts for each alternative.

- New projects such as roads, land treatments (chaining, plowing, spraying), catchments (80,000-gallon structures), and wells would be prohibited.
- New projects such as stock ponds (not requiring a new road for access), spring developments (same road limitation), pipelines, and fences can be built.
- Projects existing before wilderness designation and those grandfathered in approved AMPs can be maintained by traditional methods.
- No timber harvest or woodcutting will be permitted. Trees can be thinned to maintain a healthy timber stand as an enhancement of wilderness values.
- No recreation facilities such as buildings, ramadas, pit toilets, or picnic tables will be built.
- In accordance with the Wilderness Act of 1964, BLM will approve no mineral exploration or issue mineral leases that include surface occupancy.
- BLM will determine and enforce visitor use carrying capacity when appropriate in the future.

• All fires, regardless of the cause of ignition, shall be treated as "observation" under the District Modified Fire Suppression Plan. Under "observation" BLM will send a fixed-wing aircraft or helicopter with a qualified aerial observer to the fire site to check the fire once or twice daily as needed. The fire or fires will be allowed to burn as long as the fire meets management objectives. In this case management objectives can be defined as allowing natural fire to return some wilderness ecosystems to a more natural state, unless control is needed to prevent loss of human life or property.

This EIS describes each WSA individually and each alternative as it affects the WSAs. Table 2-1 presents an acreage comparison and description by unit and alternative. Components of the *Proposed Action* that apply to other alternatives are not described under each alternative but are referenced to the description of the *Proposed Action*.

Description of Alternatives Including the Proposed Action

PROPOSED ACTION

The *Proposed Action* corresponds to recommendations in Step 2 of the Shivwits and Vermillion Management Framework Plans (MFPs) and constitutes BLM's preferred alternative. This alternative proposes recommending to the Secretary of the Interior that all or portions of eight WSAs be designated wilderness and that Congress release the remaining areas from wilderness review and return them to multiple-use management.

The eight areas involve 26,186 acres of public land with no state or private land. The *Proposed Action* recommends acquiring no mineral rights for management or enhancement of wilderness resources.

ENHANCED WILDERNESS

The *Enhanced Wilderness* alternative corresponds to the wilderness specialists' recommendations in Step 1 of the Shivwits and Vermillion MFPs. It would recommend designating all or parts of 13 WSAs, totaling 179,228 acres. This area would include 175,107 acres of public land and 4,121 acres of state land. In addition to the state land, BLM would have to acquire 2,710 acres of mineral rights.

WILDLAND PRESERVATION

The *Wildland Preservation* alternative would recommend the wilderness designation of 21 WSAs — 540,468 acres: 531,268 acres of public land, 9,040 acres of state land, and 160 acres of private land. It would require the acquisition of 9,280 acres of surface and mineral rights and an additional 4,640 acres of mineral rights.

ALL WILDERNESS

The *All Wilderness* alternative would recommend that Congress designate as wilderness all 41 WSAs and 3 ISAs — 787,260 acres: 774,148 acres of public land, 12,912 acres of state land, and 200 acres of private land. The designation would require acquiring 20,690 acres of mineral rights and 12,521 acres of surface and mineral rights.

NO WILDERNESS (NO ACTION)

No Wilderness would return the 41 WSAs and 3 ISAs — 774,148 acres — to multiple-use management and not recommend any areas for wilderness designation. The Interim Management Policy would apply until Congress releases these areas. The future land use (long-term management) would be based on existing use patterns and MFP recommendations for resource management.

Unit Description by Alternative

This section discusses each of the 41 WSAs and 3 ISAs by alternative. The *No Wilderness* alternative is not discussed for any WSA or ISA since it would not involve change from the management before the implementation of the Interim Management Policy.

The following descriptions assess the wilderness characteristics or the WSAs differently, depending on the alternative. These different assessments for the same WSA result from the way the *Proposed Action* and alternatives were developed. The *Proposed Action* is the amended MFP Step 2 recommendation — a management proposal. The *Enhanced Wilderness* alternative is the amended MFP Step 1 proposal — that of wilderness resource specialists. And the *Wildland Preservation* alternative resulted from public participation in the scoping process.

STARVATION POINT (ARIZONA 005; UTAH 4-57) 27,212 ACRES (Map 2-1)

Proposed Action; Wildland Preservation. The Shivwits MFP Step II recommends the entire Starvation Point WSA as nonsuitable for wilderness designation. The unit has 1,800 acres of state land (three sections in Utah and one section in Arizona) and 1,710 acres of nonfederal mineral estate.

TABLE 2-1
WSA ACRES BY ALTERNATIVE

	WSA	Public Acres		State and Private Ownership					
		Suitable	Unsuitable	Surface Only	Minerals Only	Surface and Minerals	Surface Recommended for Acquisition	Minerals Recommended for Acquisition	Total Acres Proposed
				PROPOSED ACTION					
0068	Judd Hollow	506	--	0	0	0	0	0	506
006C	Paria Rim	106	--	0	0	0	0	0	106
0060	Cedar Mountain	12	--	0	0	0	0	0	12
008A/19	Paria Plateau	2,880	102,108	0	0	0	0	0	2,880
033A	Hack Canyon	12,531	51,151	0	0	0	0	0	12,531
052	Mt. Trumbull	7,285	--	0	0	0	0	0	7,285
130	Virgin River	1,440	--	0	0	0	0	0	1,440
134	Lime Hills	1,426	11,184	0	0	0	0	0	1,426
TOTALS		26,186	164,443	0	0	0	0	0	26,186
				ENHANCED WILDERNESS					
005	Starvation Point	27,212	--	0	1,710	1,841	1,841	3,551	29,053
006A	Ferry Swale	4,825	2,545	0	0	0	--	--	4,825
0068	Judd Hollow	506	--	0	0	0	--	--	506
006C	Paria Rim	106	--	0	0	0	--	--	106
0060	Cedar Mountain	12	--	0	0	0	--	--	12
008A/19	Paria Plateau	4,800	100,188	0	0	960	960	960	5,760
033A	Hack Canyon	12,531	51,151	0	0	0	--	--	12,531
052	Mt. Trumbull	7,285	--	0	0	0	--	--	7,285
105A	Nevershine Mesa	19,457	--	0	0	0	--	--	19,457
109	Pigeon Canyon	21,404	11,944	0	0	40	40	40	21,444
111	Last Chance	33,985	--	0	0	640	640	640	34,625
128	Sand Cove	30,966	9,095	0	1,000	640	640	1,640	31,606
130	Virgin River	1,440	--	0	0	0	--	--	1,440
ISA-3	Vermillion Cliffs	14,671	--	0	0	0	--	--	14,671
ISA-5	Turbinella/Gambel Oak	28	126	0	0	0	--	--	28
TOTALS		179,228	175,049	0	2,710	4,121	4,121	6,831	188,349
				WILDLANO PRESERVATION					
006A	Ferry Swale	7,370	0	0	0	0	--	--	7,370
0068	Judd Hollow	506	0	0	0	0	--	--	506
006C	Paria Rim	106	0	0	0	0	--	--	106
0060	Cedar Mountain	12	0	0	0	0	--	--	12
008A/19	Paria Plateau	104,988	0	0	1,000	5,760	5,760	6,760	110,748
0088	Overlook	7,348	0	0	0	160	160	160	7,508
009	Emmett Wash	12,913	0	0	0	640	640	640	13,553
031	Kanab Creek	39,242	0	0	480	640	640	1,120	39,882
033A	Hack Canyon	63,682	0	0	0	120	120	120	63,802
050	Toroweap	5,312	0	0	0	0	--	--	5,312
051	Mt. Logan	8,803	0	0	0	0	--	--	8,803
052	Mt. Trumbull	7,285	0	0	0	0	--	--	7,285
093	Parashaunt	38,938	0	0	0	0	--	--	38,938
096D	Andrus Canyon	48,248	0	0	680	40	40	720	48,288
109	Pigeon Canyon	33,348	0	0	0	640	640	640	33,988
112	Grand Wash Cliffs	31,503	0	0	80	0	--	80	31,503
114	Pakoon Springs	24,832	0	0	0	640	640	640	25,472
128	Sand Cove	40,061	0	0	1,000	640	640	1,640	40,701
129	Virgin Mountains	37,681	0	0	400	0	--	400	37,681
134	Lime Hills	12,610	0	0	1,000	0	--	1,000	12,610
136	Mt. Emma	6,480	0	0	0	0	--	--	6,480
TOTALS		531,268	0	0	4,640	9,280	9,280	13,920	540,548
				ALL WILDERNESS					
005	Starvation Point	27,212	--	0	1,710	1,841	1,841	3,551	29,053
006A	Ferry Swale	7,370	--	0	0	0	--	--	7,370
0068	Judd Hollow	506	--	0	0	0	--	--	506
006C	Paria Rim	106	--	0	0	0	--	--	106
0060	Cedar Mountain	12	--	0	0	0	--	--	12
008A/19	Paria Plateau	104,988	--	0	1,000	5,760	5,760	6,760	110,748
0088	Overlook	7,348	--	0	0	160	160	160	7,508
009	Emmett Wash	12,913	--	0	0	640	640	640	13,553
031	Kanab Creek	39,242	--	0	480	640	640	1,120	39,882
033A	Hack Canyon	63,682	--	0	0	120	120	120	63,802
034	Robinson	9,441	--	0	0	0	--	--	9,441
050	Toroweap	5,312	--	0	0	0	--	--	5,312
051	Mt. Logan	8,803	--	0	0	0	--	--	8,803
052	Mt. Trumbull	7,285	--	0	0	0	--	--	7,285
091	Poverty Mountain	7,872	--	0	120	640	640	760	8,512
093	Parashaunt	38,938	--	0	0	0	--	--	38,938
096A	Oansil Canyon	294	--	0	0	0	--	--	294
096C	Grassy Mountain	5,503	--	0	0	0	--	--	5,503
0960	Andrus Canyon	48,248	--	0	680	40	40	720	48,288
097	North Oellenbaugh	10,678	--	0	1,280	80	80	1,360	10,758
099	G & F	640	--	0	0	0	--	--	640
104A	Salt House	13,465	--	0	6,500	0	--	6,500	13,465
1048	Mustang Point	25,912	--	0	4,920	40	40	4,960	25,952
105A	Nevershine Mesa	19,457	--	0	0	0	--	--	19,457
1058	Snap Point	9,500	--	0	120	0	--	120	9,500
105C	Tincanebitts	2,715	--	0	1,300	0	--	1,300	2,715
107	Grand Gulch	8,141	--	0	0	0	--	--	8,141
109	Pigeon Canyon	33,348	--	0	0	640	640	640	33,988
111	Last Chance	33,985	--	0	0	640	640	640	34,625
112	Grand Wash Cliffs	31,503	--	0	80	0	--	80	31,503
114	Pakoon Springs	24,832	--	0	0	640	640	640	25,472
119	Hidden Rim	16,563	--	0	40	0	--	40	16,563
124	Hobble Canyon	11,825	--	0	0	0	--	--	11,825
127	Ide Valley	7,970	--	0	0	0	--	--	7,970
128	Sand Cove	40,061	--	0	1,000	640	640	1,640	40,701
129	Virgin Mountains	37,681	--	0	400	0	--	400	37,681
130	Virgin River	1,440	--	0	0	0	--	--	1,440
132	Purgatory	7,557	--	0	0	0	--	--	7,557
134	Lime Hills	12,610	--	0	1,000	0	--	1,000	12,610
135	Narrows	7,725	--	0	60	0	--	60	7,725
136	Mt. Emma	6,480	--	0	0	0	--	--	6,480
ISA-3	Vermillion Cliffs	14,671	--	0	0	0	--	--	14,671
ISA-4	Big Sage	160	--	0	0	0	--	--	160
ISA-5	Turbinella-Gambel Oak	154	--	0	0	0	--	--	154
TOTALS		774,148	0	0	20,690	12,521	12,521	33,211	786,669

Forced access or disposal by either state would affect the integrity of a wilderness area, whereas nondesignation would result in no resource conflicts. Natural values and the supplemental values on the public lands can be managed and protected under existing multiple-use regulations. Moreover, 2.4 million acres of similar desert area have been recommended for wilderness designation by the National Park Service and Fish and Wildlife Service, and BLM has recommended wilderness designation for similar country within 3 miles of the unit. This WSA would thus not add to the diversity or improve upon the distribution of wilderness areas in the system.

Enhanced Wilderness; All Wilderness. The Shivwits MFP Step I recommends the entire WSA as suitable for wilderness designation. The units were recommended for their superior wilderness characteristics. The coarse and varied topography provide outstanding opportunities for solitude and for hiking, river running, and photography. In addition, these units contain the following significant supplemental values:

1. Scenic and geological values.
2. Virgin River and habitat for the woundfin minnow (federal endangered status), roundtail chub, and Virgin River spinedace (Arizona State list).
3. Desert tortoise and bighorn sheep habitat.
4. Threatened and endangered plant species.

BLM would have to acquire 1,800 acres of state land and 1,710 acres of nonfederal mineral estate to assure the management of this area as wilderness.

FERRY SWALE (006A) 7,370 ACRES (Map 2-2)

Proposed Action. The Vermillion MFP Step II recommends Ferry Swale WSA as nonsuitable for wilderness designation because of manageability problems. Adding this area to the previously recommended Paria Canyon wilderness proposal would neither increase the diversity nor improve upon the distribution of designated wilderness.

Wildland Preservation; All Wilderness. These alternatives propose the entire WSA (7,370 acres) as suitable for wilderness designation. The unit contains no state or private acreage.

Enhanced Wilderness. The Vermillion MFP Step I proposes 4,825 acres as suitable for wilderness designation because of its high wilderness value.

JUDD HOLLOW (006B) 506 ACRES (Map 2-2)

Proposed Action; Enhanced Wilderness; Wildland Preservation; All Wilderness. The Vermillion MFP Step II recommends Judd Hollow WSA (506 acres) as suitable for wilderness designation because it complements the Paria Canyon wilderness proposal. It has high quality wilderness character and provides for identifiable boundaries.

PARIA RIM (006C) 106 ACRES (Map 2-2)

Proposed Action; Enhanced Wilderness; Wildland Preservation; All Wilderness. The Vermillion MFP Step II recommends Paria Rim WSA (106 acres) as suitable for wilderness designation. The unit complements the Paria Canyon wilderness proposal and provides for manageable boundaries.

CEDAR MOUNTAIN (006D) 12 ACRES (Map 2-2)

Proposed Action; Enhanced Wilderness; Wildland Preservation; All Wilderness. The Vermillion MFP Step II recommends Cedar Mountain WSA (12 acres) as suitable for wilderness designation. The unit complements the Paria Canyon wilderness proposal and provides for manageable boundaries.

PARIA PLATEAU (008A/19) 104,988 ACRES (Map 2-3)

Proposed Action. The Vermillion MFP Step II recommends 2,880 acres of Paria Plateau WSA as suitable for wilderness designation. This area complements the Paria Canyon wilderness proposal, provides for manageable boundaries, and eliminates state land.

Wildland Preservation; All Wilderness. These alternatives propose the entire WSA (104,988 acres) as suitable for wilderness designation. In addition, the unit contains 5,760 acres of state land and 1,000 acres of nonfederal mineral estate that would have to be acquired to ensure wilderness manageability.

Enhanced Wilderness. The Vermillion MFP Step I recommends 4,800 acres of the Paria Plateau WSA as suitable for wilderness designation. The modification to the MFP Step II recommendation would eliminate conflicts with state land (960 acres) and existing range improvements (see *Proposed Action*).

OVERLOOK (008B) 7,348 ACRES (Map 2-3)

Proposed Action; Enhanced Wilderness. The Vermillion MFP Step II recommends this WSA as nonsuitable for wilderness preservation. The Overlook WSA is part of a larger roadless area that includes part of Vermillion Cliffs Natural Area. The unit lacks superior wilderness characteristics and variety and

challenge in recreation opportunities. Solitude is primarily based on juniper-pinyon cover and not topographic relief. A 160-acre private inholding exists near the unit's center, and reasonable access would divide the unit nearly in half.

Wildland Preservation; All Wilderness. These alternatives propose the entire Overlook WSA as suitable for wilderness designation. The unit's 160-acre private inholding would have to be acquired to assure management as wilderness.

EMMETT WASH (009) 12,913 ACRES (Map 2-4)

Proposed Action; Enhanced Wilderness. The Vermillion MFP Step II recommends Emmett Wash WSA as nonsuitable for wilderness designation. Wilderness characteristics are confined to the canyon portions of the unit with three separate areas totaling 3,300 acres. The units are too small to qualify as wilderness.

Wildland Preservation; All Wilderness. These alternatives propose the entire WSA as suitable for wilderness designation. The 640 acres of state land would have to be acquired to assure management as wilderness.

KANAB CREEK (031) 39,242 ACRES (Map 2-5)

Proposed Action; Enhanced Wilderness. The Vermillion MFP Step II recommends the entire Kanab Creek WSA as nonsuitable for wilderness designation. The unit cannot be managed to preserve wilderness character because of continuing mineral exploration and interest in future mine development. In addition, the unit does not offer superior primitive and unconfined recreation or outstanding solitude.

Wildland Preservation; All Wilderness. These alternatives propose the entire WSA as suitable for wilderness designation, but 640 acres of state land and 480 acres of nonfederal mineral rights would have to be acquired to assure management as wilderness.

HACK CANYON (033A) 63,682 ACRES (Map 2-6)

Proposed Action; Enhanced Wilderness. The Vermillion MFP Step II recommends 12,531 acres of the Hack Canyon WSA as suitable and 51,151 acres as nonsuitable for wilderness preservation. The suitable portion of the unit contains parts of Hack and Kanab Canyons. These canyons are free of significant conflicts and human impacts. The area proposed as nonsuitable includes the upper plateau lands and Grama Canyon. These areas cannot be effectively managed to maintain wilderness characteristics because of extensive mineral exploration. Opportunities exist for hiking, backpacking, hunting, and sightseeing but are not distinguished or excellent.

Wildland Preservation; All Wilderness. These alternatives propose all of Hack Canyon WSA (63,682 acres) as suitable for wilderness designation. Eighty acres of state land would have to be acquired to assure management as wilderness.

ROBINSON (034) 9,441 ACRES (Map 2-6)

Proposed Action; Enhanced Wilderness; Wildland Preservation. The Vermillion MFP Step II recommends all of Robinson WSA as nonsuitable for wilderness designation. The unit cannot be effectively managed to maintain wilderness characteristics because of extensive mineral exploration. Moreover, opportunities for primitive and unconfined recreation are neither distinguished nor excellent.

Robinson Canyon provides the backcountry traveler a chance to experience rugged topography and scenic canyons. Two rock formations, the Kaibab limestone and Coconino sandstone, give a variety of colors, textures, and shapes to the canyon walls. Desert varnish and leaching of minerals enhance these scenic qualities. None of these features, though, are regionally unique or significant when compared to nearby canyons that are deeper and geologically more interesting.

All Wilderness. The *All Wilderness* alternative proposes all of Robinson WSA as suitable for wilderness designation. The unit consists entirely of federal land.

TOROWEAP (050) 5,312 ACRES (Map 2-7)

Proposed Action; Enhanced Wilderness. The Vermillion MFP Step II recommends Toroweap WSA as nonsuitable for wilderness designation. Only the western half of the unit offers seclusion. A few wooded hills and drainages provide vegetation and topographic screening for solitude. The eastern half offers less opportunity for solitude than the western half. The eastern half lacks a diversity of landforms and vegetation and has little potential for quality primitive recreation. The unit provides opportunities for hunting, photography, and short sightseeing trips, but these are not regionally unique or better than others of their kind. Because of its small size (5,312 acres) and narrow configuration, this unit's areas of wilderness character would be difficult to make manageable.

Wildland Preservation; All Wilderness. These alternatives recommend all of Toroweap WSA (5,312 acres) as suitable for wilderness designation. The unit consists entirely of federal land.

MT. LOGAN (051) 8,803 ACRES (Map 2-7)

Proposed Action; Enhanced Wilderness. The Vermillion MFP Step II recommends Mt. Logan WSA as nonsuitable for wilderness designation. The unit is unmanageable because of its narrow configuration and rugged topography. Moreover, it offers no superior opportunities for solitude or primitive and unconfined recreation because of its lack of diversity.

Wildland Preservation; All Wilderness. These alternatives propose 8,803 acres as suitable for wilderness preservation. This unit consists entirely of federal land.

MT. TRUMBULL (052) 7,285 ACRES (Map 2-7)

Proposed Action; Enhanced Wilderness; Wildland Preservation; All Wilderness. All four of these alternatives propose Mt. Trumbull WSA (7,285 acres) as suitable for wilderness designation. All 7,285 acres have outstanding wilderness characteristics. Configuration and topographic and vegetation screening combine to provide outstanding opportunities for solitude.

In 1976 Mt. Trumbull was identified as a Special Recreation Use Management Area because of its recreation potential. Outstanding opportunities exist for hunting, hiking, backpacking, photography, and sightseeing. Geologic, anthropologic, and ecologic features combine with spectacular views to enhance these activities. The unit consists entirely of federal land.

POVERTY MOUNTAIN (091) 7,872 ACRES (Map 2-8)

Proposed Action; Enhanced Wilderness; Wildland Preservation. These three alternatives propose all 7,872 acres of Poverty Mountain WSA as nonsuitable for wilderness designation. This unit lacks superior wilderness characteristics, superior opportunities for solitude, and outstanding opportunities for primitive and unconfined recreation. This unit contains 640 acres of state land and 120 acres of nonfederal mineral estate underlying federal surface.

All Wilderness. This alternative recommends the entire WSA as suitable for wilderness designation. The 640 acres of state land and 120 acres of nonfederal mineral estate would have to be acquired to assure effective wilderness management.

PARASHAUNT (093) 38,938 ACRES (Map 2-8)

Proposed Action; Enhanced Wilderness. All 38,938 acres of the Parashaunt WSA are proposed as nonsuitable for wilderness designation because the unit lacks superior wilderness characteristics.

Wildland Preservation; All Wilderness. These two alternatives would recommend the entire Parashaunt WSA as suitable for wilderness preservation. The unit consists entirely of federal land.

DANSIL CANYON (096A) 294 ACRES (Map 2-8)

Proposed Action; Enhanced Wilderness; Wildland Preservation. These three alternatives propose all 294 acres of Dansil Canyon WSA as nonsuitable for wilderness designation. This unit was at first found suitable as a WSA since it was contiguous to lands being studied for wilderness designation in Grand Canyon National Park. Those lands, however, are no longer being studied, and this unit cannot stand on its own wilderness characteristics of size, solitude, and opportunities for recreation.

All Wilderness. *All Wilderness* proposes all of Dansil Canyon WSA as suitable for wilderness preservation. The unit consists entirely of federal land.

GRASSY MOUNTAIN (096C) 5,503 ACRES (Map 2-8)

Proposed Action; Enhanced Wilderness; Wildland Preservation. All 5,503 acres of Grassy Mountain WSA are proposed as nonsuitable for wilderness designation. The unit lacks superior wilderness characteristics, its opportunities for recreation are not outstanding, and it meets only minimum standards for size and solitude.

All Wilderness. *All Wilderness* proposes the entire Grassy Mountain WSA as suitable for wilderness designation. The unit consists entirely of federal land.

ANDRUS CANYON (096D) 48,248 ACRES (Map 2-8)

Proposed Action; Enhanced Wilderness. All 48,248 acres of Andrus Canyon WSA are proposed as nonsuitable for wilderness designation. The unit's overall wilderness quality is not superior; its outstanding wilderness characteristics are based on large expanses of pinyon and juniper woodland.

Wildland Preservation; All Wilderness. These alternatives propose the entire Andrus Canyon WSA as suitable for wilderness designation. The unit has 40 acres of private land and 680 acres of nonfederal mineral estate.

NORTH DELLENBAUGH (097) 10,678 ACRES (Map 2-8)

Proposed Action; Enhanced Wilderness; Wildland Preservation. These alternatives propose all 10,678 acres of North Dellenbaugh WSA as nonsuitable for wilderness designation. This unit offers outstanding op-

portunities for primitive and unconfined recreation and meets only minimum standard for solitude on the basis of thick stands of pinyon and juniper. Overall, the unit lacks high-quality wilderness characteristics.

All Wilderness. *All Wilderness* proposes the entire North Dellenbaugh WSA as suitable for wilderness preservation. The unit contains 80 acres of state land and 1,280 acres of nonfederal mineral estate.

G & F (099) 640 ACRES (Map 2-8)

Proposed Action; Enhanced Wilderness; Wildland Preservation. All 640 acres of G & F WSA are proposed as nonsuitable for wilderness designation. This unit was initially next to lands being studied for wilderness by the National Park Service. Those lands are no longer being studied, and, alone, this area is too small to meet size requirements. In addition, the unit lacks either an outstanding opportunity for solitude or for primitive and unconfined recreation.

All Wilderness. *All Wilderness* proposes the entire G & F WSA as suitable for wilderness preservation. The unit consists entirely of federal land.

SALT HOUSE (104A) 13,465 ACRES (Map 2-9)

Proposed Action; Enhanced Wilderness; Wildland Preservation. All 13,465 acres of Salt House WSA are proposed as nonsuitable for wilderness designation. The unit lacks the outstanding opportunities for primitive and unconfined recreation, and its outstanding opportunity for solitude is based on dense juniper-pinyon cover. The unit's wilderness characteristics are not of high quality.

All Wilderness. *All Wilderness* proposes all of Salt House WSA as suitable for wilderness designation. This unit contains 6,500 acres of nonfederal mineral estate.

MUSTANG POINT (104B) 25,912 ACRES (Map 2-9)

Proposed Action; Enhanced Wilderness; Wildland Preservation. All 25,912 acres are proposed as nonsuitable for wilderness designation, lacking high-quality wilderness characteristics. The unit contains 40 acres of state land and 4,920 acres of nonfederal mineral estate.

All Wilderness. The *All Wilderness* alternative proposes all of Mustang Point WSA as suitable for wilderness designation. But 40 acres of state land and 4,920 acres of nonfederal mineral estate would have to be acquired to assure wilderness management.

NEVERSHINE MESA (105A) 19,457 ACRES (Map 2-9)

Proposed Action; Wildland Preservation. The Shviwits MFP Step II recommends all 19,457 acres of this WSA as nonsuitable for wilderness designation because of known energy mineralization in the unit. Geological formations within this WSA were identified in a 1980 Department of Energy study as favorable for vein or breccia type deposits of mineral concentration. The WSA has 87 mining claims.

The National Park Service has recommended designating as wilderness an area adjoining this WSA with similar landforms and vegetation. Therefore, designation of this WSA would neither add to the diversity of the National Wilderness Preservation System nor improve upon the distribution of wilderness areas within the system.

Enhanced Wilderness; All Wilderness. These alternatives propose the entire Nevershine Mesa WSA as suitable for wilderness preservation. The unit consists entirely of federal land. The Shivwits MFP Step I recommends the unit as suitable on the basis of its high-quality wilderness values. The wilderness character is exemplified by the ruggedness, remoteness, and beauty of the Lower Grand Wash Cliffs, Snap Canyon, Cunningham Canyon, and Nevershine Mesa. The WSA lacks human imprints, and wilderness designation would ensure protection of bighorn sheep habitat, an important supplemental value.

SNAP POINT (105B) 9,500 ACRES (Map 2-9)

Proposed Action; Enhanced Wilderness; Wildland Preservation. These three alternatives recommend all 9,500 acres of Snap Point WSA as nonsuitable for wilderness designation. The unit lacks high-quality wilderness characteristics, and its outstanding opportunity for solitude is based on thick stands of pinyon and juniper on top of Snap Point.

All Wilderness. *All Wilderness* proposes all of Snap Point WSA as suitable for wilderness designation. The unit consists entirely of federal land, and its boundary could be changed to eliminate the 120 acres of nonfederal mineral estate.

TINCANEBITTS (105C) 2,715 ACRES (Map 2-9)

Proposed Action; Enhanced Wilderness; Wildland Preservation. These three alternatives proposed all 2,715 acres of Tincanebitts WSA as nonsuitable for wilderness designation. This unit lies next to lands that were being studied for wilderness designation by the National Park Service. But those lands are no longer being

studied, and this unit is too small to qualify as wilderness.

All Wilderness. *All Wilderness* proposes all of Tincanebitts WSA as suitable for wilderness designation. The unit consists entirely of federal land but has 1,300 acres of nonfederal mineral estate that will have to be acquired to assure effective wilderness management.

GRAND GULCH (107) 8,141 ACRES (Map 2-10)

Proposed Action; Enhanced Wilderness; Wildland Preservation. All 8,141 acres of Grand Gulch WSA are proposed as nonsuitable for wilderness designation. The unit's overall wilderness characteristics are not of a high quality, and the unit meets but does not exceed the minimum standard for solitude. Moreover, the unit lacks outstanding opportunities for primitive and unconfined recreation.

All Wilderness. *All Wilderness* proposes the entire WSA as suitable for wilderness designation. The unit consists entirely of federal land.

PIGEON CANYON (109) 33,348 ACRES (Map 2-9)

Proposed Action. The Shivwits MFP Step II recommends the entire WSA as nonsuitable for wilderness designation. This WSA contains known energy mineralization. The unit's geological formations were identified in a 1980 Department of Energy study as favorable for vein or breccia type deposits of mineral concentration. The unit has 53 mining claims and 640 acres of state land.

In addition, 544,000 acres of similar country are already included in the National Wilderness Preservation System, and 938,000 more similar acres are included in administratively endorsed wilderness areas. One of the areas lies within 10 miles. Designating this WSA would neither add to the diversity of the system nor improve upon the distribution of wilderness areas within the system.

Enhanced Wilderness. The Shivwits MFP Step I recommends 21,404 acres of Pigeon Canyon WSA as suitable for wilderness designation. The eastern portion of the unit is recommended for designation because of its outstanding wilderness characteristics. Wilderness designation would protect scenic values, threatened and endangered plants, and desert bighorn sheep and desert tortoise habitat. The unit's western half is not recommended because of exploration impacts, existing trails, and 600 acres of state land. This boundary adjustment would alleviate impacts on naturalness, eliminate 13 miles of trails, and end the need to acquire 600 acres of state inholdings. BLM, however, would have to acquire 40 acres of state land.

Wildland Preservation; All Wilderness. These two alternatives propose the entire WSA (33,348 acres) as suitable for wilderness designation. State land would have to be acquired to assure wilderness management.

LAST CHANCE (111) 33,985 ACRES (Map 2-11)

Proposed Action; Wildland Preservation. The Shivwits MFP Step II recommends the entire unit as nonsuitable for wilderness designation. The unit is 17 miles long and 1.5 to 6 miles wide. It contains 12.2 miles of vehicle trails, 640 acres of state land, and 22 mining claims. The unit's narrowness combined with these other considerations detracts from its manageability as wilderness.

The National Park Service has endorsed 2.9 million acres of similar country for designation, and BLM has recommended designation of similar country within 20 miles. This WSA would not add to the diversity or improve upon the distribution of wilderness within the National Wilderness Preservation System.

Enhanced Wilderness; All Wilderness. The Shivwits MFP Step I recommends the entire Last Chance WSA as suitable for wilderness designation. The unit has high-quality wilderness characteristics and has few impacts on naturalness. In addition, it has 16 miles of the Grand Wash Cliffs, an important geologic supplemental value. BLM would have to acquire 640 acres of state land to assure this unit's manageability as wilderness.

GRAND WASH CLIFFS (112) 31,503 ACRES (Map 2-11)

Proposed Action; Enhanced Wilderness. All 31,503 acres of the Grand Wash Cliffs WSA are proposed as nonsuitable for wilderness designation. The unit lacks outstanding opportunities for primitive and unconfined recreation, and its opportunities for solitude are not superior. The unit has 80 acres of nonfederal mineral estate.

Wildland Preservation; All Wilderness. These alternatives propose the entire WSA as suitable for wilderness designation. BLM would have to acquire 80 acres of nonfederal mineral estate to assure the unit's manageability as wilderness.

PAKOON SPRINGS (114) 24,832 ACRES (Map 2-10)

Proposed Action; Enhanced Wilderness. These alternatives propose all 24,832 acres of Pakoon Springs WSA as nonsuitable for wilderness designation. The

WSA meets the minimum standards for solitude and recreation, but overall its wilderness character is not of high quality.

Wildland Preservation; All Wilderness. These alternatives propose the entire Pakoon Springs WSA as suitable for wilderness designation. The unit contains 640 acres of state land, which BLM would have to acquire to assure the unit's manageability as wilderness.

HIDDEN RIM (119) 16,563 ACRES (Map 2-12)

Proposed Action; Enhanced Wilderness; Wildland Preservation. These three alternatives recommend all 16,563 acres of Hidden Rim WSA as nonsuitable for wilderness designation. The unit lacks high-quality wilderness characteristics and has an undesirable configuration due to two cherrystem roads dividing the unit into three segments.

All Wilderness. *All Wilderness* proposes the entire unit as suitable for wilderness designation. The unit has 40 acres of nonfederal mineral estate that would have to be acquired to assure management as wilderness. The WSA consists entirely of federal land.

HOBBLE CANYON (124) 11,825 ACRES (Map 2-12)

Proposed Action; Enhanced Wilderness; Wildland Preservation. All 11,825 acres are proposed as nonsuitable for wilderness preservation. The unit offers no outstanding opportunities for primitive and unconfined recreation and meets only the minimum criteria for solitude. Moreover, the overall wilderness characteristics are not of high quality.

All Wilderness. *All Wilderness* recommends all of Hobble Canyon WSA as suitable for wilderness designation. The unit consists entirely of federal land.

IDE VALLEY (127) 7,970 ACRES (Map 2-12)

Proposed Action; Enhanced Wilderness; Wildland Preservation. These alternatives recommend all of Ide Valley WSA (7,970) as nonsuitable for wilderness designation. The unit lacks high-quality wilderness characteristics and outstanding opportunities for primitive and unconfined recreation, and its solitude does not exceed the minimum standards.

All Wilderness. *All Wilderness* proposes the entire Ide Valley WSA as suitable for wilderness designation. The unit consists entirely of federal land.

SAND COVE (128) 40,061 ACRES (Map 2-13)

Proposed Action. The Grand Wash MFP Step II recommends all of Sand Cove WSA as nonsuitable for wilderness designation. Primitive camp sites from past recreation use occur along the boundary roads to the WSA, and the west boundary particularly shows the impact of annually repeated hunter camping. Although most existing impacts can be eliminated by a boundary change, these impacts would represent a manageability problem if the WSA were designated. In addition, the WSA has potential for energy minerals. The unit has 19 claims, and 24,760 of its acres are under oil and gas lease.

Designation would prohibit planned range and habitat improvements, although nondesignation is not expected to impact natural values. The National Wilderness Preservation System has 1.25 million acres of similar country, and 5.7 million acres of similar country is in administratively endorsed wilderness areas. BLM has recommended wilderness suitability for an area adjoining this WSA. Therefore, designating these units would not contribute to the diversity of the system nor to the distribution of wilderness areas within the system.

Enhanced Wilderness. The Shivwits MFP Step I recommends 30,966 acres as suitable for wilderness designation. The unit contains unusual geologic, scenic, recreational, and wildlife values. Designation would protect the winter range of mule deer while still providing a superb area for deer hunting. Dropping 9,095 acres from the northwestern side of the unit would improve wilderness manageability. The unit contains 640 acres of state land and 1,000 acres of nonfederal mineral estate, which BLM would have to acquire to assure manageability as wilderness.

Wildland Preservation; All Wilderness. These alternatives propose the entire Sand Cove WSA as suitable for wilderness designation. They include the same provisions as *Enhanced Wilderness* except they would not adjust the WSA's boundary to eliminate manageability problems.

VIRGIN MOUNTAINS (129) 37,681 ACRES (Map 2-13)

Proposed Action; Enhanced Wilderness. All 37,681 acres of this unit are proposed as nonsuitable for wilderness designation. The unit's broad eastern and western slopes lack outstanding opportunities for solitude and reduce the overall quality of solitude. Opportunities for primitive and unconfined recreation are not of high quality, and the unit has 400 acres of nonfederal mineral estate.

Wildland Preservation; All Wilderness. These two alternatives propose all of Virgin Mountains WSA as suitable for wilderness designation. The unit consists entirely of nonfederal land, but BLM would have to acquire 400 acres of nonfederal mineral estate to assure the unit's wilderness manageability.

VIRGIN RIVER (130) 1,440 ACRES (Map 2-1)

Proposed Action; Enhanced Wilderness; All Wilderness. These alternatives propose all 1,440 acres of the Virgin River WSA as suitable for wilderness designation. This unit is divided into parcels of land that adjoin Paiute Primitive Area and that have the same wilderness characteristics as that area. Expanding the primitive area to include this WSA would establish an identifiable boundary along an established road and improve the wilderness manageability of the total unit.

Wildland Preservation. *Wildland Preservation* recommends the entire unit as nonsuitable for wilderness designation.

PURGATORY (132) 7,557 ACRES (Map 2-1)

Proposed Action; Enhanced Wilderness; Wildland Preservation. All 7,557 acres of Purgatory WSA are proposed as nonsuitable for wilderness designation. The overall wilderness characteristics are not of high quality, and opportunities for solitude and primitive and unconfined recreation meet only the minimum standards.

All Wilderness. *All Wilderness* proposes all of the WSA as suitable for wilderness designation. The unit consists entirely of federal land.

LIME HILLS (134) 12,610 ACRES (Map 2-1)

Proposed Action. The Shivwits MFP Step II recommends 1,426 acres of Lime Hills WSA as suitable and 11,184 acres as nonsuitable for wilderness designation. The suitable portion of the unit lies next to Paiute Primitive Area. Expanding the Paiute to include the southern portion of this WSA would establish a topographically identifiable and manageable boundary for the proposed Paiute Wilderness Area.

The area proposed as unsuitable lacks outstanding opportunities for primitive and unconfined recreation and lacks superior opportunities for solitude. Its vegetation is low desert shrub, offering no screening.

The previously recommended 35,000-acre Paiute Primitive Area lies next to this WSA and includes similar vegetation and landforms. This WSA would thus contribute neither to the diversity of nor to the distribution of wilderness areas in the system. The WSA has 1,000 acres of nonfederal mineral estate.

Enhanced Wilderness. The Grand Wash MFP Step I recommends all of Lime Hills WSA as nonsuitable for wilderness designation. This alternative is the same as the *Proposed Action* except that it would not provide for adding 1,426 acres to the Paiute wilderness proposal.

Wildland Preservation; All Wilderness. These alternatives propose the entire Lime Hills WSA as suitable for wilderness designation. BLM, however, would have to acquire 1,000 acres of nonfederal mineral estate to assure management as wilderness.

NARROWS (135) 7,725 ACRES (Map 2-1)

Proposed Action; Enhanced Wilderness; Wildland Preservation. All 7,725 acres of Narrows WSA are proposed as nonsuitable for wilderness designation. The unit lacks high-quality wilderness characteristics, provides no outstanding opportunity for recreation, and offers no superior opportunities for solitude. The unit also contains 60 acres of nonfederal mineral estate.

All Wilderness. *All Wilderness* proposes the entire Narrows WSA as suitable for wilderness designation, but BLM would have to acquire 60 acres of nonfederal mineral estate to assure manageability as wilderness.

MT. EMMA (136) 6,480 ACRES (Map 2-7)

Proposed Action; Enhanced Wilderness. The Vermillion MFP Step II recommends the entire unit as nonsuitable for wilderness designation. This unit lacks outstanding wilderness qualities and is unmanageable. The area has vertical relief, numerous cinder cones, steep slopes, hollows, ledges, and pinyon and ponderosa pine stands, which provide adequate screening for solitude. The unit's small size and narrow configuration, however, detract from the ability of the user to find a secluded spot, would constrict backcountry use to a narrow corridor, and would hamper the area's manageability. The topography lacks the needed brokenness and jagged character, and the vegetation lacks the needed density to provide outstanding solitude within this narrow corridor.

The unit offers opportunities for primitive and unconfined recreation, but they are not superior. The unit has no regionally unique features, and only half of Mt. Emma, the unit's most prominent feature, lies within the unit.

Wildland Preservation; All Wilderness. These alternatives propose all of Mt. Emma WSA as suitable for wilderness designation. The unit consists entirely of federal land.

VERMILLION CLIFFS (ISA-3) 14,671 ACRES (Map 2-4)

Proposed Action; Wildland Preservation. The Vermillion MFP Step II recommends the entire unit as nonsuitable for wilderness preservation and that it remain a natural area. This section of the natural area was identified as a further study area in the Arizona Strip Wilderness Draft EIS. The portion previously studied was recommended as suitable for designation. This section of the Vermillion Cliffs overlooks an area that has been heavily impacted by mining and other human activity. Its natural values have been and can be managed and protected under existing regulations and the protective withdrawal. No impacts are expected under nondesignation. The area lacks outstanding opportunities for solitude because of its narrow configuration and low, sparse vegetation.

Enhanced Wilderness; All Wilderness. The Vermillion MFP Step I recommends all of the Vermillion Cliffs further study area as suitable for wilderness designation. The unit consists entirely of federal land, and no manageability problems have been identified.

BIG SAGE (ISA-4) 160 ACRES (Map 2-14)

Proposed Action; Enhanced Wilderness; Wildland Preservation. All 160 acres of Big Sage ISA are proposed as nonsuitable for wilderness designation. This ISA is part of a larger roadless unit (AZ-010-028) determined by intensive inventory to lack wilderness character. Big Sage Natural Area by itself has only the naturalness characteristic. Though it was established as a research natural area, it is not used for research. No significant supplemental values have been found in the unit.

All Wilderness. *All Wilderness* proposes all of Big Sage ISA as suitable for wilderness designation. The unit consists entirely of federal land.

TURBINELLA-GAMBEL OAK NATURAL AREA (ISA-5) 154 ACRES (Map 2-13)

Proposed Action; Wildland Preservation. The Grand Wash MFP Step II recommends the entire unit as nonsuitable for wilderness designation. This ISA lies next to Sand Cove WSA, and the rationale for the nonsuitability recommendation is found under the discussion of that unit.

Enhanced Wilderness. The Shivwits MFP Step I recommends the portion of this ISA south of the Black Rock Road as suitable for wilderness designation. The ISA's southern portion contains 28 acres of public land next to Sand Cove WSA, which is also recommended suitable under *Enhanced Wilderness*. The northern portion of the ISA is not contiguous to other WSAs and does not satisfy the size requirement for wilderness designation.

All Wilderness. *All Wilderness* proposes all of the ISA as suitable for wilderness designation. The unit consists entirely of federal land.

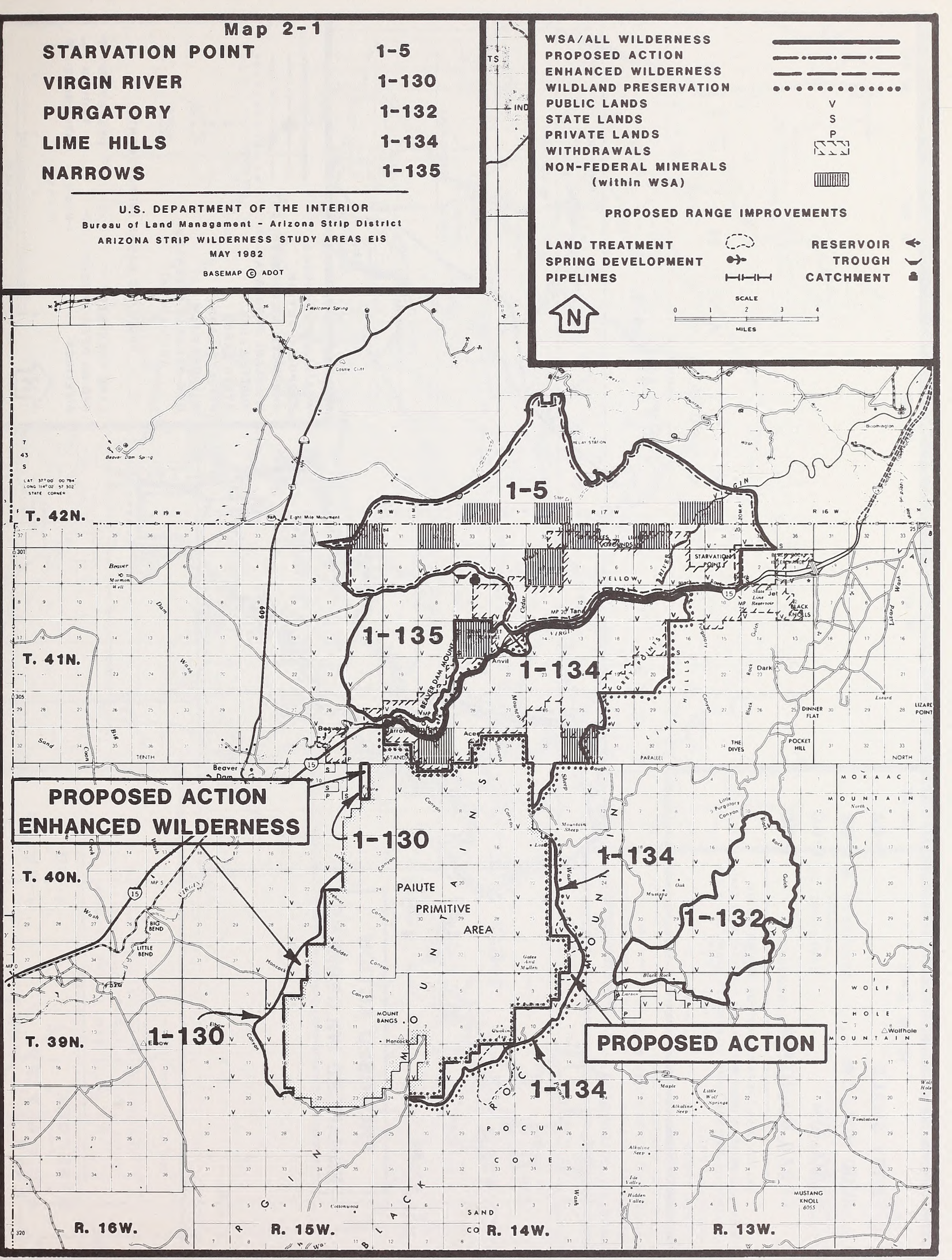
Summary of Impacts

The analysis of the environmental consequences of the *Proposed Action* and alternatives reveals that none of the alternatives would measurably impact soils, climate, topography, geology, vegetation, or air quality. Impacts would occur to wilderness, wildlife habitat, land use, minerals, rangeland management, cultural resources, visual resources, recreation, forestry, fire control and management, economic conditions, and social elements. Table 2-2 summarizes impacts by alternative. For a more detailed analysis of impacts, see Chapter 4.

TABLE 2-2
IMPACT SUMMARY TABLE BY ALTERNATIVE

Impacted Resource Elements	Proposed Action	Enhanced Wilderness	Wildland Preservation	All Wilderness	No Wilderness
Wilderness Values					
WSAs Recommended	8	15	21	44	0
WSAs Not Recommended	36	29	23	0	44
WSA Acres Recommended	26,186	179,228	531,268	774,148	0
WSA Acres Not Recommended	747,962	594,920	242,880	0	774,148
Wildlife Habitat Protected (Acres)					
Ponderosa Pine	5,000	5,000	12,000	12,500	0
Pinyon-Juniper	0	2,000	6,550	25,000	0
Desert Tortoise and Gila Monster	2,000	28,000	63,000	98,000	0
Desert Bighorn Sheep	16,837	100,000	185,000	295,000	0
Land Treatment Not Permitted (Wildlife Habitat Acres)	0	2,000	1,000	7,200	0
Mineral Exploration and Development					
Impact to Mineral Development	Minimal	Moderate	Moderate	Maximum	No impact
Acres* Precluded from Oil and Gas Development	126,000	230,000	382,500	584,688	0
Acres* Precluded from Uranium Development	21,000	158,200	503,840	759,508	0
Acres* Precluded from Other Minerals Development	2,000	2,000	6,600	14,000	0
Rangeland Management					
Intensive Grazing Systems (AMPs) Precluded	0	1	4	4	0
Water Developments Precluded	1	2	7	9	0
Land Treatment Acres Not Permitted	560	6,95	13,000	30,843	0
Potential AUMs Lost	110	1,365	2,550	6,053	0
Visual Resources					
Acres Changed to VRM Class I	26,186	159,107	497,655	743,230	0
Recreation					
Acres Closed to Off-Road Vehicles	26,186	179,228	531,268	774,148	0
Change in Nonmotorized Visitor Days	Small Increase	Moderate Increase	Moderate Increase	Moderate Increase	No Increase
Forestry					
Acres Adversely Impacted	70	3,700	3,700	3,700	0
Economic Conditions					
Increased Revenue Not Realized	$606	$7,069	$13,400	$32,685	0
Increased Ranch Value Not Realized	$13,750	$160,375	$304,000	$433,500	0
Social Attitudes	No Impact	No Impact	No Impact	Adverse Impact	No Impact

*With potential for production


Map 2-1
STARVATION POINT 1-5
VIRGIN RIVER 1-130
PURGATORY 1-132
LIME HILLS 1-134
NARROWS 1-135
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ARIZONA STRIP WILDERNESS STUDY AREAS EIS
MAY 1982
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WSA/ALL WILDERNESS
PROPOSED ACTION
ENHANCED WILDERNESS
WILDLAND PRESERVATION
PUBLIC LANDS V
STATE LANDS S
PRIVATE LANDS P
WITHDRAWALS
NON-FEDERAL MINERALS (within WSA)
PROPOSED RANGE IMPROVEMENTS
LAND TREATMENT
SPRING DEVELOPMENT
PIPELINES
RESERVOIR
TROUGH
CATCHMENT
N
SCALE
0 1 2 3 4
MILES
1-5
1-135
1-134
1-130
1-132
PROPOSED ACTION
ENHANCED WILDERNESS
PROPOSED ACTION
T. 42N.
T. 41N.
T. 40N.
T. 39N.
R. 16W.
R. 15W.
R. 14W.
R. 13W.
PAIUTE PRIMITIVE AREA
Beaver Dam Wash
Virgin River
Mount Bangs
Elbow
Big Bend
Little Bend
Starvation Point
Yellow Knolls
Grey Point
Dinner Flat
Pocket Hill
The Dives
Mokaac Mountain
Wolfhole Mountain
Pocum Cove
Sand Hollow
Mustang Knoll 6055

Map 2-2

FERRY SWALE	1-6A
JUDD HOLLOW	1-6B
PARIA RIM	1-6C
CEDAR MOUNTAIN	1-6D

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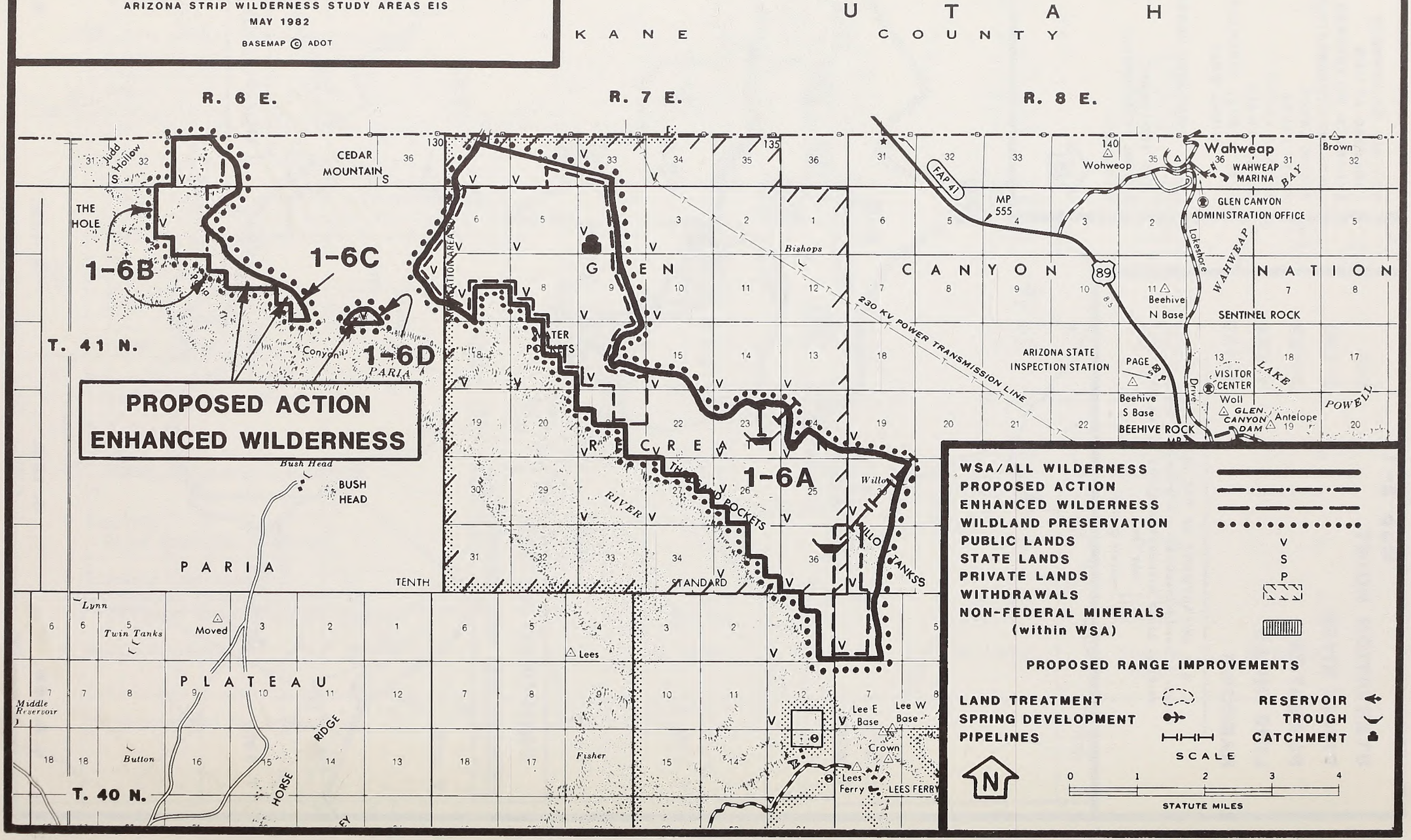

Map 2-3

PARIA PLATEAU 1-8A/19

OVERLOOK 1-8B

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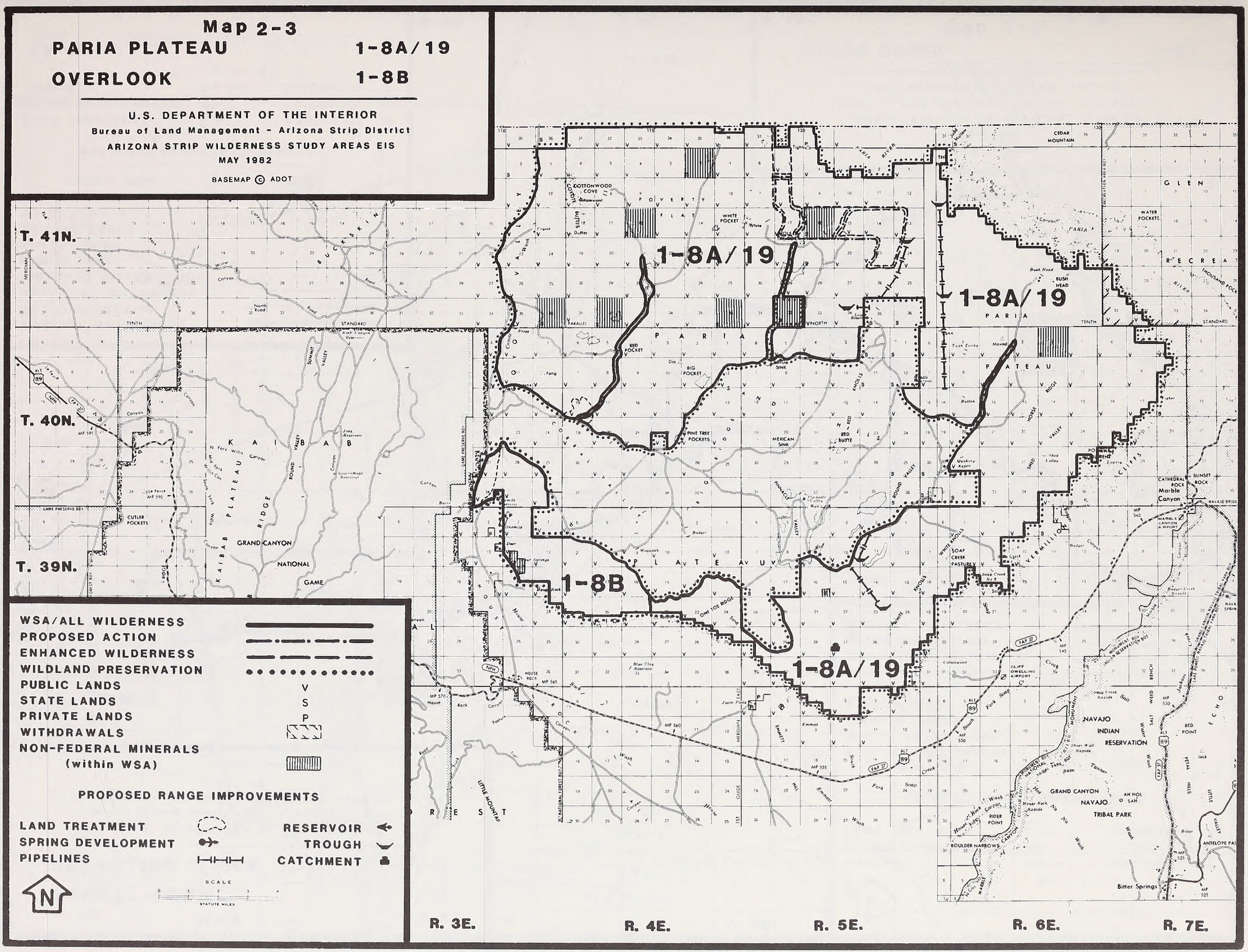

Map 2-4

EMMETT WASH 1-9
VERMILLION CLIFFS ISA-3

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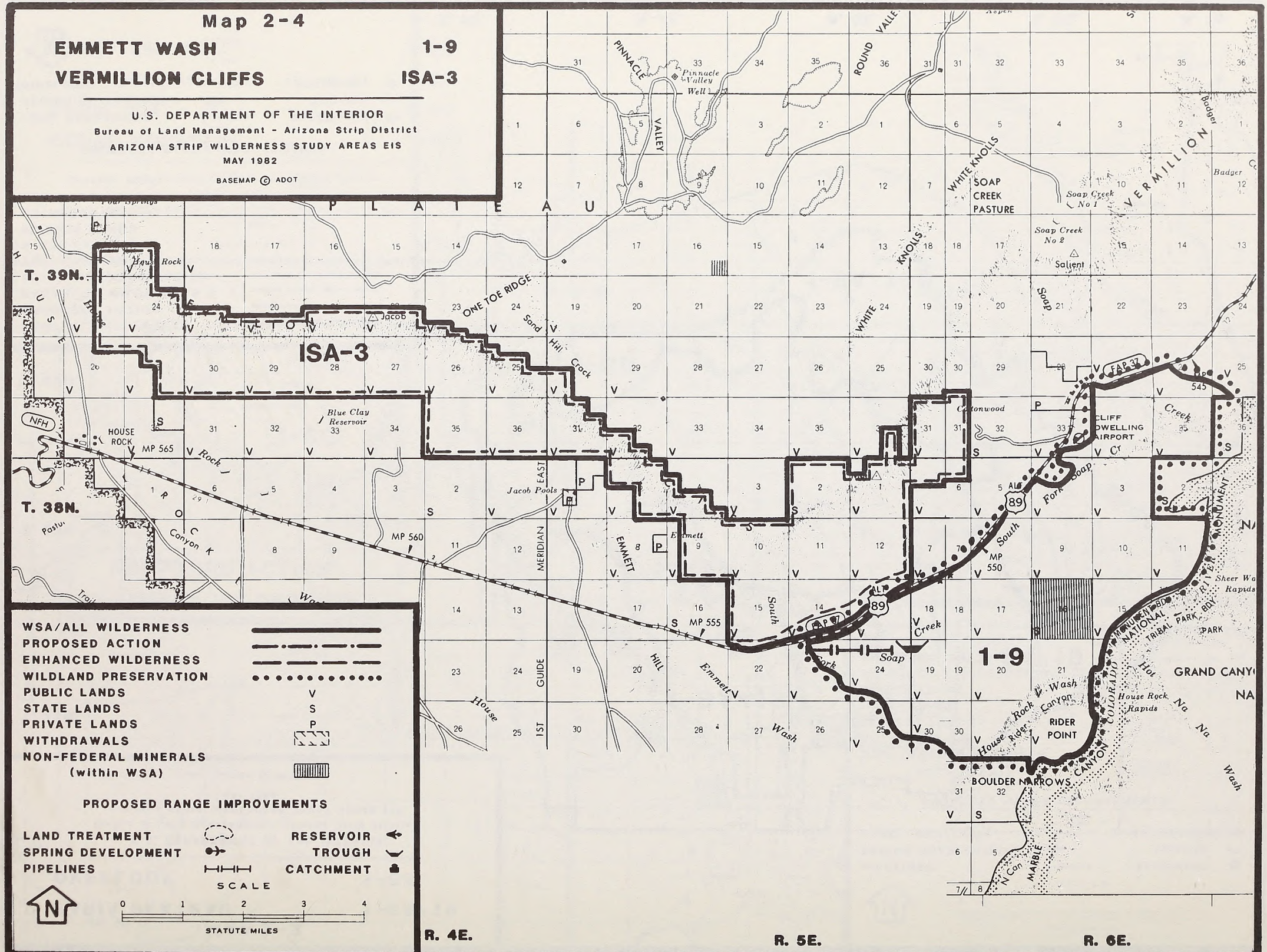

WSA/ALL WILDERNESS
PROPOSED ACTION
ENHANCED WILDERNESS
WILDLAND PRESERVATION
PUBLIC LANDS V
STATE LANDS S
PRIVATE LANDS P
WITHDRAWALS
NON-FEDERAL MINERALS (within WSA)

PROPOSED RANGE IMPROVEMENTS

LAND TREATMENT
SPRING DEVELOPMENT
PIPELINES
RESERVOIR
TROUGH
CATCHMENT

SCALE

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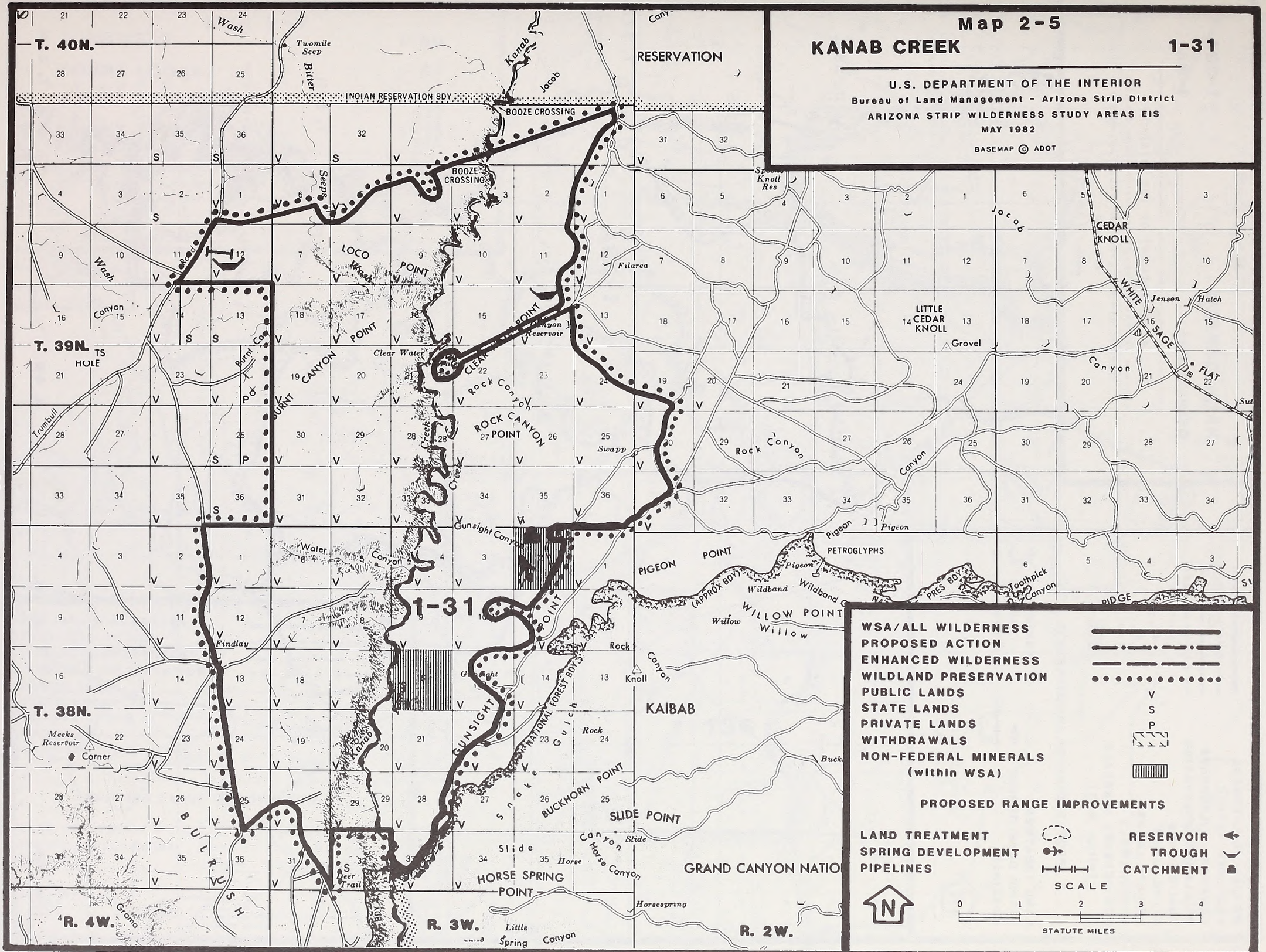
0 1 2 3 4
STATUTE MILES


Map 2-5
KANAB CREEK
1-31
U.S. DEPARTMENT OF THE INTERIOR
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MAY 1982
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T. 40N.
T. 39N.
T. 38N.
R. 4W.
R. 3W.
R. 2W.
INDIAN RESERVATION BDY
RESERVATION
BOOZE CROSSING
Twomile Seep
Kanab
Jacob
Bitter
Seeps
LOCO Wash
POINT
Filarea
CEDAR KNOLL
LITTLE CEDAR KNOLL
Gravel
WHITE SAGE
Jenson
Hatch
FLAT
Canyon
Reservoir
Clear Water
CLEAR
Rock Canyon
ROCK CANYON
POINT
Swapp
Creek
BURNT
Burnt Cabin
TS HOLE
Trumbull
Rock Canyon
Pigeon
PIGEON POINT
(APPROX BDY)
PETROGLYPHS
Wildband
Toothpick
RIDGE
Water
Gunsight Canyon
1-31
Willow
WILLOW POINT
Findlay
Rock Knoll
KAIBAB
GUNSIGHT
Gulch
NATIONAL FOREST BDY
Snake
BUCKHORN POINT
SLIDE POINT
Slide
Horse Canyon
HORSE SPRING
POINT
Horsespring
Little Spring Canyon
Meeks Reservoir
Corner
Deer Trail
BULRUSH
Gromo
GRAND CANYON NATIO
WSA/ALL WILDERNESS
PROPOSED ACTION
ENHANCED WILDERNESS
WILDLAND PRESERVATION
PUBLIC LANDS
STATE LANDS
PRIVATE LANDS
WITHDRAWALS
NON-FEDERAL MINERALS
(within WSA)
PROPOSED RANGE IMPROVEMENTS
LAND TREATMENT
SPRING DEVELOPMENT
PIPELINES
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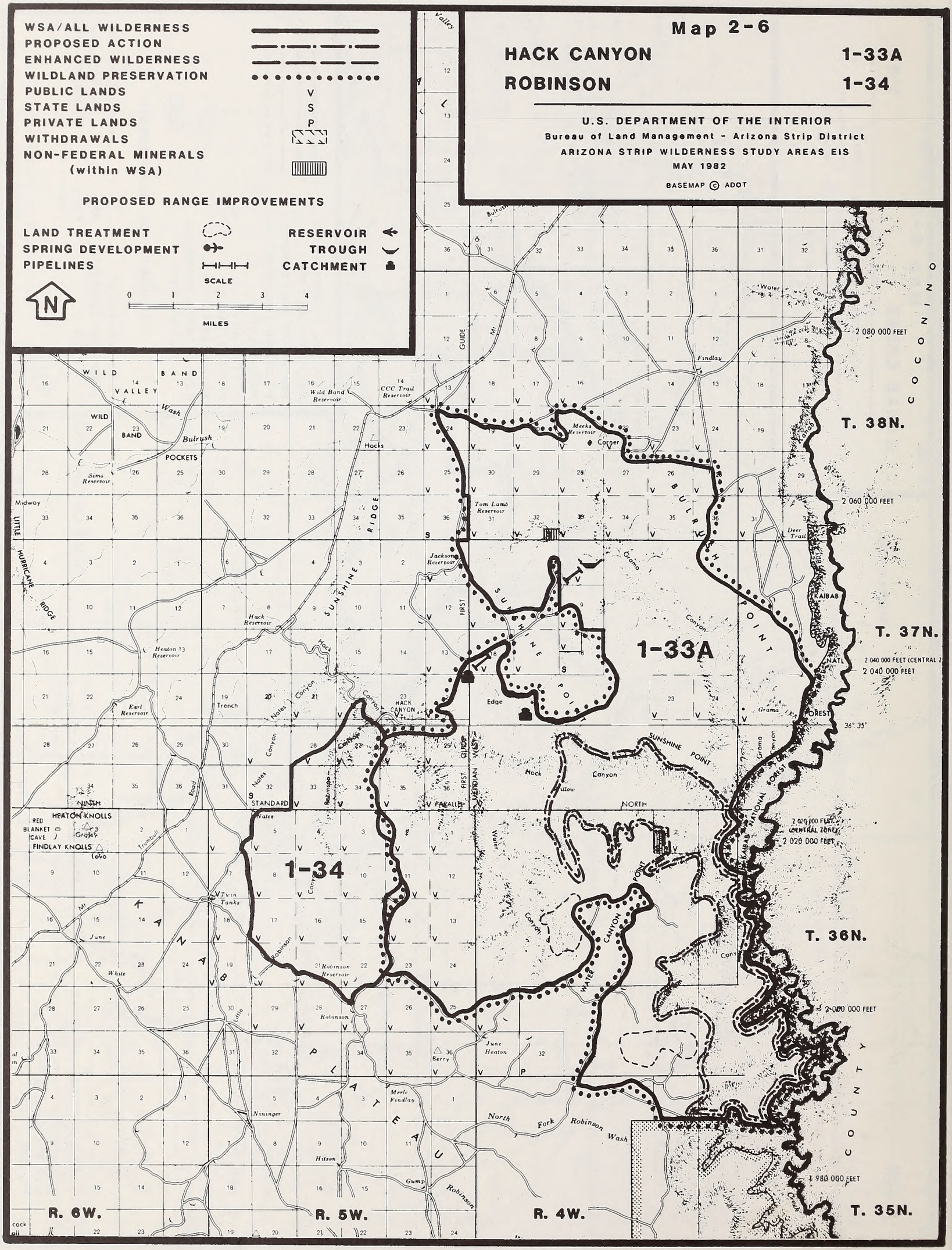
STATUTE MILES


Map 2-6
HACK CANYON 1-33A
ROBINSON 1-34
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WSA/ALL WILDERNESS
PROPOSED ACTION
ENHANCED WILDERNESS
WILDLAND PRESERVATION
PUBLIC LANDS V
STATE LANDS S
PRIVATE LANDS P
WITHDRAWALS
NON-FEDERAL MINERALS (within WSA)
PROPOSED RANGE IMPROVEMENTS
LAND TREATMENT
SPRING DEVELOPMENT
PIPELINES
RESERVOIR
TROUGH
CATCHMENT
SCALE
0 1 2 3 4
MILES
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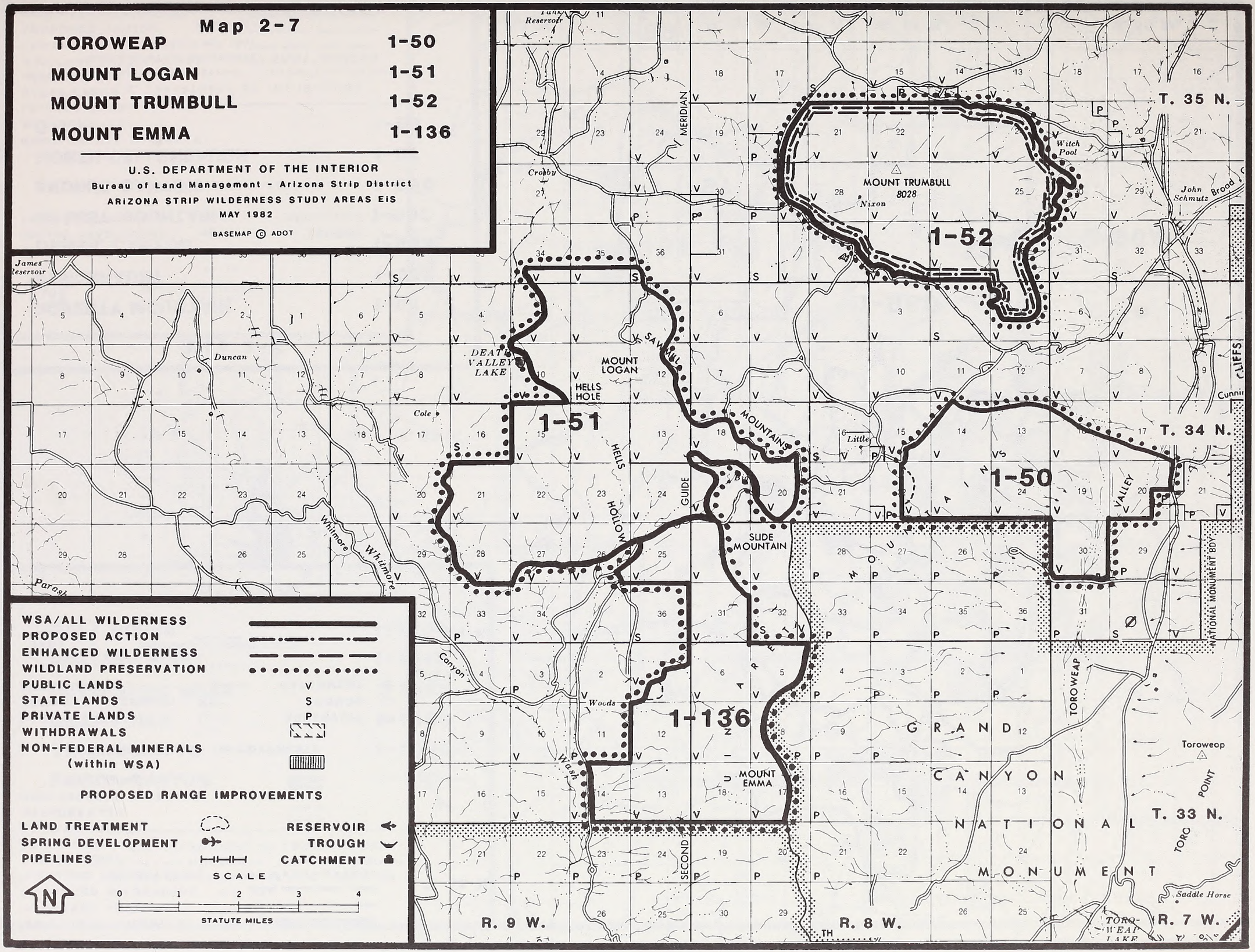
1-34
T. 38N.
T. 37N.
T. 36N.
T. 35N.
R. 6W.
R. 5W.
R. 4W.
2 080 000 FEET
2 060 000 FEET
2 040 000 FEET
2 020 000 FEET
1 980 000 FEET
Water Canyon
Findlay
Wild Band Reservoir
CCC Trail Reservoir
Meeks Reservoir
Corner
Hacks
Sims Reservoir
Midway
Tom Lamb Reservoir
Deer Trail
Jackson Reservoir
Hack Reservoir
Heaton Reservoir
Earl Reservoir
Trench
Edge
Grama
Kaibab
Natl
Forest
Sunshine Point
Hack Canyon
Notes Canyon
Standard
Parallel
North
Heaton Knolls
Red Blanket Cave
Findlay Knolls
Lovo
Trumbull
Twin Tanks
June
White
Robinson
Robinson Reservoir
Little
June Heaton
Berry
Merle Findlay
Nininger
Hilson
Gump
North Fork Robinson Wash
Water Canyon
Bulrush
Wild Band Valley
Wash
Pockets
Little Hurricane Ridge
Sunshine Ridge
First Sunshine Point
Second Sunshine Point
Bulrush Point
Guide Meridian West
Mt Trumbull
Arizona Strip
Plateau
Coconino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MOUNT TRUMBULL 1-52
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U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management - Arizona Strip District
ARIZONA STRIP WILDERNESS STUDY AREAS EIS
MAY 1982
BASEMAP © ADOT
1-52
1-51
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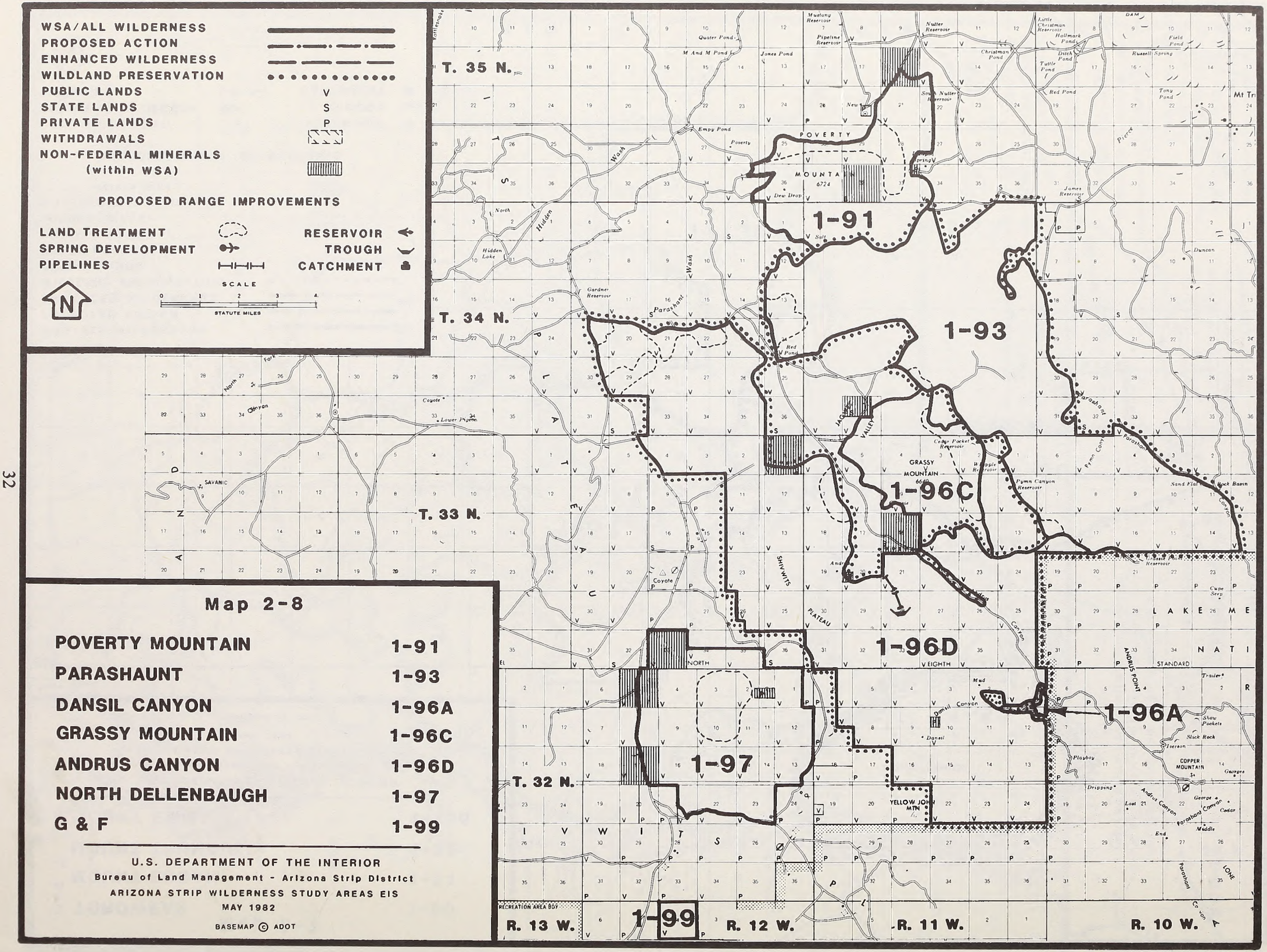
1-136
MOUNT TRUMBULL 8028
MOUNT LOGAN
DEATH VALLEY LAKE
HELLS HOLE
SLIDE MOUNTAIN
MOUNT EMMA
T. 35 N.
T. 34 N.
T. 33 N.
R. 9 W.
R. 8 W.
R. 7 W.
GRAND CANYON NATIONAL MONUMENT
WSA/ALL WILDERNESS
PROPOSED ACTION
ENHANCED WILDERNESS
WILDLAND PRESERVATION
PUBLIC LANDS V
STATE LANDS S
PRIVATE LANDS P
WITHDRAWALS
NON-FEDERAL MINERALS (within WSA)
PROPOSED RANGE IMPROVEMENTS
LAND TREATMENT
SPRING DEVELOPMENT
PIPELINES
RESERVOIR
TROUGH
CATCHMENT
SCALE
0 1 2 3 4
STATUTE MILES
N



Map 2-8

POVERTY MOUNTAIN	1-91
PARASHAUNT	1-93
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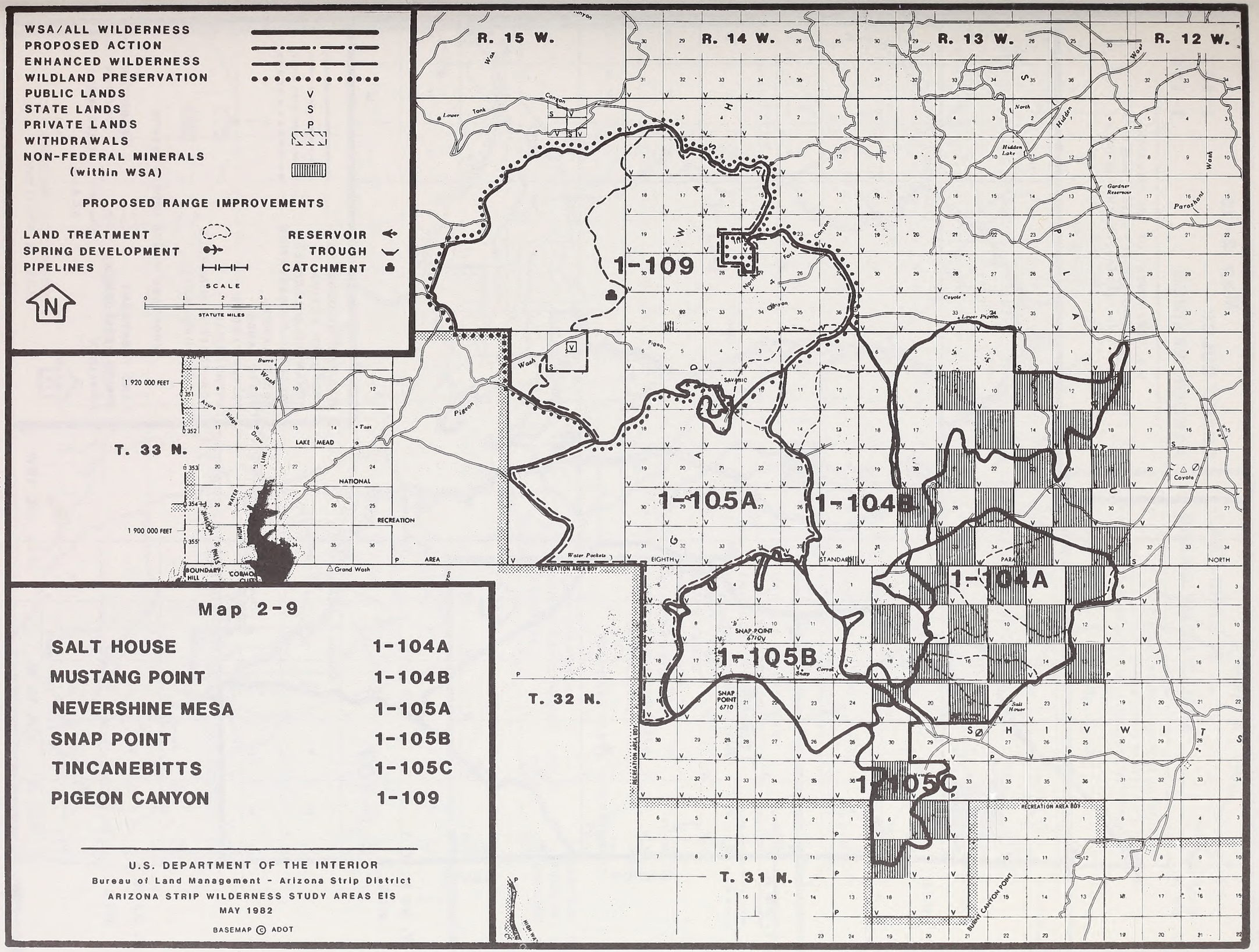

Map 2-9

SALT HOUSE	1-104A
MUSTANG POINT	1-104B
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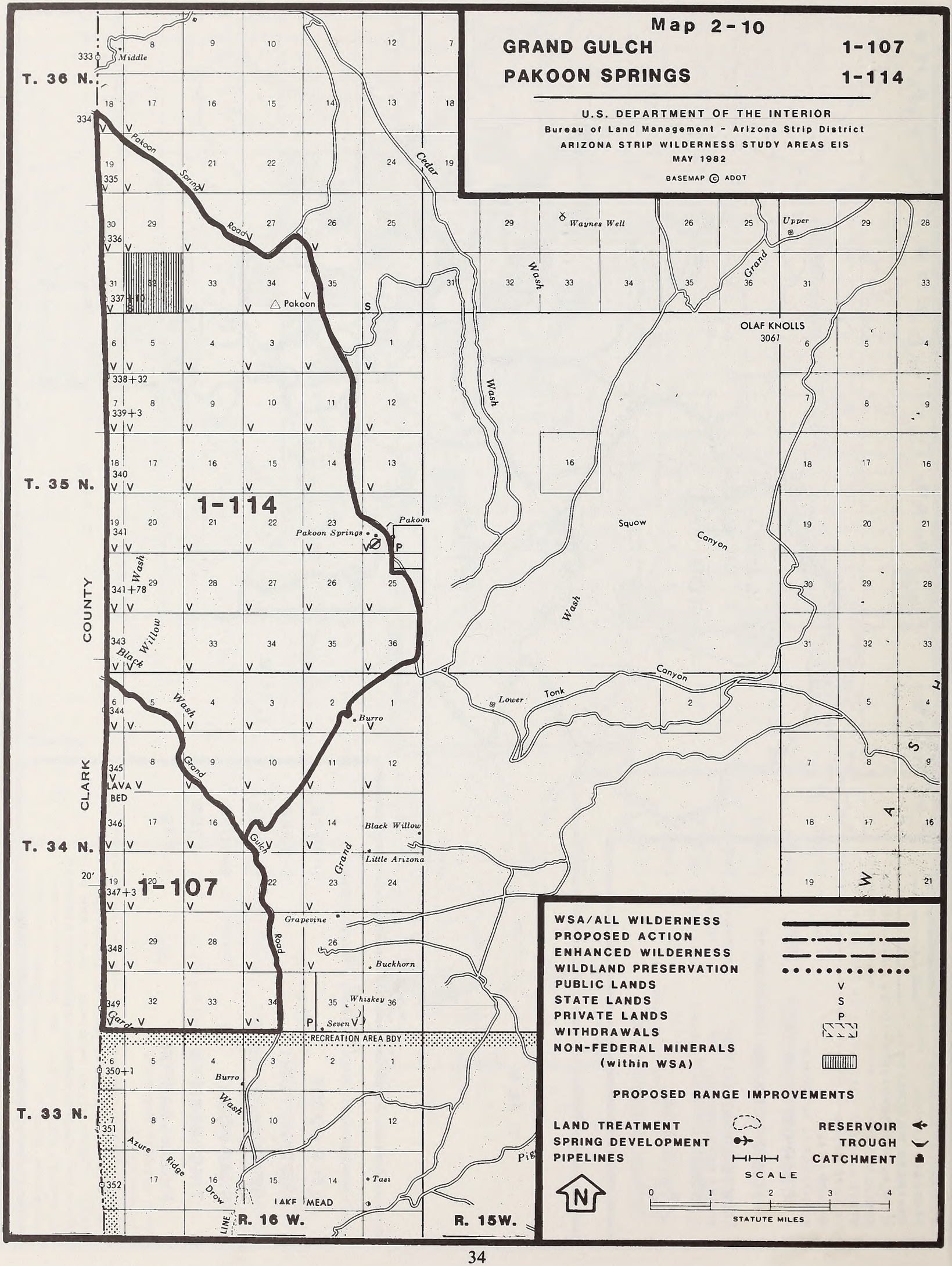
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U.S. DEPARTMENT OF THE INTERIOR
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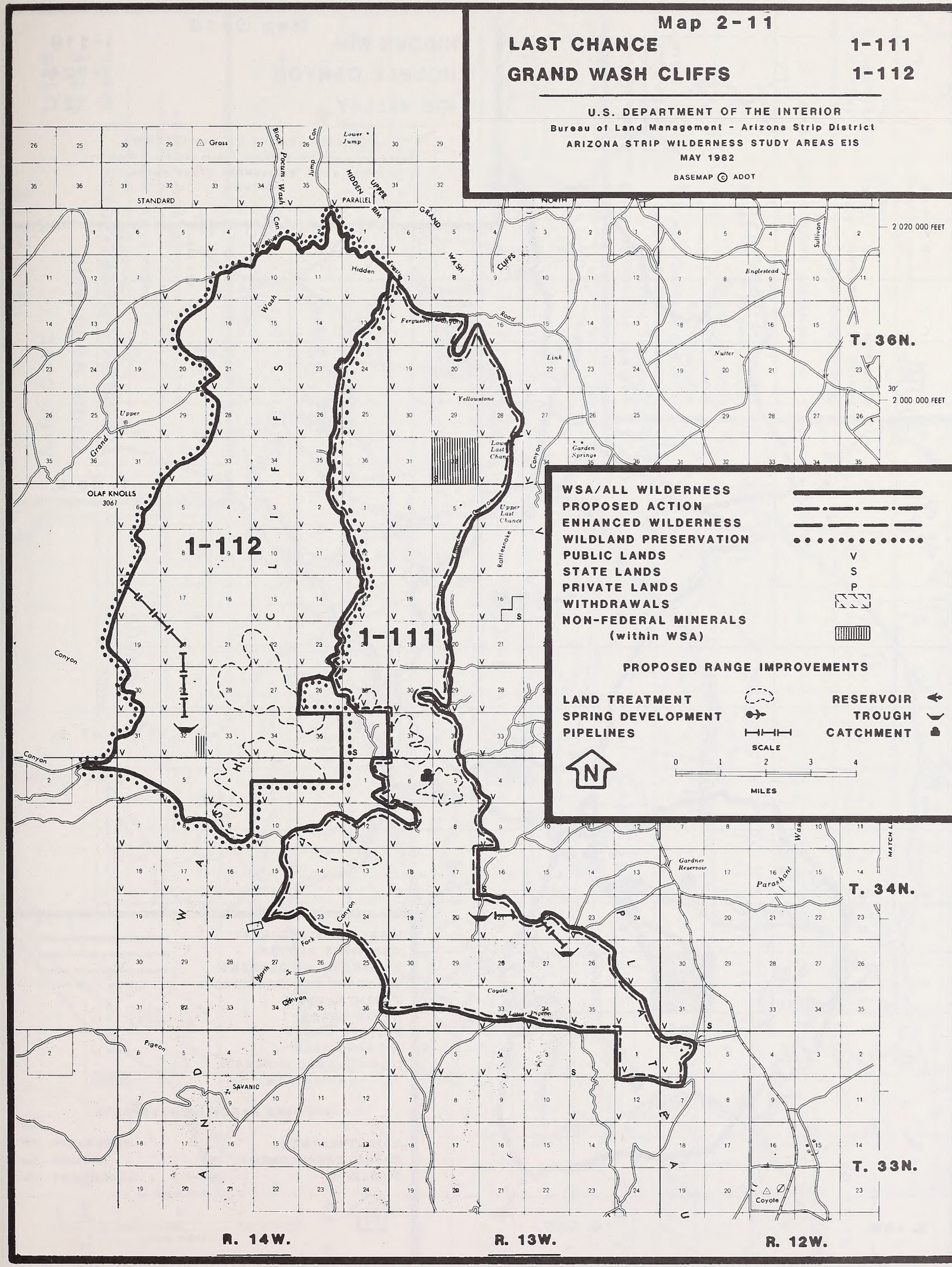
ARIZONA STRIP WILDERNESS STUDY AREAS EIS
MAY 1982
BASEMAP © ADOT
T. 36 N.
T. 35 N.
T. 34 N.
T. 33 N.
R. 16 W.
R. 15W.
1-114
1-107
Middle
Pakoon Spring Road
Cedar
Waynes Well
Upper
Grand Wash
Pakoon
OLAF KNOLLS
3061
Wash
Pakoon Springs
Squow Canyon
Wash
Black Willow Wash
Lower Tonk Canyon
Burro
Grand Wash
LAVA BED
Black Willow
Grand Gulch
Little Arizona
Grapevine
Road
Buckhorn
Whiskey
Seven
RECREATION AREA BDY
Burro Wash
Azure Ridge
Drow
Taos
LAKE MEAD
LINE
COUNTY
CLARK
WSA/ALL WILDERNESS
PROPOSED ACTION
ENHANCED WILDERNESS
WILDLAND PRESERVATION
PUBLIC LANDS V
STATE LANDS S
PRIVATE LANDS P
WITHDRAWALS
NON-FEDERAL MINERALS (within WSA)
PROPOSED RANGE IMPROVEMENTS
LAND TREATMENT
SPRING DEVELOPMENT
PIPELINES
RESERVOIR
TROUGH
CATCHMENT
SCALE
N
0 1 2 3 4
STATUTE MILES


Map 2-11
LAST CHANCE 1-111
GRAND WASH CLIFFS 1-112
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management - Arizona Strip District
ARIZONA STRIP WILDERNESS STUDY AREAS EIS
MAY 1982
BASEMAP © ADOT
1-112
1-111
OLAF KNOLLS
3061
T. 36N.
T. 34N.
T. 33N.
R. 14W.
R. 13W.
R. 12W.
2 020 000 FEET
2 000 000 FEET
30'
WSA/ALL WILDERNESS
PROPOSED ACTION
ENHANCED WILDERNESS
WILDLAND PRESERVATION
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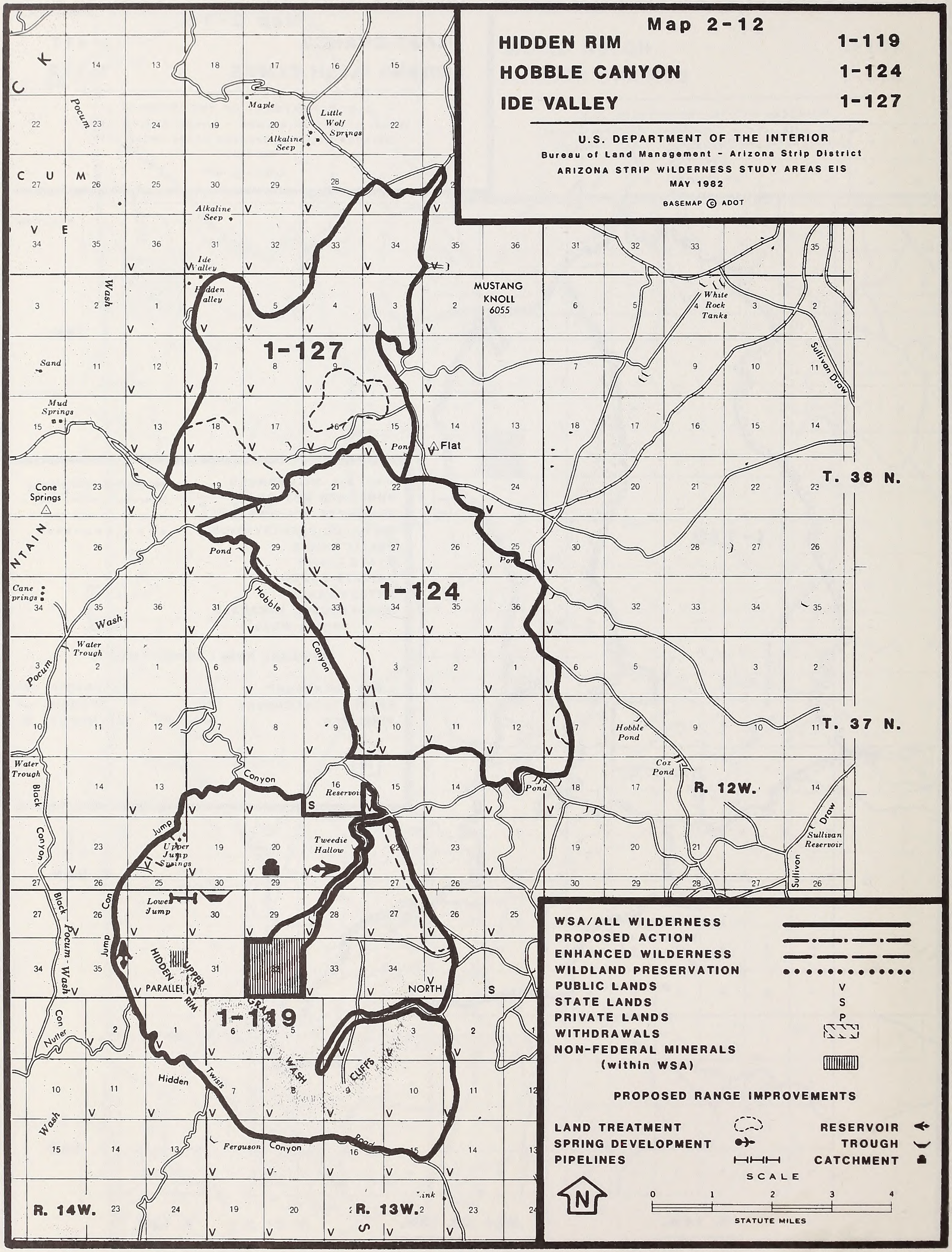
STATE LANDS S
PRIVATE LANDS P
WITHDRAWALS
NON-FEDERAL MINERALS (within WSA)
PROPOSED RANGE IMPROVEMENTS
LAND TREATMENT
SPRING DEVELOPMENT
PIPELINES
RESERVOIR
TROUGH
CATCHMENT
SCALE
0 1 2 3 4
MILES
N
Gross
Lower Jump
STANDARD
PARALLEL
HIDDEN
UPPER
GRAND
WASH
CLIFFS
Hidden
Wash
Ferguson Canyon
Road
Yellowstone
Upper
Grand
Canyon
Link
Nutter
Englestead
Sullivan
Garden Springs
Upper Last Chance
Rattlesnake
Gardner Reservoir
Parashant
Coyote
Lower Pigeon
Pigeon
SAVANIC
Fork
Wash
Canyon



Map 2-12
HIDDEN RIM 1-119
HOBBLE CANYON 1-124
IDE VALLEY 1-127
U.S. DEPARTMENT OF THE INTERIOR
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ARIZONA STRIP WILDERNESS STUDY AREAS EIS
MAY 1982
BASEMAP © ADOT
1-127
1-124
1-119
MUSTANG KNOLL 6055
T. 38 N.
T. 37 N.
R. 14W.
R. 13W.
R. 12W.
Ide Valley
Hidden Valley
Alkaline Seep
Maple
Little Wolf Springs
White Rock Tanks
Sullivan Draw
Sullivan Reservoir
Mud Springs
Cone Springs
Cane Springs
Water Trough
Hobble Canyon
Hobble Pond
Cox Pond
Tweedie Hallow
Upper Jump Springs
Lower Jump
Pocum Wash
Black Canyon
Ferguson Canyon
Twists Road
HIDDEN UPPER RIM
PARALLEL
GRAND WASH CLIFFS
WSA/ALL WILDERNESS
PROPOSED ACTION
ENHANCED WILDERNESS
WILDLAND PRESERVATION
PUBLIC LANDS V
STATE LANDS S
PRIVATE LANDS P
WITHDRAWALS
NON-FEDERAL MINERALS (within WSA)
PROPOSED RANGE IMPROVEMENTS
LAND TREATMENT
SPRING DEVELOPMENT
PIPELINES
RESERVOIR
TROUGH
CATCHMENT
SCALE
0 1 2 3 4
STATUTE MILES
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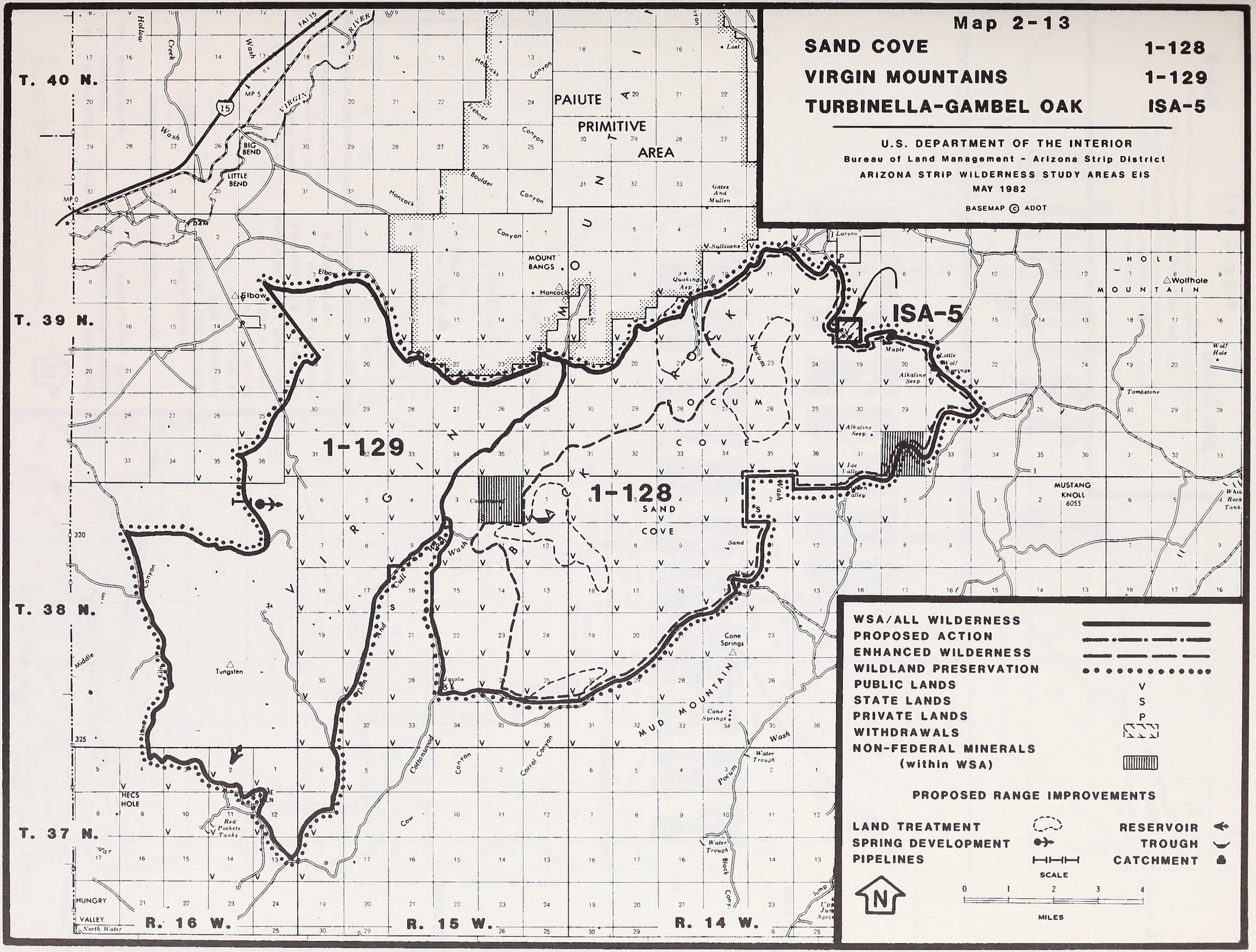
Map 2-13
SAND COVE 1-128
VIRGIN MOUNTAINS 1-129
TURBINELLA-GAMBEL OAK ISA-5
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management - Arizona Strip District
ARIZONA STRIP WILDERNESS STUDY AREAS EIS
MAY 1982
BASEMAP © ADOT
T. 40 N.
T. 39 N.
T. 38 N.
T. 37 N.
R. 16 W.
R. 15 W.
R. 14 W.
1-129
1-128
SAND COVE
ISA-5
PAIUTE PRIMITIVE AREA
MOUNT BANGS
MUSTANG KNOLL 6055
MUD MOUNTAIN
WSA/ALL WILDERNESS
PROPOSED ACTION
ENHANCED WILDERNESS
WILDLAND PRESERVATION
PUBLIC LANDS
STATE LANDS
PRIVATE LANDS
WITHDRAWALS
NON-FEDERAL MINERALS (within WSA)
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PIPELINES
RESERVOIR
TROUGH
CATCHMENT
SCALE
0 1 2 3 4
MILES
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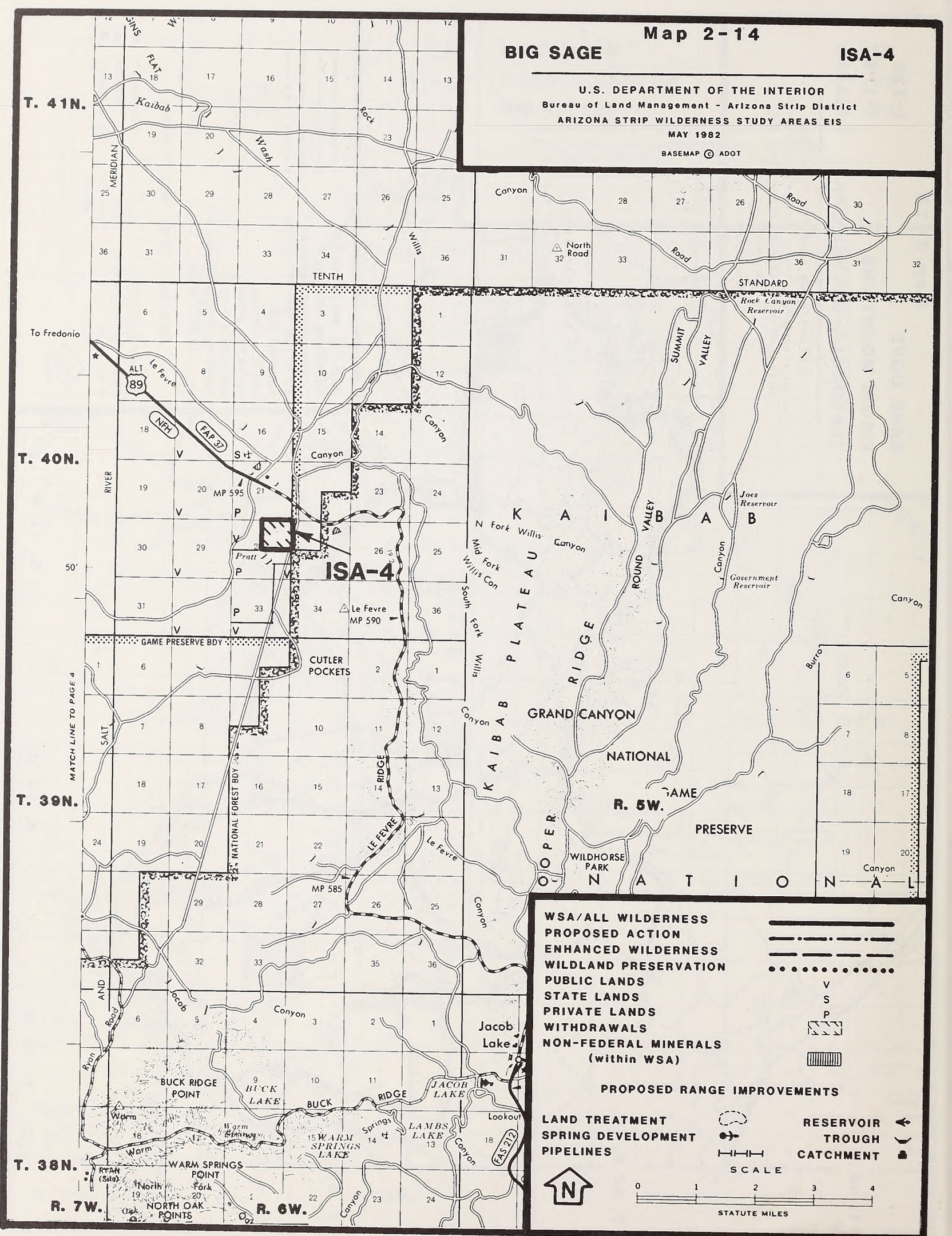

Map 2-14
BIG SAGE
ISA-4
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management - Arizona Strip District
ARIZONA STRIP WILDERNESS STUDY AREAS EIS
MAY 1982
BASEMAP © ADOT
T. 41N.
T. 40N.
T. 39N.
T. 38N.
R. 7W.
R. 6W.
R. 5W.
ISA-4
To Fredonio
MATCH LINE TO PAGE 4
GAME PRESERVE BDY
NATIONAL FOREST BDY
CUTLER POCKETS
GRAND CANYON NATIONAL GAME PRESERVE
KAIBAB PLATEAU
ROUND VALLEY
SUMMIT VALLEY
Joes Reservoir
Government Reservoir
Rock Canyon Reservoir
WILDHORSE PARK
BUCK RIDGE POINT
BUCK LAKE
BUCK RIDGE
JACOB LAKE
Jacob Lake
WARM SPRINGS LAKE
LAMBS LAKE
WARM SPRINGS POINT
NORTH OAK POINTS
RYAN (Site)
Le Fevre
Pratt
Willis
Kaibab
Rock
Canyon
Road
MP 595
MP 590
MP 585
WSA/ALL WILDERNESS
PROPOSED ACTION
ENHANCED WILDERNESS
WILDLAND PRESERVATION
PUBLIC LANDS
STATE LANDS
PRIVATE LANDS
WITHDRAWALS
NON-FEDERAL MINERALS
(within WSA)
PROPOSED RANGE IMPROVEMENTS
LAND TREATMENT
SPRING DEVELOPMENT
PIPELINES
RESERVOIR
TROUGH
CATCHMENT
SCALE
0 1 2 3 4
STATUTE MILES

Chapter 3

AFFECTED ENVIRONMENT

CHAPTER 3

AFFECTED ENVIRONMENT

Introduction

Chapter 3 briefly describes resources that might be impacted by the alternatives including the *Proposed Action*. Descriptions are only as detailed as needed for the reader to understand the effects of implementing the alternatives. Where impacts to certain resources would be slight or nonexistent, descriptions are brief or are omitted. More detailed descriptions of the resources in the EIS area and the socioeconomic conditions may be reviewed in planning documents at the Arizona Strip District Office, St. George, Utah.

Physical Setting

CLIMATE

Three major air masses influence the climate of the Arizona Strip: the tropical Atlantic (Gulf of Mexico), the tropical Pacific, and the polar Pacific. These masses create a biseasonal climatic pattern typical of the Southwest. Two peak storm periods occur: winter, with broad frontal storms, cool temperatures, and gentle rains; and summer, with isolated convectional storms, high temperatures, high winds, and high-intensity short-duration rainstorms. These two storm periods are separated by seasonal periods of drought from April to June and from September to November.

Elevation and topography also influence climate. Lower elevation areas generally have lower precipitation and higher mean annual temperatures than higher areas. Higher elevations tend to have higher precipitation and lower mean annual temperatures. Average frost-free periods vary from 135 days at Fredonia to 239 days at Lees Ferry.

AIR QUALITY

The WSAs are relatively isolated from major sources of pollution, and air quality ranges from very good to excellent. Air pollutants have been monitored from stations in Page, Arizona; Warner Valley, Utah; and for a short period on the Vermillion Cliffs just east of Lees Ferry. Prevailing winds on the Arizona Strip are southeasterly and convectional in the summer and westerly and frontal in the winter. Air quality falls within the Class II category of the Clean Air Act of 1977.

TOPOGRAPHY

The WSAs of the Arizona Strip District lie generally along the southwest edge of the Colorado Plateau physiographic province. WSAs in the westernmost portion of the District and west of the Grand Wash Cliffs lie within the Basin and Range province. The eastern portion or those units lying between the Paria Plateau and the Grand Wash Cliffs is of a typical plateau type topography. The relief of the area has been determined largely by the carving of the major tributaries to the Colorado River, including the Paria River, Kanab Creek, and the Virgin River. The canyonlands-plateau type relief is generally rough, ranging in elevation from nearly 6,000 feet on the Paria Plateau to 3,000 feet along the lower Hurricane Valley and south St. George Basin.

Those WSA units lying along the Grand Wash Cliffs and to the west are of a typical basin and range type typography, consisting of irregular elongated valleys bordered on the east and west by ridges and escarpments. The elevations here range from 6,000 feet along the Grand Wash Cliffs to less than 2,000 feet near lower Grand Wash.

SOILS

The soils of the Arizona Strip are formed mainly in residuum from limestone, sandstone, and shale. Soils derived from basalt occur near dormant volcanoes and cinder cones, such as in the Black Rock and Mt. Trumbull-Mt. Logan areas.

Eight soil associations have been mapped within the EIS area by the General Soil Surveys of Mohave and Coconino Counties (USDA, SCS, 1972; 1974). The soil interpretations show that these soils tend to be shallow (less than 20 inches deep) to bed rock or hard pan. Moderately deep to deep soils, however, are not uncommon. Soil textures are sands, loams, and clays, well to somewhat excessively drained with variable erosion hazard. Soil Conservation Service potential production data show varying potentials of 500 to 2,000 pounds of vegetation per acre in favorable years and 200 to 1,000 pounds per acre in unfavorable years.

Wilderness Values

The 41 WSAs were identified through an inventory applied to all public land administered by BLM's

Arizona Strip District. Each unit includes at least 5,000 acres or is contiguous to a wilderness area proposed by another agency. Though the units contain some evidence of human use, these are minor intrusions that do not impact naturalness. In addition, the WSAs have outstanding opportunities either for solitude or for primitive and unconfined recreation. Most units have outstanding opportunities for both.

The Arizona Strip District has five instant study areas (ISAs): primitive or natural areas identified as study areas under section 603 of the Federal Land Policy and Management Act of 1976. The Paiute Primitive Area, Paria Canyon Primitive Area, and a portion of the Vermillion Cliffs Natural Area have been studied and recommended suitable for inclusion in the National Wilderness Preservation System (BLM, 1980). The three ISAs under study in this EIS are the Big Sage Natural Area, Turbinella-Gambel Oak Natural Area, and the remainder of the Vermillion Cliffs Natural Area.

The following table shows the acreage involved in the Arizona Strip wilderness inventory process.

Acres inventoried:	2,737,875
Acres under intensive territory:	2,160,945
Acres identified as WSAs:	759,163
Instant Study Area Acreages:	104,451
Acres recommended as suitable in the study of Paiute Primitive Area, Paria Canyon Primitive Area, and Vermillion Cliffs Natural Area:	98,605

Table 3-1 shows public land areas recommended for wilderness designation and nondesignation in each WSA under the *Proposed Action, Enhanced Wilderness,* and *Wildland Preservation* alternatives. In addition to public land acres, the WSAs have 12,912 acres of state land and 200 acres of private land. Table 3-2 shows nonfederal land proposed for acquisition to ensure wilderness manageability under the *Proposed Action, Enhanced Wilderness,* and *Wildland Preservation.*

The Arizona Strip District lies almost entirely on the Colorado Plateau, an area of generally flat sedimentary deposits carved into numerous canyons. A series of tablelands formed by north-south trending faults lifts the country to the east in successive steps defined by major cliffs. In addition, the Arizona Strip District has deeply eroded canyons, colorful rocks, and volcanic formations.

West of the Grand Wash Cliffs is the transition zone between the Colorado Plateau and the Basin and Range physiographic provinces. This area has undergone faulting, folding, and extensive volcanism. Rock formations below the Grand Wash Cliffs are much younger than the rock sequence on the Plateau.

With few exceptions, the rugged areas of the Arizona Strip have escaped the impacts of human activity. Thus, much of this area remains remote and wild. WSAs are associated with major geologic structures and topographic features. They are clustered in the area of faulting and folding that extends from the Virgin River Gorge through the Virgin Mountains, the Grand Wash Cliffs, north rim of the Grand Canyon, the canyons eroded into major clifflines, and areas of volcanic activity.

All WSAs lie within two ecosystem types as defined by Kuchler and Bailey (1978). This classification system was developed for use in the Forest Service RARE II (Roadless Area Review and Evaluation) studies and combines geography and ecological associations. Under this system the Arizona Strip falls within the Colorado Plateau and American Desert provinces. The wilderness status of these provinces is summarized in Table 3-3.

WILDERNESS VALUES

Starvation Point (005) 27,212 Acres (Map 2-1)

Starvation Point WSA lies 10-15 miles southwest of St. George, Utah, next to Interstate Highway 15 on the south and Utah WSA UT-040-057 on the north. This unit includes portions of the Virgin River Canyon, habitat for bighorn sheep, desert tortoises, and the federally listed endangered woundfin minnow. Although this WSA has 4 miles of ways, two corrals, and two stock ponds, these imprints are not greatly noticeable and the unit has remained largely in a natural state. The unit's rugged and colorful landscape offers outstanding opportunities for solitude and recreation. In addition, the unit contains a portion of the Virgin River, which offers rafting and kayaking opportunities.

Ferry Swale (006A) 7,370 Acres (Map 2-2)

Characterized by stationary sand dunes, rugged sandstone slickrock, and scattered Great Basin desert shrubs, Ferry Swale WSA lies 10 miles west of Page in north-central Arizona. The unit lies next to both Paria Canyon Primitive Area and Glen Canyon National Recreation Area. A large portion of it is topographically part of Paria Canyon. The area is natural with the exception of two ways, which cross deep sandy terrain, receive little use, and are rehabilitating by natural processes.

TABLE 3-1
ACRES PROPOSED FOR WILDERNESS DESIGNATION

WILDERNESS STUDY AREAS			PROPOSED ACTION		ENHANCED WILDERNESS		WILDLAND PRESERVATION	
Number	Name	BLM Acres	Suitable Acres	Unsuitable Acres	Suitable Acres	Unsuitable Acres	Suitable Acres	Unsuitable Acres
005	Starvation Point1/	27,212	0	27,212	27,212	0	0	27,212
006A	Ferry Swale2/	7,370	0	7,370	4,825	2,545	7,370	0
006B	Judd Hollow2/	506	506	0	506	0	506	0
006C	Paria Rim	106	106	0	106	0	106	0
0060	Cedar Mountain	12	12	0	12	0	12	0
008A/19	Paria Plateau2/	104,988	2,880	102,108	4,800	100,188	104,988	0
008B	Overlook	7,348	0	7,348	0	7,348	7,348	0
009	Emmett Wash	12,913	0	12,913	0	12,913	12,913	0
031	Kanab Creek	39,242	0	39,242	0	39,242	39,242	0
033A	Hack Canyon	63,682	12,531	51,151	12,531	51,151	63,682	0
034	Robinson	9,441	0	9,441	0	9,441	0	9,441
050	Toroweap	5,312	0	5,312	0	5,312	5,312	0
051	Mt. Logan	8,803	0	8,803	0	8,803	8,803	0
052	Mt. Trumbull	7,285	7,285	0	7,285	0	7,285	0
091	Poverty Mountain	7,872	0	7,872	0	7,872	0	7,872
093	Parashaunt	38,938	0	38,938	0	38,938	38,938	0
096A	Oansil Canyon	294	0	294	0	294	0	294
096C	Grassy Mountain	5,503	0	5,503	0	5,503	0	5,503
0960	Andrus Canyon	48,248	0	48,248	0	48,248	48,248	0
097	North Oellenbaugh	10,678	0	10,678	0	10,678	0	10,678
099	G & F	640	0	640	0	640	0	640
104A	Salt House	13,465	0	13,465	0	13,465	0	13,465
104B	Mustang Point	25,912	0	25.912	0	25,912	0	25,912
105A	Nevershine Mesa	19,457	0	19,457	19,457	0	0	19,457
105B	Snap Point	9,500	0	9,500	0	9,500	0	9,500
105C	Tincanebitts	2,715	0	2,715	0	2,715	0	2,715
107	Grand Gulch	8,141	0	8,141	0	8,141	0	8,141
109	Pigeon Canyon	33,348	0	33,348	21,404	11,944	33,348	0
111	Last Chance	33,985	0	33,985	33,985	0	0	33,985
112	Grand Wash Cliffs	31,503	0	31,503	0	31,503	31,503	0
114	Pakoon Springs	24,832	0	24,832	0	24,832	24,832	0
119	Hidden Rim	16,563	0	16,563	0	16,563	0	16,563
124	Hobble Canyon	11,825	0	11,825	0	11,825	0	11,825
127	Ide Valley	7,970	0	7,970	0	7,970	0	7,970
128	Sand Cove	40,061	0	40,061	30,966	9,095	40,061	0
129	Virgin Mountains	37,681	0	37,681	0	37,681	37,681	0
130	Virgin River	1,440	1,440	0	1,440	0	0	1,440
132	Purgatory	7,557	0	7,557	0	7,557	0	7,557
134	Lime Hills2/	12,610	1,426	11,184	0	12,610	12,610	0
135	Narrows	7,725	0	7,725	0	7,725	0	7,725
136	Mt. Emma	6,480	0	6,480	0	6,480	6,480	0
ISA-3	Vermillion Cliffs3/	14,671	0	14,671	14,671	0	0	14,671
1SA-4	Big Sage	160	0	160	0	160	0	160
1SA-5	Turbinella-Gambel Oak	154	0	154	28	126	0	154
TOTAL UNITS: 44								
TOTAL ACREAGE:		774,148	26,186	747,962	179,228	594,920	531,268	242,880
PERCENT:		100.0	3.4	96.6	23.2	76.8	68.6	31.4

1/ Includes Arizona and Utah acreage.

2/ Excludes acreage already included in the Paiute and Paria Canyon wilderness proposals as follows:

Unit AZ-010-006A	2,800 acres
Unit AZ-010-006B	1,360 acres
Unit AZ-010-008A/19	18,480 acres
Unit AZ-010-134	240 acres

3/ Further study portion of the Natural Area.

The unit contains a portion of the Echo Cliffs Monocline, which offers excellent topographic screening. The terrain includes numerous and rugged sandstone ridges, buttes, folds, water pockets, fins, and ledges. This topography combines with scattered pinyon and juniper cover to provide screening for outstanding solitude. In addition, the terrain provides outstanding regionally significant challenges and scenic vistas for the hiker, photographer, and sightseer.

Two remaining portions of the WSA, the eastern plains and the Cedar Mountain area, have neither the topography nor the vegetation to provide an outstanding solitary experience.

TABLE 3-2
State and Private Inholdings

WILDERNESS STUDY AREAS					SUITABILITY RECOMMENDATIONS 2/								
					PROPOSED ACTION			ENHANCED WILDERNESS			WILDLAND PRESERVATION		
Number	Name	State Acres	Private Acres	Non-Federal Minerals 1/	State Acres	Private Acres	Non-Federal Minerals 1/	State Acres	Private Acres	Non-Federal Minerals 1/	State Acres	Private Acres	Non-Federal Minerals 1/
005	Starvation Point3/	1,841	0	1,710	--	--	--	1,841	0	1,710	--	--	--
006A	Ferry Swale4/	0	0	0	--	--	--	0	0	0	0	0	0
006B	Judd Hollow4/	0	0	0	0	0	0	0	0	0	0	0	0
006C	Paria Rim	0	0	0	0	0	0	0	0	0	0	0	0
006D	Cedar Mountain	0	0	0	0	0	0	0	0	0	0	0	0
008A/19	Paria Plateau4/	5,760	0	1,000	0	0	0	960	0	0	5,760	0	1,000
008B	Overlook	0	160	0	--	--	--	--	--	--	0	160	0
009	Emmett Wash	640	0	0	--	--	--	--	--	--	640	0	0
031	Kanab Creek	640	0	480	--	--	--	--	--	--	640	0	480
033A	Hack Canyon	120	0	0	0	0	0	0	0	0	120	0	0
034	Robinson	0	0	0	--	--	--	--	--	--	--	--	--
050	Toroweap	0	0	0	--	--	--	--	--	--	0	0	0
051	Mount Logan	0	0	0	--	--	--	--	--	--	0	0	0
052	Mount Trumbull	0	0	0	0	0	0	0	0	0	0	0	0
091	Poverty Mountain	640	0	120	--	--	--	--	--	--	--	--	--
093	Parashaunt	0	0	0	--	--	--	--	--	--	0	0	0
096A	Dansil Canyon	0	0	0	--	--	--	--	--	--	--	--	--
096C	Grassy Mountain	0	0	0	--	--	--	--	--	--	--	--	--
096D	Andrus Canyon	0	40	680	--	--	--	--	--	--	0	40	680
097	North Dellenbaugh	80	0	1,280	--	--	--	--	--	--	--	--	--
099	G & F	0	0	0	--	--	--	--	--	--	--	--	--
104A	Salt House	0	0	6,500	--	--	--	--	--	--	--	--	--
104B	Mustang Point	40	0	4,920	--	--	--	--	--	--	--	--	--
105A	Nevershine Mesa	0	0	0	--	--	--	0	0	0	--	--	--
105B	Snap Point	0	0	120	--	--	--	--	--	--	--	--	--
105C	Tincanebitts	0	0	1,300	--	--	--	--	--	--	--	--	--
107	Grand Gulch	0	0	0	--	--	--	--	--	--	--	--	--
109	Pigeon Canyon	640	0	0	--	--	--	40	0	0	640	0	0
111	Last Chance	640	0	0	--	--	--	640	0	0	--	--	--
112	Grand Wash Cliffs	0	0	80	--	--	--	--	--	--	0	0	80
114	Pakoon Springs	640	0	0	--	--	--	--	--	--	640	0	0
119	Hidden Rim	0	0	40	--	--	--	--	--	--	--	--	--
124	Hobble Canyon	0	0	0	--	--	--	--	--	--	--	--	--
127	Ide Valley	0	0	0	--	--	--	--	--	--	--	--	--
128	Sand Cove	640	0	1,000	--	--	--	640	0	1,000	640	0	1,000
129	Virgin Mountains	0	0	400	--	--	--	--	--	--	0	0	400
130	Virgin River	0	0	0	0	0	0	0	0	0	--	--	0
132	Purgatory	0	0	0	--	--	--	--	--	--	--	--	--
134	Lime Hills4/	0	0	1,000	0	0	0	--	--	--	0	0	1,000
135	Narrows	0	0	60	--	--	--	--	--	--	--	--	--
136	Mount Emma	0	0	0	--	--	--	--	--	--	0	0	0
ISA-3	Vermillion Cliffs5/	0	0	0	--	--	--	0	0	0	--	--	--
ISA-4	Big Sage	0	0	0	--	--	--	--	--	--	--	--	--
ISA-5	Turbinella/Gambel Oak	0	0	0	--	--	--	--	--	--	--	--	--
TOTALS:	44	12,321	200	20,690	0	0	0	4,121	0	2,710	9,080	200	4,640

1/Acreage of nonfederal mineral estate underlying federal surface.
2/Dashes indicate no acres recommended as suitable.
3/Includes 640 acres in Arizona and 1,201 acres in Utah.
4/Excludes acreage already included in the Paiute and Paria Canyon wilderness proposals.
5/Further study portion of the Natural Area.

TABLE 3-3
WILDERNESS STATUS BY ECOSYSTEM TYPE

	American Desert		Colorado Plateau	
	Units	Acres	Units	Acres
Existing Statutory Representation				
U.S. Forest Service	0	0	9	149,983
National Park Servive	0	0	0	0
Fish and Wildife Service	0	0	0	0
Administratively Endorsed Wilderness				
U.S. Forest Service	0	0	2	110,162
National Park Service	1	1,908,000	12	697,929
Fish and Wildife Service	4	380,220	0	0
Potential Sources of Representation				
U.S. Forest Service	1	48,000	2	40,768
National Park Service	15	259,485	4	626,867
Bureau of Land Management	90	2,509,728	193	3,289,002
TOTALS:	111	5,105,433	222	4,914,711

Judd Hollow (006B) 506 Acres (Map 2-2)

Judd Hollow WSA lies 20 miles west of Page in north-central Arizona. Contiguous to Paria Canyon Primitive Area, it contains a portion of the upper canyon rim, rugged sandstone slickrock, scattered Great Basin desert shrub, and no impacts on naturalness. The unit consists of sandstone ledges, waterpockets, and draws. This broken topography, combined with scattered pinyon and juniper trees, provides outstanding opportunities for solitude. The area is scenic and offers excellent views of Paria Canyon.

Paria Rim (006C) 106 Acres and Cedar Mountain (006D) 12 Acres (Map 2-2)

Paria Rim and Cedar Mountain WSAs lie 15 miles west of Page in north-central Arizona. Contiguous to Paria Canyon Primitive Area, these units have sandstone slickrock, scattered Great Basin desert shrub, and no impacts on naturalness. The broken topography of the Paria Canyon rim country and the scattered juniper and pinyon trees provide screening for solitude. The WSAs also offer excellent opportunities to view unusual sandstone erosion features, Paria Canyon, and the surrounding country.

Paria Plateau (008A/19) 104,988 Acres (Map 2-3)

Paria Plateau WSA lies 25 miles west of Page in north-central Arizona. Bounded on the north, east, and south by Paria Canyon Primitive Area and Vermillion Cliffs Natural Area, this unit has stationary sand dunes, rugged sandstone slickrock features, level-to-rolling plateaus, pinyon-juniper woodlands, and Great Basin grasses. Portions of the unit are topographically part of Paria Canyon.

The wilderness suitability report for the Paria Canyon Primitive Area and the Vermillion Cliffs Natural Area recommended that 18,480 acres of Paria Plateau WSA be designated wilderness. This recommendation, however, did not preclude suitability for the remaining 104,988 acres of the unit under study in this EIS.

Numerous impacts are scattered throughout Paria Plateau WSA, including 100 miles of ways, 37 miles of pipeline, 54 miles of fence, 15 reservoirs, four corrals, and 11 troughs. The unit, however, retains its naturalness because these intrusions are well distributed throughout the unit and are effectively screened by topography and vegetation.

Only two portions of Paria Plateau WSA provide outstanding opportunities to avoid the sights and sounds of others. Numerous buttes, ridges, alcoves, washes, and sand dunes on 5,760 acres in the White Pockets Hole-in-the-Rock area provide topographic screening for solitude and seclusion. These rugged features are part of the Paria Canyon erosional system. The rest of the WSA lacks topographic diversity and vegetation density, having level-to-rolling plateaus too open for backcountry travelers to experience outstanding solitude.

This unit provides opportunities for hiking, backpacking, horseback riding, photography, and viewing scenery. A variety of sandstone features, physical challenges, archaeological resources, and scenic views enhance these opportunities. Most of this unit, though, does not provide regionally unique or significant opportunities. A lack of topographic diversity and the common occurrence of these vegetation types and this terrain throughout most of the Four Corners region detract from potential outstanding primitive recreation opportunities.

Overlook (008B) 7,348 Acres (Map 2-3)

Overlook WSA lies 15 miles southwest of Page in north-central Arizona. On the southern margin of the Paria Plateau and contiguous to Vermillion Cliffs Natural Area, this unit has stationary sand dunes, level-to-rolling topography, pinyon-juniper woodlands, and Great Basin grasses. The unit, however, lacks topographic diversity and vegetation density. This level-to-rolling plateau is too open for backcountry travelers to experience outstanding solitude.

Overlook WSA offers opportunities for hiking, backpacking, horseback riding, photography, and viewing scenery. A variety of sandstone features, physical challenges, archaeological resources and scenic views enhance these opportunities. This unit, though, does not provide regionally unique or significant opportunities. A lack of topographic diversity and vast occurrences of this terrain and vegetation type throughout much of the Four Corners region detract from potential outstanding primitive recreation opportunities.

The WSA has no substantial impacts on naturalness. Several ways exist along the north boundary but are naturally rehabilitating.

Emmett Wash (009) 12,913 Acres (Map 2-4)

Emmett Wash WSA lies 25 miles southwest of Page, Arizona on a level-to-rolling, sandy plateau covered with Great Basin desert shrub and cut by two major side canyons of Marble Canyon. Both canyons are 1,600 feet deep and expose five distinct Grand Canyon rock formations.

The WSA has no significant imprints on naturalness, and the rugged topography of the canyon portions creates natural screening for seclusion and solitude. The unit also offers outstanding opportunities for hiking, photography, viewing scenery, and challenging mental and physical stamina. Moreover, *Pediocactus bradyi,* a federally listed endangered species, occurs in this WSA, and the Honeymoon and Dominquez-Escalante Trails also cross the unit. The Dominguez-Escalante Trail is of national significance.

Kanab Creek (031) 39,242 Acres (Map 2-5)

Kanab Creek WSA lies 20 miles southwest of Fredonia, Arizona on a level-to-rolling cherty plateau covered with Great Basin desert shrub and dissected by Kanab Creek and numerous short tributaries. The canyon of Kanab Creek is 1,300 feet deep and is a major tributary to and has portions of the same geologic layering as the Grand Canyon. This unit is bounded on the south by a U.S. Forest Service RARE II proposal.

Numerous impacts are scattered throughout the Kanab Creek WSA, including 37 miles of ways and seven reservoirs. Uranium exploration has also resulted in 6.5 miles of access routes and 11 drill hole pads, all of which will be mechanically rehabilitated.

The canyon portions of Kanab Creek WSA provide outstanding opportunities to avoid the sights and sounds of others due to unit size, configuration, and natural screening.

Kanab Creek is 18 miles long and up to a mile wide within the WSA. Seven small tributary canyons combine with the main canyon to offer solitude and places for visitors to disperse. This canyon system's configuration and rugged topography provides natural screening for seclusion and solitude. A sharply meandering main canyon, numerous side canyons, rugged canyon benches, rock pinnacles, gullies, boulder piles, alluvial slopes, and willow groves combine to provide for outstanding solitude.

The WSA offers opportunities for hiking, backpacking, horseback riding, photography, and viewing scenery. A variety of canyon environments, topographic features, physical challenges, and scenic views enhance these opportunities. None of these features, though, are regionally unique or significant when compared to nearby canyons that are deeper, geologically more complex, and provide views of unusual geologic occurrences. These opportunities are not, therefore, distinguished, excellent, or superior to others of their kind.

Hack Canyon (033A) 63,682 Acres (Map 2-6)

Hack Canyon WSA lies 30 miles southwest of Fredonia, Arizona. It has level-to-rolling plateaus, Great Basin desert scrub and grasses, and numerous canyons. It is bounded on the east by a U.S. Forest Service RARE II proposal.

WILDERNESS VALUES

The following imprints are scattered throughout the unit:

Ways: 22.75 miles	Corrals: 1
Roads: 9.75 miles	Foot Trails: 2 miles
Reservoirs: 11	Troughs: 2
Catchments: 2	Dams: 1

Uranium exploration has also resulted in 3 miles of access routes and seven drill hole pads, which are to be mechanically rehabilitated.

The canyon portions of Hack Canyon WSA provide outstanding opportunities to avoid the sights, sounds, and evidence of other people. This opportunity for solitude results from the unit's size, configuration, and natural screening.

This 63,682-acre unit is up to 14 miles long and 9 miles wide. Large unit size and open configuration allow the dispersal of visitors to enhance the overall potential for solitude. In addition, the rugged topography and dense vegetation of the canyons provide natural screening to allow for seclusion and solitude.

Hack Canyon WSA is one of the more rugged canyon areas of the Arizona Strip. Included in this unit are Grama, Hack, Water, and Chamberlain Canyons. Twenty-four side canyons and deep washes add to the overall ruggedness. The largest of these canyons, Hack Canyon, is up to 2 miles wide and 2,000 feet deep. Numerous sandstone pinnacles, gullies, boulder piles, alluvial slopes, and rolling hills combine with these canyons to provide superb natural screening.

Outstanding opportunities for solitude are further enhanced by vegetation screening. Vegetation communities in this unit consist of pinyon-juniper woodlands and low desert shrubs. Pinyon-juniper stands, mainly in Water Canyon, have the height and density to enhance seclusion and solitude.

The Kanab Plateau portions of Hack Canyon WSA lack opportunities for solitude. All portions of this rim and plateau country are 2 miles or less from the boundary roads. Low desert shrubs cover this rolling plateau but lack the height for vegetation screening. Both closeness to the boundary and lack of vegetation or topographic screening lessen opportunities for solitude.

Portions of this WSA provide outstanding opportunities for several different forms of primitive and unconfined recreation: hiking, backpacking, horseback riding, photography, and plant and geologic sightseeing.

Backcountry Travel (hiking, backpacking, horseback riding). Hack and Chamberlain Canyons, and the Kanab Creek Esplanade provide outstanding opportunities for backcountry travel. Although rugged topography dominates much of the unit, many accessible routes for hiking and riding occur throughout. These routes give the visitor an opportunity to experience a variety of environments, topographic features, physical challenges, and scenic views. These areas offer many challenges, including steep, rugged terrain, temperature extremes, and lack of water. Among the rewards for this arduous backcountry travel is the opportunity to view beautiful and varied canyon environs.

Photography. Hack and Chamberlain Canyons and the Kanab Creek Esplanade provide interesting and varied opportunities for photography, including the variety of colors and textures of five geologic formations, the area's overall ruggedness, sparse desert vegetation, broad panoramas, and constantly changing light and weather.

Geologic Values. Hack and Chamberlain Canyons and the Kanab Creek Esplanade also provide excellent study areas for both amateur and professional geologists. One can view evidences of past sediment deposition and the forces of erosion and uplifting. The following five rock formations are exposed:

1. Kaibab Limestone: cherty and sandy limestones containing fossilized remains of 80 genera of marine invertebrates.

2. Coconino Sandstone: former dune sand with excellent cross-laminated units.

3. Hermit Shale: stream-deposited shales.

4. Supai: limestones with small amounts of shale.

5. Alluvium: recently eroded and redeposited sand, gravel, and rocks.

Each of these formations tells of extreme changes in past climates and physical land characteristics.

The forces of erosion are also evident in this unit. Extensive canyons, rugged cliff faces, and alluvial slopes are evidence of the tremendous erosional forces that have cut away large amounts of these previously deposited rocks. These erosional forces have also exposed several breccia pipes bearing low-grade uranium.

Botanical Values. These unit portions also provide opportunities to view two biotic communities: the Great Basin desert shrub (mesquite, yucca, ephedra, and barrel cacti) and the Great Basin grassland (pinyon, juniper, sagebrush, and blackbrush). Small riparian zones occur around seeps and springs. Excellent opportunities exist to study each of these communities in relation to slope, aspect, soil type, and water. These values also occur in the remaining portions of the WSA but not in such quantity or quality.

Robinson (034) 9,441 Acres (Map 2-6)

Lying 35 miles southwest of Fredonia, Arizona, Robinson WSA has level-to-rolling plateau areas, Great Basin desert scrub and grasses, and a small canyon system. Robinson Canyon is 6 miles long and over 1,000 feet deep at its mouth. Ten side canyons and numerous washes add to the complexity of the system.

Four types of impacts to naturalness exist. Two ways, totaling 1.5 miles in length, and a 1-mile-long road penetrate the unit. Four reservoirs lie along the east unit boundary, and a 2-mile-long fenceline scar penetrates the unit from the south. Numerous rehabilitated uranium drill sites also exist at the north end of the unit.

All of these impacts are scattered along the east and south boundaries and do not greatly detract from the unit's overall naturalness. The ways and fenceline scar are seldom used and could quickly and naturally rehabilitate. The road will be mechanically rehabilitated when uranium exploratory drilling ceases. The four reservoirs lie next to the unit boundary and can easily be dropped from the unit without greatly affecting unit qualities.

Robinson WSA provides an outstanding opportunity to avoid the sights, sounds, and evidence of others. This opportunity for solitude results from the unit's rugged topography and is enhanced by vegetation.

Robinson Canyon is 6 miles long and over 1,000 feet deep at its mouth. Ten side canyons and numerous washes add to the complexity of the system. The exposed Kaibab limestone and Coconino sandstone form high vertical walls. Numerous sandstone pinnacles, gullies, boulder piles, and alluvial slopes combine with these canyons and washes to provide excellent opportunities for solitude and seclusion. Outstanding opportunities for solitude are further enhanced by vegetation screening. Vegetation communities consist of pinyon-juniper woodlands and low desert shrubs. Pinyon and juniper grow mainly in the southern half of the unit and have the height and density to augment the seclusion and solitude of topographic screening.

This unit provides many types of primitive and unconfined recreation opportunities, including hiking, backpacking, hunting, and sightseeing. These opportunities, though, are not outstanding or better than others of their kind.

Robinson Canyon gives the hiker, backpacker, and horseback rider a chance to experience rugged topography and scenic canyon environs. Differences in the composition and erosion of the Kaibab limestone and Coconino sandstone provide a variety of colors, textures, and shapes to the canyon walls. Desert varnish and leaching of minerals enhance these qualities. None of these features, though, are regionally unique or significant when compared to nearby canyons that are deeper and geologically more complex.

Toroweap (050) 5,312 Acres (Map 2-7)

Lying 50 miles southwest of Fredonia, Arizona, Toroweap WSA comprises an area of cinder cones, lava flows, and Great Basin desert scrub and grasses. The volcanic features are components of the Uinkaret Mountains. The unit borders Grand Canyon National Park on the south. The WSA has 3 miles of ways and one wildlife catchment, which are effectively screened by the topography and vegetation.

Toroweap WSA provides no outstanding opportunities for solitude. Cinder cones, washes, and woodlands in the unit's western part provide limited screening, but this portion involves less than 4 square miles. The eastern portion of the unit slopes gently and lacks any form of vegetation or topographic screening.

This unit offers many types of primitive and unconfined recreation, including hiking, backpacking, hunting, and sightseeing. These opportunities, though, are not outstanding or better than others of their kind. Narrow unit configuration constricts backcountry use and limits opportunities for long hikes and backpack trips. No features are regionally unique. Only a small portion of the Uinkaret Mountains lies within this unit.

This unit, however, is an excellent study area for amateur and professional geologists, who can view evidences of past sediment deposition, volcanic extrusion, cinder eruptions, erosion, redeposition, faulting, and uplifting.

Although no detailed archaeological inventories of Toroweap Valley have been conducted, several significant finds have been made. Artifacts and sites suggest that several different groups both lived and hunted in this unit.

Mt. Logan (051) 8,803 Acres (Map 2-7)

Lying 55 miles southwest of Fredonia, Arizona, on the west slope of Mt. Logan, Mt. Logan WSA has basalt ledges, ponderosa pine forests, pinyon-juniper woodlands, and a large, colorful amphitheater-shaped depression known as Hells Hole.

Four vehicle ways, totalling 3.5 miles, and a mile-long pipeline penetrate the WSA, impacting 11 acres or 0.12 percent of the unit. Two ways could be easily rehabilitated and would degrade only a small portion of the unit. Erosion and an absence of trees along the

pipeline are visible only from within the pipeline corridor. Outside the corridor the imprints are screened by topography and dense vegetation.

The 2,800-foot relief, combined with steep slopes, hollows, ledges, ponderosa pine stands, and pinyon-juniper woodlands, provides screening to enhance solitude in portions of the unit. Small size and a narrow, irregular unit configuration, though, greatly detract from opportunities for seclusion. This unit is 4.5 miles long and at most 4 miles wide. The upper half is only 2 miles wide. Irregular unit shape combines with this narrow configuration to constrict visitor use. All interior portions are at most 1.25 miles from the boundary.

Mt. Logan WSA lacks diversity in outstanding primitive and unconfined recreation opportunities. Hells Hole, however, is a regionally unique feature that provides an outstanding sightseeing experience. Narrow and irregular unit configuration, though, constricts backcountry use and limits opportunities for extended hikes and backpack trips. The unit has hunting, photography, and ecological and archaeological sightseeing opportunities, but these are no better than others of their kind.

Mt. Trumbull (052) 7,285 Acres (Map 2-7)

Mt. Trumbull WSA lies 50 miles southwest of Fredonia, Arizona, on the slopes and summit of Mt. Trumbull. Involving an elevation change of nearly 3,000 feet, the unit also offers basalt ledges, pinyon and juniper woodlands, ponderosa pine forests, and groves of scrub live oak and quaking aspen.

Three spring developments and related pipelines occur on the slopes of Mt. Trumbull. Each pipeline corridor is 20 feet wide and impacts 6.4 acres. Erosion and an absence of trees along these corridors are visible from outside the unit, but within the unit these imprints are screened by topography and dense vegetation. Also traversing the unit are 2.5 miles of pasture fence and 2 miles of hiking trails. These impacts are also effectively screened by topography and dense vegetation.

The overall influence of these human imprints is not significant. The pipeline corridors are effectively screened, and minimal erosion control structures will lessen their long-term impact. The other imprints are acceptable in wilderness areas at their present density.

Configuration and topographic and vegetation screening combine to provide outstanding opportunities for solitude. Mt. Trumbull WSA has nearly rectangular dimensions of 3 x 4 miles. This open configuration allows for a good distribution of visitors. No narrow portions would constrict use and increase visitor density. Though the trail and summit would receive concentrated use, a visitor could still find a secluded spot.

The WSA offers outstanding opportunities for hunting, hiking, backpacking, photography, and sightseeing. Geologic, anthropologic, and ecologic features combine with spectacular views to enhance these activities. The unit is large enough (11.4 square miles) to allow hikes and short backpack trips.

Mt. Trumbull was identified in 1976 as a Special Recreation Use Management Area because of existing recreation potential and opportunities. A hiking trail was built to the summit, an interpretive sign was installed, and Nixon Spring was developed for human use. Other developments, consistent with wilderness management, are proposed.

For years Mt. Trumbull and the surrounding country offered excellent mule deer hunting. Deer populations, though, have recently declined to near critical levels, reducing deer sightings and hunter success. Game management practices are being applied to return this population to previous levels. A Merriam's turkey introduction has also added to hunting opportunities.

Mt. Trumbull WSA also offers outstanding opportunities for photography and sightseeing. The variety of colors and textures in the geological and ecological features, the broad, sweeping panoramas, and the constantly changing light and weather provide opportunities for viewing and photographing interesting and varied sights.

The WSA has three significant features: archaeolgical remains, volcanic formations, and panoramic views. The Mt. Trumbull area is proposed as an archaeological district because of its numerous extensive and surveyed sites. Included is a prominent 40-room pueblo dwelling at the base of Mt. Trumbull. Remnants of walls and scattered pottery evidence the technological and social development of past inhabitants.

A variety of volcanic features are exposed on the slopes and summit of Mt. Trumbull. Mt. Trumbull was formed by successive volcanic extrusions into the highest mountain on the Arizona Strip. These extrusions added significantly to the lava flow that filled Toroweap Valley and dammed the Colorado River 8 miles to the south. The panoramic views from the sides and summit of Mt. Trumbull are excellent.

Poverty Mountain (091) 7,872 Acres (Map 2-8)

Lying 50 miles south of St. George, Utah, Poverty Mountain WSA consists of the south half of Poverty Mountain. Its vegetation is predominantly juniper and pinyon. With the exception of a catchment, a water

tank, and a corral, the unit has retained its naturalness. This unit, however, meets only minimum standards of solitude and lacks outstanding opportunities for primitive and unconfined recreation.

Parashaunt (093) 38,938 Acres (Map 2-8)

Parashaunt WSA lies 55 miles southeast of St. George, Utah and contains the north half of Parashaunt Canyon. The south half lies in Lake Mead National Recreation Area and runs into the Grand Canyon. A good portion of the unit consists of pinyon and juniper flats above the canyon rim.

The unit has 12 miles of trails, a wildlife catchment, and a reservoir, but these imprints are largely unnoticeable and well dispersed throughout the unit. The unit has remained in a natural state, containing outstanding opportunities for both solitude and primitive and unconfined recreation. The area is scenic and offers opportunities for hiking, sightseeing, and photography.

Dansil Canyon (096A) 294 Acres (Map 2-8)

Dansil Canyon lies 65 miles southeast of St. George, Utah, next to Grand Canyon National Park. The unit is natural and has no improvements or disturbances. The terrain and the vegetation cover of blackbrush, yucca, grasses, oak, and isolated pinyon provide little screening. The WSA consists of a narrow, 200-foot deep canyon, a portion of Andrus Wash, and rounded gently sloping areas between drainages. Opportunities exist for hiking, sightseeing, and photography, but, alone or combined, these opportunities are not outstanding.

Grassy Mountain (096C) 5,503 Acres (Map 2-8)

Lying 60 miles south of St. George, Utah, Grassy Mountain WSA consists mainly of the slopes and summit of Grassy Mountain. The unit is natural in appearance, its only human imprints consisting of a half-mile length of fence. The 1,000-foot elevation change and many broken ridges provide topographic screening. Juniper and pinyon trees provide thick vegetation screening. And vegetation and topography provide outstanding opportunities for solitude. The WSA offers opportunities for primitive and unconfined recreation, but these opportunities lack variety and challenge.

Andrus Canyon (096D) 48,248 Acres (Map 2-8)

Andrus Canyon WSA lies 60 miles south of St. George, Utah, next to Grand Canyon National Park. The unit's few intrusions occur throughout the WSA and do not impact naturalness. The unit's deep canyons, washes, cliffs, and crags provide excellent topographic screening, and high plateau areas are covered with a pinyon-juniper woodland that provides vegetation screening. Certain lower, flatter areas have low desert shrub vegetation with scattered junipers. The unit's large size also contributes to opportunities for solitude.

The WSA offers several types of primitive and unconfined recreation, including hiking, backpacking, horseback riding, hunting, photography, and rock climbing. The colorful rock formations and sheer cliffs, small caves, and alcoves in Andrus and Dansil Canyons are a special attraction, as are the spectacular views across Andrus and Dansil Canyons into the outlying desert.

North Dellenbaugh (097) 10,678 Acres (Map 2-8)

North Dellenbaugh WSA lies 65 miles south of St. George, Utah. Its vegetation consists of pinyon, juniper, and small stands of ponderosa pine. It has a few range improvements, but these are not concentrated and the unit remains natural. Rugged topography and dense vegetation provide opportunities for solitude and for hiking and backpacking.

G & F (099) 640 Acres (Map 2-8)

Lying 70 miles south of St. George, Utah, next to Lake Mead National Recreation Area, G & F WSA consists of gradually inclined basalt-covered slopes, small drainages developing toward the bottom of the slopes, and one outcropping of basalt. The unit has no improvements or disturbances. Vegetation consists of dense stands of pinyon and juniper, oak, sagebrush, small groves of ponderosa pine in the lower drainage, and other cold-desert shrubs.

Salt House (104A) 13,465 Acres (Map 2-9)

Consisting of rolling, hilly terrain with small gulches and hollows, Salt House WSA lies 65 miles south of St. George, Utah. The unit contains 13 miles of ways and four reservoirs, imprints that are largely unnoticeable. The unit's vegetation consists of dense pinyon-juniper and sagebrush. Solitude is confined to areas screened by dense pinyon-juniper. The unit lacks good opportunities for primitive and unconfined recreation. Visitors can hike and camp in the area, but such experiences lack variety and challenge.

Mustang Point (104B) 25,912 Acres (Map 2-9)

Consisting of rolling hills covered with juniper, pinyon, and sagebrush, Mustang Point WSA lies 60 miles

south of St. George, Utah. The western side of the unit contains 6 miles of the Upper Grand Wash Cliffs. The unit has 5 miles of trails and five stockponds, which are largely unnoticeable and do not degrade naturalness. The Upper Grand Wash Cliffs are highly scenic and have high geologic value. The WSA offers opportunities for sightseeing, hiking, and photography.

Nevershine Mesa (105A) 19,457 Acres (Map 2-9)

Nevershine Mesa WSA lies 65 miles southwest of St. George, Utah, next to Lake Mead National Recreation Area. This unit has no human imprints except for an old water tank. All other impacts, including the Savanic and Cunningham Mines, were eliminated from this unit during the intensive inventory and protest period.

The WSA's varied and rough topography provides outstanding opportunities for solitude. The unit's major features — the Lower Grand Wash Cliffs, Snap and Cunningham Canyons, and Nevershine Mesa — as well as the foothills and drainages, provide excellent topographic screening. Outstanding opportunities exist for sightseeing, hiking, and photography.

Snap Point (105B) 9,500 Acres (Map 2-9)

Snap Point WSA lies 65 miles south of St. George, Utah next to Lake Mead National Recreation Area. The unit's only human imprints consist of 5 miles of trails and two reservoirs. These impacts are spread along the border of the unit and largely unnoticeable. The thick pinyon-juniper stands atop Snap Point offer outstanding opportunities for solitude. The sideslope and area below Snap Point offer some screening in drainages but none comparable to the solitude on top. The unit provides outstanding opportunities for hiking, sightseeing, and photography, including scenic vistas of the Grand Canyon, Lake Mead, and the Grand Wash Cliffs.

Tincanebitts (105C) 2,715 Acres (Map 2-9)

Tincanebitts WSA lies 70 miles south of St. George, Utah, next to Grand Canyon National Park and consists mainly of lands above the Sanup Plateau of the Grand Canyon. Except for a quarter mile of trail and one stockpond, the unit has remained in a natural state. Vegetation consists of juniper and pinyon. This unit offers opportunities for hiking and contains portions of canyons that expose varied and colorful formations.

Grand Gulch (107) 8,141 Acres (Map 2-10)

Existing in a natural condition, Grand Gulch WSA lies 68 miles southwest of St. George, Utah, next to Lake Mead National Recreation Area. The unit's greatest topographical relief occurs along its northwestern and western sections. The land is broken by low ridges, hills, and deep gullies. A lava bed also lies along the northwest boundary. This unit's topography changes into a gently rolling terrain in southern and eastern portions.

This WSA's size and topography provide opportunities for solitude. The rugged landforms in the western part of the unit provide screening and cover. Below the escarpment, ridges and ravines offer seclusion. Although vegetation is generally low and scattered and does not provide ample screening for solitude, the somewhat rough topography enables a visitor to find a secluded place. Moreover, the lack of intrusions and the absence of man's imprints add to feelings of solitude and remoteness.

Opportunities exist for such unconfined types of recreation as hiking, photography, and plant and geologic sightseeing. These opportunities, however, are not outstanding.

Pigeon Canyon (109) 33,348 Acres (Map 2-9)

Lying 50 miles south of St. George, Utah, Pigeon Canyon WSA includes a large natural-appearing portion of the Lower Grand Wash Cliffs. This unit has several different topographic areas, such as gyp hills, desert plains, hills and washes, Pigeon and North Fork Canyons, the Lower Grand Wash Cliffs, and a plateau region. The gyp hills — badlands of steep hills and gullies mostly devoid of vegetation — parallel and occupy half the areas below the cliffs. Between the gyp hills, the Grand Wash Cliffs, and Pigeon Canyon are the desert plains and hills, an area broken by many washes and whose vegetation consists of creosotebush and other desert shrubs, Joshua trees, cacti, and grasses. The vegetation on top of the Grand Wash Cliffs is predominantly pinyon and juniper.

Pigeon Canyon WSA provides excellent opportunities for solitude throughout. The badlands in the unit's western part are a maze of gypsum hills, mounds, and gullies in which one can avoid the sights and sounds of others. The desert plains and bajada around the gyp hills and below the cliffs offer a complex topography of rough hills and ravines and 22 square miles in which to experience solitude. Pigeon Canyon itself is a maze of nine side canyons that provide an outstanding oppor-

tunity for solitude. From the Grand Gulch Bench, the canyon extends 6 miles west through the Lower Grand Wash Cliffs. At this point the canyon is 1,400 feet deep. Pinyon-juniper provides effective screening in some locations on top of the bench and cliffs.

This unit provides outstanding opportunities for primitive and unconfined recreation, including opportunities to hike and explore the geology and biological communities of the desert, gyp hills, canyons, cliffs, and bench. From atop the bench a visitor can hike along the rim of the Lower Grand Wash Cliffs to observe this major geologic fault and view the Pakoon Basin below, the Virgin Mountains to the north, and Lake Mead to the southwest.

Last Chance (111) 33,985 Acres (Map 2-11)

Containing 16 miles of the Upper Grand Wash Cliffs, Last Chance WSA lies 50 miles south of St. George, Utah. Several human imprints occur, including 12.25 miles of vehicular trails, four reservoirs, one catchment, and a mine shaft. But, except for the trails, the impacts dispersed along the unit's boundary are largely unnoticeable because of the unit's large size. The vehicular trails are scattered throughout the unit. Many that penetrate the unit below the cliffs do not extend as far as a mile and are returning to a natural state. The trails above the cliffs wind through pinyon-juniper and are largely unnoticeable.

The plateau above the Grand Wash Cliffs is covered by a dense pinyon-juniper woodland. Pinyon-juniper stands also grow along many of the lower drainages. Scattered junipers and low desert shrubs and cacti dominate the lower, flatter areas of the unit and help provide solitude.

The Grand Wash Cliffs run mainly north-south but curve back to the east in the northern and southern portions of the unit to form the walls of parts of Hidden and Pigeon Canyons. Numerous side canyons along the escarpment screen visitors from the rest of the unit.

Last Chance WSA provides outstanding opportunities for primitive recreation, especially hunting, hiking, and backpacking.

Grand Wash Cliffs (112) 31,503 Acres (Map 2-11)

Containing a 12-mile segment of the Lower Grand Wash Cliffs, Grand Wash Cliffs WSA lies 50 miles southwest of St. George, Utah. This unit has remained in a natural condition, having few human imprints. The unit consists of three landform types, each offering different opportunities for solitude: an area of gently rolling terrain, an area of canyons and cliffs, and an area of sandstone buttes.

The rolling terrain in the west below the cliffs provides little screening and high visibility for great distances. The low vegetation of desert shrubs, grasses and cacti also provides little screening. This area's size, however, (2 miles wide and 12 miles long) does increase the opportunity for solitude.

The Grand Wash Cliffs areas is one of high relief and extremely rough terrain. The cliffs rise 1,600 feet above the desert and are dissected by hundreds of large and small side canyons. The cliff top is less rugged but still broken by many drainages. The vegetation in the cliffs is limited to small desert shrubs with pinyon-juniper dominating on the top. The topography's exceptional screening presents outstanding opportunities for seclusion.

In the unit's northeast portion, the rolling terrain is occasionally broken by 400-foot-high sandstone buttes. Vegetation screening consists of pinyon-juniper with associated species of low brush. The combination of topographic relief and vegetation screening provide outstanding opportunities for solitude through most of this area.

Opportunities are outstanding for hiking and sightseeing in the rugged canyons and among the sandstone buttes. The canyons provide numerous routes to explore and from which to examine sedimentary layers exposed along a major fault line. The colorful sandstone buttes likewise provide opportunities for exploration and photography of wind- and water-carved sandstone.

Although this unit offers opportunities for such primitive and unconfined recreation as backpacking, horseback riding, spelunking, rock climbing, and desert camping, these opportunities are not outstanding.

The unit's location in the transition zone between two major physiographic provinces — the Colorado Plateau and the Basin and Range — gives it educational value. In addition, the Grand Wash Cliffs, Grand Wash Cave, the Nutter Twists, and the sandstone buttes are of high scenic and geologic interest.

Pakoon Springs (114) 24,832 Acres (Map 2-10)

Situated along the Nevada state line, 50 miles southwest of St. George, Pakoon Springs WSA has several human imprints. The 6.5 miles of vehicle trails within the interior nearly divide the unit. A maintained landing strip and access road also occur, and a pipeline that may require maintenance runs 3.5 miles through the unit. The pipeline route and vehicle trails are return-

ing to a natural condition, and, if closed to vehicles and scarified, they would not be noticeable. By adjusting the boundary to eliminate 32 acres, the landing strip and access road could be eliminated. Thus, overall, the unit is in a fairly natural condition.

The unit's size and configuration allow opportunities for seclusion and solitude. Cacti and sparse low shrubs, however, dominate the ground cover and offer little if any screening. The unit's center has a high north-south ridge that is varied enough to offer screening and some interesting landforms. Pakoon Springs WSA lies in a low desert, almost treeless portion of the Arizona Strip. Summer temperatures are extremely high, and little shade exists. Visitors would need to explore this area during the milder parts of the year. The unit lacks variety of topography and vegetation, although the ridge through the center of the unit offers some interesting relief.

Hidden Rim (119) 16,563 Acres (Map 2-12)

Hidden Rim WSA lies 40 miles south of St. George, Utah, and contains portions of the Upper Grand Wash Cliffs, Hidden, Jump, and St. George Canyons, and, above the cliffs, rolling hills separated by open drainages. The unit has some human imprints, including several ways and range developments. These developments, however, are largely unnoticeable, and the unit appears to be natural.

Vegetation below the cliffs provides good screening and, when combined with topography, offers an outstanding opportunity for solitude. The burning of a large area above the cliffs has temporarily eliminated vegetation screening and reduced opportunities for solitude. With the return of juniper and pinyon to this portion of the unit, opportunities for solitude are expected to be outstanding.

Hidden Rim WSA has outstanding opportunities for hiking, photography, and plant and geologic sightseeing, but these opportunities are limited to the rim of the Upper Grand Wash Cliffs, the cliffs, and the area below the cliffs. The rim offers excellent photographic vistas. The limestone cliffs and sloping Hermit shale of the Upper Grand Wash Cliffs and Supai sandstone below provide interesting and colorful rocks and erosion forms for geologic study. A Mohave Desert plant community occupies the lower slopes and Supai bench area. These plants include Joshua trees, yuccas, and agave.

Hobble Canyon (124) 11,825 Acres (Map 2-12)

Hobble Canyon WSA lies several miles southeast of the Virgin Mountains on the Shivwits Plateau. An area of rolling hills, twisting canyons, and small escarpments, it is covered primarily with pinyon-juniper and sagebrush. The unit has a few minor developments, which do not impact naturalness. Portions of the unit provide outstanding opportunities for seclusion in the hills, canyons, and dense pinyon-juniper stands. The unit, however, lacks outstanding opportunities for such primitive recreation as hiking, hunting, backpacking, horseback riding, and sightseeing.

Ide Valley (127) 7,970 Acres (Map 2-12)

Ide Valley WSA lies several miles southeast of the Virgin Mountains and consists of rolling hills, twisting canyons, small escarpments, knolls, and a few largely unnoticeable vehicle ways and range improvements.

The WSA provides outstanding opportunities for solitude. The topography lends itself to excellent screening with rolling hilly terrain, small valleys, occasional rock and cliff outcroppings, small escarpments, narrow twisting canyons, and a large knoll rising 700 feet above the terrain below. The vegetation, consisting of various densities of pinyon-juniper, sage, grasses, cliffrose, oak, manzanita, and other shrubs, complements the screening effect of the topography. Together, the topographic relief and vegetation provide the visitor with outstanding opportunities for solitude. Although opportunities for hiking, backpacking, camping, horseback riding, and sightseeing exist, they are not outstanding.

Sand Cove (128) 40,061 Acres (Map 2-13)

Lying 30 miles southwest of St. George, Utah, Sand Cove WSA contains portions of Black Rock Mountain and includes Sand and Pocum Coves. Most of the unit's imprints occur along an 8-mile stretch of the boundary road and can be seen from that road.

Sand Cove WSA's size, topography, and vegetation screening provide outstanding opportunities for solitude. The unit has 40,061 acres of public land, 9,095 acres of which are recommended for exclusion to improve manageability. The unit is well consolidated and contains no narrow fingers.

The unit's topography is rugged and diverse, offering many forms of screening. the sharp slopes and curvature of Black Rock Mountain form Sand and Pocum Coves. Sand Cove, on the unit's southwest side, has exposed red slickrock, sandy soils, and dense stands of juniper and pinyon. The elevation change from the Black Rock rim down into Sand Cove varies from 1,300 to 2,200 feet. Pocum Cove, adjoining Sand Cove to the east, is formed by the steep slopes of Black Rock Moun-

tain and by Pocum Wash draining off of Black Rock Mountain. Pocum Cove has the same types of vegetation and topography of Sand Cove and the major drainage of Pocum Wash.

The unit's predominant vegetation type is mountain shrub, but vegetation varies with elevation. Vegetation between 4,500 feet and 7,000 feet includes pinyon, juniper, turbinella oak, manzanita, serviceberry, sagebrush, and ponderosa pine. Vegetation is thick except on slickrock and basalt outcrops.

Sand Cove WSA provides excellent opportunities for primitive recreation. The combination of scenery, size, and slickrock formations provide opportunities for day hiking, backpacking, horseback riding, and photography. The Black Rock Mountain area receives 300-400 hunters during the opening week of deer season, especially on the top of Black Rock Mountain, Sand and Pocum Coves, and the southwestern portion of the unit. Hunters often use horses to reach the WSA's inner portions.

The unit's lower areas, especially Sand and Pocum Coves, are critical wintering range for mule deer. In addition, Black Rock Mountain provides some of the best vistas of the area. To the north, one can view the Virgin River Gorge, Beaver Dam and Pine Valley Mountains, and the distant Zion National Park. To the south, one can view the rest of the resource area.

Virgin Mountains (129) 37,681 Acres (Map 2-13)

Virgin Mountains WSA lies 28 miles southwest of St. George, Utah and includes the Virgin Mountains between Lime Kiln and Elbow Canyons. The unit also contains a large portion of the alluvial slopes and bajada on the west side of the mountains. This unit is primarily natural; its 5 miles of vehicle ways, three corrals, and two tanks are largely unnoticeable.

The unit offers outstanding opportunities for hiking, hunting, backpacking, rock climbing, sightseeing, and photography. Moreover, the Virgin Mountains are also of scientific and scenic value. Twenty bighorn sheep were transplanted in this unit in November 1980. The unit may have two threatened and unique wildlife species protected by Arizona along with several threatened and endangered plant species.

Virgin River (130) 1,440 Acres (Map 2-1)

Virgin River WSA lies 3 to 4 miles southeast of Littlefield, Arizona, at the base of the Virgin Mountains. This unit consists of four separate areas, each smaller than 5,000 acres and each contiguous to Paiute Primitive Area. The four areas have some vehicle ways and temporary structures used for a bighorn sheep transplant, but rugged terrain, vegetation, and natural rehabilitation hide these intrusions.

During the intensive inventory a portion of one subunit was eliminated because it lacked outstanding opportunities for solitude. What remains in the four subunits does provide these opportunities. These areas lie in steep foothills and small canyons where vegetation consists of creosotebush, cacti, grasses, and small shrubs. Topographic screening and limited vegetation screening provide outstanding seclusion. Primitive and unconfined recreation opportunities differ little from those in similar areas of the adjoining Paiute Primitive Area.

Virgin River WSA's alluvial plains provide desert tortoise range of possible scientific and educational value. Moreover, bighorn sheep have recently been transplanted into the Virgin Mountains and they may occasionally appear in the foothills.

Purgatory (132) 7,557 Acres (Map 2-1)

Purgatory WSA lies 20 miles southwest of St. George, Utah, on Low Mountain, which is densely covered by pinyon-juniper. Although the unit has 5 miles of trails, 2 miles of pipeline, and two reservoirs, these developments are largely unnoticeable.

This unit's rugged topography, its 2,000-foot relief, and the twisting and steep-walled Black Rock Gulch provide good topographic screening. Vegetation screening involves high and lower densities of pinyon-juniper at higher elevations and more open areas of blackbrush, sagebrush, and cacti at lower elevations. Topography, vegetation, and size combine to provide opportunities for solitude.

Although visitors can hike and sightsee in the unit, only deer hunting offers outstanding opportunities for primitive and unconfined recreation. The deer herd on Black Rock Mountain is one of the larger herds on the Arizona Strip.

Lime Hills (134) 12,610 Acres (Map 2-1)

Lime Hills WSA lies between Interstate Highway 15 and Paiute Primitive Area, 13 miles southwest of St. George, Utah. The unit's only manmade structures include range fences and a small watering trough fed by an underground pipeline. Both of these developments are compatible with wilderness guidelines. The unit is steep, rugged, and natural looking. Approximately 240 acres within this unit have been studied and proposed in

a draft EIS (BLM, 1980) to be designated as wilderness with Paiute Primitive Area.

The unit includes many ravines and rough ridges. The landscape is broken and jagged, producing many steep ridges that provide effective screening for solitude. The vegetation, however, lacks any overstory, being almost treeless. The sparse, low shrubs offer almost no visual screening for solitude.

Opportunities for hiking, hunting, sightseeing, and photography exist mainly along Black Rock Mountain and the Virgin River Gorge. A total of 2,560 acres of the unit are included in the Virgin River Gorge scenic withdrawal.

Narrows (135) 7,725 Acres (Map 2-1)

Narrows WSA lies north of Interstate Highway 15 from the Virgin River Gorge through part of the Beaver Dam Mountains. It is an area of rugged mountains and gently sloping alluvial plains. Vegetation consists mainly of grasses, scattered Joshua trees, and desert shrubs. Human imprints have been excluded from this unit except for a low voltage powerline along the northern boundary and a vehicle trail extending 1.25 miles into the unit. The trail is now unused and is returning to a natural condition.

The unit's western edge consists of alluvial slopes that gradually increase in steepness, creating deep arroyos and medium to high relief. The vegetation is low and sparse, mainly creosotebush, cacti, and small shrubs.

The rest of the unit contains outstanding opportunities for solitude. The Beaver Dam Mountains have deep gulches, cliffs, small canyons, and sharp ridges. Extreme folding and faulting have produced a topography that provides excellent screening for avoiding sights, sounds, and evidence of others within the unit. Although the vegetation is much the same as in the western portion, a visitor can easily find seclusion.

Narrows WSA offers the potential for such recreation activities as hiking, rock climbing, photography, animal and geologic sightseeing, and horseback riding but lacks outstanding primitive recreation opportunities.

Narrows WSA has several supplemental wilderness values. Some 1,415 acres of the Virgin River Gorge scenic withdrawal lie within the unit. The flat alluvial areas in the unit's western portion contain desert tortoise range, which may be of scientific or educational value. The unit also contains the following protected plants or plants under review for protection: *Agave utahensis* var. *kaibabensis* (BLM Sensitive), *Echinocactus polycephalus* var. *zeranthemoides,* and *Eriogonum heermannii* var. *subracemosum* (under review for federal protection).

Mt. Emma (136) 6,480 Acres (Map 2-7)

On the west slopes of the Uinkaret Mountains, Mt. Emma WSA offers the visitor cinder cones, steep slopes, hollows, ledges, ponderosa pine stands, and pinyon-juniper woodlands. Grand Canyon National Park lies next to the unit's south and east boundary.

Mt. Emma WSA has two types of human imprints. Three ways, totalling 0.67 miles, penetrate the unit, and an old, rehabilitating 60-acre chaining lies on the unit's south boundary. These developments directly impact 61.2 acres, less than 1 percent of the unit, and are naturally rehabilitating.

The unit's 3,700-foot relief, its complex topography, and its vegetation screening create and enhance opportunities for solitude. Small size and narrow unit configuration (the WSA is 5 miles long, 3 miles wide at its widest point, and in most places 2 miles wide or less), though, make seclusion difficult to find. Moreover, backcountry use is constricted to a narrow corridor where the topography lacks the ruggedness and the vegetation lacks the density to provide outstanding solitude.

Although opportunities exist for many types of primitive and unconfined recreation — hiking, backpacking, hunting, and sightseeing — these opportunities are not outstanding. Narrow unit configuration constricts backcountry use and limits opportunities for extended hikes and backpack trips. The unit has no regionally unique features or points of interest, and only half of Mt. Emma, the WSA's most prominent feature, lies within the unit.

Vermillion Cliffs (ISA-3) 14,671 Acres (Map 2-4)

The Vermillion Cliffs ISA lies 30 miles southwest of Page, Arizona. The unit includes a portion of the outstanding natural area that was not part of the Paria Canyon wilderness study — the Vermillion Cliffs — which form the southern end of the Paria Plateau. The area has few impacts to naturalness. It offers excellent scenery and other unconfined recreation opportunities. Geologic sightseeing opportunities are excellent, including a large exposure of formations and some interesting structures.

Big Sage (ISA-4) 160 Acres (Map 2-14)

Lying 15 miles southeast of Fredonia, Arizona, Big Sage ISA consists of a large sagebrush flat, which was part of a larger inventory unit determined not to have wilderness character.

Turbinella-Gambel Oak (ISA-5) 154 Acres (Map 2-13)

Turbinella-Gambel Oak ISA lies 25 miles southwest of St. George, Utah. The unit is split by the Black Rock Road. The portion of the unit lying south of the road is part of the Sand Cove WSA. The portion of the unit north of the road was part of a larger unit determined not to have wilderness character.

Wildlife

The EIS area is one of the most diverse biotic areas in Arizona, being influenced by plant and animal communities of the Great Basin and of central Arizona and by elevations from 1,500 to 8,350 feet. Moreover, the Grand Canyon has blocked the southward spread of animals, and some species inhabiting the EIS area do not occur south of this barrier. Approximately 300 species of vertebrates inhabit the EIS area for all or part of the year.

This EIS discusses individually key wildlife species — federally listed, unique, or of high economic value — if they would significantly impacted by any alternative. Species are grouped together if members of the group are expected to be impacted similarly. Habitat condition, population status, and trend data do not exist for most wildlife groups except for big game.

MULE DEER

The EIS area provides habitat for 4,800 mule deer (Britt, 1978; Dickens, 1979). Mule deer reach highest densities in the Paria Plateau (008/19), Mt. Logan (051), Mt. Trumbull (052), Poverty Mountain (091), Parashaunt (093), North Dellenbaugh (097), Pigeon Canyon (109), Last Chance (111), Hidden Rim (119), Hobble Canyon (124), Sand Cove (128), Virgin Mountains (130), and Mt. Emma (136) WSAs.

Although deer inhabit most of the EIS area above 3,600 feet, they prefer the ponderosa pine, mountain brush, pinyon-juniper woodland, sagebrush, and blackbrush vegetation zones. They only lightly use creosotebush, desert shrub, and grassland communities.

The lack of succulent forbs and grasses on summer range (above 6,000 feet) before and after fawning limits productivity and expansion of resident mule deer herds. From 1961 to 1973 the Arizona Strip District's annual fawn crop per 100 does averaged 45.5 percent, as compared to 83.6 percent for the Kaibab deer herd (Wilhelm and Britt, 1977). Most summer range habitat is in poor condition (Mt. Trumbull (052), Last Chance (111), Poverty Mountain (091), Pigeon Canyon (109), Parashaunt (093), North Dellenbaugh (097), Hidden Rim (119), and Sand Cove (128) WSAs).

Some summer ranges have been chained and reseeded with forbs and grasses to provide better forage for deer. Chained areas have benefited mule deer except for excessively large areas lacking sufficient cover.

Intermediate ranges occur from 5,000-6,000 feet in elevation. The sagebrush and pinyon-juniper woodland habitats occupy this range, varying in productivity by past livestock grazing practices and the density of pinyon-juniper. The extent of deer use and the condition of ranges are unknown.

Mule deer winter in the blackbrush, desert shrub, sagebrush, and pinyon-juniper woodland vegetation subtypes. These subtypes range in elevation from 3,600 to 5,200 feet. During years of heavy snowfall, the forage condition of these ranges is critical to mule deer. Important forage species include cliffrose, blackbrush, shrub live oak, big sage, and various forbs and grasses. Little diet information exists for mule deer within the EIS area, and the condition and degree of deer use on winter ranges are unknown.

The presence of water influences the distribution of mule deer. Many areas lack water, restricting deer use. Livestock waters benefit deer, but fences or corrals sometimes keep deer away from water, especially in Last Chance (111), Poverty Mountain (091), and Pigeon Canyon (109) WSAs.

The opportunity to improve mule deer habitat, especially to rehabilitate mule deer summer range, is limited to land treatment and water development. Restricting land treatment greatly hinders habitat management plan objectives for potential long-term habitat productivity. Reducing grazing pressure by restricting livestock water development would improve forage, particularly in areas with good browse.

DESERT BIGHORN SHEEP

Historically, bighorn sheep occurred throughout the EIS area in suitable habitat. Bighorn numbers were thought to be highest in the following WSAs: Paria Plateau (008A/19), Vermillion Cliffs (ISA-3), Kanab Creek (031), Hack Canyon (033A), Andrus Canyon (096D), Mustang Point (104B), Nevershine Mesa (105A), Snap Point (105B), Grand Gulch (107), Pigeon Canyon (109), Last Chance (111), Grand Wash Cliffs (112), and Hidden Rim (119). Bighorn sheep inhabit the following units: Hack Canyon (033A), Narrows (135), Lime Hills (134), Purgatory (132), Virgin Mountains (129), Pigeon Canyon (109), and Snap Point (105B). Bighorns occur predominantly in desert shrub, blackbrush and creosotebush vegetation subtypes close to canyon cliff habitats. The higher forage in canyons and the immediate escape cover of cliffs make these

habitats extremely critical to existing and potential bighorn sheep populations. Maintaining these areas in good to excellent habitat condition is of major importance for the success of future reintroductions and for maintaining existing populations in a healthy state.

PRONGHORN ANTELOPE

The EIS area has little antelope habitat, but supports two herds: House Rock with 80 animals and the Clayhole with 150 animals (Britt, 1978). Antelope occasionally and lightly use Hack Canyon (033A), Toroweap (050), Robinson (034), and Emmett Wash (009) WSAs on the periphery of optimum habitat.

CARNIVORES

Carnivores play an important ecological role in wildlife communities because predator-prey relationships must be in balance for the healthy functioning of communities. The coyote, the most abundant carnivore, occurs throughout the EIS area. Other common carnivores include the mountain lion, bobcat, gray fox, and kit fox.

The habitat condition and population status of EIS area carnivores are unknown. The abundance of local prey species usually reflects habitat condition and inherent population cycles. The condition of predator populations is indirectly related to the habitat condition of prey populations.

The trapping and hunting of fur-bearers is an important economic and recreational activity in the EIS area. The higher elevation areas of ponderosa and pinyon pine and juniper sustain the highest fur-bearer populations and thus receive the heaviest trapping and hunting pressure. Most trappers do not rely on fur-bearers as a sole source of livelihood.

UPLAND GAME

Two resident species of upland game birds inhabit the EIS area: Gambel's quail and Merriam turkey. Gambel's quail distribution has recently expanded due to chaining of pinyon-juniper woodlands. Quail occur from the ponderosa pine to the low-desert creosotebush. The highest densities occur below 3,800 feet in elevation in desert shrub, blackbrush, and creosotebush vegetation sub-types. Lack of adequate cover in washes and canyons prevents quail from feeding, and the lack of escape cover around waters prevents quail from obtaining water.

The Arizona Strip's current Merriam turkey population has resulted from transplants. In 1961 the Arizona Game and Fish Department (AG&FD) transplanted Merriam turkey to Mt. Logan (051) WSA. Since that time turkey have expanded to Mt. Trumbull (052) and Mt. Emma (136) WSAs and possibly to Toroweap (050) WSA. In 1962, 25 wild turkeys were aerially released in the North Dellenbaugh WSA, but it is not known if they still inhabit this area. In the winter of 1978, 10 wild turkeys were sighted near Larson Tank on Black Rock Mountain, and they have successfully reproduced. Sand Cove (128) WSA also contains turkeys. The Black Rock, Mt. Trumbull, and Parashaunt HMPs have identified the opportunity to establish viable turkey populations in the ponderosa pine zone.

The maintenance of sufficient ponderosa pine habitat in the Mt. Logan, Mt. Trumbull, Sand Cove, and North Dellenbaugh WSAs is extremely crucial in providing for existing populations and future transplants.

Migrant upland game species in the EIS area include the bandtailed pigeon and the mourning dove. Primarily a summer resident, the bandtailed pigeon occupies the ponderosa pine zones in the Mt. Trumbull (052), Mt. Logan (051), North Dellenbaugh (097), and Sand Cove (128) WSAs. Mourning doves are scattered throughout the EIS area in virtually every habitat.

SMALL MAMMALS

The EIS area's small mammals range in size from the small desert shrew to the large desert woodrat. Small-mammal species diversity is highest in the desert shrub and creosotebush vegetation subtypes.

Eighteen bat species live within the EIS area. The rare spotted bat has been mist netted in the Fort Pierce and Littlefield areas. Building of water developments over the last 100 years has increased bat distribution. Although bats can use most earthen stock tanks and dikes, many of these waters are undependable. Habitats lacking water probably support relatively poor bat faunas.

The EIS area's desert cottontails and the blacktailed jackrabbits range from the ponderosa pine forests to the low deserts. The desert cottontail lives in areas with a fairly dense shrub layer. Protective cover in open habitats along washes and canyon bottoms is extremely critical.

NONGAME BIRDS

At least 261 species of nongame birds inhabit the EIS area as residents or migrants. The bird species density within an area depends on the number of niches within a habitat. For example, the ponderosa pine and pinyon-

juniper woodland provides a variety of niches and has one of the most diverse bird communities. The grassland type, on the other hand, supports meager birdlife because it has so few niches.

In a study of breeding bird densities of selected habitat types within the EIS area, Riffey (1977) found that various habitat types supported different bird densities. Of the undisturbed habitats, the pinyon-juniper type supports the greatest number of breeding birds. The importance of maintaining structural height and diversity is well documented. MacArthur and MacArthur (1961) and Ohmart (1979) demonstrated that bird species diversity is related to foliage height and diversity.

Early successional birds invade areas that have recently undergone land treatment. Although many invader species are attracted to treated areas by the increased food and cover, little evidence supports the theory that creating more edge actually increases species diversity on treated areas (Balda, 1975).

Many bird species attracted to edges have broad ranges of tolerance, good powers of dispersal, and high reproductive rates and are in no immediate danger of habitat destruction or deterioration. Species with narrow ranges of tolerance and minimal powers of dispersal need our attention but seldom are edge species (Balda, 1975).

BIRDS OF PREY

Twenty-five species of raptors are believed to inhabit the EIS area. The broad-winged hawks include the redtail — the most abundant nester — the ferruginous, and the roughleg hawks. The golden eagle is a resident nester. Occasionally bald eagles are sighted during winter in Mainstreet Valley, the Virgin Mountains, and near Fredonia. Prairie falcons, showing territorial behavior, have been observed in various canyons along the Grand Wash Cliffs, but no active nests have yet been located. The peregrine falcon and the merlin are rare winter migrants. Kestrels reside yearlong in the EIS area, being particularly abundant during spring and fall migrations.

The woodland hawks (accipiters) occur in the pinyon-juniper woodlands, ponderosa pine forests, and riparian habitats. Cooper's hawks, goshawks, and sharp-shinned hawks occur in wooded areas throughout the EIS area.

The most abundant nocturnal raptors are the great horned, pygmy, flammulated, long-eared, and screech owls. Spotted owls, although not verified, probably reside in the ponderosa pine, riparian, and canyon habitats.

Woodland hawks and owls highly depend on ponderosa pine, pinyon pine, and juniper as nest sites and for the associated prey species that occupy these habitats. Of particular concern is the quality and quantity of ponderosa pine habitat in the EIS area and the potential effects of timber harvest on goshawk, Cooper's hawk, and pygmy and flammulated owls. Because of the small area of suitable ponderosa pine habitat in North Dellenbaugh (097), Mt. Trumbull (052), Mt. Logan (051), and Sand Cove (128) WSAs, these units are key wildlife habitat areas.

FISH

The EIS area contains only 2 miles of aquatic habitat along the Virgin River in Starvation Point WSA. The Virgin River is typical of desert streams, highly varying in water levels and always carrying high sediment loads (Cross, 1975). The following seven nonnative and six native fishes have been found in the Virgin River in Arizona (Cross, 1975).

Native	Nonnative
Woundfin Minnow*	Red Shinner
Virgin River Roundtail Chub**	Channel Catfish
Virgin River Spinedace***	Black Bullhead
Speckled Dace	Mosquito Fish
Flannelmouth Sucker	Largemouth Black Bass
Desert Sucker	Green Sunfish

*Endangered Species
**Pending listing as an endangered species
***State-listed sensitive species

AMPHIBIANS AND REPTILES

Twelve species of amphibians and 48 species of reptiles, including 23 species of snakes, inhabit the EIS area. Most amphibians inhabit aquatic habitats, such as springs, riparian areas, stock tanks, and natural bedrock ponds. The red spotted toad, Great Basin spadefoot toad, and Woodhouse toad are the three most common terrestrial species. The leopard frog and canyon tree frog, on the other hand, are confined to more permanent water sources: springs and riparian areas. Tiger salamanders occur in stock ponds with semipermanent water. The building of stock reservoirs has expanded the range of terrestial toads by providing additional breeding habitat.

The desert tortoise, a state-protected threatened species occupies the low desert vegetation types of the following WSAs: Starvation Point (005), Narrows (135), Virgin River (130), Virgin Mountains (129), Grand Wash Cliffs (112), Pakoon Springs (114), Pigeon Canyon (109), Grand Gulch (107), and Nevershine Mesa (105A).

The desert tortoise on the Beaver Dam Slope in Utah was classified as a threatened species under the authority of the Endangered Species Act. Two WSAs — Starvation Point (005) and Narrows (135) — contain habitat contiguous with the critical habitat portion in Utah. The Arizona population of the Beaver Dam Slope is thought to be in a stable condition, but the overall health and viability of the population is unknown (Sheppard, 1982; Hohman, 1978). Tortoise densities of two study sites ranged from 41 to 77 per square mile.

The population condition of tortoises in the Pakoon area (Grand Wash Cliffs, Pakoon Springs, Pigeon Canyon, Grand Gulch, and Nevershine Mesa WSAs) is undetermined. BLM field investigations found that populations are scattered and of low density. From tortoise sign scats and burrows, Burge (1979) estimated the population densities of tortoises in the Pakoon to range from 0 to 50 per square mile.

In the EIS area the Gila monster (state-protected threatened species) ranges in elevation from 3,600 feet (blackbrush and creosotebush vegetation subtypes) to 1,800 feet (creosotebush subtype). Gila monsters have been found in WSAs that cover the Beaver Dam Slope and Pakoon areas.

The EIS area's most abundant species of lizards include the side blotched, desert spiny, collared, striped plateau, western whiptail, and zebra-tailed. The desert iguana, long-tailed brush lizard, and tree lizards are keyed to sandy substrates and are less abundant. Habitats with increased plant structures (expressed as plant species diversity and plant volume density) support more lizard species than those with fewer plant structures (Pianka, 1967).

Five species of rattlesnakes occur in the EIS area: Mojave, speckled, sidewinder, Great Basin, and black-tailed. The gopher snake, coachwhip, common kingsnake, and striped whipsnake are the most common nonvenomous snakes.

THREATENED AND ENDANGERED SPECIES

The EIS area contains two federally listed endangered species and two species pending listing. It also contains nine state-listed sensitive species (Table 3-4).

The endangered peregrine falcon is a rare winter migrant to the EIS area. Although Mohave County is within the historic breeding range of the peregrine, no confirmed sightings have been recorded during the breeding season in the spring and summer. The distribution of migrant or resident peregrines is unknown.

The endangered woundfin minnow occupies 2 miles of the Virgin River in Starvation Point (005) WSA. The Woundfin Recovery Team (1979) is monitoring the population status of the woundfin, but the woundfin's present habitat condition is unknown.

The Virgin River roundtail chub is under review for possible listing as an endangered species (U.S. FWS Memo Sept. 22, 1977). The Virgin River spinedace is classified as a sensitive species by the State of Arizona. Both of these fishes inhabit the waters of Starvation Point WSA.

The U.S. Fish and Wildlife Service is reviewing the desert tortoise throughout its range to determine if threatened or endangered status is warranted (CFR Vol. 43, No. 164, Aug. 23, 1978).

The black hawk, a rare summer resident in the EIS area, has been observed in the Purgatory (132) WSA. Its main habitat includes riparian and semiriparian zones that support sufficient invertebrate prey.

Many of the larger reservoirs and the limited riparian zones of the EIS area offer snowy egrets and black-crowned night herons resting and feeding habitats during fall and spring migrations.

Table 3-4 lists threatened and endangered species and their distribution by WSA.

RIPARIAN AND SPRING HABITATS

Riparian and spring habitats are the most productive communities in the EIS area. A riparian community or plant association is one that occurs in or next to a drainageway or floodplain and has species or life forms different from those of the immediately surrounding nonriparian climax (Lowe, 1964).

Spring habitats in the EIS area vary from half-acre irrigated wet meadows to small ephemeral seeps. Most springs are small point sources. Riparian habitats are associated with perennial and intermittent streams, washes, and reservoirs.

Jahn and Threfethen (1972) stated that "regardless of species, riparian vegetation is the most valuable wildlife habitat in Arizona." These areas are oases in the desert for wildlife. Spring and riparian habitats provide not only a water source for many land animals, but they are extremely important as food sources and reproductive

TABLE 3-4
FEDERAL AND STATE THREATENED, ENDANGERED, AND SENSITIVE SPECIES

Common Name	Scientific Name	Status*	Presence (d-)	WSA Distribution (c) (d)	Remarks
Birds					
Bald Eagle	Haliaeetus leucocephalus	F, S, Group II	Confirmed	Virgin Mountains (c) Potentially can occur in all WSAs (h)	Winter migrant
Peregrine falcon	Falco peregrinus anatum	F, S, Group II	Confirmed	Potentially can occur in all WSAs (h)	Winter migrant
Snowy egret	Egretta thula brewsteri	S Group III	Confirmed	All WSAs with suitable habitat	Spring-Fall migrants
Black-crowned night heron	Nycticorax nycticorax hoactli	S Group III	Confirmed	All WSAs with suitable habitat	Spring-Fall migrants
Black Hawk	Buteogallus anthracinus	S Group III	Confirmed	Purgatory (c)	Nester
Mammals					
Kaibab Squirrel	Sciurus aberti kaibabensis	S Group IV	Confirmed	Mt. Emma (c), Mt. Trumbull (c), Mt. Logan (c)	
Spotted bat	Euderma maculata	S Group III	Confirmed	In all WSAs with suitable habitat	
Fish					
Woundfin minnow	Plagopterus argentissimus	F, S, Group II	Confirmed	Starvation Point (c)	Virgin River
Virgin River Spinedace	Lepidomeda mollispinis mollispinis	S Group IV	Confirmed	Starvation Point (c)	Virgin River
Round-tailed chub	Gilia robusta seminuda	Fa, S Group IV	Confirmed	Starvation Point (c)	Virgin River
Reptiles					
Desert tortoise	Gopherus agassizi	S, Fa Group III	Confirmed	Starvation Point, Narrows, Virgin River, Virgin Mountain, Grand Wash Cliffs, Pakoon Springs, Pigeon Canyon, Grand Gulch, and Nevershine Mesa, all (c)	
Gila monster	Heloderma suspectum	S Group III	Confirmed	Same as above	

*Status: F = Occurs on Federal Endangered or Threatened list.
Fa = Proposed for federal listing.
S = Occurs on Arizona Threatened Wildlife list.
Group II = Endangered--Species or subspecies in danger of being eliminated.
Group III = Threatened--Species or subspecies whose status may be in jeopardy in the foreseeable future.
Group IV = Species for subspecies sufficiently limited in distribution in Arizona that a major ecological disturbance could jeopardize its existence in this state.

(h) Hypothetical Distribution
(c) Confirmed Distribution

sites for certain species. Amphibians, particularly the canyon tree frog and leopard frog, depend highly on riparian habitats.

High terrestrial and aquatic insect populations around riparian areas support various species of lizards, snakes, bats, and nongame birds. Bird, snake, and mammal predators hunt these productive environments because of the abundant prey.

Land Use

LOCAL PLANNING AND ZONING

The EIS area lies in both Mohave and Coconino Counties. All WSAs in Mohave County are zoned as R-E/10/A, Residential-Recreation, and WSAs in Coconino are zoned G-General, permitting residential,

agriculture, and related uses. In neither county do these zoning classes affect public lands, but these lands were zoned in the event that public lands are exchanged or sold.

LAND OWNERSHIP AND ACCESS

Ten WSAs have state inholdings, and one WSA has a 40-acre private inholding. A vehicle way leads to the private inholding, and most of the state sections have access. The Wilderness Management Policy (Appendix 2) guarantees access to state or private inholdings and allows for the purchase or exchange of nonfederal lands within wilderness areas.

GOVERNMENT CONTROLS AND CONSTRAINTS

Land Withdrawals

The following withdrawals affect WSAs in the EIS area.

- Public Land Orders 5263 and 5359 are scenic and recreation withdrawals that cover portions of Narrows, Lime Hills, and Starvation Point WSAs. For the protection of recreation and public values these lands were withdrawn from all forms of appropriation under public land laws, including the mining laws, 30 U.S.C. Chapter 2, but not from leasing under the mineral leasing laws.
- Executive Order 5339, as amended by PLO-501, withdraws 37,182 acres from all forms of entry or appropriation pending a determination as to the advisability of including them in the Grand Canyon National Park. This withdrawal affects Nevershine Mesa (105A), Snap Point (105B), Salt House (104A), Mustang Point (104B), G & F (099), Andrus Canyon (096D), North Dellenbaugh (097), and Dansil Canyon (096A) WSAs.
- Public Water Reserve No. 107 withdraws 40 acres of land and water in the western portion of Poverty Mountain WSA (091) from all forms of entry or sale and reserves the water for public use.
- Turbinella-Gambel Oak Natural Area (ISA-5) was designated in 1965 and withdrawn from all form of entry or appropriation for scientific study of a hybrid between the turbinella and Gambel species of oak. Some 28 acres of this natural area are in Sand Cove WSA (128).

Rights-of-Way

- A 30-foot telephone right-of-way runs along the boundary road of Starvation Point (005) and Narrows (135) WSAs. In addition, the Navajo-McCullough powerline forms portions of the eastern and western boundaries of Starvation Point WSA. In both rights-of-way, however, the WSA boundary ends at the right-of-way.
- The Shivwits and Vermillion MFPs propose using the Navajo-McCullough powerline as a utility corridor for the District. A coal slurry pipeline for the Allen-Warner Project is proposed to run along the south side of the powerline.

ORV Designations

The Shivwits Resource Area was designated as "limited" to off-road vehicle (ORV) use in September 1980. A limited designation restricts ORV travel to existing roads and trails. This designation was based on land use decisions made in the Shivwits MFP (1980) as amended in the spring of 1980. This designation was made in accordance with the authority and requirements of Executive Orders 11844 and 11989 and regulations in 43 CFR Part 8340.

Minerals

Some mineral deposits of economic significance are known to exist in the Arizona Strip District, some postulative and others highly speculative. Much exploration and variety of techniques are needed to give the area a fair evaluation.

Such minerals as gypsum, copper, gold, silver, iron, lead, manganese, tungsten, nickel, cobalt, mica, uranium, and vanadium are known to occur. Copper and uranium deposits have produced some ore, but the other minerals have generally not been produced. During the past few years interest and exploration have been renewed in the gypsum market. Abundant and good quality gypsum occurs, but the market is yet to be proven.

Recent exploration over the south central part of the District has found relatively widespread conditions favorable to uranium production with some possibilities of vanadium, cobalt, and nickel being produced as a by-product. The quality and quantity of deposits found in this exploration make them highly competitive in today's market.

The EIS area also may have some potential for oil and gas production. Several wildcat tests drilled in the area over the years have found noncommercial quantities of oil.

Conditions requisite to oil and gas production occur to a varying degree over much of the District, including source beds such as fossil-bearing limestones and carboniferous shales, host beds such as fractured or porous limestones and sandstones, and traps such as anticlines, pitchouts, and faultblock structures.

Much more exploration in all aspects of minerals in the area would be needed to fully evaluate the mineral potential of the WSAs. Existing mineral information by WSA is presented in Table 3-5.

Vegetation

The characteristic vegetation of the EIS area is typical of the arid and semi-arid Southwest. It ranges from the creosotebush and Joshua trees of the Mohave Desert to the ponderosa pine forests of the plateaus and mountains.

The Mohave Desert generally has a sparse cover of perennial grasses and shrubs, except on wet years when vast areas of bare ground are carpeted with annual grasses and forbs. The blackbrush to sagebrush zones of vegetation occupy the intermediate elevations, and shrubs dominate the zones with smatterings of grass — some natural and some seeded by man. At higher elevations on the foothills, side slopes, and plateaus, mountain shrub and juniper dominate. On high plateaus, ponderosa pine dominates.

Threatened, Endangered, and Sensitive Plants

Threatened, endangered, and sensitive plants occurring in or near the Arizona Strip are shown in Table 3-6. Species under review for listing are shown in Table 3-7.

Wild Burros

Approximately 100 burros occupy the Tassi/Pakoon area in the southwest corner of the Arizona Strip District bordering Lake Mead. Although they occasionally occupy Grand Gulch WSA, they spend most of their time in Lake Mead National Recreation Area. These burros will be managed under the Tassi-Gold Butte Herd Management Area Plan.

Livestock Grazing

Table 3-8 shows allotments and animal unit months (AUMs) within or partly within the WSAs that would be designated wilderness under the *Proposed Action* and alternatives.

Water Resources

No perennial streams flow through any of the Arizona Strip WSAs. The Virgin River intermittently flows through Starvation Point and Lime Hills WSAs, and Kanab Creek intermittently flows through Kanab Creek WSA.

Springs yielding less than 2 gallons per minute occur in some WSAs, but they are not plentiful. A number of units have no springs but have some seepage following a wet season.

The quality of water varies with the geologic formation from which it emerges. The better quality water comes from springs along the Virgin Mountains and from the Navajo sandstone. These waters have a total dissolved solid (TDS) content ranging from 200 to 800 milligrams per liter. Springs coming from the Moenkopi or Kaibab formations commonly have a TDS ranging from 1,200 to 2,400 milligrams per liter. Geologic factors largely determine the amount and quality of springs and ephemeral runoff; the influence of vegetation is secondary.

Cultural Resources

The analyses and conclusions concerning cultural resources in this EIS are based upon data from several levels of inventory. The Paria Plateau Survey conducted by the Museum of Northern Arizona (MNA) in 1967 and 1968 was an intensive survey of the western and southwestern portions of the Paria Plateau. The 1975 Mt. Trumbull Survey, also conducted by MNA, used a random transect methodology. A BLM Class II survey was conducted in the Antelope Planning Unit in 1977. The data from these surveys can only be used as guidelines because they are only for areas near the WSAs or include only small portions of the WSAs.

Although none of the WSAs have been intensively inventoried for cultural resources, project-related inventories have provided information on some of the WSAs proposed for designation under the *Proposed Action* and *Enhanced Wilderness*. Known cultural resources in the WSAs are summarized as follows.

- Portions of the Mt. Trumbull and Mt. Logan WSAs are potential archaeological districts.
- Potential National Register of Historic Places (NRHP) trails cross the Mt. Trumbull, Sand Cove, and Pigeon Canyon WSAs and the Vermillion Cliffs ISA.
- Three WSAs have potential NRHP sites: Judd Hollow, Hack Canyon, and Lime Hills. More research and fieldwork are needed.

TABLE 3-5
WSA MINERAL STATUS

WSA	Acres Leased	Oil and Gas Status	Uranium	Number of Claims	Other Minerals	Acres Non-Fed. Mineral Estate
Starvation Point 005	7,660	Conditions commonly favorable to oil and gas accumulation.3/ Great interest evident by leases held in unit.	None known - Bendix report classes area as favorable for uranium.1/	30	Significant gypsum deposits are present and may be produced under favorable market conditions.	0
Ferry Swale 006A	0	Conditions commonly favorable to oil and gas accumulation.3/	None known - Bendix report classes area as favorable for uranium.1/ USGS and Bureau of Mines report shows potential for uranium but low potential for production.2/	0	None known	0
Judd Hollow 006B	0	Conditions commonly favorable to oil and gas accumulation.3/	None known - Bendix report classes area as favorable for uranium.1/ USGS and Bureau of Mines report shows potential for uranium but low potential for production.2/	0	None known	0
Paria Rim 006C	0	Conditions commonly favorable to oil and gas accumulation.3/	None known - Bendix report classes area as favorable for uranium.1/ USGS and Bureau of Mines report shows potential for uranium but low potential for production.2/	0	None known	0
Cedar Mountain 006O	0	Conditions commonly favorable to oil and gas accumulation.3/	None known - Bendix report classes area as favorable for uranium.1/ USGS and Bureau of Mines report shows potential for uranium but low potential for production.2/	0	None known	0
Paria Plateau 008A/19	0	Conditions commonly favorable to oil and gas accumulation.3/	None known - Bendix report classes area as favorable for uranium.1/ USGS and Bureau of Mines report shows potential for uranium but low potential for production.2/	51	None known	7,000
Overlook 008B	0	Conditions commonly favorable to oil and gas accumulation.3/	None known - Bendix report classes area as favorable for uranium.1/ USGS and Bureau of Mines found low potential.2/	0	None known	0
Emmett Wash 009	0	Conditions commonly favorable to oil and gas accumulation.3/	None known - Bendix report classes area as favorable for uranium.1/ USGS and Bureau of Mines found low potential.2/	0	None known	640
Kanab Creek 031	5,0B0	Conditions commonly favorable to oil and gas accumulation.3/ Much leasing interest shown in addition to geophysical survey by Cities Service Oil.	Company reports of recent exploration reveal the discovery of three breccia pipes with uranium of sufficient grade to be competitive under present market conditions. Bendix report classes area as favorable for uranium.1/	385+	Some flagstone	1,000
Hack Canyon 033A	10,120	Conditions commonly favorable to oil and gas accumulation.3/ Much leasing and geophysical exploration occurring in unit's northern part.	Recent exploration found three areas with enough radioactivity to warrant planned extensive capital investment for exploration and possible development. Bendix report classes area as favorable for uranium.1/	1,586+	Some flagstone	120
Robinson 034	0	Some oil potential but not normally considered desirable for exploration.	Most of unit under mining claims, and much exploration occurring for uranium. Bendix report classes area as favorable for uranium.1/	55B	Possible flagstone	0
Toroweap 050	0	Limited potential for oil and gas.	Bendix report classes area as favorable for uranium.1/ No known interest.	0	None known	0
Mt. Logan 051	B00	Limited potential for oil and gas. Much interest in leasing.	Bendix report classes area as favorable for uranium.1/ No known interest.	0	Possible volcanic cinders in area, but no demand for cinders.	0

TABLE 3-5 (continued)
WSA MINERAL STATUS

WSA	Acres Leased	Oil and Gas Status	Uranium	Number of Claims	Other Minerals	Acres Non-Fed. Mineral Estate
Mt. Trumbull 052	7,285	Potential considered limited, but significant interest exists as evidenced by leases. Entire unit under lease for oil and gas.	Bendix report classes area as favorable for uranium.1/ No specific known interest.	0	Possible cinder and flagstone source.	0
Poverty Mountain 091	20	Potential considered limited. Closeness to Grand Canyon adverse.	Bendix report classes area as favorable for uranium.1/ No specific known interest.	0	None known	640
Parashaunt 093	2,540	Potential considered limited.3/ Some interest exists as evidenced by leases.	Bendix report classes area as favorable for uranium.1/ Much interest exists as evidenced by claims.	77	None known	0
Dansil Canyon 096A	0	Potential not considered significant.3/	Bendix report classes area as favorable for uranium.1/ Some interest exists as evidenced by claims.	11	None known	0
Grassy Mountain 096C	0	Potential not considered significant.3/	Bendix report classes area as favorable for uranium.1/ Some interest exists as evidenced by claims.	2	None known	0
Andrus Canyon 096D	20	Potential not considered significant.3/	Bendix report classes area as favorable for uranium.1/ Much interest exists as evidenced by claims.	258	Some copper prospects known.	720
North Dellenbaugh 097	0	Potential not considered significant.3/	Bendix report classes area as favorable for uranium.1/ Some interest exists as evidenced by claims.	14	None known	1,320
G & F 099	0	Potential not considered significant for oil and gas.3/	Bendix report classes area as favorable for uranium.1/ No known interest.	0	None known	0
Salt House 104A	0	Potential not considered significant.	Bendix report classes area as favorable for uranium.1/ No known interest.	0	None known	6,000
Mustang Point 104B	80	Conditions commonly conducive to oil and gas accumulation. May have some potential.	Bendix report classes area as favorable for uranium.1/ No known interest.	1	None known	0
Nevershine Mesa 105A	0	Conditions commonly conducive to oil and gas accumulation.3/ Has shown sporadic interest. Possible edge of overthrust zone.	Bendix report classes area as favorable for uranium.1/ Some drilling exploration has occurred along unit's western edge.	87	None known	0
Snap Point 105B	0	Some conditions favorable to oil and gas but not a prime prospect.	Bendix report classes area as favorable for uranium.1/ No known interest.	0	None known	60
Tincanebitts 105C	0	Some conditions favorable to oil and gas but not a prime prospect.	Bendix report classes area as favorable for uranium.1/ No known interest.	0	None known	1,400
Grand Gulch 107	8,141	Conditions commonly conducive to oil and gas accumulation. Entire unit under lease with much interest shown.	Bendix report classes area as favorable for uranium.1/ No known interest.	0	None known	0
Pigeon Canyon 109	0	Conditions commonly conducive to oil and gas accumulation.3/ No leases in effect. Western edge is close to overthrust zone.	Bendix report classes area as favorable for uranium.1/ Some exploration drilling has occurred. Traces of uranium are associated with known copper deposits.	53	Much copper has been produced from the Grand Gulch Mine within unit. Savanic Mine next to this unit's south border has produced much copper. Gold and silver are commonly associated with copper in area.	640
Last Chance 111	240	Conditions commonly conducive to oil and gas accumulation.3/ Near overthrust zone. Leases limited at present.	Bendix report classes area as favorable for uranium.1/ No known interest.	22	Copper prospects have undergone much exploration near confluence of Hidden and Last Chance Washes at northeast corner of unit.	640
Grand Wash Cliffs 112	10,340	Conditions commonly conducive to oil and gas accumulation.3/ Near eastern edge of overthrust zone. Much lease interest.	Bendix report classes area as favorable for uranium.1/ No known interest.	1	None known	80

TABLE 3-5 (continued)
WSA MINERAL STATUS

WSA	Acres Leased	Oil and Gas Status	Uranium	Number of Claims	Other Minerals	Acres Non-Fed. Mineral Estate
Pakoon Springs 114	8,960	Conditions conducive to oil and gas accumulation.3/ leasing, geological, and geophysical interest has been shown in the area for many years.	Bendix report classes area as favorable for uranium.1/ No known interest.	0	None known	640
Hidden Rim 119	12,160	Conditions conducive to oil and gas accumulation.3/ Most of unit is leased for oil and gas.	Bendix report classes area as favorable for uranium.1/ No known interest.	3	None known	640
Hobble Canyon 124	10,500	Conditions conducive to oil and gas accumulation.3/ Most of unit is leased for oil and gas.	Bendix report classes area as favorable for uranium.1/ No known interest.	0	None known	0
Ide Valley 127	5,700	Conditions conducive to oil and gas accumulation.3/ Most of unit is leased for oil and gas.	Bendix report classes area as favorable for uranium.1/ No known interest.	0	None known	0
Sand Cove 128	24,760	Conditions conducive to oil and gas accumulation.3/ oil and gas.	Bendix report classes area as favorable for uranium.1/ No known interest.	19	None known	1,000
Virgin Mountains 129	27,800	Conditions conducive to oil and gas accumulation.3/ Most unit under lease for oil and gas.	Bendix report classes area as favorable for uranium.1/ No known interest.	0	USGS studies 4/ show some significant mineralization in the Virgin Mountains, but nothing is known of economic significance. Pegmatites and other geologic conditions considered conducive to mineralization.	400
Virgin River 130	1,440	Conditions may be conducive to oil and gas accumulation. Entire unit under lease for oil and gas.	Bendix report classes area as favorable for uranium.1/ No known interest.	0	USGS studies 4/ show some significant mineralization in the Virgin Mountains, but nothing is known of economic significance. Pegmatites and other geologic conditions considered conducive to mineralization.	0
Purgatory 132	7,557	Conditions conducive to oil and gas accumulation.3/ Entire unit under lease for oil and gas.	Bendix report classes area as favorable for uranium.1/ No known interest.	0	None known	0
Lime Hills 134	12,000	Conditions conducive to oil and gas accumulation, especially in unit's north part. Most of unit is under lease for oil and gas.	Bendix report classes area as favorable for uranium.1/ No known interest.	8	Unit's southwest portion has numerous prospects for lead, iron, copper, and other minerals. Part of unit was originally excluded from Paiute Primitive Area because of prospects.	1,000
Narrows 135	7,100	Conditions conducive to oil and gas accumulation.3/ Most of unit is under lease for oil and gas.	Bendix report classes area as favorable for uranium.1/ No known interest.	22	None known	60
Mt. Emma 136	0	Closeness to Grand Canyon tends to limit unit's oil and gas potential.	Bendix report classes area as favorable for uranium.1/ No known interest.	0	Some potential for cinders.	0
ISA-3 Vermillion Cliffs	0	Conditions commonly favorable to oil and gas accumulation.3/ No significant interest evidenced by leasing.	USGS-Bureau of Mines report states possible potential for uranium production.5/ More drilling is needed to provide data.	2	Small possibility for copper, vanadium, and silver in addition to uranium.5/	0
ISA-4 Big Sage	160 (All)	Conditions commonly favorable to oil and gas accumulation.3/ Much of surrounding area is leased.	Bendix report classes area as favorable for uranium.1/ No known interest.	0	None known	0
ISA-5 Turbinella-Gambel Oak	154 (All)	Conditions commonly favorable to oil and gas accumulation.3/ Much of surrounding area is leased.	Bendix report classes the environment as favorable uranium.1/ No known interest.	0	None known	0

1/ Bailieul and Zollinger, 1980; 2/ Bush and Lane, 1980; 3/ Swapp, 1956; 4/ Villalobos and Ham, 1980; 5/ Villalobos and Ham, 1981.

TABLE 3-6
FEDERAL PROTECTED AND BLM SENSITIVE PLANTS

Federally Listed Endangered Plants
*Arctomecon humilis (Occurs in Utah less than 1 mile from Arizona line)
Echinocereus engelmannii var. purpureus (reported from near St. George, Utah)
*Pediocactus bradyi (near Marble Canyon)
*Pediocactus sileri (near Fredonia to Fort Pierce Wash)

BLM Sensitive Plants
*Agave utahensis var. kaibabensis
*Striplex hymenelytra
*Balsamorhiza hookeri
*Cercis occidentalis
*Echeveria pulverulenta
*Epipactis gigantea
*Fouquieria spendens
*Ipomopsis frutescens
*Opuntia stanlyi
*Petalonyx parryi
*Petalonyx
Primula specuicola
Sclerocactus spinosior
Sclerocactus whipplei var. intermedius

*Specimens on file in herbarium at BLM Arizona Strip District Office

• The remainder of the WSAs either have no inventory or only project-related inventories, and their known archaeological and historical sites have not been evaluated. More information about the inventories can be obtained from the BLM Arizona Strip District Office. Site-specific information on archaeological resources, however, is confidential and will be provided only to qualified persons with legitimate research interests.

Because little archaeological research has been conducted in northwest Arizona, the prehistory of the region is not well understood. Records show that the WSAs were used by several cultural groups — Paleoindian, Desert Archaic, Basketmakers, Puebloid, Paiute, Spanish explorers, fur traders, and Mormon pioneers.

TABLE 3-7
PLANTS UNDER REVIEW FOR FEDERAL PROTECTION*

Category	Species
1	Aquilegia desertorum
1	Arctomecon californica
2	Argemone arizonica
2	Astragalus ampullarius
1	Astragalus barnebyi
1	Astragalus cremnophylax
1	Astragalus geyeri var. triquetrus
2	Astragalus lentiginosus var. ambiguus
1	Astragalus striatiflorus
2	Camissonia confertiflora
2	Camissonia exilis
2	Camissonia megalantha
2	Camissonia specuicola var. hesperia
1	Camissonia specuicola var. specuicola
2	Carex curatorum
1	Castilleja kaibabensis
2	Clematis hirsutissima var. arizonica
2	Coryphantha missouriensis var. marstonii
2	Coryphantha vivipara var. rosea
2	Crossosoma parviflorum
2	Cryptantha semiglabra
2	Draba asprella kaibabensis
2	Draba asprella zionensis
2	Encelia inutescens var. resimesnsesese
2	Erigeron perglaber
2	Eriogonum heermannii var. subracemosum
1	Eriogonum mortonianum
1	Eriogonum thompsonae var. atwoodii
1	Eriogonum viscidulum
1	Eriogonum zionis var. coccineum
1	Flaveria macdougallii
2	Fraxinus cuspidata var. macropetala
2	Haplopappus cervinus
1	Haplopappus salicinus
2	Machaeranthera mucronata
2	Opuntia basilaris var. longiareolata
1	Opuntia basilaris var. treaseisisu
1	Pediocactus paradinei
1	Pediocactus peeblesianus var. fickeiseniae
1	Penstemon virgatus spp. pseudoputus
2	Phacelia filiformis
1	Phacelia howelliana
2	Primula hunnewellii
2	Psoralea epipsila
2	Rosa stellata
1	Silene rectiramea (possibly extinct)
1	Townsendia smithii

*Listed in Federal Register, December 15, 1980. For more information see this Federal Register issue.

Categories

1 Species for which the Fish and Wildlife Service has sufficient information to support listing as endangered or threatened.

2 Species for which the Fish and Wildlife Service reveals information on the probable appropriateness of listing as endangered or threatened but for which insufficient biological information exists to support a proposed rule.

TABLE 3-8
ALLOTMENTS AND AUMS BY WSA AND ALTERNATIVE

Allotment	AUMs	Alternative
005-Starvation Point		2,4
Highway	262	
Cedar Wash	374	
Lambing	42	
006A,B,C,O-Ferry Swale, Judd Hollow, Paria Rim, and Cedar Mountain		1,2,3,4
Cedar Mountain and Judd Hollow	2,791	
Ferry Swale	1, 298	
008A/019-Paria Plateau		1,2,3,4
Two Mile	3,035	
Vermillion	7,160	
Home Ranch	4,498	
008B-Paria Plateau Overlook		3,4
Vermillion	7,160	
Two Mile	3,035	
009-Emmett Wash		3,4
Soap Creek	2,192	
Cram	1,888	
031-Kanab Creek		3,4
Gunsight	423	
Kanab Creek	168	
Cedar Knoll	960	
Wildband	2,417	
033A-Hack Canyon		1,2,3,4
Gulch	96	
Kanab Gulch	143	
Hack Canyon	1,049	
Wildband	2,417	
Grama Point	2,057	
Sunshine	696	
Sage	243	
Grama Spring	360	
June Tank	6,873	
Lamb Tank	192	
034-Robinson		4
Wildband	2,417	
June Tank	6,873	
050-Toroweap		3,4
Mt. Logan	4,308	
Tuweep	2,084	
051-Mt. Logan		3,4
Mt. Logan	4,308	
Crosby Tank	232	
052-Mt. Trumbull		1,2,3,4
Tuweep	2,084	
091-Poverty Mountain		4
Poverty Mountain	5,351	
093-Parashaunt		3,4
Ouncan Tank	429	
Pa's Pocket	483	
Mule Canyon	585	
Grassie	4,655	
Ivanpah	601	
096A-Dansil Canyon		4
O	0	
096C-Grassy Mountain		4
Wildcat	4,593	
Grassy Mountain	4,655	
Penn's Well	144	
096D-Andrus Canyon		3,4
Grassy Mountain	4,655	
097-North Dellenbaugh		4
Parashaunt	3,178	
Wildcat	4,593	
099-G & F		4
Parashaunt	3,178	
104A-Salt House		4
Wildcat	4,593	
Parashaunt	3,178	
104B-Mustang Point		4
Wildcat	4,593	
Parashaunt	3,178	
105A-Nevershine Mesa		2,4
Parashaunt	3,178	
Tassi	1,188	
105B,C-Snap Point and Tincanebitts		4
Parashaunt	3,178	
107-Grand Gulch		4
Tassi	1,188	
109-Pigeon Canyon		2,3,4
Tassi	1,188	
Wildcat	4,593	
111-Last Chance		2,4
Last Chance	609	
Grassy Mountain	4,655	
112-Grand Wash Cliffs		3,4
Last Chance	609	
Pakoon	153	
114-Pakoon Springs		3,4
Pakoon Spring	1,394	
Mosby Nay	1,148	
119-Hidden Rim		4
Cottonwood	1,831	
Jump Canyon	1,351	
124-Hobble Canyon		4
Hidden-Sullivan	1,256	
Mud and Cane	4,668	
127-Ide Valley		4
Mud and Cane	4,668	
Little Wolf	280	
Whiterock/Soapstone	1,320	
128-Sand Cove		2,3,4
Mud and Cane	4,668	
Cottonwood	1,831	
129-Virgin Mountains		3,4
Littlefield Community	2,066	
Mesquite Community	1,936	
130-Virgin River		1,2,4
Littlefield Community	2,705	
132-Purgatory		4
Black Rock	1,463	
Mustang Spring	491	
134-Lime Hills		1,3,4
Purgatory	378	
Black Pond	1,317	
Mustang Spring	491	
Sullivan Canyon	962	
Black Rock	1,463	
135-Narrows		4
Beaver Dam	1,087	
Highway	262	
Cedar Wash	374	
136-Mt. Emma		3,4
Mt. Logan	4,308	
ISA-3-Vermillion Cliffs Natural Area		2,4
House Rock	1,610	
Soap Creek	2,192	
ISA-4-Big Sage Natural Area		4
Pratt Tank	6	
ISA-5-Turbinella/Gambel Oak Natural Area		4
Black Rock	26	

1 = Proposed Action
2 = Enhanced Wilderness
3 = Wildland Preservation
4 = All Wilderness

The WSAs have both prehistoric and historic cultural resources. Prehistoric site types include rock rings, quarries, extensive lithic procurement areas, ceramic scatters, chipping stations, habitations, campsites, roasting pits, water control features, rock alignments, rock shelters, rock art, trails, and mixed artifact scatters. Historic cultural resources occur throughout the WSAs and include mines, mining camps, ranch houses, and ranch-related structures such as stone corrals. Sites with potential sociocultural value (see glossary) also occur.

Existing data are not precise enough to establish direct correlations between site locations and specific single elements of the environment, such as vegetation or soil type. Data suggest, however, that certain physiographic localities have a higher likelihood of containing significant cultural resources. All WSAs contain these physiographic types.

The cultural resource base in the WSAs is generally in good to fair condition, having not yet been severely impaired. Erosion is the most common source of site deterioration, followed by vandalism, livestock trampling, road and utility construction, off-road vehicle use, mining, and the building of range developments.

Visual Resources

BLM has devised a system to inventory and manage the visual resources of public lands. The visual resource management (VRM) system provides guidelines for reducing unwanted visual effects of existing and proposed projects. BLM has inventoried areas discussed in this draft EIS, assigning them to one of four VRM classes.

Class I – Provides primarily for natural changes. This is the most restrictive class.

Class II – Changes to the landscape should not be obvious to the average visitor. Changes should be slight and fit discreetly into the surrounding scene.

Class III – Changes may be evident but not the main focus of the visitor's attention. Changes should be designed and built to blend carefully into the natural scenery.

Class IV – Changes to the landscape may be the most obvious part of the scene, but, through design, placement, color, or choice of materials, they must reflect the natural elements of the landscape.

The following table shows existing WSA acreage under each VRM class.

Class	Acres
I	30,918
II	228,946
III	88,192
IV	426,092
TOTAL	774,148

Recreation

Recreation in the EIS area mainly involves extensive and unstructured activities. The area has two designated primitive areas, one natural area, and two developed recreation sites. The 41 WSAs and three instant study areas provide numerous opportunities for unconfined recreation.

EIS visitor use data are lacking except where use supervision is involved or visitor registers have been set up. BLM planning has identified important recreation resources and signficant recreation activities on which the following general discussion is based.

RECREATION FACILITIES

The EIS area has a developed recreation site at Cedar Pockets, which consists of 115 camping units. This site serves as an overnight stop for recreation vehicles. The site also has an interpretive facility.

A second developed recreation site lies at the base of the Vermillion Cliffs along U.S. Highway 89A. This site explains the pioneering exploration in 1776 of Fray Silvestre Velez de Escalante and Fray Francisco Atanasio Dominguez, the first Europeans to travel through this area.

Two other historic trails that cross the Arizona Strip are associated with the Mormon settlement of the intermountain West. The Temple Trail led from St. George, Utah to Mt. Trumbull and was used to haul lumber for building the Mormon temple in St. George. The second trail connected the settlements on the upper Little Colorado River with southern Utah. Known as the Honeymoon Trail, this route was used by couples traveling to St. George for temple weddings.

RECREATION DESIGNATIONS

The Arizona Strip has two designated primitive areas: Paria Canyon and Paiute. Paria Canyon Primitive Area includes the portion of the Paria River between Lees Ferry and U.S. Highway 89 in Utah. Paiute Primitive Area lies south of Interstate Highway 15 on the western edge of the Virgin River Gorge.

The EIS area also has some special-purpose designations. A large portion of the Virgin River Gorge has been placed in a withdrawal to protect scenic values along Interstate 15. The Vermillion Cliffs Natural Area in the eastern part of the EIS area contains the cliffs forming the southern edge of the Paria Plateau. Two smaller research natural areas have been designated in the District: Big Sage and Turbinella-Gambel Oak.

Off-road vehicle (ORV) designations have been completed in the Shivwits Resource Area. Travel in most of the area is restricted to existing roads and trails. The two primitive areas are closed to vehicle travel, and vehicle use in Vermillion Cliffs Natural Area is limited to existing roads and trails. The Vermillion Resource Area is otherwise open to off-road travel.

RECREATION ACTIVITIES

Sightseeing. Sightseeing is a major recreation activity because of three heavily traveled roads that cross the Arizona Strip: Interstate Highway 15, U.S. Highway 89A, and State Highway 389. These highways offer the traveler spectacular views of the Virgin River Gorge and Vermillion Cliffs.

Scenery on the Arizona Strip is associated with geologic processes. Brilliantly colored sedimentary formations and easily recognized geologic structures have been carved by erosional processes into tablelands dissected by numerous canyons. Of particular interest to geologic sightseeing are the Grand Staircase, Grand Wash Cliffs, Hurricane Cliffs, Virgin Mountains, Beaver Dam Mountains, and the volcanic features of the Uinkaret Mountains.

The EIS area also offers opportunities to view many historic and prehistoric features: abandoned homesteads, mining prospects, historic trails, and archaeological sites.

Backpacking/Camping/Picnicking. The EIS area consists of open land offering numerous opportunities for unconfined recreation. Camping and picnicking opportunities are excellent throughout, and these opportunities are enhanced by scenery.

Though primitive values are good in the EIS area, backpacking is confined to major attractions like Paria and Kanab Canyons and access routes to the Grand Canyon. This concentration of use results from the remoteness of much of the Arizona Strip and a lack of knowledge of the area. Even though use is low, many people perceive the Arizona Strip as a remote and unspoiled place.

Off-Road Vehicle Use. Little ORV travel occurs on the Arizona Strip, and none of such use is known to be a recreation activity. Most travel is confined to existing roads and trails and is associated with sightseeing, car camping, and hunting. No organized ORV events have occurred in the EIS area.

Hunting. Hunting is a major activity during the fall. The Arizona Strip attracts many hunters because it is well known for trophy deer. Visitor use during the hunt is heavy for a 3-week period, being concentrated in the Black Rock, Mount Trumbull, and Parashaunt areas.

Other. Limited opportunities exist for collecting petrified wood, other fossils, and plants. One commercial horseback riding trip has occurred in the EIS area, and commercial horse-drawn wagon trips operate out of Moccasin. Float boating down the Virgin River has recently increased but is restricted to periods of spring runoff when the Virgin has sufficient flow.

Forest Management

Ponderosa pine forests occur in the following six WSAs in the Arizona Strip: Mt. Logan (051), Mt. Trumbull (052), North Dellenbaugh (097), G & F (099), Sand Cove (128), and Purgatory (132). G & F, Sand Cove, and Purgatory WSAs, however, have such small amounts of ponderosa pine that a wilderness designation would have little impact.

Mt. Logan WSA includes 1,322 acres of productive forest that support 5,640 million board feet (MMBF) of commercial ponderosa pine timber. Areas on Mt. Logan and in the Sawmill drainage have been logged in the past, resulting in a predominance of second growth averaging less than 10 inches diameter breast height, overtopped by scattered, over-mature old growth. In 1976 about 300 acres on Mt. Logan were precommercially thinned, but 150 acres along the west rim were left unthinned. This area contains 600-700 stems per acre in a highly stagnant condition. Dense ponderosa pine thickets also occur in the Sawmill drainage but are not as stagnated as those on Mt. Logan.

Although the Mt. Trumbull WSA contains over 2,000 acres of productive forests with an estimated 12 MMBF in merchantable timber, the area is highly inaccessible. Only 70 acres are within reach of the Mt. Trumbull road. A road could be built up the east side of Mt.

Trumbull, breaking through the basalt cap at the southeast corner. Once on top, the cap could be cat-logged and the upper north and west slopes could be cable-logged. But at least 1.5 miles of difficult, expensive road building would be needed along with removing 8,000 board feet of timber during an inflated lumber market. The only alternative to road building would be the use of a skycrane helicopter. With yarding costs well in excess of the harvesting cost of $100/thousand board feet, the timber couldn't pay its way to the mill. Therefore, BLM has no plans to harvest Mt. Trumbull in the foreseeable future.

The North Dellenbaugh WSA includes 394 acres of productive forest containing 2.222 MMBF of merchantable timber. The volume is scattered along 4 miles of the east fork of Parashaunt Wash. BLM logged several hundred acres in 1950 and in most places left too few seed trees to adequately regenerate the area. The extremely long hauling distance to the nearest sawmill will make any logging operation marginal at best. Historically, Parashaunt timber has been sawn on site by small portable sawmills. Such sawing would reduce the hauling distance and eliminate hauling wastes such as edgings, trim, kerf, defect, and bark. Approximately 100 acres are in need of precommercial thinning.

Fire Control and Management

BLM's policy on wildfires calls for aggressive suppression. The Arizona Strip District, however, has an approved modified suppression plan that limits fire suppression to three methods: observation, modified suppression, and full suppression. Under *observation,* aerial reconnaissance or ground crews monitor the fire. Under *modified suppression,* an initial attack is made if the fire can be put out quickly. If not, fire lines are established at roads, trails, and natural barriers, and the fire is allowed to burn out. Under *full suppression,* any suppression method can be used.

All or portions of the following WSAs are identified for full suppression: Starvation Point (005), Ferry Swale (006A), Emmett Wash (009), Hack Canyon (033A), Toroweap (050), Mt. Logan (051), Dansil Canyon (096A), Mustang Point (104B), Grand Gulch (107), Pigeon Canyon (109), Grand Wash Cliffs (112), Pakoon Springs (114), Hidden Rim (119), Virgin River (130), Lime Hills (134), Narrows (135), Vermillion Cliffs ISA, Turbinella/Gambel Oak ISA, and Big Sage ISA.

Economic Conditions

To describe the economic conditions relating to wilderness designation, an economic study area (ESA) surrounding the WSAs was delimited. The ESA is the area whose residents might be economically affected by designation. This area includes Washington and Kane Counties, Utah and portions of Mohave and Coconino Counties, Arizona north of the Grand Canyon and east to Page.

POPULATION, EMPLOYMENT, AND INCOME

The ESA's population density is sparse, amounting to 1.64 persons per square mile, as compared to Arizona's density of 15.61 persons per square mile and Utah's density of 12.9 persons per square mile. The U.S. Bureau of the Census (1971) has classified the Arizona Strip and Kane County as being entirely rural and Washington County as being equally rural and urban.

In 1978, 21 percent of the workers in the ESA were employed in the retail trade industry, and 34 percent were employed in the service and retail trade sectors combined (Utah Department of Employment Security, 1979). In 1977, the wholesale and retail sectors provided the area's largest source of earnings — 25 percent. The next most important source of earnings was the government sector, providing 24 percent of the area's income (U.S. Department of Commerce, Bureau of Economic Analysis, 1979).

LIVESTOCK PRODUCTION

Arizona Strip livestock earnings constitute a significant part of the livestock earnings for the ESA. Previous studies estimated these earnings to be $1.9 million or 48 percent of ESA livestock earnings (BLM, 1979a, 1979b). The 1977 estimate updated to 1981 would amount to $2.7 million. Livestock earnings, however, provide less than 4 percent of the ESA's total earnings.

RANCH FINANCE

A rancher's ability to borrow money is determined by many factors, including current assets, current liabilities, and the ranch's profitability. Although BLM does not recognize the right to treat grazing permits as real property, these permits are bought and sold and used as collateral for loans. The average market value for an AUM in Arizona has been estimated to be $125 or $1,500 per cow year long (BLM, 1981). This value is an average and does not represent the amount for which any particular allotment in the EIS area would sell. Table 3-8 lists the current allowable use of allotments in the EIS area.

RECREATION

The value recreationists place on recreation or scenic areas depends on the following: (1) their willingness to pay for recreation experiences, (2) their willingness to pay for keeping the opportunity to use an area in the future, and (3) their willingness to pay to support unspoiled areas, even though they may never use them.

One method to estimate the willingness to pay for recreation use is the Clawson-Knetsch travel cost model (Clawson and Knetsch, 1966), in which the number of visitors to a particular site depends on the travel costs visitors are willing to pay for their wilderness experience. As the cost of visiting an area changes, so does the number of visitors to an area. The travel cost model uses actual observations of visitor use and use characteristics from various origins to a site. The range of costs at different distances from a site provides much information on the influence of costs on participation.

No information exists on visitor use in the WSAs, but it is believed to be small. Therefore, the money visitors would be willing to pay for recreation experiences was not estimated. The other types of economic value placed on recreation or scenic areas depend on people's willingness to pay for keeping the opportunity to use an area in the future and their willingness to pay to support unspoiled areas, even though they may never use them. These values exist for each WSA, but lack of data prevented their estimation.

MINERALS

The Minerals section of Chapter 3 describes the known information on the EIS area's minerals. Oil and gas potential may exist along with uranium. Although no detailed information exists on the economic value of mineral potential by WSA, one company with leasing interests in the area estimated that the value of uranium potential over the next 50 years could be as high as $10 billion with seven or eight mines operating per year (Baker, 1982). This estimate is based on uranium selling at $25 a pound and deposits of 400 million pounds in the Arizona Strip. Assuming that a mine employs 50 people per year, then 8 mines would employ 400 workers per year at an average annual per worker salary of $30,000. Some of the employees would come from the ESA, whereas others would transfer to the area to work in the mines.

Social Elements

This section describes the social elements of the affected environment at three levels: local, county, and regional. These levels are based on the location of the WSAs within geographically defined population units. The local level is the census county division (CCD), a population unit defined by the U.S. Bureau of the Census. County boundaries represent the population included in the second level. The regional level consists of the population living within the area shown on map 3-1.

Two types of data are presented for each level: (1) a summary of selected demographic factors and (2) public perceptions and attitudes about wilderness. Demographic data include population, population changes, and population distribution by ethnicity, based on Bureau of the Census reports, state and county documents, and data from the U.S. Bureau of Indian Affairs. Data on public perception and attitudes toward wilderness have been derived from a variety of sources: public meeting comments, letters to BLM offices, and public responses to BLM wilderness planning and environmental activities and documents. More information was gathered from extensive informal contacts and interviews with residents of each of the three types of population units. The public perception and attitude data are meant to be illustrative and representative of the general positions held by most of the people in the population units.

THE LOCAL LEVEL

All BLM's Arizona Strip District WSAs lie in two CCDs in Arizona: the Kaibab CCD of Coconino County and the Mohave North CCD of Mohave County. Table 3-9 shows the location of the specific WSAs by CCD, and Map 3-2 shows the location of the Arizona Strip CCDs.

The Kaibab CCD

Seven WSAs, comprising 28,255 acres, and two instant study areas (ISAs) (Vermillion Cliffs Natural Area — 14,671 acres and Big Sage Natural Area — 160 acres) lie within the Kaibab CCD. Four of these WSAs are recommended for designation under the *Proposed Action,* six WSAs and one ISA are recommended for designation under *Enhanced Wilderness,* seven WSAs and one ISA are recommended for designation under *Wildland Preservation,* and all WSAs and ISAs are recommended for designation under *All Wilderness.*

Population

Table 3-10 summarizes population data for the seven CCDs in Coconino County. The Kaibab CCD is one of

Map 3-1

Regional Environmental Study Area

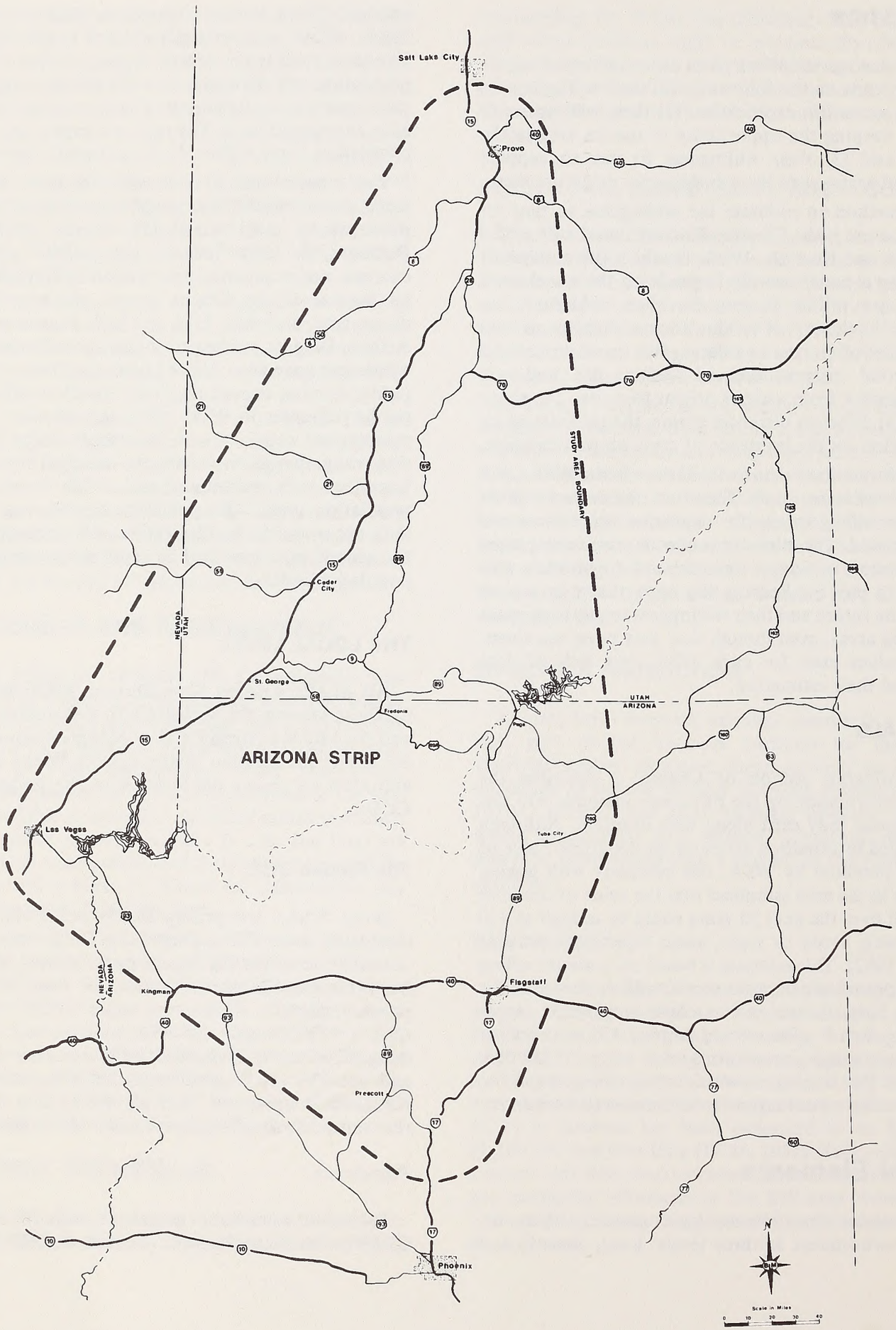


TABLE 3-9
WSAs BY CENSUS COUNTY DIVISION

		Kaibab CCD (Coconino County)			
+†	006A	Ferry Swale	†	008B	Overlook
*+†	006B	Judd Hollow	†	009	Emmett Wash
*+†	006C	Paria Rim	+	ISA-3	Vermillion Cliffs
*+†	006	Cedar Mountain		ISA-4	Big Sage
*+†	008A/19	Paria Plateau			
		Mohave North CCD (Mohave County)			
+	005	Starvation Point		105C	Tincanebitts
†	031	Kanab Creek		107	Grand Gulch
*+†	033A	Hack Canyon	+†	109	Pigeon Canyon
	034	Robinson	+	111	Last Chance
†	050	Toroweap	†	112	Grand Wash Cliffs
†	051	Mount Logan	†	114	Pakoon Springs
*+†	052	Mount Trumbull		119	Hidden Rim
	091	Poverty Mountain		124	Hobble Canyon
†	093	Parashaunt		127	Ide Valley
	096A	Dansil Canyon	+†	128	Sand Cove
	096C	Grassy Mountain	†	129	Virgin Mountains
†	096D	Andrus Canyon	*+	130	Virgin River
	097	North Dellenbaugh		132	Purgatory
	099	G & F	* †	134	Lime Hills
	104A	Salt House		135	Narrows
	104B	Mustang Point	†	136	Mount Emma
+	105A	Nevershine Mesa		ISA-5	Turbinella-Gambel Oak
	105B	Snap Point			

* Included in Proposed Action
\+ Included in Enhanced Wilderness Alternative
† Included in Wildland Preservation Alternative

the smaller population units. It includes such communities as Fredonia, Lees Ferry, Jacob Lake, and Marble Canyon. Fredonia is the CCD's only town for which the Bureau of the Census reports detailed data.

Kaibab CCD is a sparsely populated area with little private or state land in which growth has been relatively slow. Most of the land is in federal ownership under the administration of the National Park Service (Grand Canyon National Park, Glen Canyon National Recreation Area), the U.S. Forest Service (Kaibab National Forest), or BLM. Because of the large proportion of federal land in the CCD and the CCD's limited employment possibilities, the area's future growth is not expected to be rapid. The economy of the CCD centers on tourism, ranching, and, in the Fredonia area, timber operations and an oil refinery.

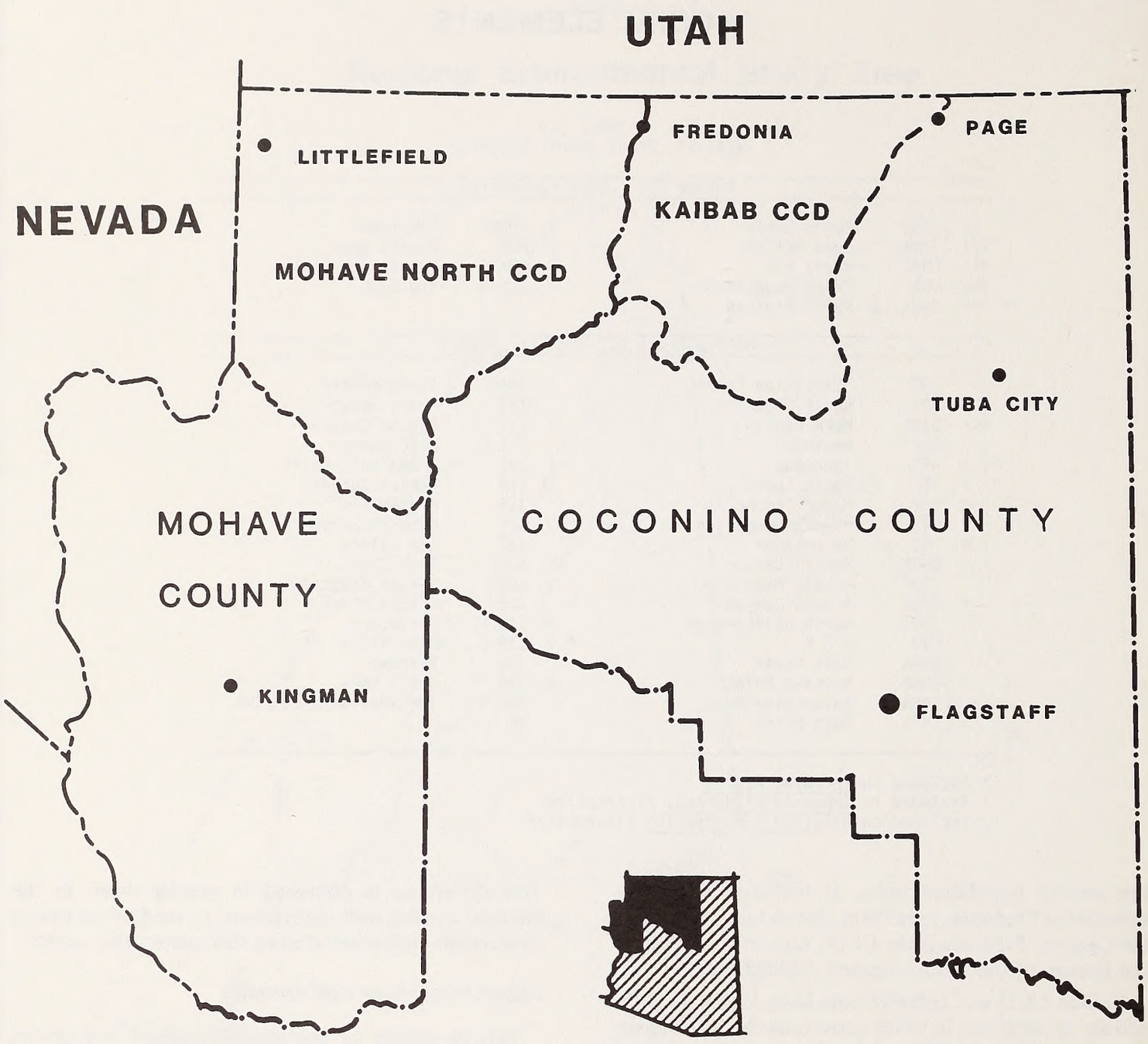
Table 3-10 displays data on the ethnic makeup of the Kaibab CCD and Coconino County. These data show a difference between the CCD and the county. Data on population by ethnicity are relevant to a discussion of the social elements of the affected environment because of differences in the culturally based perceptions of wilderness between Native and non-Native Americans. This difference is discussed in greater detail in the material dealing with the residents of the Kaibab Paiute Reservation and is referred to throughout this section.

Public Perceptions and Attitudes

This discussion of public attitudes and perceptions deals first with the attitudes and perceptions of Kaibab CCD residents toward the four separate alternatives and then describes local perceptions and attitudes toward wilderness.

Perceptions and Attitudes by Alternative

Proposed Action. Information gathered from local contacts reveals that many residents of the Kaibab CCD "have no idea" where three of the four WSAs are located. These WSAs are the smaller parcels of land at the northern end of Paria Canyon Primitive Area: Judd Hollow (006B), Paria Rim (006C), and Cedar Mountain (006D). Most Kaibab CCD residents live on the western edge of the CCD from Fredonia south to Jacob Lake and probably know little about particular regions around Paria Canyon.



Map 3-2

ARIZONA STRIP COUNTIES
AND
CENSUS COUNTY DIVISIONS (CCDs)

N

● POPULATED CENTER

CCD BOUNDARIES

COUNTY BOUNDARIES

10 0 10 20 30
MILES
SCALE

TABLE 3-10
COCONINO COUNTY POPULATION: 1960-1980

Area	Population 1960	1970	1980	Change 1960-1980
COCONINO COUNTY CCDs				
Coconino CCD	21,639	30,990	45,820	+112.0%
Havasupai CCD	.....1/	.....	282	
Hopi CCD	.....	.....	1,347	
Hualapai CCD	.....	.....	8	
Kaibab CCD	811	967	1,417	+74.7%
Reservation CCD	13,729	11,959	.....	
Tuba City CCD	.....	.....	21,248	
Williams CCD	5,678	4,410	4,825	-15.0%
TOTAL County	41,857	48,326	74,947	+79.1%
KAIBAB CCD				
Fredonia (town)	643	798	1,040	+61.7%
Remainder of CCD	168	169	377	+124.4%

POPULATION DISTRIBUTION BY ETHNICITY: 1980

Area	Ethnic Categories (Percents) White	Hispanic	Indian	Other	(Total)
Coconino County	55.8	9.8	28.0	6.4	74,947
Kaibab CCD	86.8	2.9	9.8	0.5	1,417
Fredonia (town)	87.0	2.7	10.0	0.3	1,040
Remainder of CCD	86.2	3.4	9.5	0.9	377

1/ Changes in CCD boundaries in 1980 created new districts
Source: U.S. Bureau of the Census, 1971; 1981

In contrast, CCD residents were aware of the Paria Plateau WSA (008A/19). "Don't expect to find much support around here for that idea," was one comment. Residents are concerned that livestock grazing will be reduced and that mineral development will be prohibited if the WSA is designated wilderness. A Fredonia contact mentioned that "a lot of people know that there's a lot of stuff up there under the surface: probably all kinds of strategic minerals. It's not right to tell them they can't prospect and drill." "It (designation) could be hard on hunters if they can't get in with vehicles," another CCD resident observed.

Enhanced Wilderness. This alternative includes the four WSAs listed above as well as Ferry Swale WSA (006A) and the Vermillion Cliffs ISA. Many Kaibab CCD residents know about the Vermillion Cliffs ISA. "Isn't it already protected?" was one comment. Another individual said that since it was already a "Primitive Area," there wasn't "any reason for the government to do anything more." The Ferry Swale WSA was not known by those contacted in the Kaibab CCD.

Wildland Preservation. The *Wildland Preservation* alternative would designate as wilderness all the WSAs in the Kaibab CCD but not Vermillion Cliffs ISA. Residents in communities near Emmett Wash WSA (009) commented that "many around here would be against (recommending the WSA for wilderness designation)." They voiced several reasons for this opposition, including concerns over a decline in hunter use and a feeling that the federal government is trying to "abolish" free enterprise by tightening controls on the Colorado River and surrounding lands. CCD residents contacted were less familiar with Overlook WSA (008B).

All Wilderness. CCD residents strongly opposed *All Wilderness.* One person skeptically suggested that "BLM might try to do something like that," but then corrected the comment by saying, "No. But the doggone Park Service would if they had the chance."

No Action. With some exceptions, CCD residents contacted maintained, in the words of one, that "people around here just don't want wilderness. There's plenty of open space. Nobody gets crowded. And this won't change. So why have wilderness areas up here (in the Kaibab CCD)?"

General Wilderness Perceptions and Attitudes

Tourism and ranching are important to Kaibab CCD residents, and the public generally believes that wilderness will not benefit tourism and that ranching might be harmed by wilderness — permits might be cancelled and herd sizes reduced.

Wildernerss was perceived as posing an unneeded threat to miners, hunters, and off-road vehicle users and was associated primarily with recreation, not with nonrecreational purposes, such as research and wildlife habitat and air and water quality preservation.

The Mohave North CCD

The Mohave North CCD has 33 WSAs covering 731,868 acres. Table 3-9 shows the four WSAs that would be designated under the *Proposed Action* and the eight that would be designated under *Enhanced Wilderness.* All 33 WSAs would be designated under *All Wilderness.*

Population

The Mohave North CCD is one of the largest CCDs in Arizona, extending south from Utah to the Colorado River, and west from U.S. Highway 89 to the Nevada border. But the CCD has a small population, having no towns large enough for the Bureau of the Census to monitor with detailed population statistics. Some of the communities in the Mohave North CCD are Littlefield, Colorado City, and Moccasin. The Kaibab Paiute Reservation (1980 population — 172; area — 120,413 acres) also lies within the CCD. Mohave North CCD population data in Table 3-11 include Kaibab Reservation residents.

From 1960 to 1980 the Kingman South and Kingman North CCDs were among the fastest growing in the nation. Much of this growth occurred in Lake Havasu City (Kingman South CCD) and in communities along the Colorado River south of Davis Dam (Kingman North CCD), where population has grown more slowly than in Lake Havasu City. Colorado City has accounted for much of the CCD's population growth.

Most of the land in the Mohave North CCD is administered by three federal agencies: BLM, the National Park Service, and the Bureau of Indian Affairs. Ranching is a primary economic activity. Mining, textile manufacture in Colorado City, and tourism are other economic activities.

TABLE 3-11
MOHAVE COUNTY POPULATION

Area	Population 1960	1970	1980	Increase 1960-1980
MOHAVE COUNTY CCDs				
Kingman North CCD	5,945	13,387	20,311	241.6%
Kingman South CCD	1,362	11,520	33,596	2,366.7%
Mohave North CCD	429	950	1,786	316.3%
(Mohave County)	7,736	25,857	55,693	619.2%

POPULATION DISTRIBUTION BY ETHNICITY: 1980					
	Ethnic Categories (Percents)				
Geographic Area	White	Hispanic	Indian	Other	(Total)
Mohave County	91.2	4.2	2.6	2.0	55,693
Mohave North CCD	94.6	0.15	5.3	0.15	1,786

Source: U.S. Bureau of the Census, 1971; 1981

Public Perceptions and Attitudes

Proposed Action. Four WSAs in Mohave North CCD would be designated wilderness under the *Proposed Action.* Hack Canyon WSA (033A) lies within the southeastern portion of the CCD; Mt. Trumbull WSA (052) lies in the southcentral portion, and Virgin River (130) and Lime Hills (134) WSAs lie in the northeast portion. Residents of the CCD are familiar with two of the WSAs: Mt. Trumbull and Virgin River. The other two WSAs are less well known.

Residents expressed concern about why BLM was "pushing wilderness (in the CCD)." Several emphasized that the natural qualities of the lands in the area had hardly changed since their grandparents settled there and that they expected no changes in the future. "Ranchers and the number of cattle they run up here don't hurt land," another resident observed.

Residents appeared to be less concerned over the Mt. Trumbull and Virgin River WSAs than over Hack Canyon and Lime Hills. "If BLM has to have wilderness, those are better than others — as long as it's not too much."

Enhanced Wilderness. *Enhanced Wilderness* proposes designation for eight WSAs in the CCD: Hack Canyon (033A), Mt. Trumbull (052), Virgin River (130), and others in the western portion of the CCD. Because *Enhanced Wilderness* would involve more WSAs and more acreage than the *Proposed Action,* it is more strongly opposed than the *Proposed Action.* Residents also question the reason for setting aside the area as wilderness. One individual, speaking generally about the Virgin Mountains and Grand Wash Cliffs area, mentioned that "People just don't get into those areas. They don't need any kind of protection."

Wildland Preservation. *Wildland Preservation* would designate as wilderness 14 WSAs in the Mohave North CCD. Residents of the northeastern portion of this CCD oppose wilderness designation of Hack Canyon (033A) and Kanab Creek (031) WSAs. Ranchers maintained that wilderness designation might hurt their operations. Nonranchers observed that there is "no need" for wilderness in the area.

On the basis of lack of use, CCD residents also questioned the need for designating wilderness in the south and southwest portions of the CCD: Toroweap (050), Mt. Logan (051), Parashaunt (093), Andrus Canyon (096D), Pigeon Canyon (109), and Grand Wash Cliffs (112) WSAs. "Why protect them? Nobody goes there anyway." The WSAs on the western periphery of the CCD — Pakoon Springs (114), Sand Cove (128), Virgin Mountains (129), Lime Hills (134), and Mt. Emma (136) — received fewer comments. Combined with the other WSAs under *Wildland Preservation,* however, their designation would evoke local opposition.

All Wilderness. Residents of the Mohave North CCD appear to strongly oppose the *All Wilderness* alternative.

No Wilderness. The information on public perceptions and attitudes reveals that most CCD residents prefer *No Action* to any other alternative.

General Wilderness Perceptions and Attitudes

Data summarized in Table 3-11 show that about 5 percent of the population of the Mohave North CCD is Native American. This group, consisting mainly of the residents of the Kaibab Reservation, tends to support the concept of wilderness.

Generally, Native Americans feel strongly that it is vital for people to live in harmony with the order and design of nature. Humans, like all creatures, can use land and the products of land but only to the point of group survival. Some land can be used for human settlement. Some can be used for farming and other purposes. But the rest, land not essential to human survival, should be left undisturbed. It should not be mined; it should not contain improvements; it should remain natural.

Because of this perception of undisturbed land, the Native American does not associate wilderness with the kinds of purposes attributed to it by others. The purpose of leaving lands undisturbed is inherent in the order and design of nature. Thus, the Native American supports the concept of wilderness not for recreational, ecological, or even preservational purposes, but "because that's the way it should be."

Most residents of the Mohave North CCD, however, are not Native Americans and oppose wilderness recommendations. Some oppose wilderness designation because they believe it might prevent mineral development. Some adhere to the opinions of ranchers that grazing allotments would be reduced. (Note: this opinion, justified or not, is widely held.) And some view wilderness recommendations as inhibiting population growth.

Support for local control in the CCD is another reason for opposing wilderness. Many of the residents are descended from pioneer families who, they feel, met and developed ways of resolving the problems of living in a sparsely settled area. The solutions to the problems were defined locally, and local control continues to be the preferred way of doing things. Many residents see wilderness designation as further erosion of local control.

THE COUNTY LEVEL

This section discusses five counties in Arizona, Utah, and Nevada: Mohave and Coconino Counties, Arizona; Kane and Washington Counties, Utah; and Clark County, Nevada. Table 3-12 presents population data for these counties and their CCDs.

From 1970 to 1980 population in each of the five counties grew rapidly. Clark County, with the largest population of the five counties, contains about 75 percent of the total residents of the region, whereas Kane County makes up less than 1 percent of the population of the five-county region.

Most of the land in the area is under federal control and management. The National Park Service, U.S. Forest Service, BLM, Bureau of Indian Affairs, U.S. Fish and Wildlife Service, and the Bureau of Reclamation are among the agencies involved with land management.

Recreational use demands on the federal public lands in the area have intensified due to population growth and tourism. The numbers of visitors at the Grand Canyon (Coconino County) and Zion National Park (Washington County) are at capacity levels during most of the summer. Water-based recreation use of the Colorado River from Lake Powell to Lake Havasu is, at times, critically high. Population growth in the area is expected to remain strong, and the recreation use demands on public lands are not expected to diminish.

The following section presents selected demographic factors and a description of public perceptions and attitudes for each of the five counties.

TABLE 3-12
POPULATION: COUNTIES AND CENSUS COUNTY DIVISIONS: 1970-1980

County/CCD	Population 1970	Population 1980	Increase 1970-1980
Clark County (Nevada)	273,288	461,816	69.0%
Bunkerville township	244	492	101.6
Goodsprings township	314	1,003	219.4
Henderson township	16,410	24,334	48.3
Las Vegas township	191,260	350,511	83.3
Logan township	426	1,087	155.2
Mesquite township	674	922	36.8
Moapa township	353	702	98.9
Nelson township	5,674	10,059	77.3
North Las Vegas township	56,241	70,334	25.1
Overton township	1,336	1,752	31.1
Searchlight township	356	620	74.2
Kane County (Utah)	2,421	4,024	66.2
Kanab CCD	1,621	3,116	92.2
Orderville CCD	1,381	2,148	55.5
Washington County (Utah)	13,669	26,065	90.7
Enterprise CCD	.....	982	....
Hurricane CCD	3,862	6,329	63.9
St. George CCD	9,055	18,754	107.1
Coconino County (Arizona)*	48,326	74,974	55.1
Mohave County (Arizona)*	25,857	55,693	115.4
(Total)	(363,561)	(622,569)	(71.2)

*See Tables 3-10 and 3-11 for CCD details
Source: U.S. Bureau of the Census, 1971, 1981

Coconino County

Population and Demographic Data

According to the 1980 Census, Flagstaff is the population center of Coconino County. Its 45,820 residents represent over 61 percent of the county's population. Coconino County has a large Native American population, generally consisting of people living on the county's four reservations: Havasupai, Hualapai, Hopi, and Navajo. As shown in Table 3-10, 28 percent of the county population is Native American.

Public Perceptions and Attitudes: the Proposed Alternatives

A large number and variety of contacts in Coconino County reveal that, outside of the Kaibab CCD and the city of Page next to the CCD, Coconino County residents have little awareness of the Arizona Strip District WSAs. Several environmental conservation groups are located in Flagstaff, and some group members are familiar with many of the WSAs. Flagstaff also has a number of recreation, hunting and fishing, and off-road vehicle groups and clubs, and some members of these groups know of the WSAs. Others within the city and county also know of various WSAs for varied reasons: interests in ranching, minerals and geology, and wildlife and vegetation.

Information from three Coconino County residents who belong to environmental conservation groups in Flagstaff, however, reveals that "most people don't care about wilderness." Contacts based on this observation on problems faced in getting people to attend public wilderness meetings held by the Forest Service, BLM, and environmental conservation organizations.

The Vermillion Cliffs ISA, Paria Plateau WSA (008A/19), Mount Trumbull WSA (052), Virgin River WSA (130), and Emmett Wash WSA (009), probably are more familiar to Coconino County residents than any of the other areas. Most of the residents of the Navajo Indian Reservation in Coconino County would support the wilderness designation of Emmett Wash WSA.

Public Perceptions and Attitudes: General Wilderness

Native Americans in Coconino County generally favor increased wilderness. Other people and groups in the county actively support or oppose wilderness. Most Coconino County residents, however, do not consider wilderness in the Arizona Strip District as a priority issue. Many who are aware of and concerned about wilderness associate it only with recreational use: hunting and hiking. Some expressed the concern that older people cannot use wilderness because of motorized vehicle restrictions. Others maintained that wilderness would benefit hunters by relieving crowded conditions.

Mohave County

Population and Demographic Data

Mohave County has at least five distinct population locales:

- The Mohave North CCD – the area bounded by the Colorado River, the Utah and Nevada state lines, and U.S. Highway 89.
- The Colorado River Valley from Davis Dam south to the Bill Williams River – a heavily populated, rapidly growing area, which includes Bullhead City, Riviera, and Lake Havasu City.
- The city of Kingman and its environs.
- The Hualapai Indian Reservation, covering 990,000 acres in eastern Mohave County south of the Grand Canyon.
- The rest of Mohave County, a sparsely settled rural area extending south from Lake Mead to the Yuma and Yavapai County boundaries.

Each population locale has distinct characteristics. The population of the Colorado River Valley has relatively high proportions of retirees, new comers (residents for 5 years or less), and residents strongly oriented to water-based recreation. The Kingman population has traditionally been dominated by wage and salaried employees associated with transportation, mining, manufacturing, and trade. Tourist-related businesses and government also play a major role in the economy.

Ranching is important to the Mohave North CCD, Hualapai Reservation, and the area south of the Colorado River, but the resident orientations differ. Hualapai Reservation residents deal extensively with the Bureau of Indian Affairs and other Native Americans. Residents of the Mohave North CCD are oriented to Nevada and Utah. Rural residents of southern Mohave County engage in ranching and mining associated with Arizona.

Public Perceptions and Attitudes: the Proposed Alternatives

Economic issues of a population local color the perceptions and attitudes of its residents concerning public land. Mohave County residents outside the Mohave North CCD, for example, have little knowledge

of or concern about the Arizona Strip District WSAs and do not seem to identify closely with local issues of the Mohave North CCD. Colorado River Valley residents are primarily concerned about public land matters related to Colorado River recreation use. Kingman residents are concerned about public land decisions that affect or cause changes in local mining, ranching, tourism, or development. Residents of the other two population locales in southern Mohave County focus their concerns on ranching and mining.

Public Perceptions and Attitudes: General Wilderness

Outdoor recreation is popular in Mohave County. Boating, off-road vehicle (ORV) use, hunting, weekend prospecting, rock collecting, and firewood gathering are common pursuits for residents and tourists alike.

Though Mohave County residents share interests in outdoor recreation, they differ in their perceptions and attitudes toward wilderness. For example, residents of the Colorado River Valley do not seem highly concerned about wilderness-related issues. Residents of the Hualapai Reservation tend to favor the concept of wilderness. In Kingman and the rural parts, many residents oppose wilderness. They feel it restricts mining, ranching, and ORV use and is an intrusion by outsiders (special interest groups and federal agencies) on their rights and way of life.

Clark County

Population and Demographic Data

As shown on Table 3-12, Clark County has a large and rapidly growing population. Over 95 percent of county residents live in three townships: Las Vegas, North Las Vegas, and Henderson. The other 4 percent (16,600) live in the sparsely settled rural areas south and east of Las Vegas. Nelson Township, where Boulder City is located, has 10,000 of the 16,500 county residents who live outside the Las Vegas area.

Public Perceptions and Attitudes: the Proposed Alternatives

The information on public perceptions and attitudes in Clark County is based on contacts with representatives of the press, the university, and the county. It does not represent a statistically valid inquiry of the Clark County population.

Residents of metropolitan Clark County are generally not aware of the location of the specific Arizona Strip District WSAs. A relatively small proportion of county residents, however, want to do "anything possible" to preserve the Virgin River region from development, and support for this position may grow if development in the area becomes a publicized issue.

Public Perceptions and Attitudes: General Wilderness

"Clark County is an aggregation of independent people," one contact observed. "It's impossible to predict how they'll react to any issue. But, generally, they don't like to be pushed around by government — local, state, or federal." Others agreed in essence with this observation, but pointed out that, in Clark County, people are split over the question of what should be done about development and population growth. Some perceive congressional action to designate wilderness as the only way to "keep the area from being paved over for parking lots."

Washington County

Population and Demographic Data

From 1970 to 1980 the population of Washington County nearly doubled. Most of the growth occurred in St. George CCD with an influx of retirees around the city of St. George. According to representatives of the county, councils of government, chambers of commerce, and realtors, population growth is expected to continue throughout the county. Some disagreement exists over the expected rates of growth, but most sources expect the county population to exceed 40,000 by 1990.

Public Perceptions and Attitudes: the Proposed Alternatives

"A good number" of Washington County residents are aware of "BLM wilderness plans." Several factors explain this awareness: the closeness of Washington County to the Arizona Strip, the familiarity of many residents with the Arizona Strip, contacts residents have with ranchers, and publicity. The local newspaper published a series of articles on wilderness in January and February 1982, and in the past several years BLM in Utah and Arizona has held public meetings and encouraged public response to its wilderness inventory. BLM's Arizona State Office also prepared and distributed to the public the Arizona Strip Wilderness EIS.

People aware of the proposed alternatives felt that Washington County residents, if given a choice, would favor the *No Wilderness* alternative. If *No Wilderness* is not an option, residents would prefer the alternative with the least amount of wilderness. The individuals contacted did not think that many people in

Washington County knew much about specific WSAs but, "if they saw them on a map, a lot of these people would know where they were."

Public Perceptions and Attitudes: General Wilderness

Many of Washington County's residents oppose wilderness. They question the need for wilderness designations on lands that are rarely used, and they see no benefits from wilderness. They feel wilderness is being "forced on them" by special interest groups "in Salt Lake, Phoenix, and Washington."

The animosity noted in the Arizona Strip wilderness study of public perceptions did not, however, surface in conversations held about this WSA study. One of the people contacted attributed this lack of animosity to the fact that "there have been some changes since then. Environmentalists aren't running the government anymore."

Kane County

Population and Demographic Data

Kane County is a sparsely populated rural area. Though data in Table 3-13 show a significant percentage growth in the county between 1970 and 1980, the actual increase amounted to 1,603. Most of this change occurred in the town of Kanab.

TABLE 3-13
REGIONAL POPULATION BY COUNTY: 1970-1980

STATE/COUNTY	Population 1970	Population 1980	Change (In Percent)
Arizona			
Mohave	28,857	55,693	115.4
Yavapai	37,005	68,145	84.2
Coconino	43,326	74,947	55.1
Apache	32,304	52,083	53.1
Navajo	47,559	67,709	42.4
Maricopa*	971,228	1,508,030	55.3
Utah			
Kane	2,421	4,024	66.2
Washington	13,669	26,065	90.7
Garfield	3,157	3,673	16.3
Iron	12,177	17,349	42.5
Beaver	3,800	4,378	15.2
Piute	1,164	1,329	14.2
Wayne	1,483	1,911	28.9
Emery	5,137	11,451	122.9
Sevier	10,103	14,727	45.8
Sanpete	10,976	14,620	33.2
Millard	6,988	8,970	28.4
Juab	4,574	5,530	20.9
Utah*	137,776	218,106	58.3
Nevada			
White Pine	10,150	8,167	-19.5
Lincoln	2,557	3,732	46.0
Nye	5,599	9,046	61.6
Clark*	273,288	461,816	69.0
Total	1,660,421	2,641,441	59.1

*Denotes Standard Metropolitan Statistical Area (Maricopa: Phoenix; Utah: Provo-Orem; Clark: Las Vegas)
Source: U.S. Bureau of the Census, 1971; 1981

Economic development is a widespread concern among the residents of Kane County. "Right now there's not much in the way of employment around here, but that will change," one contact observed. Changes anticipated in the 1980s focus on three possibilities: mineral development, a development of the traditional tourism emphasis, and the definition of the county and town of Kanab as a retirement area. These changes are seen as answers to some of the economic problems and ways to provide employment to attract newcomers and broaden the county tax base.

Public Perceptions and Attitudes: the Proposed Alternatives

Information based on contacts in the Kanab area revealed that the Kane County residents are not as familiar with the proposed alternatives as Washington County residents. Kane County residents are somewhat confused about the differences between the administrative responsibilities of the BLM's Utah and Arizona State Offices, probably due in part to the presence in Kanab of a Utah BLM area office.

A long-term resident of the county, said "the only ones here that keep up with things like that are the ranchers and maybe some others. But not very many. We've got a lot of other things to think about." Other contacts mentioned that people in the county "probably know" where the WSAs are. Given a choice, Kane County residents would probably prefer the *No Action* alternative and be most opposed to the *All Wilderness* alternative. They probably would favor the *Proposed Action* over the *Enhanced Wilderness* alternative.

Public Perceptions and Attitudes: General Wilderness

Kane County residents are aware of the scenic and recreational qualities of the area. They appreciate the varied attractions and potentials of Lake Powell, the Grand Canyon, Bryce Canyon, Zion National Park, and many smaller areas in and next to Kane County. Their knowledge that federal land ownership prevents this region from being heavily populated or extensively used, however, helps explain the general county disinterest in wilderness. "It's not needed," contended one county resident, who went on to mention that he could see no local benefits that would accrue to Kane County residents. "Maybe some areas of the country need wilderness. But we don't."

THE REGIONAL LEVEL

Three large metropolitan complexes, defined by the Bureau of the Census standard metropolitan statistical areas (SMSAs), and 22 counties in the three states of Arizona, Nevada, and Utah, make up the region considered in this description of the affected social environment. Map 3-1 shows the region.

Population and Demographic Data

Table 3-13 shows a strong population growth throughout the region. From 1970 to 1980 the population increased by nearly 1 million residents. Though most of the growth is concentrated in the three SMSAs, the data in Table 3-13 show percentage increases in all but 1 of the 22 counties.

Southern Utah and the Arizona Strip, from Lake Mead to Lake Powell, is a relatively popular vacation and recreation area for the residents of this region. Representatives of motels and chambers of commerce in southern Utah reported that "a lot of people" come into the area from Phoenix, Las Vegas, and "up north." Valid current statistics on this type of travel do not exist, but Las Vegas and Phoenix are markets for the Utah tourism program.

Population projections for the region show continued growth and increased demands on public land use. These demands will involve recreation as well as mining.

Public Perceptions and Attitudes: the Proposed Action

Few people in the region other than those who live near the WSAs are aware of the proposed wilderness alternatives. Members of environmental conservation groups, ranching and mining interests, and persons on the BLM mailing list constitute most of those outside the local area who are aware of the proposed alternatives. In communications to BLM these people express a mixture of opinions supporting or opposing wilderness.

Public Perceptions and Attitudes: General Wilderness

A study of public attitudes of Utah residents toward wilderness revealed widespread oppositon. Residents of southeastern Utah (Carbon, Grand, Emery, and San Juan Counties) were found to be "extremely negative." The county commissions in Grand, Carbon, Emery, and San Juan Counties have each passed a resolution opposing any more wilderness. Residents of Beaver, Garfield, Iron, Kane, and Washington Counties in southwestern Utah have similar attitudes. In central Utah, the Six-County (Juab, Millar, Paiute, Sanpete, Sevier, and Wayne Counties) Commissioners Organization Executive Director wrote, "We have stated repeatedly that we do not want federally-designated wilderness in these six counties" (Centaur Associates, Inc., 1979).

SOCIAL ELEMENTS

This study concentrated on residents in the nonmetropolitan counties and assumed that more active support for wilderness would occur in the Salt Lake and Provo-Orem SMASs. It advanced the conclusion that "All things considered, there is probably a 10 to 15 percent segment of the population that favors the designation of large areas of wilderness, while the vast majority (of Utahns) support limited wilderness" (Centaur Associates, Inc., 1979).

Information gathered for this report does not conflict with the earlier Centaur Associates, Inc. findings but reveals that many residents are unaware and unconcerned about wilderness. Thus, most of those in the region who are familiar with federal wilderness designation are not opposed to limited wilderness.

Sandstone formations along the upper rim of Paria Canyon are typical of terrain in Judd Hollow (006B), Paria Rim (006C), and Cedar Mountain (006D) WSAs. All three units are being recommended for wilderness designation by all alternatives except No Wilderness.

Kanab Creek Esplanade in Kanab Creek WSA (031) This WSA is not being recommended for designation by either the Proposed Action or the Enhanced Wilderness alternative.

Sandstone buttes in Paria Plateau WSA (008A/19). This portion of the WSA is recommended for wilderness designation by all alternatives except No Wilderness.

View of the Paria Plateau in Paria Plateau WSA (008A/19). This portion of the WSA is not recommended for wilderness designation by the Proposed Action or the Enhanced Wilderness alternative.

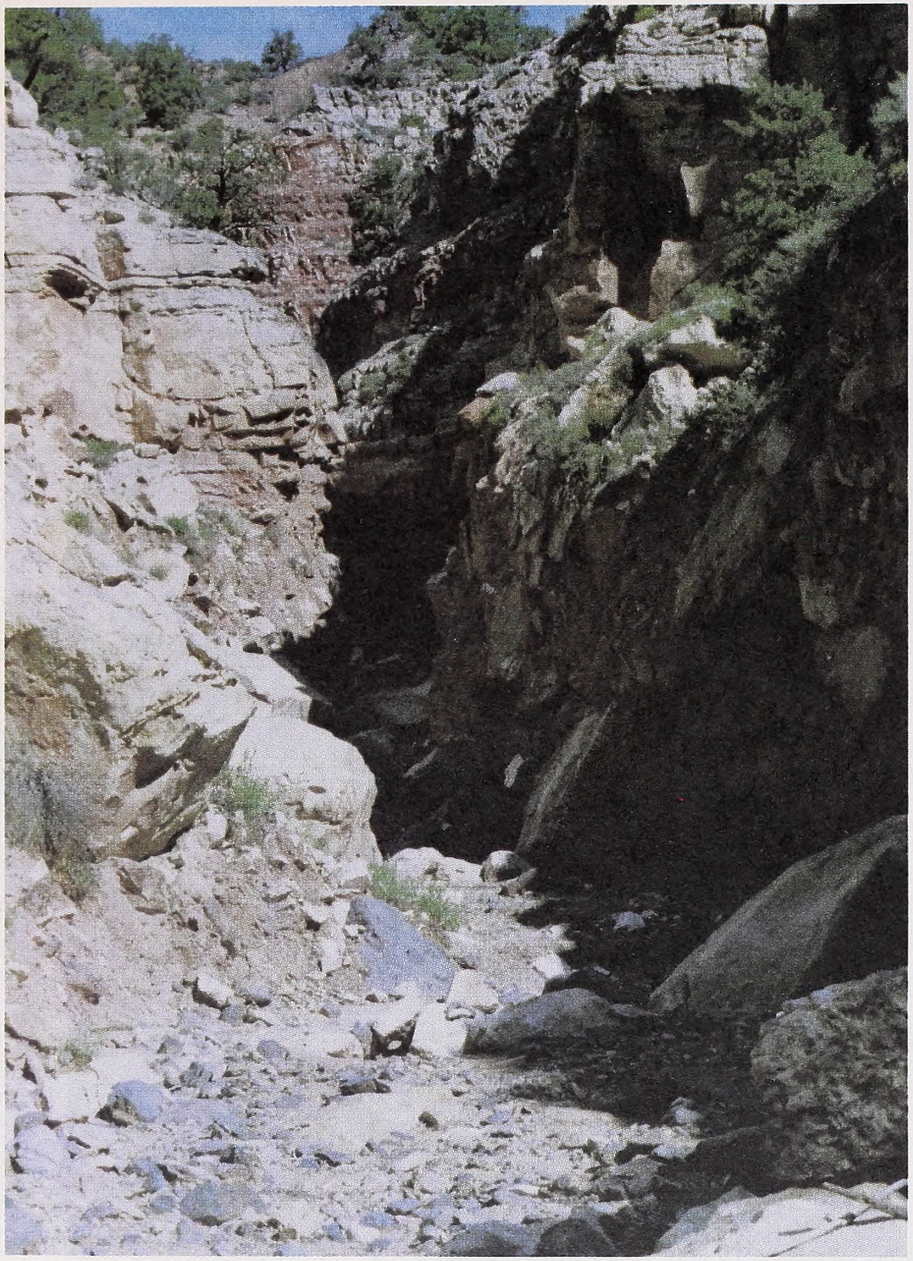
The plateau portion of Hack Canyon WSA (033A) is not recommended for wilderness designation by the Proposed Action or the Enhanced Wilderness alternative.

The Grama Canyon portion of Hack Canyon WSA (033A) is not recommended for wilderness designation by the Proposed Action or the Enhanced Wilderness alternative.

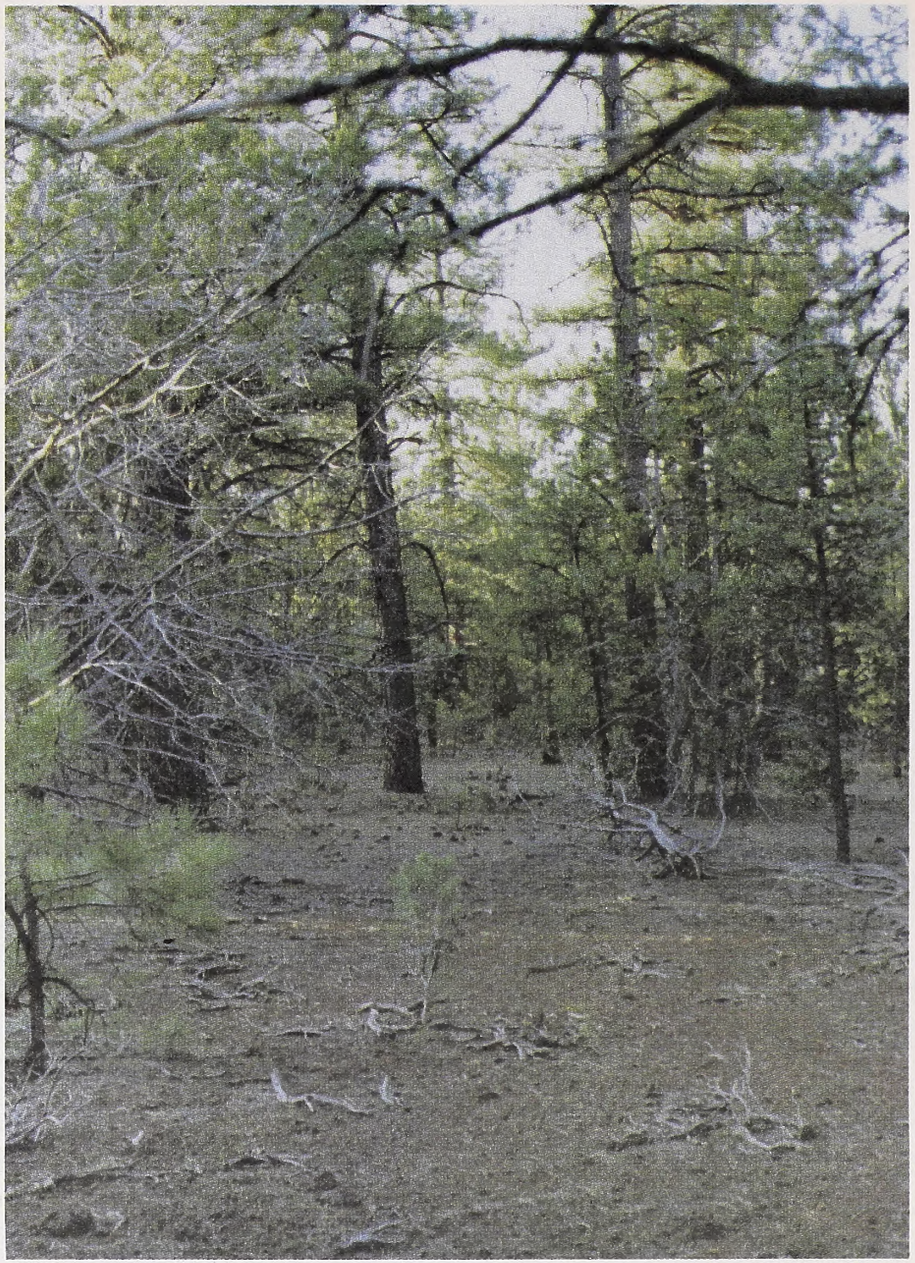
Two views of the Kanab Creek Esplanade in Hack Canyon WSA (033A). This portion of the WSA is recommended for wilderness designation by the Proposed Action and by the Enhanced Wilderness alternative.

Robinson Canyon in Robinson Canyon WSA (034). This WSA is not recommended for wilderness designation by any alternative except All Wilderness.

Pinyon-juniper stand in Toroweap WSA (050). This WSA is not recommended for wilderness designation by the Proposed Action or Enhanced Wilderness.



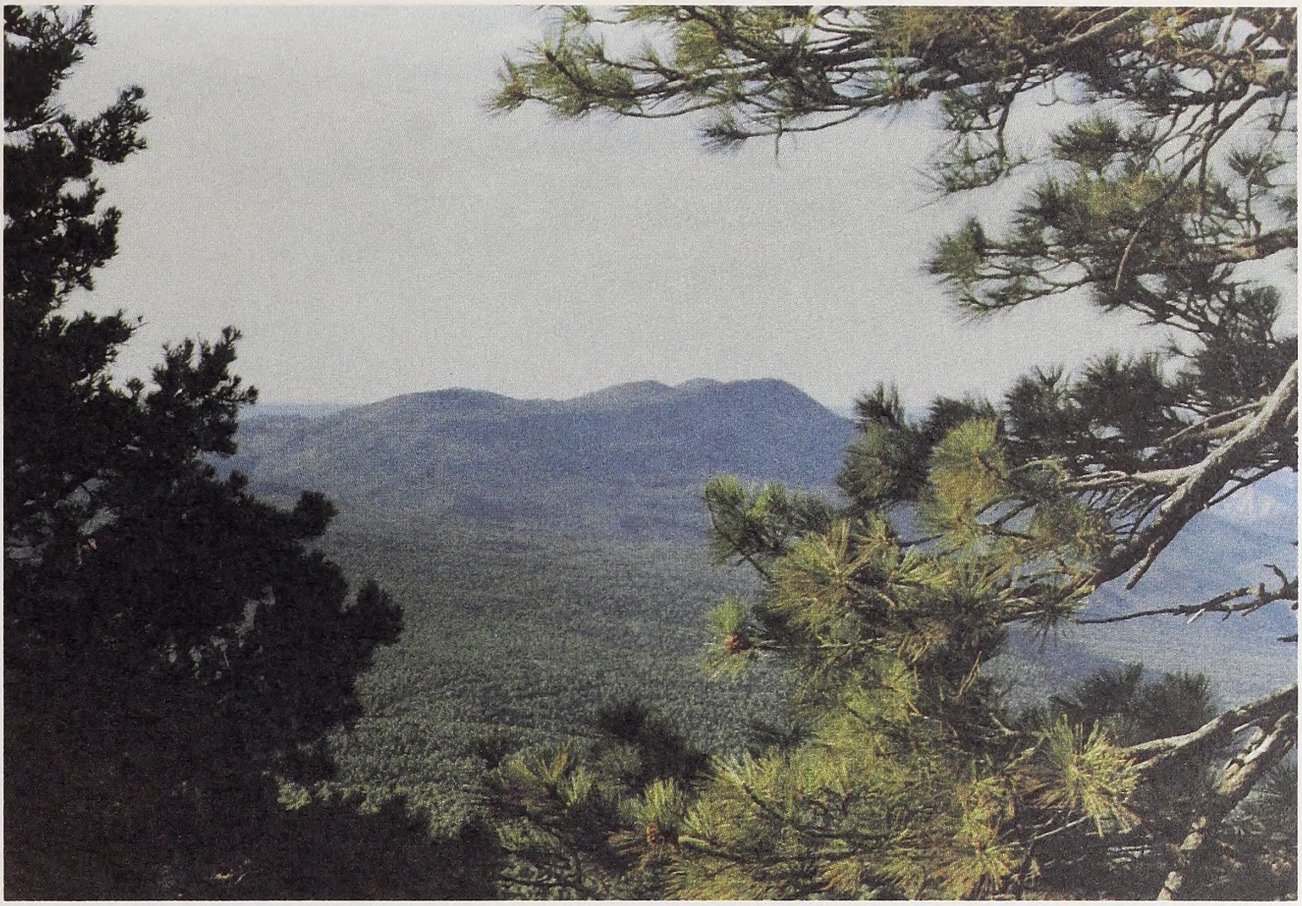
Hells Hole portion of Mt. Logan WSA (051). This WSA is not recommended for wilderness designation by the Proposed Action or by Enhanced Wilderness.



Ponderosa pine forest typical of those in Toroweap (050), Mt. Logan (051), and Mt. Trumbull (052) WSAs.

Hells Hole, the regionally unique amphitheater-shaped depression occurring in Mt. Logan WSA (051). This unit is not recommended for wilderness designation by either the Proposed Action or Enhanced Wilderness.

Snow-covered slopes of Mt. Trumbull, at 8,028 feet, the highest mountain in the EIS area. Mt. Trumbull WSA (052) is recommended for wilderness designation by all alternatives except No Wilderness.

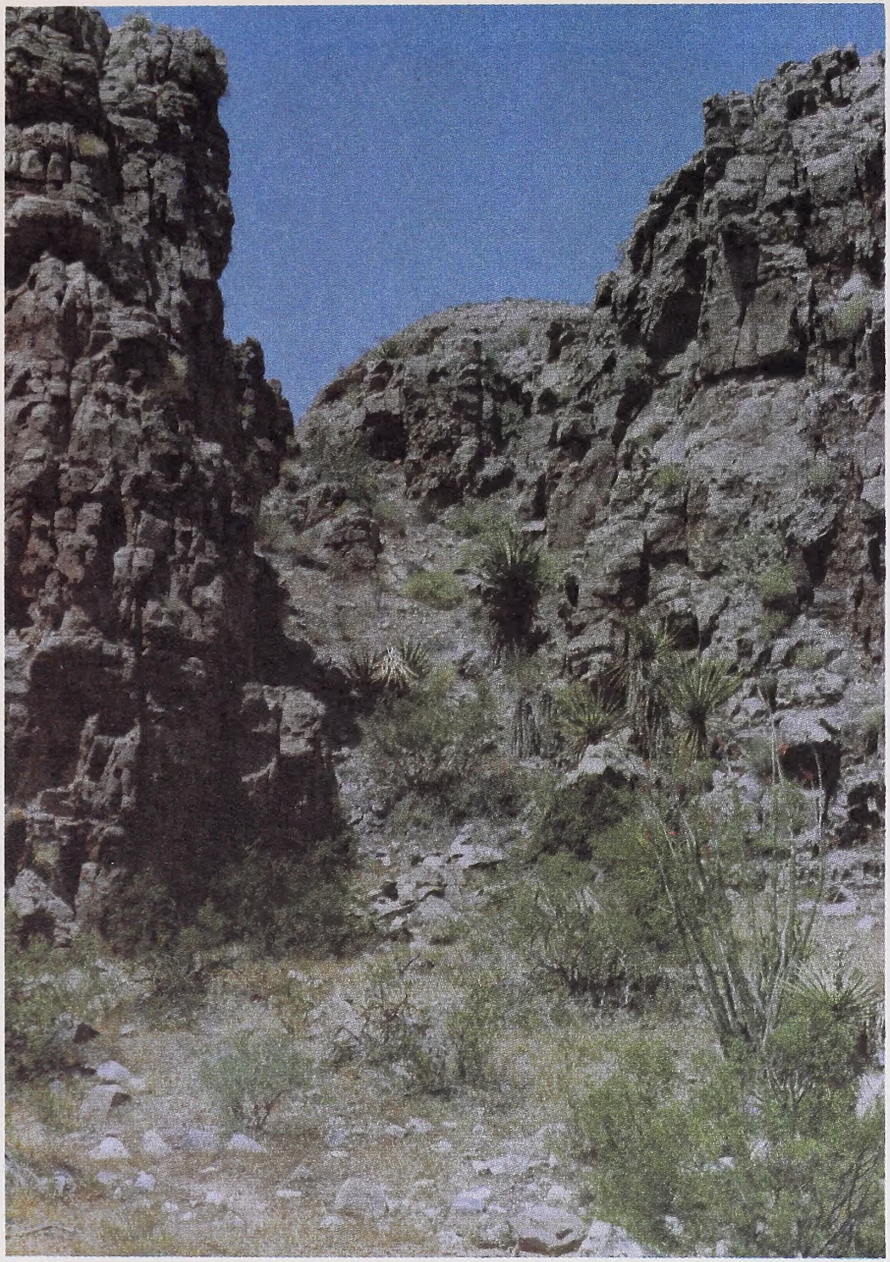


Mt. Emma WSA (136) is a unit not recommended for wilderness designation by either the Proposed Action or the Enhanced Wilderness alternative.

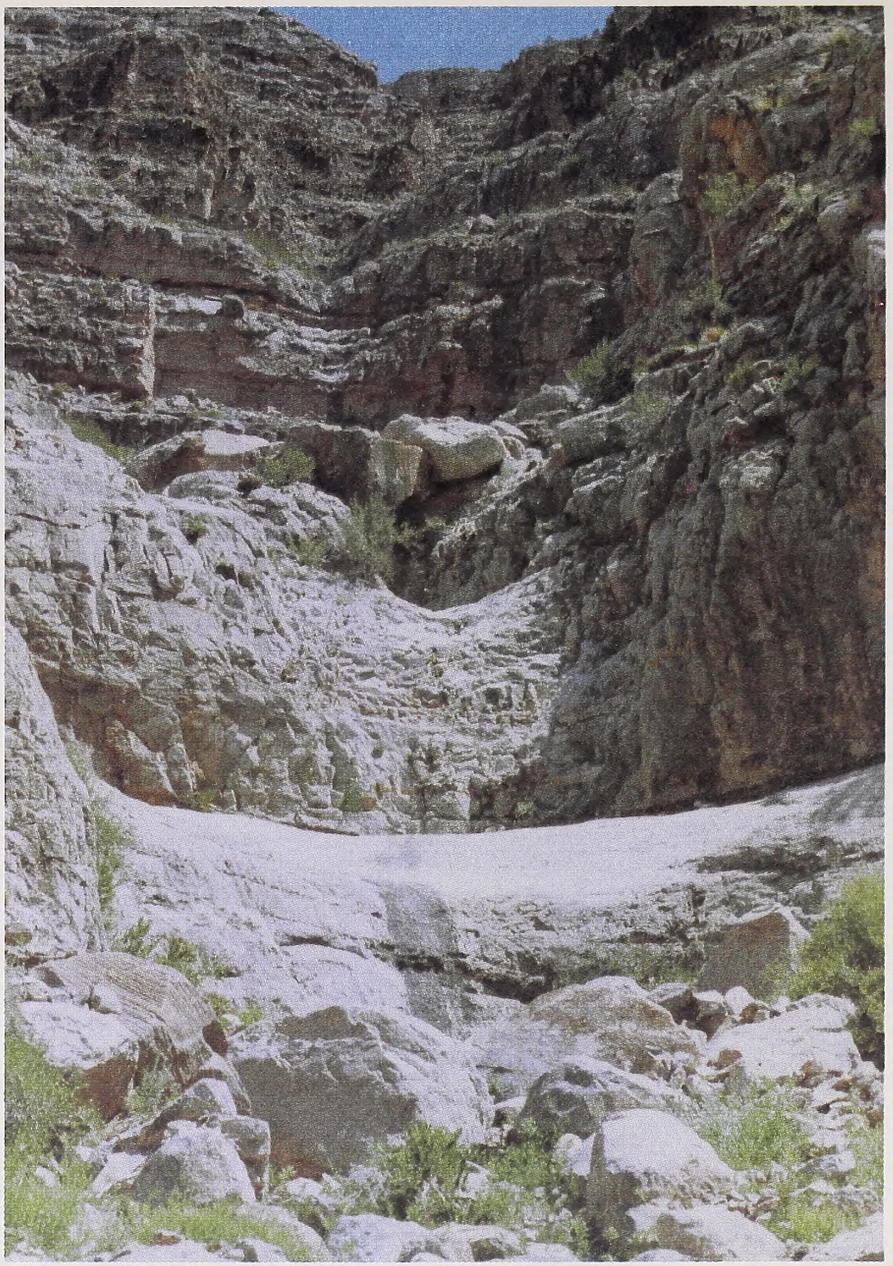
View looking south into Parashaunt Canyon. Parashaunt WSA (093), which includes only the west side of the canyon (right side of photo), is not recommended for wilderness designation by the Proposed Action or the Enhanced Wilderness alternative.

View looking northwest into Andrus Canyon. Andrus Canyon WSA (096D) is not recommended for wilderness designation by the Proposed Action or the Enhanced Wilderness alternative.

View looking west along the rim from within Snap Point WSA (105B). The area below the rim is part of Lake Mead National Recreation Area. This area is recommended for wilderness designation only by the All Wilderness alternative.



Tributary to Snap Canyon in Nevershine Mesa WSA (105A). This WSA is recommended for wilderness designation by the Enhanced Wilderness alternative.



Middle Canyon of the Lower Grand Wash Cliffs in Grand Wash Cliffs WSA (112). This WSA is not recommended for wilderness designation by the Proposed Action or the Enhanced Wilderness alternative.

Typical view of the Lower Grand Wash Cliffs and associated vegetation in Grand Wash Cliffs WSA (112).

The mouth of Snap Canyon in Nevershine Mesa WSA (105A).

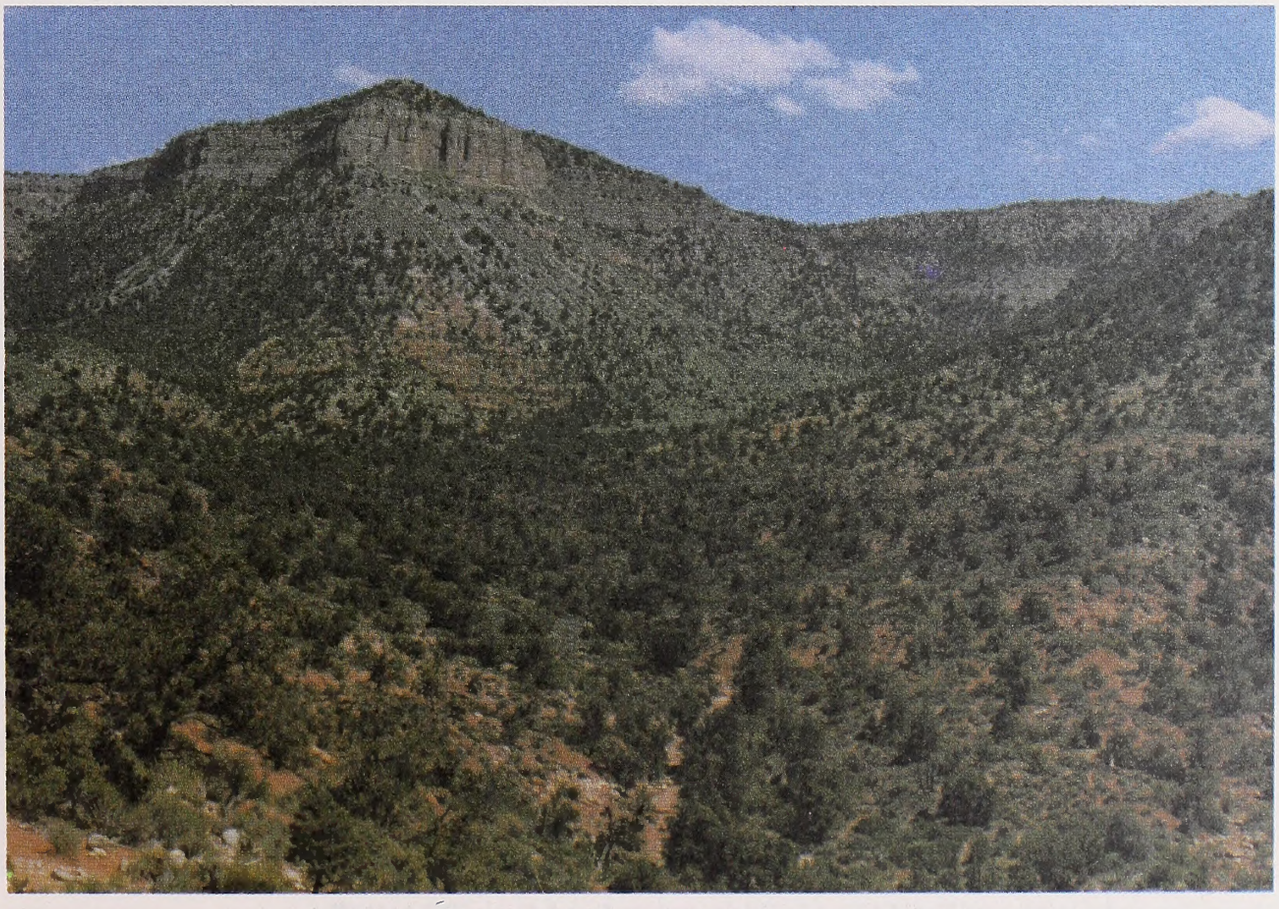
View looking east at the Upper Grand Wash Cliffs in Hidden Rim WSA (119). This WSA is recommended for wilderness designation only by the All Wilderness alternative.

View looking west into Pigeon Canyon WSA (109). This unit is recommended for wilderness designation by the Enhanced Wilderness alternative.

Aerial view of the Virgin River Gorge in Starvation Point WSA (005). This WSA is recommended for wilderness designation by the Enhanced Wilderness alternative.

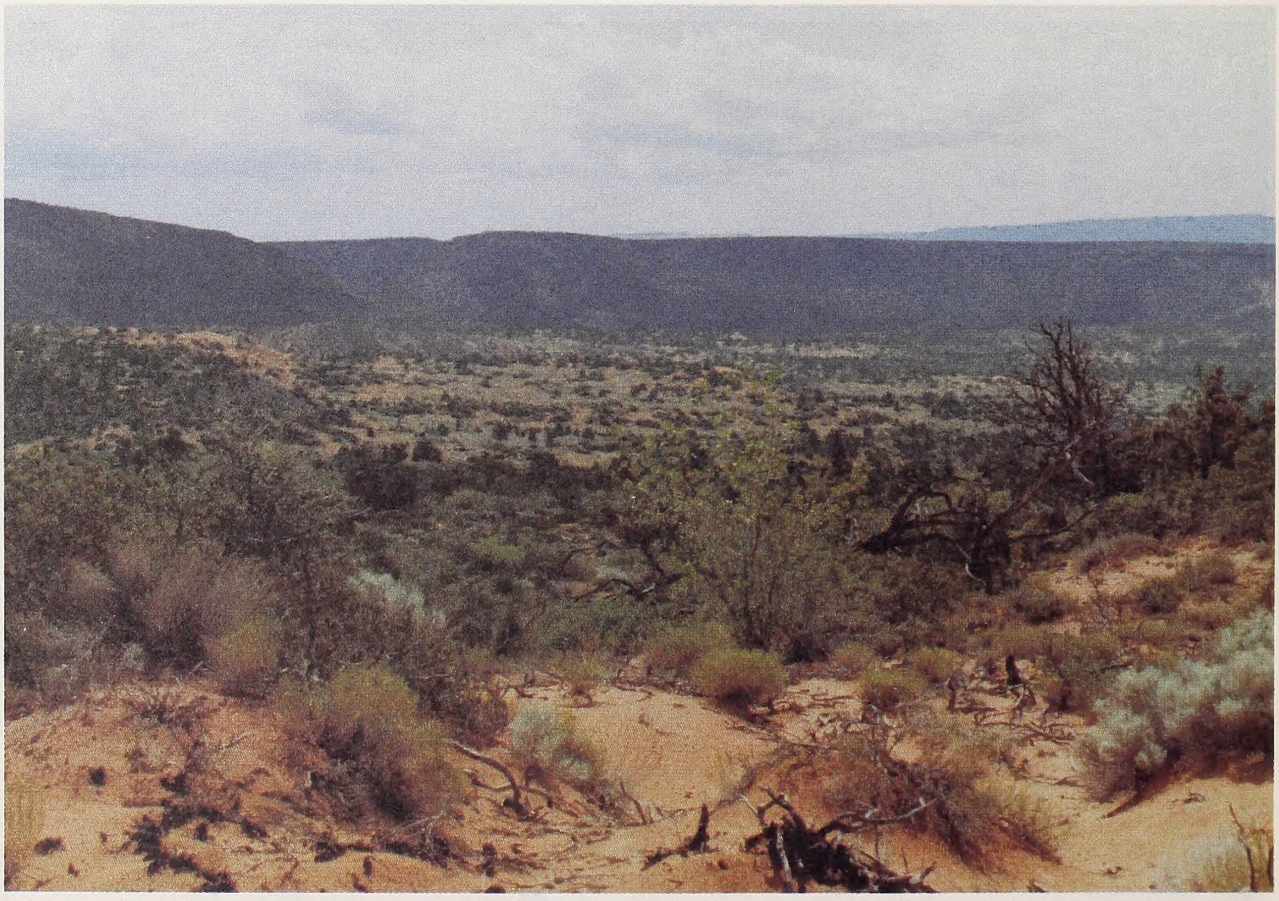
Aerial view looking south along Virgin Mountains WSA (129). This WSA is not proposed for wilderness designation by the Proposed Action or the Enhanced Wilderness alternative.

View looking north from Hudson Point along the Upper Grand Wash Cliffs in Last Chance WSA (111). This WSA is recommended for wilderness designation by the Enhanced Wilderness alternative.



View from atop the Lower Grand Wash Cliffs looking east at the Upper Grand Wash Cliffs in Last Chance WSA (111).

View from the center of Sand Cove looking southwest across Sand Cove WSA (128). This WSA is recommended for wilderness designation by the Enhanced Wilderness alternative.



View from the center of Sand Cove looking east in Sand Cove WSA (128).

Chapter 4

ENVIRONMENTAL CONSEQUENCES

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

Chapter 4 analyzes the environmental consequences of the alternatives, including the *Proposed Action* for each WSA. Each environmental component's analysis will be commensurate with the degree of expected impact. BLM's interdisciplinary team of specialists determined that no measurable impacts would occur to climate, air quality, topography, water resources, or land uses. These components are thus not discussed in this chapter.

Basic Assumptions

Impact analyses was based on the following assumptions.

1. WSAs will be managed according to the Interim Management Policy until either released or designated wilderness by Congress.

2. BLM will develop and implement wilderness management plans for areas designated wilderness.

3. Range, wildlife, and other improvements installed and maintained by customary methods may be allowed after careful case-by-case consideration of the impact on wilderness character.

4. Visual resource management (VRM) objectives will be considered in the planning of all improvements installed in wilderness areas. Class I objectives will be applied and management consideration given to valid existing rights and grandfathered uses.

5. Livestock grazing will be maintained at present levels unless adjusted for reasons not related to wilderness.

6. Any designation of wilderness will occur after December 31, 1983.

Impacts on Wilderness Values

All WSAs will be managed under BLM's Interim Management Policy (IMP) (Appendix 1) until Congress either designates them as wilderness or releases them to multiple-use management. The purpose of the IMP is to protect wilderness values until Congress makes a decision on wilderness. Before passage of the Federal Land Policy and Management Act of 1976, BLM administratively protected wilderness values by designating primitive areas. Administratively designating natural areas also protected wilderness values. Natural area management, however, can focus on nonwilderness resources and is not necessarily compatible with wilderness preservation. Of the 774,148 acres under study in this EIS, 14,985 acres are in designated natural areas. The IMP thus protects wilderness values on at least 759,163 acres in the EIS area.

Wilderness designation legislatively protects wilderness values. BLM would manage wilderness areas under its Wilderness Management Policy (Appendix 2), derived from provisions of the Wilderness Act and any special provisions included in the legislation establishing a particular wilderness area.

ANALYSIS OF ALTERNATIVES

Each wilderness alternative represents a land use allocation that would affect all resources. Impacts on wilderness values would thus reflect how well the allocation would balance a possible contribution to the National Wilderness Preservation System with competing activities that would impair wilderness values. *No Wilderness* would provide no wilderness protection for 759,163 acres. Some 14,671 acres would be protected by a natural area designation, but this designation may not assure wilderness preservation. Significant wilderness values could be lost. The *All Wilderness* alternative represents the greatest contribution, in addition to instant study areas, that the Arizona Strip could make to the National Wilderness Preservation System. It would protect all wilderness study areas identified in the District.

The three partial wilderness alternatives fall between the extremes of no wilderness and all wilderness. The *Proposed Action* would designate as wilderness those WSAs that complement the Paria Canyon and Paiute wilderness proposals and Forest Service and National Park Service areas proposed or with high potential for wilderness designation. These areas have excellent supplemental values, particularly scenery. Under the *Proposed Action* the management emphasis on commodity resource development could adversely impact natural, scenic, and wilderness resources.

The *Enhanced Wilderness* alternative includes WSAs with both high-value wilderness and supplemental values.

The *Wildland Preservation* alternative is based on the public comments received during land use planning and scoping. This alternative would include all units in the Uinkaret Mountains and the canyons draining into the Grand Canyon from the southeast Shviwits Plateau. Most of the Paria Plateau would be proposed for

wilderness designation. In addition, some land with significant wilderness values on the Grand Wash Cliffs would not be recommended.

How well the Arizona Strip wilderness is preserved will depend on nonconforming uses allowed by the Wilderness Act for designated wilderness areas and developments identified with management of other public land resources for nondesignated WSAs.

GENERAL IMPACTS OF NONDESIGNATION

Not designating a WSA or WSA portion as wilderness would expose wilderness and related values to a risk of degradation. In the short-term, nondesignation could result in other uses that would impair primitive recreation, opportunities for solitude, wildlife distribution and propogation, soil, plant, and watershed protection, livestock grazing, and visual resources. Significant ecological, geological, and anthropological areas and features of scientific, educational, scenic, or historic interest could also be degraded. In the long term, wilderness and associated values could be lost or permanently impaired.

Nondesignation would also deny wilderness benefits to off-site areas. Designation would eliminate activities that result in scenic deterioration, localized soil loss, increased flooding and siltation, surface water quality deterioration, and subsurface depletion.

Mineral Exploration and Extraction

Adverse impacts of mining and mineral exploration may often result from access, drill pad, mine site, and facility construction and from radionuclide and heavy metal site contamination. Increased access often increases the potential for illegal ORV use and other damaging human uses. Construction and daily work can destroy vegetation, disturb wildlife, compact soil, impair scenery, alter watershed, and impair opportunities for solitude. Radionuclide and heavy metal contamination from ore piles and drill hole cuttings would depend on the type of ore and ore storage methods.

Intense uranium exploration and development in the Arizona Strip suggests that one or more mines will open in the WSAs in the next several years. Uranium could be mined in the following WSAs: Emmett Wash, Kanab Creek, Hack Canyon, Robinson, Poverty Mountain, Parashaunt, Grassy Mountain, Andrus Canyon, North Dellenbaugh, Salt House, Mustang Point, Nevershine Mesa, Snap Point, Pigeon Canyon, Last Chance, Grand Wash Cliffs, and Hidden Rim.

Including access, powerlines, and facilities, the average mine disturbs 20-30 surface acres. The average mine operates for 8 years and has the following rehabilitation timetable:

Cleanup, recontouring and seeding	2-6 months
50 percent revegetation	2 years
75 percent revegetation	4 years
100 percent revegetation	4-20 years

Off-Road Vehicle (ORV) Use

Effective September 26, 1980, BLM designated the Shivwits Resource Area as limited or closed to ORV use, with a few exceptions, restricting travel to existing roads and trails. The Vermillion Resource Area planning process has not identified ORV use areas, and no designation timetable is established. ORV use in nondesignated areas disturbs wilderness values by destroying vegetation, disturbing wildlife, compacting soil, and impairing solitude.

The closeness of the Vermillion Resource Area to the towns of Page, Arizona and Kanab, Utah, and the increasing popularity of ORVs will increase ORV use and its impacts. Fragile soils in this resource area cannot naturally rehabilitate fast enough to maintain overall natural scenic quality. A significant and impairing increase in ORV impacts is expected in the following WSAs: Ferry Swale, Paria Plateau, Kanab Creek, and Hack Canyon.

Firewood, Post, and Timber Harvesting

All WSAs, except Emmett Wash, Grand Gulch, Virgin River, and Narrows, have woodlands suitable for firewood and post cutting. In addition, commercial timber grows in Mt. Trumbull, Mt. Logan, and North Dellenbaugh WSAs.

If allowed, wood and timber harvesting would destroy and remove vegetation, disturb wildlife, compact soil, and impair solitude. ORV use in loading and hauling wood destroys vegetation cover and compacts soil. Removing vegetation reduces wildlife forage, roosts, nesting areas, and cover. Associated human activity disturbs wildlife movements and interactions. Removing vegetation screening impairs opportunities for solitude.

Construction and Maintenance of Developments

Nondesignation would permit the building or implementing of roads, communication sites, transmission lines, livestock waters, lineshacks, seedings, plant control measures, watershed control structures, BLM administrative sites, fences, airfields, and heliports. All of

these imprints cause varying amounts of vegetation destruction, wildlife disturbance, soil compaction, topographic feature destruction, and impairment of solitude. Visual resources could be impaired if nondesignation allows projects to be built of materials that do not harmonize with an area's overall wilderness character.

Land Disposal

BLM may dispose of land by sale, exchange, or state selection, ending federal land management programs protecting against unneeded resource degradation and future programs protecting specific resources. Disposed areas would be opened to a myriad of impacts, which might permanently impair wilderness values.

GENERAL IMPACTS OF WILDERNESS DESIGNATION

Designating a WSA or WSA portion as wilderness would benefit wilderness values. In the short term, designation would benefit opportunities for primitive recreation and solitude, wildlife distribution and propagation, watershed protection and enhancement, soil and vegetation protection, livestock grazing, and scenic quality.

Wilderness designation would preserve areas of ecologic, geologic, and anthropologic important and other features of scientific, educational, scenic, or historic interest. Designation would limit or eliminate potential conflicts between these resources and mining, ORV use, roads and other facility construction, woodcutting, timber harvesting, and incompatible livestock uses by limiting or eliminating such activities on the designated areas. In the long term, designation would permanently protect the enduring benefits of wilderness.

Designation would also benefit off-site areas, banning activities that would cause scenic deterioration, soil loss, increase watershed flooding and siltation, deterioration of surface water quality, and depletion of subsurface water.

Table 4-1 lists the specific anticipated environmental impacts on wilderness by WSA and alternative.

CONCLUSION

Proposed Action

The *Proposed Action* would ensure the viability of wilderness and related resources and permanently secure the enduring benefits of wilderness on 26,186 acres in the Arizona Strip. These acres represent 3.4 percent of the acreage determined to have wilderness characteristics. This protection is proposed for 6,370 acres next to the Paiute and Paria Canyon Primitive Areas, 12,531 acres in Kanab and Hack Canyon WSAs, and 7,285 acres in Mt. Trumbull WSA. Represented are 17,461 canyon, 7,285 mountainous, and 1,440 bajada acres.

The *Proposed Action* could also allow degradation of wilderness and related resources and deprive future generations of an enduring wilderness heritage on 747,962 acres in the Arizona Strip. Represented are 96.6 percent of the area found to have wilderness characteristics, including 246,180 canyon, 147,376 mountainous, 170,164 plateau, and 184,242 cliffline acres. Areas of significant ecologic and geologic values would also be subject to degradation, along with habitat for eight threatened or endangered plant species.

Enhanced Wilderness

Enhanced Wilderness would ensure the viability of wilderness and related resources and permanently secure the enduring benefits of wilderness on 179,228 Arizona Strip acres. These acres represent 23.2 percent of the acreage determined to have wilderness characteristics. This alternative would designate 153,014 more acres than would the *Proposed Action,* and 85 percent of these additional acres are in the Shivwits Resource Area. Receiving wilderness protection would be 40,367 canyon, 39,719 mountainous, 9,625 plateau, and 89,517 cliffline acres, as well as habitat for eight threatened or endangered plant species. Most of the additional cliffline acres lie along the Grand Wash Fault, a regionally significant ecologic and geologic transition zone.

Enhanced Wilderness will entrust the protection of wilderness and related resourced to future land use decisions on the remaining 594,920 acres in the Arizona Strip. Protected would be 220,394 canyon, 116,383 mountainous, 163,419 plateau, and 94,725 cliffline acres, areas of significant ecologic and geologic value; and habitat for eight threatened or endangered plant species.

Wildland Preservation

Wildland Preservation would ensure the viability of wilderness and related resources and permanently secure the enduring benefits of wilderness on 531,268 Arizona Strip acres. These acres represent 68.6 percent of the acreage determined to have wilderness characteristics. Represented are 215,633 canyon, 130,454 mountainous, 119,706 plateaus and 65,475 cliffline acres. The additional acres recommended over the *Proposed Action* and *Enhanced Wilderness* are scattered throughout the

TABLE 4-1
IMPACTS ON WILDERNESS RESOURCES

WSA	PROPOSED ACTION	ENHANCED WILDERNESS	WILDLAND PRESERVATION	ALL WILDERNESS	NO WILDERNESS
STARVATION POINT (D05)	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Mineral exploration and development. Oil and gas exploration.	Short- and long-term designation benefits.	Same as under Proposed Action.	Short- and long-term designation benefits.	Same as under Proposed Action.
FERRY SWALE (DD6A)	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF 4,825-ACRE PORTION	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Ongoing ORV impacts would increase in size and ecological significance. Mineral exploration. Degradation of Echo Cliffs Monocline--a regionally significant geologic structure.	Short- and long-term designation benefits for 4,825 acres. Preserve Echo Cliffs Monocline--a regionally significant geologic structure, and preserve views of Echo Cliffs Monocline from outlying areas. Impacts of nondesignation for remaining 2,545 acres--same as under Proposed Action, except Echo Cliffs would not be degraded.	Same as under All Wilderness.	Short- and long-term designation benefits. Preserve Echo Cliffs Monocline--a regionally significant geologic structure, and preserve views of unit from outlying areas.	Same as under Proposed Action.
JUDD HOLLOW PARIA RIM CEDAR MOUNTAIN (0068,C,D)	DESIGNATION OF ENTIRE UNITS	DESIGNATION OF ENTIRE UNITS	DESIGNATION OF ENTIRE UNITS UNITS	DESIGNATION OF ENTIRE UNITS	NONDESIGNATION OF ENTIRE UNITS
	Short- and long-term designation benefits. Preserve regionally significant Paria Canyon rim portions. Preserve views of WSAs from outlying areas.	Same as under Proposed Action.	Same as under Proposed Action.	Same as under Proposed Action.	Same as under Proposed Action for Ferry Swale WSA (DD6A), except Echo Cliffs Monocline would not be degraded. Expose regionally significant Paria Canyon rim to degradation.
PARIA PLATEAU (DD8A/19)	DESIGNATION OF 2,880-ACRE PORTION	DESIGNATION OF 4,800-ACRE PORTION	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATON OF ENTIRE UNIT
	Short- and long-term designation benefits for 2,880 acres. Preserve regionally significant Paria Canyon rim topographic component portions. Impacts of nondesignation for remaining 102,108 acres: ongoing ORV impacts expected to increase in size and overall ecological significance, mineral exploration, 2 water developments and a 1,200-acre land treatment, degradation of a regionally significant Paria Canyon rim topographic component portion included in Enhanced Wilderness alternative.	Short- and long-term designation benefits for 4,800 acres. Preserve entire regionally significant Paria Canyon rim topographic component portions. Impacts of nondesignation for remaining 100,188 acres: increasing ORV impacts, mineral exploration, 2 water developments, and 1,200-acre land treatment.	Same as under All Wilderness.	Short- and long-term designation benefits for entire unit.	Impacts of nondesignation for entire unit: Increasing ORV impacts, mineral exploration, 2 water developments, and 1,200-acre land treatment. Expose 4,800-acre regionally significant Paria Canyon rim topographic component to degradation.
OVERLOOK (00BB)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Ongoing ORV impacts expected to increase in size and ecological significance. Mineral exploration--oil and gas, 1,200-acre land treatment, degrade portions of 2 historic trails.	Same as under Proposed Action.	Same as under All Wilderness.	Short- and long-term designation benefits. Preserve portions of 2 historic trails.	Same as under Proposed Action.
EMMETT WASH (DD9)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Mineral exploration--oil and gas. Expose portions of 2 historic trails to degradation. Building of water storage tank.	Same as under Proposed Action.	Same as under All Wilderness.	Short- and long-term designation benefits. Preserve portions of 2 historic trails.	Same as under Proposed Action.

WSA	PROPOSED ACTION	ENHANCED WILDERNESS	WILDLAND PRESERVATION	ALL WILDERNESS	NO WILDERNESS
KANAB CREEK (031)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Extensive uranium exploration and mining. Oil and gas exploration. ORV use. Building of livestock catchment. Expose spectacular tributary of Grand Canyon to degradation. Impair proposed desert bighorn sheep transplant area.	Same as under Proposed Action.	Same as under All Wilderness.	Short- and long-term designation benefits. Preserve spectacular tributary of Grand Canyon. Enhance proposed desert bighorn sheep transplant area.	Same as under Proposed Action.
HACK CANYON (033A)	DESIGNATION OF A 12,531-ACRE PORTION	DESIGNATION OF THE SAME 12,531-ACRE PORTION AS PROPOSED	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Short- and long-term designation benefits for 12,531 acres. Preserve significant canyon and esplanades. Enhance contiguous National Forest RARE II wilderness proposal. Preserve views of unit from outlying canyon rims. Preserve area of significant ecological interest. Enhance a proposed desert bighorn sheep transplant area. Impacts of nondesignation for remaining 51,151 acres: extensive uranium exploration and mining, oil and gas exploration, ORV use, 2,000-acre land treatment, degrading of canyon country, impairing of proposed desert bighorn sheep transplant area.	Same as under Proposed Action.	Same as under All Wilderness.	Short- and long-term designation benefits for entire 63,682 acres. Preserve large canyon system. Enhance contiguous National Forest RARE II wilderness proposal. Preserve views of unit from outlying areas. Enhance proposed desert bighorn sheep transplant area.	Impacts of nondesignation for the entire 63,682 acres: uranium exploration and mining, oil and gas exploration; ORV use; 2,000-acre land treatment; degradation of canyon country; impairment of proposed bighorn transplant area. Expose significant canyon and esplanades to degradation. Preclude wilderness preservation of component topographic portion of the National Forest RARE II Kanab Creek wilderness proposal. Expose significant geologic and ecologic features to to degradation.
ROBINSON (034)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Extensive uranium exploration and mining. Oil and gas exploration. ORV use. Expose canyon country to degradation.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits.	Same as under Proposed Action.
TOROWEAP (050)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	40-acre seeding. Expose significant archaeological resources to degradation. Woodcutting. ORV use.	Same as under Proposed Action.	Same as under All Wilderness.	Short- and long-term designation benefits. Protect archaeological resources.	Same as under Proposed Action.
MT. LOGAN (051)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Timber harvesting, woodcutting, cinder removal, and building of communication facilities. 300-acre seeding. Expose significant Hell's Hole to degradation. Impair views of Mt. Logan from outlying areas. Expose significant archaeological resources to degradation.	Same as under Proposed Action.	Same as under All Wilderness.	Short- and long-term designation benefits. Preserve significant Hell's Hole. Preserve views of Mt. Logan from outlying areas. Preserve archaeological resources.	Same as under Proposed Action.
MT. TRUMBULL (052)	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Short- and long-term designation benefits. Preserve regionally significant Mt. Trumbull and views of Mt. Trumbull from outlying areas. Preserve regionally significant archaeological sites.	Same as under Proposed Action.	Same as under Proposed Action.	Same as under Proposed Action.	Timber harvesting, woodcutting, cinder removal, and oil and gas exploration. Building communications facilities. ORV use on hiking trail to summit. Degrade regionally significant Mt. Trumbull--highest mountain on Arizona Strip.

WSA	PROPOSED ACTION	ENHANCED WILDERNESS	WILDLAND PRESERVATION	ALL WILDERNESS	NO WILDERNESS
POVERTY MOUNTAIN (091)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Woodcutting, oil and gas exploration, and 500-1,000-acre chaining, burning, or chemical treatment. Impair views of Poverty Mountain from outlying areas.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits. Preserve views of Poverty Mountain from outlying areas.	Same as under Proposed Action.
PARASHAUNT (093)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Extensive uranium exploration and mining. Oil and gas exploration. 4,500-acre chaining, 960-acre spraying. Expose spectacular tributary of Grand Canyon to degradation.	Same as under Proposed Action.	Same as under All Wilderness.	Short- and long-term designation benefits. Preserve spectacular tributary of Grand Canyon.	Same as under Proposed Action.
OANSIL CANYON (096A)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Uranium exploration and mining. ORV use. Expose scenic canyon to degradation.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits. Preserve scenic canyon.	Same as under Proposed Action.
GRASSY MOUNTAIN (096C)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Uranium exploration, mining, woodcutting, and ORV use. 4,900-acre chaining and building catchments. Impair views of Grassy Mountain from outlying areas.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits. Preserve views of Grassy Mountain from outlying areas.	Same as under Proposed Action.
ANORUS CANYON (096D)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Extensive uranium exploration and mining, ORV use, 1,280-acre chaining, and woodcutting. Impair regionally significant canyons.	Same as under Proposed Action.	Same as under All Wilderness.	Short- and long-term designation benefits. Preserve regionally significant canyons.	Same as under Proposed Action.
NORTH DELLENBAUGH (097)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Timber harvesting, woodcutting, 5,600-acre chaining, ORV use, and uranium exploration and mining. Impair regionally significant canyons.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits. Preserve regionally significant canyons.	Same as under Proposed Action.
G & F (099)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Timber harvesting, woodcutting, and ORV use.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits.	Same as under Proposed Action.
SALT HOUSE (104A)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	10,000-acre land treatment (sagebrush spraying and woodland chaining), ORV use, and woodcutting.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits.	Same as under Proposed Action.
MUSTANG POINT (104B)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	2,560-acre chaining, building 1 reservoir, woodcutting, and ORV use. Expose significant portion of Grand Wash Cliffs to degradation.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits. Preserve significant portion of Grand Wash Cliffs.	Same as under Proposed Action.

WSA	PROPOSED ACTION	ENHANCED WILDERNESS	WILDLAND PRESERVATION	ALL WILDERNESS	NO WILDERNESS
NEVERSHINE MESA (105A)	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Mineral exploration and removal. Expose proposed desert bighorn sheep transplant area, desert tortoise habitat, regionally significant ecological transition zone, and scenic canyon/fault area to degradation.	Short- and long-term designation benefits. Preserve desert tortoise habitat, regionally significant archaeological sites, and regionally significant ecological transition zone and scenic canyon/fault area. Enhance a proposed desert bighorn sheep transplant area.	Same as under Proposed Action.	Same as under Enhanced Wilderness.	Same as under Proposed Action.
SNAP POINT (105B)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Mineral exploration and removal and woodcutting. Expose proposed desert bighorn sheep transplant area, regionally significant transition zone and scenic area, and views of Snap Point from outlying areas to degradation.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits. Preserve proposed desert bighorn sheep transplant area, regionally significant transition zone and scenic area, and views of Snap Point from outlying areas.	Same as under Proposed Action.
TINCANEBITTS (105C)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Mineral exploration and removal and woodcutting.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits.	Same as under Proposed Action.
GRAND GULCH (107)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Oil and gas exploration.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits.	Same as under Proposed Action.
PIGEON CANYON (109)	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF A 21,404-ACRE PORTION	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	2,500-acre land treatment, mineral exploration and removal, and woodcutting. Expose proposed desert bighorn sheep transplant area, desert tortoise habitat, and regionally significant ecological transition zone and scenic canyon/fault area to degradation.	Short- and long-term designation benefits for 21,404 acres. Preserve desert tortoise habitat and regionally significant ecological transition zone and scenic canyon/fault area. Enhance a proposed desert bighorn sheep transplant area. Impacts of nondesignation for remaining 11,944 acres same as under Proposed Action, excluding woodcutting, and the 2,500-acre land treatment.	Same as under All Wilderness.	Same as under Enhanced Wilderness except that entire unit would be designated and impacts of nondesignation would not apply to any part of WSA.	Same as under Proposed Action.
LAST CHANCE (111)	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	1,200-acre land treatment, mineral exploration and removal, woodcutting, and construction of catchment, well, and 2 reservoirs. Expose regionally significant ecological transition zone and geologic fault area to degradation. Impair proposed desert bighorn sheep transplant area.	Short- and long-term designation benefits. Preserve regionally significant ecological transition zone and geologic fault area. Enhance proposed desert bighorn sheep transplant area.	Same as under Proposed Action.	Same as under Enhanced Wilderness.	Same as under Proposed Action.
GRAND WASH CLIFFS (112)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNAITON OF ENTIRE UNIT
	Oil and gas exploration, mineral exploration and removal, and woodcutting. Expose habitat for 8 threatened/endangered plants and regionally significant ecological transition zone and scenic geologic fault area to degradation.	Same as under Proposed Action.	Same as under All Wilderness.	Short- and long-term designation benefits. Preserve habitat for 8 threatened/endangered plants and regionally significant ecological transition zone and scenic geologic fault area.	Same as under Proposed Action.

WSA	PROPOSED ACTION	ENHANCED WILDERNESS	WILDLAND PRESERVATION	ALL WILDERNESS	NO WILDERNESS
PAKOON SPRINGS (114)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Oil and gas exploration, mineral exploration and removal, and construction of 1 reservoir. Expose 1,900-foot high scenic Cockscomb, views of Cockscomb from outlying areas, and desert tortoise habitat to degradation.	Same as under Proposed Action.	Same as under All Wilderness.	Short- and long-term designation benefits. Preserve 1,900-foot high scenic Cockscomb, views of Cockscomb from outlying areas, and desert tortoise habitat.	Same as under Proposed Action.
HIDDEN RIM (119)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATON OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Oil and gas exploration, mineral exploration and removal, and woodcutting. Expose habitat for 8 threatened/endangered plant species, and regionally significant ecological transition zone to degradation.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits. Preserve habitat for 8 threatened/endangered plant species, and regionally significant ecological transition zone.	Same as under Proposed Action.
HOBBLE CANYON (124)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	2,560-acre land treatment, building of 1 catchment, oil and gas exploration and removal, and woodcutting.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits.	Same as under Proposed Action.
IDE VALLEY (127)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Oil and gas exploration and woodcutting.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits.	Same as under Proposed Action.
SAND COVE (128)	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF A 30,966-ACRE PORTION	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Oil and gas exploration, mineral exploration and removal, 1,400-acre land treatment, and woodcutting. Expose significant deer habitat and wintering grounds and regionally significant scenic area to degradation.	Short- and long-term designation benefits for 30,966 acres. Preserve significant deer habitat and wintering grounds and regionally significant scenic area. Impacts of nondesignation for remaining 9,095 acres same as under Proposed Action.	Same as under All Wilderness.	Same as under Enhanced Wilderness except entire unit would be designated, eliminating impacts of nondesignation on 9,095 acres.	Same as under Proposed Action.
VIRGIN MOUNTAINS (129)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Oil and gas exploration and woodcutting. Expose regionally significant scenic and rugged area, desert bighorn sheep transplant area, and views of Virgin Mountains from outlying areas to degradation.	Same as under Proposed Action.	Same as under All Wilderness.	Short- and long-term designation benefits. Preserve regionally significant scenic views of Virgin Mountains from outlying areas and enhance desert bighorn sheep transplant area.	Same as under Proposed Action.
VIRGIN RIVER (130)	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Short- and long term designation benefits. Preserve desert bighorn sheep habitat, desert tortoise habitat, and regionally sigcant transition zone between 2 biotic provinces.	Same as under Proposed Action.	Same as under Proposed Action.	Oil and gas exploration. Expose desert bighorn sheep habitat, desert tortoise habitat, and regionally significant transition zone between 2 biotic provinces to degradation.	Same as under Proposed Action.
PURGATORY (132)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Oil and gas exploration, mineral exploration and removal, and 200-acre land treatment.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits.	Same as under Proposed Action.

WSA	PROPOSED ACTION	ENHANCED WILDERNESS	WILDLAND PRESERVATION	ALL WILDERNESS	NO WILDERNESS
LIME HILLS (134)	DESIGNATION OF A 1,426-ACRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Short- and long-term designation benefits for 1,426 acres. Nondesignation impacts for remaining 11,184 acres.	Oil and gas exploration, 2,000-acre land treatment, and degradation of regionally significant scenic canyon walls and slopes.	Same as under All Wilderness.	Short- and long-term benefits for entire area. Preserve regionally significant scenic canyon walls and slopes.	Same as under Enhanced Wilderness.
NARROWS (135)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	1,000-acre land treatment, oil and gas exploration, mineral exploration and removal. Expose habitat for 3 threatened plants, desert tortoise habitat, and regionally significant scenic area to degradation.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits. Preserve habitat for 3 threatened plants, desert tortoise habitat, and regionally significant scenic area.	Same as under Proposed Action.
MT. EMMA (136)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Oil and gas exploration, woodcutting, building of communications facilities, and 700-acre land treatment. Expose regionally significant Mt. Emma and portion of Uinkaret Mountains, views of unit from outlying areas, and significant archaeological sites to degradation.	Same as under Proposed Action.	Same as under All Wilderness.	Short- and long-term designation benefits. Preserve regionally significant Mt. Emma and portion of Uinkaret Mountains, views of unit from outlying areas, and significant archaeological sites.	Same as under Proposed Action.
VERMILLION CLIFFS FURTHER PLANNING AREA (ISA-3)	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Mineral exploration and removal. Present natural area status protects against visually impairing human activities. If not designated, unit should remain a natural area. This status, though, is easily altered or removed, which could open area to many potential impacts.	Short- and long-term designation benefits.	Same as under Proposed Action.	Same as under Enhanced Wilderness.	Same as under Proposed Action.
BIG SAGE NATURAL AREA (ISA-4)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	No anticipated impacts.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits.	Same as under Proposed Action.
TURBINELLA/GAMBEL OAK NATURAL AREA (ISA-5)	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT	DESIGNATION OF ENTIRE UNIT	NONDESIGNATION OF ENTIRE UNIT
	Oil and gas exploration and woodcutting.	Same as under Proposed Action.	Same as under Proposed Action.	Short- and long-term designation benefits.	Same as under Proposed Action.

Arizona Strip and include sizable representatives of each ecologic and topographic type.

Wildland preservation will also entrust the protection of wilderness and related resources to future land use decisions on 242,880 Arizona Strip acres, including 45,944 canyon, 24,207 mountainous, 53,338 plateau, and 119,391 cliffline acres.

All Wilderness

All Wilderness would ensure the viability of wilderness and related resources and permanently secure the enduring benefits of wilderness to all 774,148 Arizona Strip acres determined to have wilderness characteristics. Represented are 261,577 canyon, 154,661 mountainous, 173,044 plateau, and 184,866 cliffline acres.

No Wilderness

No Wilderness will entrust the protection of wilderness and related resources to further land use decisions on all 774,148 Arizona Strip acres determined to have wilderness characteristics. Represented are 261,577 canyon, 154,661 mountainous, 173,044 plateau and 184,866 cliffline acres.

Impacts on Wildlife

The analysis of the impacts of wilderness designation on wildlife was based on the following assumptions.

- The building of all wildlife projects, including spring developments, catchments, and range and waterlot fence modifications, will be allowed but without creating new vehicular access.
- Wildlife projects will be maintained without creating new vehicular access.
- Land treatment will be permitted only to benefit threatened and endangered species.
- Aerial surveys and operations for developing and implementing habitat management plans (HMPs) and for yearly surveys conducted by state agencies (AG&FD) will be permitted in wilderness areas.
- Outfitters and commercial guides can operate in wilderness areas as long as their guided outings do not impair wilderness values.
- Predator control for enhancing other species will be permitted only if specific offending animals can be identified. Predators will not be indiscriminately removed.
- Commercial trapping of fur-bearers will not be allowed. Any trapping in wilderness areas must not be the sole source of livelihood.
- Native wildlife once occupying an area but not at self-sustaining population levels can be transplanted or reintroduced into wilderness areas.
- No non-native wildlife species will be introduced to wilderness areas.
- Mineral development is expected to increase in the EIS area. Therefore, vehicular access and human encroachment will increase, harming wildlife, especially potential and existing desert bighorn sheep, desert tortoise, and Gila monster habitat. Wilderness designation would limit mineral development.
- Both state and federally listed threatened and endangered species would potentially benefit from wilderness designation.
- Allotment management plan (AMP) development would continue under Interim Management, but further development would stop upon designation. A restriction on land treatment would benefit most nongame. A restriction on livestock water construction would maintain existing habitat conditions for the desert bighorn sheep, desert tortoise, and Gila monster.
- Wild burro number and management techniques will not degrade wildlife habitat and will be compatible with preserving the WSA's wildlife and wilderness character. Wild burros may be removed from a wilderness area to prevent undue habitat deterioration and excessive competition with native wildlife.
- Commercial timber harvesting will not be authorized in wilderness areas. The forest will be managed to allow ecological processes to operate freely. The limited distribution of this habitat type and its high wildlife species diversity requires special management considerations. Of particular concern are the woodland hawks and owls, the goshawk, the Cooper's hawk, and the flammulated and pygmy owls. Other species keyed to ponderosa pine are the Kaibab squirrel, Merriam's turkey, and many cavity-nesting and song birds. Wilderness designation would ensure that existing habitat would be maintained in an ecologically healthy condition.
- The sale or removal of desert vegetation for landscaping or other uses will not be permitted in wilderness areas. The increasing consumptive use of desert plants would adversely affect the desert ecosystem in three ways: (1) by increasing vehicular access, (2) by disturbing the land surface during plant removal (short-term impact), and (3) by reducing the long-term production potential of the desert community. Plant removal would harm desert tortoise, Gila monster, and other reptile habitats.

The impacts of wilderness designation were anaylzed for the *Proposed Action* and alternatives by species

group, amount of habitat, existing planning documents, habitat monitoring, project construction and maintenance, predator control, and wildlife introductions. Each WSA was further analyzed by HMP objectives to determine the effect of designation on implementation. The effects of Interim Management Policy (10 years) were contrasted with the effects of longterm designation (25 years). Significant beneficial or adverse impacts were classified as moderate or high. Slight impacts were addressed as low and will not be discussed in the narrative. Table 4-2 presents impacts on wildlife by alternative and WSA.

PROPOSED ACTION

Impact Analysis

The *Proposed Action* would reduce vehicular access by restricting native desert plant removal and mineral development. The three indicator species that would most benefit are the desert bighorn sheep, desert tortoise, and Gila monster. The *Proposed Action* would designate as wilderness 16,837 acres of desert bighorn sheep habitat (Judd Hollow, Paria Rim, Paria Plateau, Hack Canyon, and Lime Hills WSAs), amounting to 5 percent of the EIS area's bighorn sheep habitat. Desert tortoise and Gila monster habitat would also benefit from reduced access, but the *Proposed Action* would only designate 1 percent of such habitat (Virgin River WSA).

Restricting new livestock water developments would benefit bighorn sheep habitat (Hack Canyon and Paria Plateau WSAs) and also desert tortoise habitat (Virgin River WSA).

Designating Mt. Trumbull WSA as wilderness would significantly benefit the habitat of a number of wildlife species. The 5,000 acres of old growth ponderosa pine support such wildlife as mule deer, Merriam's turkey, Kaibab squirrel, goshawk, Cooper's hawk, flammulated owl, pygmy owl, songbirds, and cavity-nesting nongame birds. These species and their habitats would remain in optimum condition through a restriction on timber harvests. Moreover, 90 percent of this unit is crucial mule deer summer range.

Conclusion

The *Proposed Action* would not significantly impact wildlife habitat. The small acreages involved would not greatly affect habitat conditions except in Hack Canyon and Mt. Trumbull WSAs, whose wildlife habitats would benefit from designation.

ENHANCED WILDERNESS

Impact Analysis

Enhanced Wilderness would designate as wilderness 100,000 acres or 29 percent of the EIS area's desert bighorn sheep habitat and 28,000 acres of desert tortoise and Gila monster habitat. Restricting of mineral development and of native desert plant removal would benefit these habitats significantly more than would the *Proposed Action* because of the greater amount of habitat involved. An estimated 14 percent of the EIS area's desert tortoise habitat and 29 percent of its bighorn sheep habitat could be protected by reduced access. Starvation Point, Paria Plateau, Hack Canyon, Nevershine Mesa, Pigeon Canyon, and Vermillion Cliffs WSAs have excellent bighorn sheep habitat. Units having desert tortoise and Gila monster habitat include Nevershine Mesa, Pigeon Canyon, and Virgin River WSAs.

Limiting livestock water developments would maintain existing forage conditions and thus prevent the increase of wildlife forage competition. The WSAs whose wildlife would most benefit from limiting livestock waters are Starvation Point, Ferry Swale, Paria Plateau, Hack Canyon, Nevershine Mesa, Pigeon Canyon, Last Chance, Sand Cove, and Vermillion Cliffs ISA. Maintaining existing forage conditions would mostly benefit desert bighorn sheep and desert tortoises.

Prohibiting land treatments and other actions under wilderness designation would both benefit and harm wildlife. On Last Chance and Sand Cove WSAs designation would preclude mule deer summer range from being rehabilitated by land treatment. Moreover, by restricting predator control, wilderness designation could potentially hinder the future recovery of the deer herd in Last Chance WSA. On the other hand, prohibiting the 1,800-2,000 acres of land treatment proposed in the Parashaunt and Black Rock Habitat Management Plans would benefit nongame bird populations. Restricting timber harvesting in Mt. Trumbull WSA would benefit wildlife the same as it would under the *Proposed Action*.

Conclusion

Enhanced Wilderness would greatly benefit desert bighorn sheep, desert tortoise, and Gila monster habitat as well as that of many other wildlife species. Restricting land treatment and predator control in Last Chance WSA, however, would not allow mule deer summer range to improve or potential mule deer populations to increase.

TABLE 4-2
IMPACTS ON WILDLIFE

WSA	Proposed Action					Enhanced Wilderness					Wildland Preservation					All Wilderness					No Wilderness					Land Treatment Acres
	Big-Game	Small Game	Non-Game	Int.* vs.- Long-Term Mg.	Short-Term vs. Long-Term Prod.	Big-Game	Small Game	Non-Game	Int. vs. Long-Term Mg.	Short-Term vs. Long-Term Prod.	Big-Game	Small Game	Non-Game	Int. vs. Long-Term Mg.	Short-Term vs. Long-Term Prod.	Big-Game	Small Game	Non-Game	Int. vs. Long-Term Mg.	Short-Term vs. Long-Term Prod.	Big-Game	Small Game	Non-Game	Int. vs. Long-Term Mg.	Short-Term vs. Long-Term Prod.	
Starvation Point	H-	L-	M-	NC	M-	H+	L+	M+	NC	M+						H+	L+	M+	NC	M+	H-	L-	M-	NC	M-	
Ferry Swale	M-	L-	L-	NC	M-	M+	L+	L+	NC	M+	M+	L+	L+	NC	M+	M+	L+	L+	NC	M+	M-	L-	L-	NC	M-	
Judd Hollow	L+	L+	M+	NC	L+	L+	L+	M+	NC	M+	L+	L+	M+	NC	M+	L+	L+	M+	NC	M+	L-	L-	M-	NC	M-	
Paria Rim	L+	L+	L+	NC	L+	L+	L+	L+	NC	L+	L+	L+	L+	NC	L+	L+	L+	L+	NC	L+	L-	L-	L-	NC	L-	
Cedar Mountain	L+	L+	L+	NC	L+	L+	L+	L+	NC	L+	L+	L+	L+	NC	L+	L+	L+	L+	NC	L+	L-	L-	L-	NC	L-	
Paria Plateau	M+	L+	M+	NC	M+	M+	L+	M+	NC	M+	H+	L+	H+	M-	H+	H+	L+	H+	M-	H+	M-	L-	M-	NC	M-	
Overlook	L-	L-	L-	NC	L-	L-	L-	L-	NC	L-	M+	L+	M+	NC	M+	M+	L+	M+	NC	M+	L-	L-	L-	NC	L-	
Emmett Wash	L-	L-	M-	NC	L-	L-	L-	M-	NC	L-	L+	L+	M+	NC	M+	L+	L+	M+	NC	L+	L-	L-	L-	NC	L-	
Kanab Creek	H-	L-	M-	NC	M-	H-	L-	M-	NC	M-	H+	L+	M+	NC	M+	H+	L+	M+	NC	M+	H-	L-	M-	NC	M-	
Hack Canyon	M+	L+	M+	NC	M+	M+	L+	M+	NC	M+	H+	M+	H+	NC	H+	H+	M+	H+	NC	H+	H-	M-	M-	NC	M-	
Robinson	L-	L-	L-	NC	L-	L-	L-	L-	NC	L-						L+	L+	L+	NC	L+	L-	L-	L-	NC	L-	
Toroweap	L-	L-	L-	NC	L-	L-	L-	L-	NC	L-	L-	L+	L+	NC	L+	L+	L+	L+	NC	L+	L-	L-	L-	NC	L-	
Mount Logan	H-	H-	H-	NC	H-	H-	H-	H-	NC	H-	H+	H+	H+	NC	H+	H+	H+	H+	NC	H+	H-	H-	H-	NC	H-	
Mount Trumbull	H+	H+	H+	NC	H+	H+	H+	H+	NC	H+	H+	H+	H+	NC	H+	H+	H+	H+	NC	H+	H-	H-	H-	NC	H-	
Poverty Mountain	M+	L+	M-	NC	M+	M+	L+	M-	NC	M+						M-	L-	M+	NC	L-	M+	L+	M-	NC	M+	1,000
Parashaunt	M+	L+	M-	NC	M+	M+	L+	M-	NC	M+	M-	L-	M+	NC	L-	M-	L-	M+	NC	L-	M+	L+	M-	NC	M+	
Dansil Canyon	L-	L-	L-	NC	L-	L-	L-	L-	NC	L-						L+	L+	L+	NC	L+	L-	L-	L-	NC	L-	
Grassy Mountain	L+	L+	L-	NC	L+	L+	L+	L-	NC	L+						L-	L-	L+	NC	L-	L+	L+	L-	NC	L+	
Andrus Canyon	M+	L+	M-	NC	M+	M+	L+	M-	NC	M+	M-	L-	M+	NC	L-	M-	L-	M+	NC	L-	M+	L+	M-	NC	M+	
N. Dellenbaugh	H-	L-	H-	NC	H-	H-	L-	H-	NC	H-						H+	L+	H+	NC	H+	H-	L-	H-	NC	H-	
G and F	L-	L-	L-	NC	L-	L-	L-	L-	NC	L-						L+	L+	L+	NC	L+	L-	L-	L-	NC	L-	
Salt House	M+	L+	M-	NC	M+	M+	L+	M-	NC	M+						M-	L+	M+	NC	M-	M+	L+	M-	NC	M+	200
Mustang Point	M+	L+	M+	NC	M+	M+	L+	M+	NC	M+						M-	L-	M+	NC	M-	M+	L+	M+	NC	M+	500-750
Nevershine	H-	M-	H-	NC	H-	H+	M+	H+	NC	H+						H+	M+	H+	NC	H+	H-	M-	H-	NC	H-	
Snap Point	M-	L-	M-	NC	M-	M-	L-	M-	NC	M-						M+	L+	M+	NC	M+	M-	L-	M-	NC	M-	
Tincanebitts	L-	L-	M-	NC	M-	L-	L-	M-	NC	M-						L+	L+	M+	NC	M+	L-	L-	M-	NC	M-	
Grand Gulch	L-	L-	H-	NC	M-	L-	L-	H-	NC	M-						L+	L+	H+	NC	M+	L-	L-	H-	NC	M-	
Pigeon Canyon	H-	L-	H-	NC	M-	H+	L+	H+	NC	M+	H+	L+	H+	NC	H+	H+	L+	H+	NC	H+	H-	L-	H-	NC	M-	
Last Chance	H+	L+	M-	NC	M+	H-	L-	M+	NC	M-						H-	L-	M+	NC	M-	H+	L+	M-	NC	M+	1,250
Grand Wash Cliff	H-	L-	H-	L-	H-	H-	L-	H-	L-	H-	H+	L+	H+	NC	H+	H+	L+	H+	NC	H+	H-	L-	H-	L-	H-	
Pakoon Springs	L-	M-	H-	L-	H-	L-	M-	H-	L-	H-	L+	M+	H+	NC	L-	L+	M+	H+	NC	L-	L-	M-	H-	L-	H-	
Hidden Rim	M+	L+	M-	NC	M+	M+	L+	M-	NC	M+						M-	L-	M+	NC	M-	M+	L+	M-	NC	M+	2-3,000
Hobble Canyon	L+	L+	M-	NC	L+	L+	L+	M-	NC	L+						L-	L-	M+	NC	L+	L+	L+	M-	NC	L+	
Ide Valley	L+	L+	M-	NC	L+	L+	L+	M-	NC	L+						L-	L-	M+	NC	L+	L+	L+	M-	NC	L+	
Sand Cove	M+	L+	M-	NC	M+	M-	L-	M+	NC	M-	H-	L-	M+	NC	M-	H-	L-	M+	NC	M-	M+	L+	M-	NC	M+	
Virgin Mountains	H-	L-	M-	NC	H-	H-	L-	M-	NC	H-	H+	L+	M+	NC	H+	H+	L+	M+	NC	H+	H-	L-	M-	NC	H-	
Virgin River	L+	L+	M+	NC	M+	L+	L+	M+	NC	M+						L+	L+	M+	NC	M+	L-	L-	M-	NC	M-	
Purgatory	L-	L-	M-	NC	M-	L-	L-	M-	NC	M-						L+	L+	M+	NC	M+	L-	L-	M-	NC	M-	
Lime Hills	H-	L-	L-	NC	H-	H-	L-	L-	NC	H-	H+	L+	L+	NC	H+	H+	L+	L+	NC	H+	H-	L-	L-	NC	H-	
Narrows	H-	L-	H-	NC	H-	H-	L-	H-	NC	H-						H+	L+	H+	NC	H+	H-	L-	H-	NC	H-	
Mount Emma	L-	L-	L-	NC	L-	L-	L-	L-	NC	L-	L+	L+	L+	NC	L+	L+	L+	L+	NC	L+	L-	L-	L-	NC	L-	
Vermillion Cliff	H-	L-	M-	NC	H-	H+	L+	M+	NC	H+						H+	L+	M+	NC	H+	H-	L-	M-	NC	M-	
Big Sage	L-	L-	L-	NC	L-	L-	L-	L-	NC	L-						L+	L+	L+	NC	L+	L-	L-	L-	NC	L-	
Turbinella Oak	L-	L-	L-	NC	L-	L-	L-	L-	NC	L-						L+	L+	L+	NC	L+	L-	L-	L-	NC	L-	

- Adverse impact L - Low impact +H High impact
+ Beneficial impact M Moderate impact NC No change

* Change from Interim Management to Wilderness Management
** The effect of the short-term use on wildlife production

WILDLAND PRESERVATION

Impact Analysis

Wildland Preservation would designate as wilderness 185,000 acres or 53 percent of the EIS area's desert bighorn sheep habitat and 63,000 acres or 30 percent of the EIS area's desert tortoise and Gila monster habitat. This alternative would designate more habitat than would either the *Proposed Action* or *Enhanced Wilderness.* Reduced access due to restrictions on mineral development and native plant removal would markedly benefit the habitat of many wildlife species, especially desert bighorn sheep, desert tortoises, and Gila monsters. Important bighorn sheep habitat occurs in Ferry Swale, Paria Plateau, Kanab Creek, Hack Canyon, Pigeon Canyon, Grand Wash Cliffs, Virgin Mountains, and Lime Hills WSAs. Pigeon Canyon, Grand Wash Cliffs, Pakoon Springs, and Virgin Mountains WSAs provide important desert tortoise and Gila monster habitat.

Wilderness designation would limit the extending of grazing pressure resulting from the development of new livestock waters. Existing forage conditions could thus be maintained in Ferry Swale, Paria Plateau, Kanab Creek, Hack Canyon, Mt. Logan, Parashaunt, Andrus Canyon, Pigeon Canyon, Grand Wash Cliffs, Pakoon Springs, Sand Cove, Virgin Mountains, and Lime Hills WSAs. Maintaining existing conditions would benefit many wildlife species, particularly such sensitive species as desert bighorn sheep and desert tortoises.

About 6,550 acres of land treatment are proposed for Sand Cove and Parashaunt WSAs. Restricting land treatment, especially in pinyon-juniper habitats, would benefit nongame birds but would prevent the rehabilitating of 500 to 1,000 acres of mule deer summer range on Sand Cove WSA as proposed in the Black Rock Habitat Management Plan.

Wildland Preservation would protect ponderosa pine habitats in both Mt. Trumbull and Mt. Logan WSAs. Such habitats are important to various wildlife species: mule deer, Merriam's turkey, Kaibab squirrel, goshawks, Coopers hawks, and various species of owls, songbirds, and cavity-nesting nongame birds. Mt. Logan WSA has 7,000 acres of ponderosa pine habitat, including most of the high-quality summer range for the Mt. Trumbull deer herd. Mt. Logan WSA has the highest wildlife values in the EIS area and would greatly benefit from restricting any timber harvests. The cover, nesting, and roosting habitat provided by ponderosa pine far outweigh this habitat's forage-producing capability.

Restricting predator control, however, would eliminate a management option for aiding the recovery of the deer herd in Mt. Trumbull and Mt. Logan WSAs.

Conclusion

Wildland Preservation would help maintain a significant amount of wildlife habitat in its present condition and would overall benefit more than harm wildlife habitat. Wilderness designation would maintain 185,000 acres of bighorn sheep habitat and 12,000 acres of ponderosa pine habitat in good to excellent condition.

ALL WILDERNESS

Impact Analysis

Under *All Wilderness,* 295,000 acres or 84 percent of the EIS area's desert bighorn sheep habitat and 98,000 acres or 47 percent of desert tortoise and Gila monster habitat would benefit from the restricting of mineral development and of harvesting desert plants. Reducing vehicular access would favor all wildlife species and habitats, particularly the sensitive species previously mentioned. Narrows WSA contains a large segment of the Arizona Beaver Dam Slope tortoise population. The Utah portion is being classified as threatened under section 7 of the Endangered Species Act. Restricting vehicular access would decrease tortoise collecting and habitat deterioration. The most important desert tortoise and desert bighorn sheep habitat occurs on the following WSAs: Starvation Point, Nevershine Mesa, Grand Gulch, Pigeon Canyon, Grand Wash Cliffs, Pakoon Springs, Virgin Mountains, Paria Plateau, Kanab Creek, Hack Canyon, Mustang Point, Snap Point, Virgin River, Narrows, Lime Hills, and Vermillion Cliffs.

Restricting new water developments and thus restricting the extension of livestock grazing pressure into lightly to moderately grazed areas would benefit wildlife in the following WSAs: Paria Plateau, Hack Canyon, Mt. Trumbull, Mt. Logan, North Dellenbaugh, Starvation Point, Grassy Mountain, Pigeon Canyon, Last Chance, Grand Wash Cliffs, Pakoon Springs, Hidden Rim, Hobble Canyon, and Sand Cove. Developing waters in these WSAs would increase forage competition involving sensitive wildlife.

Restricting land treatment would greatly benefit nongame bird populations in the following WSAs: Poverty Mountain, Paria Plateau, Parashaunt, Grassy Mountain, North Dellenbaugh, G and F, Salt House, Mustang Point, Snap Point, Last Chance, and Sand Cove. An estimated 20,000 to 25,000 acres of pinyon-

juniper woodland proposed for chaining could not be chained under *All Wilderness*. On the other hand, restricting land treatment would prevent the rehabilitation of 7,200 acres of mule deer summer range proposed by the Black Rock and Parashaunt Habitat Management Plans for the following WSAs: Last Chance, Poverty Mountain, Sand Cove, Salt House, Mustang Point, and Hidden Rim.

All Wilderness would ensure that most wildlife communities would stay at optimum habitat conditions by restricting commercial timber harvesting. Mt. Trumbull, Mt. Logan, and North Dellenbaugh WSAs make up 75-80 percent (12,500 acres) of the ponderosa pine habitat within the EIS area. The scarcity of ponderosa pine and the island-like nature of the forests make them extremely important to attendant wildlife.

Restricting predator control in the future may hinder the ability of mule deer populations to respond to improving range conditions and habitat development projects within the Black Rock and Parashaunt Habitat Management Areas.

Conclusion

The wildlife habitat benefits of *All Wilderness* would far outweigh any adverse impacts, which would mostly involve mule deer habitat management. Desert bighorn sheep, desert tortoise, and Gila monster habitats would significantly benefit.

NO WILDERNESS

Impact Analysis

The impacts of *No Wilderness* on wildlife would depend on the degree and distribution of future development within each WSA. The cumulative effects of intense mineral development (increased vehicular access), removal of desert vegetation (increased vehicular access), commercial timber harvests (habitat alteration), land treatment (habitat alteration), and livestock water development (increased forage competition) would determine the overall impacts to wildlife habitat. The three sensitive wildlife species with the greatest potential for being impacted are the desert bighorn sheep, desert tortoise, and Gila monster.

Twenty WSAs have the highest known mineral potential. Of these 20, 14 have known deposits. Robinson Canyon, Kanab Creek, and Hack Canyon WSAs have valuable deposits. The 20 WSAs with the highest known mineral potential have 191,744 acres or 55 percent of the EIS area's desert bighorn sheep habitat and 59,705 acres or 29 percent of the EIS area's desert tortoise and Gila monster habitat. Vehicular access is expected to increase as a result of mineral development, adversely impacting a large amount of habitat.

The removal of native desert vegetation is expected to increase vehicular access and habitat deterioration on nine WSAs. These WSAs involve 71,072 acres and lie next to major dirt roads, highways, and population centers. Desert tortoises and Gila monsters could potentially be harmed.

Approximately 20,000-25,000 acres of pinyon-juniper woodland on 15 WSAs are programmed for land treatment, representing 5 percent of the total pinyon-juniper woodland in the EIS area. The degree of impact on nongame bird communities would depend on land treatment design features. Land treatment, however, would render 20,000-25,000 acres of habitat unsuitable to species that solely depend on the pinyon-juniper woodland for breeding, wintering, or both.

Wildlife-livestock forage competition is expected to increase on 11 WSAs because of the proposed development of livestock waters. The desert bighorn sheep and desert tortoise are the two sensitive species that would potentially be impacted the most.

Under *No Wilderness* timber may be commercially harvested in the Mt. Logan and North Dellenbaugh WSAs. The Mt. Trumbull WSA should remain unchanged for some time because of access problems. Timber harvesting would adversely alter 3,689 acres of ponderosa pine habitat, involving 30 percent or 389 acres of the Parashaunt forest (North Dellenbaugh WSA) and 37 percent or 3,300 acres of the Mt. Logan forest (Mt. Logan WSA). Ponderosa pine habitat would be significantly reduced. These isolated islands of ponderosa pine habitat are critical to such dependent wildlife species as goshawks, Cooper's Hawks, woodland owls, cavity-nesting nongame birds, songbirds, Merriam's turkeys, and Kaibab squirrels.

Conclusion

No Wilderness could have significant adverse impacts to wildlife habitat, especially that of desert tortoise and desert bighorn sheep. This assessment is based on projected future development of activities that degrade wildlife habitat. The degree and distribution of these activities would determine how heavily habitat would be impacted.

Impacts on Land Use

CONCLUSION

Wilderness designation of Starvation Point and

Kanab Creek WSAs could limit the expansion of the utility corridor along the Navajo-McCullough powerline on the north sides of these units. Wilderness designation would also prevent new rights-of-way from being developed in any designated wilderness areas. Most rights-of-way, however, are located around and in between communities, and the WSAs in the Arizona Strip District are mostly isolated from communities.

Impacts on Mineral Exploration and Development

PROPOSED ACTION

Impact Analysis

Oil and Gas. Several WSAs recommended for wilderness designation under the *Proposed Action* have potential for oil and gas production (Table 3-5). Where a valid lease does not exist on a unit as of December 31, 1983 or wilderness designation, no more leasing or drilling can occur.

Uranium. Wilderness designation would prevent additional exploration for uranium where discoveries have not been made as of December 31, 1983 or wilderness designation. An estimated 30 claims exist in the WSAs that would be designated wilderness under the *Proposed Action*. If any WSAs with claims are designated wilderness, BLM will have to determine the validity of all claims on which plans of operation are submitted. In many instances several work months would be required to determine the validity of a claim.

Other Minerals. The southern end of Lime Hills WSA has significant mineralization, which includes copper, lead, and iron. No economically feasible deposits are known, but wilderness designation could preclude further exploration where claims are not found valid. In addition, possible sources for cinders in Mt. Trumbull WSA could not be used after wilderness designation.

Conclusion

Wilderness designation under the *Proposed Action* would restrict the exploration needed to evaluate

Level area of Emmett Wash WSA (009), which is not recommended for wilderness designation by either the Proposed Action or by the Enhanced Wilderness alternative.

mineral potential in the WSAs and would preclude production that might result from exploration. The WSAs proposed for designation, however, are believed to have less mineral potential than the rest of the EIS area's WSAs.

ENHANCED WILDERNESS

Impact Analysis

Oil and Gas. Under *Enhanced Wilderness* all but two WSAs proposed for designation are considered favorable for oil and gas exploration. Wilderness designation, however, would not allow the leasing and exploration needed to evaluate the oil and gas potential of the WSAs.

Uranium. Over 200 mining claims have been filed within WSAs that would be designated under *Enhanced Wilderness*. No economic deposits are known, but wilderness designation would preclude further exploration on any claims where discoveries are not made before December 31, 1983 or wilderness designation. Designation would also require a validity determination on all mining plans of operation submitted after December 31, 1983.

Other Minerals. Wilderness designation under *Enhanced Wilderness* would preclude further exploration and possible development of gypsum deposits in Starvation Point WSA, cinder deposits in Mt. Trumbull WSA, and copper in Pigeon Canyon and Last Chance WSAs, where deposits are not discovered before December 31, 1983 or wilderness designation.

Conclusion

Enhanced Wilderness would designate as wilderness an area seven to eight times the size of the area that would be designated under the *Proposed Action* and an area with much greater potential for mineral production than that under the *Proposed Action*. The greatest immediate effect of *Enhanced Wilderness* would be to deter exploration in areas considered to have good potential for mineral production.

WILDLAND PRESERVATION

Impact Analysis

Oil and Gas. Fifteen of the 21 units proposed for designation under this alternative have conditions favorable to oil and gas production. Wilderness designation would preclude more leasing and exploration within the WSAs.

Uranium. All WSAs that would be designated wilderness under *Wildland Preservation* have conditions favorable for the presence of uranium. Kanab Creek WSA has known ore, and Hack Canyon WSA has favorable indications and is being further explored. Designation of the units would preclude further location and exploration where a discovery has not been made before December 31, 1983. BLM will have to determine the validity of all claims for which a plan of operation is submitted after this date.

Other Minerals. Other minerals, such as gypsum, flagstone, cinders, and copper, are known within several WSAs that would be designated wilderness. Any use of minerals classed as saleable would be precluded as a result of designation. Any further exploration or development would be precluded on the locatable minerals where a valid claim has not been determined before December 31, 1983 or wilderness designation.

Conclusion

Wildland Preservation would exclude 540,468 acres from further mineral exploration. Most of the units proposed for designation have potential for oil and gas production, and all units have conditions favorable for the presence of uranium. Designation would not stop the development of deposits proven as of December 31, 1983 or before designation, such as the one in Kanab Creek WSA, but it would preclude more exploration.

ALL WILDERNESS

Impact Analysis

Oil and Gas. Although 29 WSAs have conditions favorable to oil accumulation, drilling is the only means of finding the presence of oil and gas. Wilderness designation would preclude leasing and exploration after December 31, 1983.

Uranium. From 80 to 90 percent of the area covered by WSAs in the Arizona Strip District is considered favorable to uranium occurrence. Wilderness designation would prohibit further exploration or new locations on areas whose discoveries occur after December 31, 1983 or after designation, whichever is later. BLM will have to determine the validity of all claims for which a plan of operation is submitted after this date. Validity determinations can take several workmonths and commonly involve a total time-lapse of 1-2 years.

Other Minerals. The potential for other mineral development in the EIS area's WSAs is as shown in Table 3-5. None of these minerals are being produced in significant quantities, but the possibility remains.

Designating all WSAs as wilderness would preclude further exploration on the locatable minerals where a discovery has not been made by December 31, 1983 or before wilderness designation. After this date no saleables, such as cinders and flagstone, could be sold, and BLM would have to determine the validity of all claims for which a plan of operation is submitted.

Conclusion

All Wilderness would preclude mineral exploration on 787,260 acres. The potential for development of uranium and oil on many of these WSAs is significant.

NO WILDERNESS

Impact Analysis

No Wilderness would benefit the Arizona Strip District's mining industry. Once the WSAs are released from Interim Management, mineral exploration and development could continue as before Interim Management.

Conclusion

No Wilderness would benefit the possible mineral exploration and development in the EIS area by removing the WSAs from Interim Management and returning them to multiple-use management.

Impacts on Livestock Grazing

BASIC ASSUMPTIONS

The analysis of impacts of wilderness designation or nondesignation on livestock grazing was based on the following assumptions.

1. New water catchments, wells, and land treatments will not be allowed in WSAs. Other new improvements, such as fences, pipelines, and reservoirs, will be allowed because they would have insignificant impacts.

2. Existing range improvements can be maintained.

3. With the new stocking levels set within carrying capacities, range condition will improve in vegetation types capable of improvement (grassland, sagebrush in fair and good conditions, desert shrub in fair and good condition, half shrubs, and annuals). Without land treatment, such vegetation types as pinyon-juniper, poor condition sagebrush, creosotebush, blackbrush, mountain shrub, conifer, saltbush, and shadscale, won't improve in condition.

4. Prohibiting the building of water catchments and wells will not affect range condition as outlined in assumption 3.

5. Preventing the implementation of allotment management plans (AMPs) will still allow range condition to change as outlined above, as stocking levels stay within proper carrying capacities. This change is discussed in detail in Shivwits and Vermillion Grazing EISs (BLM, 1979a; 1979b).

6. Existing methods and temporary facilities for burro herd reduction will be allowed in WSAs, including temporary corrals and the use of helicopters and horses.

Table 4-3 shows the impacts of wilderness designation on livestock grazing.

PROPOSED ACTION

Impact Analysis

The *Proposed Action* would only slightly harm livestock grazing by precluding the building of one catchment in Cedar Mountain allotment and the treatment of 280 acres each on Black Rock and Sullivan Canyon allotments. It would thus prevent a carrying capacity increase of 110 AUMs. The *Proposed Action,* however, would not prevent implementing any AMPs.

Conclusion

The *Proposed Action* would not impact livestock grazing.

ENHANCED WILDERNESS

Impact Analysis

Enhanced Wilderness would prevent the building of a catchment on Grassie Mountain allotment and a catchment on Cedar Mountain allotment and preclude land treatment on 6,951 acres on four allotments or 5 percent of the total proposed land treatment in the EIS area. Forage would thus not increase by an expected 1,365 AUMs, and the Cottonwood AMP could not be implemented.

Conclusion

Enhanced Wilderness would only slightly impact livestock grazing.

WILDLAND PRESERVATION

Impact Analysis

Wildland Preservation would prevent 13,000 acres of land treatment (9 percent of all proposed for the EIS

TABLE 4-3
Livestock Grazing Impacts*

WSA	AUMs Precluded	Range Developments Precluded: Land Treatment/ Allotment (Acres)	Range Developments Precluded: Catchments/Allotment
Ferry Swale (006A)			
Proposed	0	0	1 Cedar Mtn.
Enhanced	0	0	1 Cedar Mtn.
Wildland	0	0	1 Cedar Mtn.
All	0	0	1 Cedar Mtn.
No Action	0	0	0
Paria Plateau (008A/019)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	65	333,Two Mile	1 Vermillion
All	65	333,Two Mile	1 Vermillion
No Action	0	0	0
Overlook (008B)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	85	435,Two Mile	0
All	85	435,Two Mile	0
No Action	0	0	0
Emmett Wash (009)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	0	0	Storage tank-Soap Creek
All	0	0	Storage tank-Soap Creek
No Action	0	0	0
Kanab Creek (031)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	0	0	1 Gunsight
All	0	0	1 Gunsight
No Action	0	0	0
Hack Canyon (033A)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	235	1,200,June Tank	2 Sunshine
All	235	1,200,June Tank	2 Sunshine
No Action	0	0	0
Toroweap (050)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	16	80,Mount Logan	0
All	16	80,Mount Logan	0
No Action	0	0	0
Poverty Mountain (091)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	0	0	0
All	251	1,280,Poverty Mtn.	0
	59	300,Ivanpah	
No Action	0	0	0
Parashaunt (093)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	181	921,Grassie Mt.	0
All	181	921,Grassie Mt.	0
No Action	0	0	0
Grassy Mountain (096C)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	0	0	0
All	235	1,200,Grassie Mt.	0
No Action	0	0	0
Andrus Canyon (0960)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	334	1,700,Grassie Mt.	0
	64	330,Wildcat	
All	334	1,700,Grassie Mt.	0
	64	330,Wildcat	
No Action	0	0	0
North Oellenbaugh (097)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	0	0	0
All	71	360,Wildcat	0
	176	896,Parashaunt	
No Action	0	0	0
Salt House (104A)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	0	0	0
All	1,191	6,067,Wildcat	0
No Action	0	0	0
Mustang Point (104B)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	0	0	0
All	393	2,000,Wildcat	0
No Action	0	0	0
Nevershine, Snap Point, and Tincanebitts (105A,B,C)			
Proposed	0	0	0
Enhanced	131	665,Wildcat	0
Wildland	0	0	0
All	131	665,Wildcat	0
No Action	0	0	0
Pigeon Canyon (109)			
Proposed	0	0	0
Enhanced	186	950,Wildcat	0
Wildland	186	950,Wildcat	1 Tassi
All	186	950,Wildcat	1 Tassi
No Action	0	0	0
Last Chance (111)			
Proposed	0	0	0
Enhanced	295	1,500,Grassie Mt.	1 Grassie
Wildland	0	0	0
All	295	1,500,Grassie Mt.	1 Grassie
No Action	0	0	0
Grand Wash Cliffs (112)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	491	2,500,Grassie Mt.	0
All	491	2,500,Grassie Mt.	0
No Action	0	0	0
Hidden Rim (119)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	0	0	0
All	30	153,Jump Canyon	1 Jump Canyon
No Action	0	0	0
Hobble Canyon (124)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	0	0	0
All	95	486,Hidden	0
	275	1,400,Mud and Cane	
No Action	0	0	0
Ide Valley (127)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	0	0	0
All	301	1,536,Mud and Cane	0
No Action	0	0	0
Sand Cove (128)			
Proposed	0	0	0
Enhanced	30	153,Littlefield Comm.	0
	186	947,Cottonwood	
	427	2,176,Mud and Cane	
Wildland	427	2,176,Mud and Cane	0
	186	947,Cottonwood	
	125	640,Sullivan Canyon	
	30	153,Littlefield Comm.	
All	427	2,176,Mud and Cane	0
	186	947,Cottonwood	
	125	640,Sullivan Canyon	
	30	153,Littlefield Comm.	
No Action	0	0	0
Lime Hills (134)			
Proposed	55	280,Sullivan Canyon	0
	55	280,Black Rock	
Enhanced	55	280,Sullivan Canyon	0
	55	280,Black Rock	
Wildland	55	280,Sullivan Canyon	0
	55	280,Black Rock	
All	55	280,Sullivan Canyon	0
	55	280,Black Rock	
No Action	0	0	0
Mt. Emma (136)			
Proposed	0	0	0
Enhanced	0	0	0
Wildland	15	75,Mt. Logan	0
All	15	75,Mt. Logan	0
No Action	0	0	0

Note: 17 acres/AUM is carrying capacity before land treatment
5.09 acres/AUM after land treatment
(Shivwits and Vermillion Grazing EIS)

*Table lists only WSAs whose livestock grazing would be impacted by wilderness designation.

TOTALS	AUMs	Acres
Proposed	110	560
Enhanced	1,365	6,951
Wildland	2,550	13,000
All	6,053	30,843

area) and preclude a possible 2,550 AUMs increase in livestock forage. Seven water developments would either have to be relocated or cancelled. Cottonwood, Mud and Cane, Wildcat, and Grassie Mountain AMPs could not be implemented.

Conclusion

Overall, *Wildland Preservation* would have a moderately adverse impact on livestock grazing.

ALL WILDERNESS

Impact Analysis

All Wilderness would have the greatest impact on livestock grazing of all alternatives, preventing the building of nine water developments in eight allotments and precluding 30,843 acres of land treatment on 15 allotments. This acreage amounts to 21 percent of the total land treatment proposed in the EIS area. An expected increase of 6,053 AUMs from land treatment would not occur. The Mud and Cane, Wildcat, Grassie, and Cottonwood AMPs could not be implemented under this alternative.

Conclusion

This alternative would have a moderately adverse impact on livestock grazing.

NO WILDERNESS

No Wilderness would not significantly impact livestock grazing. The WSAs would return to multiple-use management, range developments could be built, and land treatments could be carried out as proposed in AMPs. Forage could increase as projected.

Impacts on Cultural Resources

Wilderness designation would generally benefit cultural resources in the WSAs. All sites are affected by erosion and other natural forces, but impacts of increased development and access are usually the most severe. Many of the direct impacts of ranching, mining, and road and utility construction can be mitigated, but most new development projects result in improved access to previously remote sites. Improved access and increased visitation of sites often result in illegal artifact collection and other vandalism.

Vandalism is the second most common agent of deterioration on cultural resources in the WSAs. Although an increase in the numbers of hikers and backpackers attracted to a designated WSA could also increase vandalism, the overall destruction would probably be much less than that associated with development under multiple-use management.

Although a ban on motorized vehicles would protect remote sites and retard vehicle-related damage to surface artifacts and features, it could seriously affect the scientific study and protection of cultural resources. Cultural resource surveys heavily rely on the use of four-wheel drive vehicles and helicopters. Surveys conducted on foot would be more time consuming and expensive. Similarly, the number of sites that could be patrolled and monitored for vandalism would be limited. Scientific investigation of cultural resource sites would have to be conducted without the use of mechanized equipment and in a manner that would not impair wilderness values.

Since the WSAs are being managed so as not to impair wilderness values, wilderness designation would not immediately change management and would thus not constitute an "undertaking," as defined in 36 CFR 800.2(c)(4). Specific management strategies and planned actions will be set forth in the wilderness management plan developed for each designated wilderness area. At that time, in compliance with Section 106 of the Historic Preservation Act of 1966, BLM will contact the Arizona State Historic Preservation Officer and the Advisory Council on Historic Preservation for their comments on the proposed wilderness management plan.

The impacts of wilderness designation on cultural resources would be similar in all WSAs. Table 4-4 lists the agents of deterioration on cultural resources in the WSAs and the probable effect of wilderness designation or return to multiple-use management on the rate of each type of deterioration.

Proposed Action

Impact Analysis. The WSAs that would be designated under the *Proposed Action* are known to have prehistoric and historic sites and some sites and trails with potential for nomination to the National Register of Historic Places (NRHP).

Conclusion

Though wilderness designation would somewhat protect cultural resources, it would also increase costs of future work on the formal NRHP nominations and restrict scientific investigations in the WSAs.

Enhanced Wilderness

Impact Analysis. With the exception of the Vermillion Cliffs ISA, the WSAs proposed for designation under *Enhanced Wilderness* but not under the *Proposed*

TABLE 4-4
EXISTING AND FUTURE IMPACTS ON CULTURAL RESOURCES*

Agent of Deterioration	Existing Situation	Wilderness Designation	Multiple-Use Management
Erosion	Moderate	--/<	--/>
Vandalism	Low	<	>
Livestock Trampling	Low	----	--/>
Road/Utility Construction	Low	<	>
ORV Use	Low	<<<	>>
Mining	Moderate	<<	>>
Range Developments	Low	<<	>>

*Impacts compared to exist situation:
> = low increase
>> = moderate increase
>>> = high increase
< = low decrease
<< = moderate decrease
<<< = high decrease
----no change

Action have only project-related inventories and have a low potential for sites eligible for NRHP nomination. One potential NRHP trail crosses the Sand Cove and Pigeon Canyon units, and the Honeymoon Trail, another potential NRHP trail, crosses the Vermillion Cliffs ISA. The formal NRHP nomination for the Honeymoon Trail is being processed.

Conclusion

Although protecting unlocated sites, *Enhanced Wilderness* would reduce future scientific investigations into uninventoried areas and increase future protection/preservation costs for NRHP sites.

Wildland Preservation

Impact Analysis. Limited inventory and research reveals that 9 out of the 11 units added under *Wildland Preservation* have the potential for high prehistoric site densities, and 5 units have historic in addition to prehistoric sites. An estimated 60 percent of all known sites that would be designated under the *Wildland Preservation* alternative would be impacted.

Conclusion. *Wildland Preservation* would protect numerous archaeological resources, but the cost of scientific investigations would greatly increase because of the banning of motorized vehicles in wilderness areas. Many of the sites, especially the historical sites and trails, are known only through reference works and require fieldwork for investigation. Additionally, the cost of any future protection/preservation work would be increased by the ban on motor vehicles.

All Wilderness

Impact Analysis. *All Wilderness* would protect several hundred sites and several historic trails.

Conclusion. *All Wilderness* would protect the greatest number of sites of all alternatives but would also be the most expensive because more prehistoric and historic sites are involved.

No Wilderness (No Action)

Impact Analysis. Multiple-use management would allow the current natural erosion and cattle impacts on cultural resources to continue.

Conclusion. Under *No Wilderness* archaeological resources would lose the protection of constraints under wilderness designation. Removal of these constraints would also reduce the costs of scientific investigations, protection, and preservation of cultural resources.

Impacts on Visual Resources

IMPACT ANALYSIS

Wilderness designation usually better protects the scenery than visual resource management (VRM) classifications, particularly from mining disturbances and vegetation manipulation. For example, a project can be hidden from view of roads and trails or a chaining designed to appear natural and satisfy VRM classes, but the same projects would probably impair wilderness values. On the other hand, seedings, chainings, and controlled burnings can open up dense, monotone pinyon-juniper or certain shrubs to create small parks and meadows, which improve visual variety and provide pleasant contrast to the landscape. Energy-related (mining and oil and gas) operations and exploration probably have the greatest potential for adversely impacting visual resources. Transmission lines also have a high potential for adverse visual impacts and would most change the landscape.

Mining and mineral exploration often remove vegetation, cause erosion and loss of topsoil, and create scars on the landscape that are difficult or impossible to rehabilitate. Cliffs or steep hillsides that are bladed or blasted away cannot be restored, and level areas require many years before vegetation begins to reclaim sites, especially where rainfall is low. The sights and sounds of machines, large hauling trucks, other vehicles, and machine and vehicle operators generally conflict with wilderness values.

Land treatment, if conducted on a broad scale without regard to contours, natural-looking breaks, and islands, can also impair the natural appearance of the landscape. Sometimes land treatments follow fencelines and create obvious contrasts between the natural-looking and the plowed area on the other side of the fence. Sometimes a chaining is left with the trees knocked over and uprooted in contrast to surrounding areas.

Other projects, such as powerlines, catchments with quarter-acre bladed aprons, and large above-ground storage tanks, also detract from the scenic values in wilderness areas and are usually highly visible.

Designated wilderness areas are given a visual resource management (VRM) Class I rating, a designation used to protect areas under special management. VRM classes are intended to provide management with guidelines to protect visual resources.

Although each project is reviewed individually, some generalizations can be made. More effort and costs will usually be needed to make a project fit the landscape in a VRM Class I than in less restrictive Classes II-IV. The greater effort or cost to make a project fit a particular VRM class would depend on the visual aspects of the project, the quality of the landscape around the project, human sensitivity to proposed developments, and the distance from which most people view the project. Projects that would probably not meet VRM Class I objectives include above-ground transmission lines, power plants, and roads. Such projects, however, might be allowed if found to be in the national interest. Fences and water developments would be considered within wilderness visual objectives if properly designed, built, and located. Projects built in a VRM Class I area may cost more because of the extra care in design and construction. Most changes amount to using natural colors, reducing soil land plant disturbances, adopting a low-profile design, and locating the project out of sight from often used roads or trails.

If a WSA is not designated as wilderness, its visual resources would be managed under the VRM Class guidelines, which would not protect the scenery as thoroughly as would wilderness designation Class I restrictions.

GENERAL CONCLUSIONS

Mining and mineral exploration would remove vegetation, cause erosion and loss of topsoil, and create scars on the landscape that might be difficult to rehabilitate. Moreover, if carried out on a broad scale without regard to contours, land treatment can impair the natural appearance of the landscape. Other projects such as powerlines, catchment aprons, and large storage tanks detract from the scenic values in wilderness areas and may be highly visible.

Wilderness designation would protect scenic values by prohibiting widescale vegetation and surface disturbances caused by land treatments, large catchment construction, mining, and mineral exploration.

CONCLUSIONS BY ALTERNATIVE

Proposed Action. Under the *Proposed Action,* 22,813 acres designated as VRM Class II, 903 acres designated as Class III, and 2,470 acres designated as Class IV would be reclassified into the more restrictive Class I. Table 4-5 shows VRM Class acreages involved under each alternative.

Enhanced Wilderness. Under *Enhanced Wilderness,* 74,580 acres designated as Class II, 30,007 acres

TABLE 4-5
VRM CLASS ACREAGE

VRM CLASS	PROPOSED ACTION	ENHANCED WILDERNESS	WILDLAND PRESERVATION	ALL WILDERNESS	NO WILDERNESS
I	57,104	190,025	528,573	774,148	30,918
II	206,133	154,366	49,930	0	228,946
III	87,289	58,185	39,762	0	88,192
IV	423,622	371,572	155,883	0	426,092
TOTAL	774,148	774,148	774,148	774,148	774,148

For definitions see Chapter 3.

designated as Class III, and 54,520 acres designated as Class IV would be designated Class I.

Wildland Preservation. Under *Wildland Preservation,* 179,016 acres designated as Class II, 48,430 acres designated as Class III, and 270,209 acres designated as Class IV would be reclassified into the more restrictive Class I.

All Wilderness. Under *All Wilderness* all acreage not already in Class I (743,320 acres) would be so designated.

No Wilderness. No change in classification would occur under *No Wilderness.*

Impacts on Recreation

Wilderness designation would preserve opportunities for primitive and unconfined recreation while decreasing opportunities for recreation dependent upon motorized vehicles. The Arizona Strip provides abundant opportunities for both types of recreation. Wilderness designation would concentrate primitive and unconfined recreation use by drawing attention to specific areas. Visitor use in wilderness areas is expected to increase, but these increases are not expected to approach the carrying capacity of the WSAs. Wilderness designation would eliminate recreation dependent on motorized vehicles in designated areas. Acreages closed to ORV use under each alternative are shown in Table 4-6.

Recreation visitor use data for the EIS area do not exist because of the unstructured and dispersed nature of recreation in the area.

PROPOSED ACTION

Impact Analysis

The *Proposed Action* would protect 26,186 acres, including such significant scenic and geologic features as occur at Mt. Trumbull, Kanab Creek, and the rim of Paria Canyon. The Virgin River Gorge and Vermillion Cliffs would continue to be protected by existing designations.

The *Proposed Action* would insignificantly impact car camping and picnicking, since the WSAs involved do not provide the vehicle access needed for these activities. Backpacking, on the other hand, would benefit from this proposal. Paria Canyon and Paiute Primitive Areas would be better protected by the addition of contiguous areas. In addition, the *Proposed Action* would protect Kanab Creek, an increasingly popular access route into the Grand Canyon.

The *Proposed Action* would close 26,186 acres to ORVs, reducing the opportunity for ORV recreation and access by hunters. The WSAs that would be designated by the *Proposed Action,* however, are not suited for ORV use and are not important hunting areas.

Conclusion

The *Proposed Action* would benefit the areas designated by preserving significant opportunities for primitive and unconfined recreation and having slight or no adverse impacts on ORV use and hunting.

ENHANCED WILDERNESS

Impact Analysis

Enhanced Wilderness would better protect a portion of the Virgin River Gorge, now under a scenic withdrawal, and more greatly restrict activities that might impair the scenic quality of the Vermillion Cliffs Natural Area. *Enhanced Wilderness* would also designate as wilderness a major portion of the Grand Wash Cliffs, which offer opportunities for scenic and geologic sightseeing, and Sand Cove WSA, which has colorful formations and interesting geologic features.

TABLE 4-6
ACREAGE CLOSED TO ORV USE UNDER WILDERNESS DESIGNATION

Proposal	WSA Acreage		
	Open	Restricted	Closed
Proposed Action	250,328	497,634	26,186
Enhanced Wilderness	243,583	351,337	179,228
Wildland Preservation	24,272	218,608	531,268
All Wilderness	0	0	774,148
No Wilderness	273,648	500,500	0

Vehicle access for car camping and picnicking would be restricted, but the affected areas are not heavily used for these activities. More acres designated as wilderness would preserve backpacking opportunities, providing more diversity in hiking.

Enhanced Wilderness would not restrict hunter access but would impair the opportunity to develop future hunter access in Sand Cove WSA, an important hunting area. On the other hand, *Enhanced Wilderness* would designate areas that have been proposed for future bighorn sheep transplants and protect bighorn habitat, which could increase future hunting opportunities. In closing 179,228 acres to vehicular access, *Enhanced Wilderness* would reduce ORV recreation opportunities.

Conclusion

Enhanced Wilderness would preserve significant primitive and unconfined recreation opportunities while eliminating vehicular access on 179,228 acres. Wilderness designation would have only a slight adverse impact on hunting and ORV use.

WILDLAND PRESERVATION

Impact Analysis

Although *Wildland Preservation* would not give wilderness protection to the Virgin River Gorge and Vermillion Cliffs further study area, it would protect important geographic features of Kanab Canyon, the Uinkaret Mountains, Soap Creek Canyon, and major Grand Canyon tributaries draining the Shivwits Plateau. More acreage would be preserved for backpacking than under the *Proposed Action* or *Enhanced Wilderness,* including units next to Paria Canyon and Kanab Canyon, two areas with major hiking attractions. Few hiking opportunities, however, would be preserved in the Grand Wash Cliffs.

The closing of 531,268 acres to motorized travel would only slightly impact camping and picnicking, since the terrain of most of the WSAs involved is too rough for cross-country travel. Restricting motorized vehicles would slightly restrict hunter access and reduce future hunting opportunities. *Wildland Preservation,* however, would protect bighorn sheep habitat, expanding the diversity of hunting opportunities on the Arizona Strip.

Conclusion

Wildland Preservation would preserve significant primitive and unconfined recreation opportunities while eliminating vehicular access on 531,268 acres. Wilderness designation would have a moderately adverse impact on hunting and ORV use.

ALL WILDERNESS

Impact Analysis

All Wilderness would provide wilderness protection for all of the Grand Wash Cliffs, the upper tributary drainages to the Grand Canyon, and the Uinkaret Mountains, as well as areas of low scenic quality. Camping and picnicking opportunities would be diminished by the restricting of vehicular access on 774,148 acres. Though much of the area proposed for wildernes designation receives little use, restricting vehicle use in the EIS areas's WSAs, which tend to be concentrated, would limit access to major sightseeing attractions, such as the Grand Wash Cliffs.

All Wilderness would designate some areas being considered for management to increase deer populations. Restricting vehicular access for hunting may mean a loss of such projects.

Conclusion

All Wilderness would provide the most protection for wilderness recreation opportunities, but closing vehicular access on 774,178 acres would significantly harm hunting and ORV recreation.

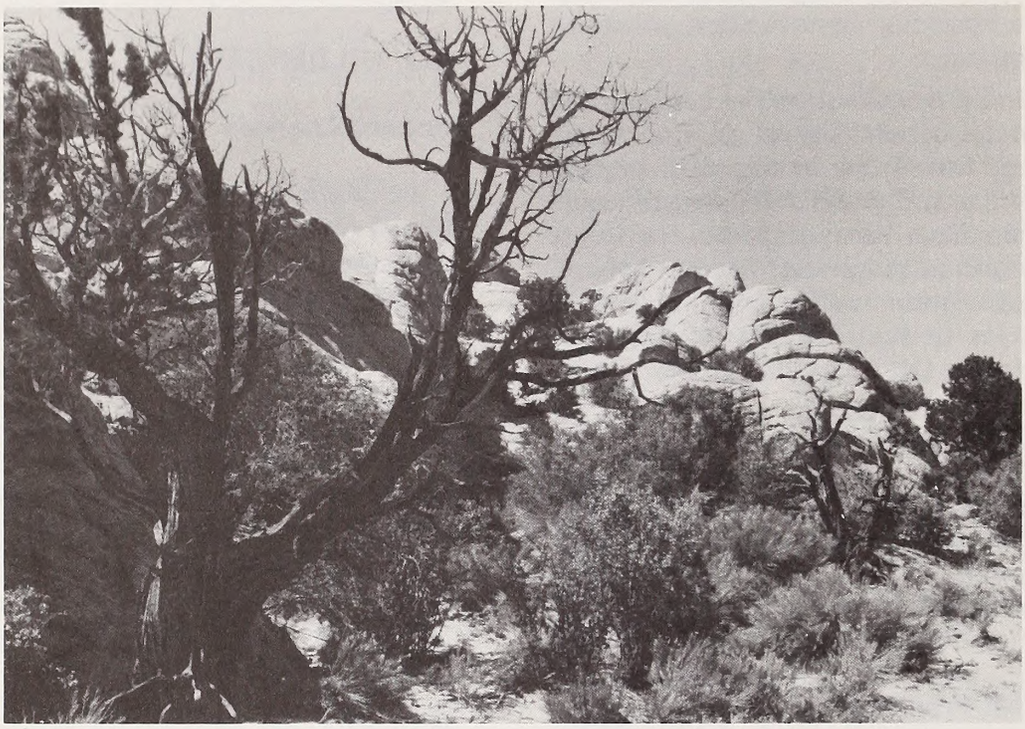
NO WILDERNESS

Impact Analysis

No Wilderness would close no areas to vehicular access but would limit the protection of scenic resources to the existing scenic withdrawal in the Virgin River Gorge, the Vermillion Cliffs Natural Area designation, and the VRM classification system. The areas of highest scenic sensitivity would be preserved, but the EIS area's scenic resources are likely to deteriorate somewhat. Except at existing designated areas. *No Wilderness* could result in the loss of some camping, picnicking, and backpacking opportunities. The overall primitive character of the Arizona Strip would probably decrease as a result of mining and intensive grazing management. Hunting opportunities would probably increase district wide.

Conclusion

No Wilderness would perpetuate existing outdoor recreation in the Arizona Strip. Wilderness recreation opportunities may be reduced, and the overall primitive



Sandstone butte in Paria Plateau WSA (008A/19). This portion of the unit is recommended for wilderness designation by all alternatives except No Wilderness.

character of the Arizona Strip would decrease with adverse impacts to primitive and unconfined recreation. ORV use would not be further constrained.

Impacts on Forest Management

PROPOSED ACTION

Impact Analysis. Under the *Proposed Action,* wilderness designation of Mt. Trumbull WSA would impact only 70 acres or 3 percent of the productive forests within the WSA. The remaining acreage is not accessible by road. Because the wilderness potential of Mt. Trumbull was recognized before BLM's forest inventory, the 70 acres of commercial forest were never entered into the timber base. By comparison to similar stands within the inventory, less than a quarter of a million board feet of timber would be affected.

Conclusion. The *Proposed Action* would little impact BLM's forestry program.

ENHANCED WILDERNESS, WILDLAND PRESERVATION, AND ALL WILDERNESS

Impact Analysis. Wilderness designation under these three alternatives would prohibit any form of timber management, including harvest and timber stand improvement. Approximately 3,700 acres of varying productivity would be affected, involving over 20 percent of the commercial acreage in both the Mt. Trumbull and Parashaunt forests. Removing over 20 percent of the timber base acreage would eliminate the Parashaunt as a sustained yield unit. Wilderness designation of Mt. Logan WSA would tie up over $500,000 in standing timber. Future growth would double this figure during the present rotation.

Conclusion. Designating portions of the Mt. Logan and Parashaunt forests as wilderness would have serious adverse impacts to forest management in these areas.

NO WILDERNESS

No Wilderness would not affect forest management in the EIS area.

Impacts on Fire Control and Management

Conclusion

The analysis of environmental impacts assumes that prescribed burning would be allowed to control the buildup of hazardous fuels. Wilderness designation would little affect fire control methods except by limiting the use of motorized vehicles and equipment in areas identified for full suppression. If fire threatens life, property, or wilderness character, however, any suppression action would be allowed.

Impacts on Economic Conditions

This section discusses the impacts of wilderness designation and nondesignation on economic conditions relating to livestock grazing, ranch finance, and mineral development. Economic impacts on recreation cannot be analyzed because no visitor use data exist for the WSAs and future visitor use cannot be projected.

PROPOSED ACTION

Livestock Grazing. Wilderness designation under the *Proposed Action* would prevent the building of certain rangeland developments. In preventing these developments, the *Proposed Action* would also prevent an increase of 110 AUMs in livestock forage and $606 in annual income. See Table 4-7 for impacts by WSA. The economic value is $5.51* per AUM value (Walsh, 1982).

Ranch Finance. Long-term forage increases would increase allotment values and the profitability of operations. AUM increases would improve the financial condition of the operation, making it easier for ranchers to attract operating capital. The excluding of 110 AUMs from development under the *Proposed Action* would reduce ranch values by $13,750, less than 1 percent of the existing AUM contribution to ranch values in the economic study area (ESA). Table 4-8 lists allotment value increases that would be precluded by the alternatives. Forage on 15 allotments would be affected.

Mineral Development. Most of the areas to be designated wilderness under the *Proposed Action* are believed not to have significant mineral potential. Thus, mineral development would not be greatly impacted. Moreover, the mineral potential of WSAs not designated wilderness could be developed in the future.

*The $5.51 per AUM is a Forest Service estimate of the net willingness to pay (or economic value) of AUMs in Arizona.

Conclusion. The *Proposed Action* would slightly harm livestock grazing and ranch finance but not greatly impact mineral development.

ENHANCED WILDERNESS

Livestock Grazing. As a result of rangeland developments that would be prevented by *Enhanced Wilderness,* an expected forage increase of 1,365 AUMs would not occur, and ranchers would not earn an additional $7,521 in annual income.

Ranch Finance. The AUMs precluded under *Enhanced Wilderness* would increase allotment values by $170,625 or less than 1 percent of the value of all AUMs in the ESA. In all, forage would not increase on five allotments. Table 4-8 lists the allotment value increases that *Enhanced Wilderness* would prevent. Forage on seven allotments would be affected.

Mineral Development. Many of the WSAs proposed for wilderness designation under *Enhanced Wilderness* are believed to have mineral potential. If the mineral value is not proven before December 31, 1983, designation would prevent these minerals if any from being mined.

Conclusion. *Enhanced Wilderness* would slightly harm livestock grazing and ranch finance and might harm future mineral development.

WILDLAND PRESERVATION

Livestock Grazing. As a result of rangeland developments that would be prevented by *Wildland Preservation,* annual forage would not increase by 2,550 AUMs, and the annual economic value of forage would not increase by $14,051.

Ranch Finance. The AUMs precluded under *Wildland Preservation* would increase allotment values by $318,750. Forage on 10 of 43 allotments involved in this alternative would be affected.

Mineral Development. Under *Wildland Preservation,* WSAs with a high or moderate potential for mineral production would be designated wilderness. If the mineral value is not proven before December 31, 1983, designation would prevent these minerals if any from being mined.

Conclusion. *Wildland Preservation* would slightly harm livestock grazing and ranch finance and might harm future mineral development.

ALL WILDERNESS

Livestock Grazing. As a result of rangeland developments that would be prevented by *All*

TABLE 4-7
ECONOMIC VALUE OF AUMS PRECLUDED BY
WILDERNESS DESIGNATION*

Wilderness Study Area	Economic Value ($) of AUMs Precluded
Paria Plateau (008A/19)	
All Wilderness	358
Wildland Preservation	358
Overlook (008B)	
All Wilderness	468
Wildland Preservation	468
Hack Canyon (033A)	
All Wilderness	1,295
Wildland Preservation	1,295
Toroweap (050)	
All Wilderness	88
Wildland Preservation	88
Poverty Mountain (091)	
All Wilderness	1,708
Parashaunt (093)	
All Wilderness	997
Wildland Preservation	997
Grassie Mountain (096C)	
All Wilderness	1,295
Andrus Canyon (096D)	
All Wilderness	2,193
Wildland Preservation	2,193
North Dellenbaugh (097)	
All Wilderness	1,361
Salt House (104A)	
All Wilderness	6,562
Mustang Point (104B)	
All Wilderness	2,165
Nevershine Mesa, Snap Point, Tincanebitts (105A,B,C)	
Enhanced Wilderness	722
All Wilderness	722
Pigeon Canyon (109)	
Enhanced Wilderness	1,025
All Wilderness	1,025
Wildland Preservation	1,025
Last Chance (111)	
Enhanced Wilderness	1,625
All Wilderness	1,625
Grand Wash Cliffs (112)	
All Wilderness	2,705
Wildland Preservation	2,705
Hidden Rim (119)	
All Wilderness	165
Hobble Canyon (124)	
All Wilderness	2,039
Ide Valley (127)	
All Wilderness	1,659
Sand Cove (128)	
Enhanced Wilderness	3,543
All Wilderness	4,232
Wildland Preservation	4,232
Lime Hills (134)	
Proposed Action	606
Enhanced Wilderness	606
All Wilderness	606
Mt. Emma (136)	
All Wilderness	83
Wildland Preservation	83

*Lists only WSAs and alternatives in which or under which AUM increases would be precluded.

Wilderness, annual forage would not increase by 6,053 AUMs and economic value of $33,352 would not occur. This amount, however, is less than 4 percent of ESA livestock earnings.

Ranch Finance. The AUMs precluded under *All Wilderness* would have increased allotment values by $756,625. In all, forage on 15 allotments would be affected of the 58 allotments involved partially or wholly in this alternative.

Mineral Development. Under *All Wilderness,* WSAs with a high or moderate potential for mineral production would be designated as wilderness. If the mineral value is not proven before December 31, 1983, designation would preclude potential mining.

Conclusion. *All Wilderness* would slightly harm livestock grazing and ranch finance and might harm future mineral development.

TABLE 4-8
ALLOTMENT VALUES PRECLUDED BY
WILDERNESS DESIGNATION

WSA	VALUE PRECLUDED ($)
Proposed Action	
Lime Hills (I34)	13,750
Enhanced Wilderness	
Nevershine Mesa, Snap Point, Tincanebitts (105A,B,C)	16,375
Pigeon Canyon (109)	23,250
Last Chance (111)	36,875
Sand Cove (128)	80,375
Lime Hills (134)	13,750
Wildland Preservation	
Paria Plateau (008A/19)	8,125
Overlook (008B)	10,625
Hack Canyon (033A)	29,375
Toroweap (050)	2,000
Parashaunt (093)	22,625
Andrus Canyon (096D)	49,750
Pigeon Canyon (109)	23,250
Grand Wash Cliffs (112)	61,375
Sand Cove (128)	96,000
Lime Hills (134)	13,750
Mt. Emma (136)	1,875
All Wilderness	
Paria Plateau (008A/19)	8,125
Overlook (008B)	10,625
Hack Canyon (033A)	29,375
Toroweap (050)	2,000
Poverty Mountain (091)	38,750
Parashaunt (093)	22,625
Grassie Mountain (096C)	29,375
Andrus Canyon (096D)	49,750
North Dellenbaugh (097)	30,875
Salt House (104A)	148,875
Mustang Point (104B)	49,125
Nevershine Mesa, Snap Point, Tincanebitts (105A,B,C)	16,375
Pigeon Canyon (109)	23,250
Last Chance (111)	36,875
Grand Wash Cliffs (112)	61,375
Hidden Rim (119)	3,750
Hobble Canyon (124)	46,250
Ide Valley (127)	37,625
Sand Cove (128)	96,000
Lime Hills (134)	13,750
Mt. Emma (136)	1,875

NO WILDERNESS

Livestock Grazing. Under *No Wilderness* forage would increase as projected, AMPs would be implemented as planned, and no adverse economic impacts are expected.

Ranch Finance. No AUMs would be precluded, and all long-term forage increases under AMPs would occur.

Mineral Development. Under *No Wilderness,* minerals could be development to their greatest potential consistent with the environmental stipulations of multiple-use management.

Conclusion. *No Wilderness* would not adversely affect livestock grazing, ranch finance, or future mineral development.

Impacts on Social Elements

PROPOSED ACTION

The Local (CCD) Level. The *Proposed Action* would be opposed by local residents, such as ranchers and miners, whose livelihoods depend on the public land, and by groups and individuals, such as hunters and off-road vehicle riders, who use the affected public lands for recreation. But because the local public is generally skeptical about federal agency actions and because few local residents are expected to support wilderness designation, implementing the *Proposed Action* would not change local perceptions and attitudes. Moreover, implementing the *Proposed Action* would not affect demographic factors within the population.

County and Regional Level. Implementing the *Proposed Action* would not significantly impact public perceptions and attitudes or populations and demographic factors in the five-county area nor on the social elements of the regional environment.

Conclusion. Implementing the *Proposed Action* would not significantly affect the social elements of the environment at the local, county, or regional level.

ENHANCED WILDERNESS

The Local Level. The increased acreage and number of WSAs recommended for wilderness designation by *Enhanced Wilderness* would intensify the opposition but not greatly change local public perceptions and attitudes or have population or demographic effects. *Enhanced Wilderness* would not significantly affect public perceptions and attitudes or population and demographic factors in the five-county or regional area.

Conclusion. *Enhanced Wilderness* would not impact the social elements of the environment at the local, county, or regional level.

WILDLAND PRESERVATION

The Local Level. Local residents would oppose implementing *Wildland Preservation,* but this opposition would not represent a change in existing attitudes or perceptions. This alternative would have no population or demographic effects. Although implementing *Wildland Preservation* would intensify the opinions of local residents against federal control, it would not significantly impact public perceptions and attitudes.

The County and Regional Levels. Implementing *Wildland Preservation* would not significantly impact public perceptions and attitudes or population and demographic factors on the county or regional level.

Conclusion. *Wildland Preservation* would not significantly affect the social elements in the environment at the local, county, or regional level.

ALL WILDERNESS

The Local Level. *All Wilderness* would adversely affect local public perceptions and attitudes because of an increase in the number of residents who would react adversely to the BLM decision. Many residents of the two CCDs are not concerned about or aware of BLM wilderness study activities. Others would support a limited amount of wilderness as outlined either in the *Proposed Action* or *Enhanced Wilderness.* A decision, however, to implement the *All Wilderness* alternative would receive newspaper, television, and radio publicity and could activate strong opposition from these sectors.

Implementing the *All Wilderness* alternative would have no significant adverse effects on local demographic factors. But many residents with local interests in commercial and economic development would view this alternative as a direct threat to their interests.

The County Level. The residents of Kane, Washington, and Mohave Counties would strongly support the opponents of the *All Wilderness* alternative. Much the same response would occur among the residents of Page, Arizona and the rural areas in Clark County, Nevada. Implementing this alternative would have significant adverse effects on public perceptions and attitudes.

Residents of Kane and Washington Counties and the town of Page would interpret the *All Wilderness* alternative as a threat to commercial and economic development, but residents of Mohave, Coconino, and Clark Counties would be less likely to see such a threat. This alternative, therefore, would not have significant adverse effects on population or demographic factors on the county level.

The Regional Level. Although many residents in the region would oppose implementing the *All Wilderness* alternative, the number would not represent a significant proportion of the population of 2.6 million. Thus, this alternative would not significantly affect regional public perceptions and attitudes or population and demographic factors.

Conclusion. *All Wilderness* would have significant adverse effects on the social elements of the environment at the local level but not at the county or regional levels.

NO WILDERNESS

No Wilderness would not significantly impact local, county, or regional public perceptions and attitudes or population and demographic factors.

Mitigating Measures

WILDERNESS VALUES

Designation

The *Wilderness Management Policy* (Appendix 2) describes how BLM will manage certain activities, existing uses, and private rights that conflict with wilderness preservation. No further mitigation of potential conflicts between these activities, uses, and rights and wilderness management have been identified.

Nondesignation

Specific laws and regulations require BLM to protect threatened and endangered species, antiquities, visual resources, and unnecessary degradation of public land resources. BLM also has several management options for preserving certain wilderness resources. The following options are effective management tools but lack the permanence and total resource commitment of congressional wilderness designation.

Research Natural Areas (43 CFR 8223). This option provides management and protection of public lands having natural characteristics that are unusual or that are of scientific or other special interest. The primary purpose of these areas is research and education. For an area to be designated a research natural area it must have one or more of the following characteristics: (1) a typical representation of a common plant or animal association, (2) an unusual plant or animal association, (3) a threatened or endangered species, (4) a typical representation of common geologic, soil, or water features, or (5) outstanding or unusual geologic, soil, or water features.

Outstanding Natural Areas (43 CFR 8352). This option manages for the greatest amount of recreation use possible without damage to the natural features that make an area outstanding. Outstanding features are defined broadly as unusual natural characteristics.

Areas of Critical Environmental Concern (ACEC)(43 CFR 1601.6-7). This option manages public land to prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes. To be designated an ACEC, an area must be of national or international significance and must be threatened by adverse change – a reduction or loss of values – unless special management attention is applied.

Off-Road Vehicle (ORV) Designations (43 CFR 8340). This option allows public lands to be designated as open, limited, or closed to ORV use and establishes controls on the use and operation of ORVs in such areas. The objective is to protect public land resources, promote user safety, and reduce user group conflicts.

Planning for Recreation Resources. This option provides a systematic process within the BLM Planning System to identify recreation values on public lands and make decisions to ensure that these values are maintained on a long-term, sustained yield basis.

Table 4-9 outlines those study areas where BLM management options will partially preserve certain wilderness resources.

VISUAL RESOURCES

To mitigate the adverse impacts of nondesignation on visual resources, visual resource management (VRM) design restrictions will apply to all range developments built in areas not designated wilderness.

Unavoidable Adverse Impacts

WILDLIFE

On lands not recommended for wilderness designation, AMP development, native plant removal, and mining and mineral development would continue. Increased vehicular access into desert bighorn sheep, desert tortoise, and Gila monster habitats would decrease an areas's suitability for wildlife. The following WSAs would be the most greatly affected: Starvation Point, Kanab Creek, Nevershine Mesa, Pigeon Canyon, Grand Wash Cliffs, Lime Hills, Narrows, Vermillion Cliffs, and Virgin Mountains. Moreover, commercial timber harvests in the Mt. Logan and North Dellenbaugh WSAs would adversely impact associated wildlife species because of the small amount of this habitat in the EIS area.

LIVESTOCK GRAZING

The precluding of land treatment and some range developments under wilderness designation would have the following unavoidable adverse impacts on rangeland management.

- Precluding any land treatment under *Enhanced Wilderness* would prevent fully implementing the Cottonwood Allotment Management Plan (AMP).
- Precluding 13,000 acres of land treatment and seven water developments under *Enhanced Wilderness* would prevent implementation of the Cottonwood, Mud and Cane, Wildcat, and Grassie Mountain AMPs.
- Precluding any land treatment in WSAs under *All Wilderness* would prevent the implementation of Wildcat, Grassie Mountain, Cottonwood, and Mud and Cane AMPs.

VISUAL RESOURCES

In areas not designated wilderness, visual resources would not be as well protected as within wilderness areas because less effort would be needed in the design and construction of projects. Visual requirements outside wilderness areas are less sensitive and restrictive than they are within. In addition, nondesignation could allow such activities as mining and ORV use, which could irreversibly disturb visual resources. Visual resources within areas designated wilderness would not be adversely impacted except by the prohibiting of carefully conducted and designed land treatments. Such treatments could visually enhance monotone sagebrush or dense pinyon-juniper stands.

Irreversible and Irretrievable Commitments of Resources

WILDLIFE

The extent to which wildlife in areas not designated wilderness would be irreversibly or irretrievably committed would depend upon the intensity of future development in these areas. Highly intense mineral and AMP development, commercial timber harvesting, and native plant removal would significantly degrade habitat conditions of such sensitive wildlife as the desert tortoise and desert bighorn sheep. The following WSAs would be most impacted: Paria Plateau, Kanab Creek, Hack Canyon, Starvation Point, Nevershine Mesa, Pigeon Canyon, Grand Wash Cliffs, Lime Hills, Narrows, Vermillion Cliffs, and Virgin Mountains.

TABLE 4-9
MITIGATING MEASURES

Unit Name and Number	Mitigation	Result of Mitigation
Vermillion Cliffs Natural Area Further Planning Area (ISA-3)	Retain present ONA designation	Protect visual, recreation values: outstanding scenic cliffs with numerous supplemental values, recreation opportunities, and fragile areas.
Starvation Point (005)	ONA Keep present ORV designation (limited) SRMA	Protect visual, ecologic, recreation values: scenic area, desert tortoise and bighorn sheep habitat, Virgin River riparian habitat; recreational boating.
Judd Hollow, Paria Rim, Cedar Mountain (006B,C,D)	ORV - closed SRMA	Protect visual, recreation values: scenic canyon rims, fragile terrain.
Paria Plateau (008A/19)	ORV - limited SRMA	Protect visual, recreation, archaeological values: scenic area, fragile terrain, numerous archaeological sites.
Emmett Wash (009)	ONA SRMA	Protect visual, recreation values: scenic and fragile canyon tributaries of Marble Canyon, numerous recreation opportunities and supplemental values.
Kanab Creek, Hack Canyon, Robinson Canyon (031, 033A, 034)	ACEC ORV - limited	Protect ecologic values: historic desert bighorn sheep habitat, proposed sheep transplant area.
	SRMA	Protect visual, recreation values: outstanding scenic canyon system with numerous supplemental values, recreation opportunities, and fragile areas.
Mt. Trumbull, Mt. Logan, Mt. Emma (051, 052, 136)	SRMA	Protect visual, recreation, archaeological, ecologic values: outstanding scenic forested and volcanic area with numerous supplemental values, archaeological sites, recreational opportunities, and fragile areas.
Parashaunt Canyon (093)	Keep present ORV designation (limited) SRMA	Protect visual, recreation, archaeological values: scenic canyon area, numerous archaeological sites.
Andrus Canyon (096D)	Keep present ORV designation (limited) SRMA	Protect visual, recreation, archaeological values: scenic canyon area, numerous archaeological sites.
Nevershine Mesa (105A)	Keep present ORV designation (limited) SRMA ONA	Protect visual, recreation, ecologic values: desert bighorn sheep and desert tortoise habitat, scenic area, Joshua tree community.
Snap Point (105B)	Keep present ORV designation (limited) SRMA ONA	Protect visual, recreation, ecologic values: scenic area, desert bighorn sheep habitat.
Pigeon Canyon (109)	Keep present ORV designation (limited) SRMA ONA	Protect visual, recreation, ecologic values: scenic area, Joshua tree community, desert bighorn sheep and desert tortoise habitat.
Last Chance (111)	Keep present ORV designation (limited) SRMA	Protect visual, recreation values: scenic cliffline area.
Grand Wash Cliffs (112)	Keep present ORV designation (limited) SRMA ONA	Protect visual, recreation, ecologic values: scenic area, Joshua tree community, desert bighorn sheep and desert tortoise habitat.
Sand Cove (128)	Keep present ORV designation (limited) SRMA	Protect visual, recreation, ecologic values: scenic area, prime mule deer winter habitat.
Virgin Mountains (129)	Keep present ORV designation (limited) SRMA	Protect visual, recreation, ecologic values: scenic and rugged mountains, desert bighorn sheep and desert tortoise habitat.

ACEC=Area of Critical Environmental Concern; ONA=Outstanding Natural Area; ORV=Off-Road Vehicle; SRMA=Special Recreation Management Area

VISUAL RESOURCES

Nondesignation of WSAs would leave them open to mining and ORV use, which could irreversibly disturb visual resources.

Relationship Between Local Short-Term Uses of Man's Environment and Maintenance and Enhancement of Long-Term Productivity

WILDLIFE

The short-term use (10 year) of areas proposed for wilderness designation would not significantly affect wildlife because of interim wilderness guidelines. The short-term use of WSAs not designated would vary according to area and rate of present use or proposed future development within the next 10 years. Future mineral development in Kanab Creek and Hacks Canyon WSAs could potentially increase to a point where short-term use would adversely impact the long-term productivity of wildlife habitat. Likewise, continuing AMP development and implementation in Paria Plateau, Kanab Creek, and Hack Canyon WSAs could cause a decline in long-term productivity of bighorn sheep habitat.

The long-term productivity of Starvation Point, Nevershine Mesa, Pigeon Canyon, Grand Wash Cliffs, Lime Hills, Narrows, Vermillion Cliffs, and Virgin Mountains WSAs could decline, should mineral and AMP development occur. Accordingly, the short-term use of Mt. Logan or North Dellenbaugh WSAs for commercial timber harvesting would decrease the long-term productivity of wildlife habitats.

LIVESTOCK GRAZING

The *Proposed Action, Enhanced Wilderness, Wildland Preservation* and *All Wilderness* alternatives would involve no losses in long-term productivity to the range management of livestock. It would, however, prevent an increased production on those acres designated for proposed land treatment.

APPENDICES

APPENDIX 1

INTERIM MANAGEMENT POLICY AND GUIDELINES FOR LANDS UNDER WILDERNESS REVIEW

INTERIM MANAGEMENT POLICY AND GUIDELINES FOR LANDS UNDER WILDERNESS REVIEW

Table of Contents

U.S. Department of the Interior. *As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.*

Introduction

The Federal Land Policy and Management Act of 1976 (FLPMA) requires the Secretary of the Interior to review areas of the public lands determined to have wilderness characteristics, and to report to the President his recommendations as to the suitability or nonsuitability of each such area for preservation as wilderness. The Secretary is required to report his recommendations to the President by October 21, 1991, and the President is required to report his recommendations to Congress by October 21, 1993. During the period of this review and until Congress acts on the President's recommendations, the Secretary is required to manage such lands so as not to impair their suitability for preservation as wilderness, subject to certain exceptions and conditions.

This document describes the policy and guidelines under which the Bureau of Land Management (BLM) will manage the lands under wilderness review. This policy is referred to as the "interim" management policy because it applies to specific areas of the public lands for a limited amount of time, depending upon various stages and schedules of the review process. The purpose of the policy and guidelines is to guide BLM staff in the specific decisions that arise every day in the management of lands under wilderness review.

There are two categories of public lands to which this policy applies: (1) lands for which the wilderness inventory process has not yet been completed, and (2) wilderness study areas (WSA's). These two categories together are referred to as "lands under wilderness review."

The first category of lands to which the Interim Management Policy (IMP) applies are lands subject to wilderness review but for which the BLM wilderness inventory process has not yet been completed. The inventory is a preliminary phase that leads to identification of wilderness study areas. Because completion of the wilderness inventory process may result in identifying lands under inventory as wilderness study areas, these lands must be managed under the IMP until a final decision in the inventory process resolves their status. The wilderness inventory in the contiguous western States is scheduled for completion in 1980.

The second category of lands, wilderness study areas, consists of lands which the BLM has determined have wilderness characteristics, as defined in the Wilderness Act of 1964. This determination is made through the wilderness inventory process described in the BLM's *Wilderness Inventory Handbook*. These wilderness study areas are being studied by the BLM to determine whether they are suitable or nonsuitable for preservation as wilderness. Based on this study, the Secretary of the Interior will submit his recommendations on each wilderness study area to the President, and the President will send his recommendations to Congress. Only Congress can designate an area as wilderness and, therefore, as a unit of the National Wilderness Preservation System.

The Interim Management Policy is temporary and applies only during the time an area is under wilderness review and until Congress acts on wilderness study areas. After Congress acts on the President's recommendations for each wilderness study area, a different policy will apply to the area, depending on whether or not Congress designates the area as wilderness. Areas designated as wilderness will be managed under a basic policy for permanent wilderness management, which will soon be drafted by the BLM and issued for public review. This policy will be amended as necessary to reflect any requirements incorporated into the law designating a wilderness area on BLM lands. Areas Congress determines not to designate as wilderness will no longer be subject to the Interim Management Policy, and will be managed under general BLM management policies.

The Interim Management Policy (IMP) obviously is not the only policy that governs the management of lands under wilderness review. The BLM has many other laws and policies to carry out which may affect whether and how an activity may take place on lands under wilderness review, even when that activity is permissible under the IMP.

Mandates from Congress

The BLM wilderness review program stems from section 603 of the Federal Land Policy and Management Act of 1976 (FLPMA). In FLPMA, Congress gave BLM its first unified, comprehensive mandate on how the public lands should be managed. The law establishes a policy of generally retaining the public lands in Federal ownership, and it directs the BLM to manage them under principles of multiple use and sustained yield. The BLM is to prepare an inventory of the public lands and their resources, including identification of areas having wilderness characteristics. Management decisions for the public lands are to be made through a land-use planning process that considers all potential uses of each land area. All public lands are to be managed so as to prevent unnecessary or undue degradation of the lands.

Under FLPMA, wilderness preservation is part of BLM's multiple-use mandate, and wilderness values are recognized as part of the spectrum of resource values and uses to be considered in the inventory and in the land-use planning process. Section 603 of FLPMA specifically directs the BLM, for the first time, to carry out a wilderness review of the public lands. (The complete text of section 603 appears in Appendix B of this document. The BLM's wilderness review program implementing section 603 is summarized in Appendix E.)

Section 603(c) of FLPMA tells the BLM how to manage the lands under wilderness review, in these words:

> During the period of review of such areas and until Congress has determined otherwise, the Secretary shall continue to manage such lands according to his authority under this Act and other applicable law in a manner so as not *to impair the suitability of such areas for preservation as wilderness*... (emphasis added)

We will refer to this as the "nonimpairment" mandate.[1]

Importantly, section 603(c) provides a special exception from the nonimpairment mandate for existing mining, grazing, and mineral leasing uses — what we will call "grandfathered" uses — in these words:

> ..., subject, however, to the continuation of existing mining and grazing uses and mineral leasing in the manner and degree in which the same was being conducted on the date of approval of this Act...

As is obvious from this language, the continuation of these existing uses is not unrestricted. They are restricted to the same "manner and degree" as on the date FLPMA was approved (October 21, 1976).

The Secretary is also directed by section 603(c) to "take any action required to prevent unnecessary or undue degradation of the lands and their resources or to afford environmental protection." This applies to these grandfathered uses and to all other activities. A similar provision in Section 302(b) concerning *all* public lands, even those not under wilderness review, directs the Secretary to "prevent unnecessary or undue degradation of the lands." The practical effect of these two provisions is the same. Therefore, throughout this document the shorter form used in section 302(b) will be cited.

Another provision in section 603(c) directs:

> Unless previously withdrawn from appropriation under the mining laws, such lands shall continue to be subject to such appropriation during the period of review unless withdrawn by the Secretary under the procedures of section 204 of this Act for reasons other than preservation of their wilderness character.

(Section 204 spells out the conditions under which the Secretary may make a withdrawal, and the procedures for doing so.)

The BLM's responsibilities under section 603(c) are also affected by section 701(h) of FLPMA, which states:

> All actions by the Secretary concerned under this Act shall be subject to valid existing rights.

These mandates in FLPMA establish as a matter of law that, while some development activities are permissible on lands under wilderness review, they are subject to important limitations and must be carefully regulated. All activities except those specifically exempt must be regulated to prevent impairment of

[1] The wilderness review required by section 603 focuses on roadless areas of 5,000 acres or more and on roadless islands. The BLM as a matter of policy has used its general management authority under sections 302 and 202 of FLPMA to include in the wilderness review some roadless areas smaller than 5,000 acres. (The criteria for such areas are spelled out on page 12 of the *Wilderness Inventory Handbook*.) The management mandate in section 603(c) does not apply to roadless areas smaller than 5,000 acres. However, as a matter of policy the BLM will use its management authority under section 302 of FLPMA to apply a modified form of interim management to these areas, as is explained in Chapter I, A. 5.

wilderness suitability. If an activity not specifically exempt cannot meet this condition, the activity cannot be permitted on lands under wilderness review.

There are five different practical effects of these provisions with respect to "interim management" of lands under wilderness review. First, the general standard for interim management is that lands under wilderness review must be managed so as not to impair their suitability for preservation as wilderness. We will refer to this as the "nonimpairment" standard. This applies to all uses and activities except those specifically exempted from this standard by FLPMA (such as grandfathered uses).

Second, those grazing, mining, and mineral leasing uses that existed on October 21, 1976 (the date FLPMA was approved), may continue in the same manner and degree as on that date, even if this would impair wilderness suitability.

Third, lands under wilderness review may not be closed to appropriation under the mining laws in order to preserve their wilderness character.

Fourth, valid existing rights must be recognized.

Fifth, the lands must be managed to prevent unnecessary or undue degradation.

Meaning of the Congressional Mandate

Determining what can take place on lands under wilderness review depends partly on what the specific language of each of these provisions means, partly on how each provision interacts with other provisions of FLPMA and with other laws, and partly on what authority the Department has under FLPMA and other laws to regulate uses of the public lands.

Nonimpairment

To determine what is permissible under the general "nonimpairment" standard, we must examine what Congress meant by *impairment* of an area's *suitability for preservation as wilderness*.

The term "suitability ... for preservation as wilderness" originated in the Wilderness Act of 1964, which directs the Secretary of Agriculture to "review, as to its *suitability* or nonsuitability *for preservation as wilderness*" each of the national forest areas classified as "primitive." Likewise, the Wilderness Act directs the Secretary of the Interior to review certain roadless areas and islands in the National Park System and in the national wildlife refuges and game ranges and "report to the President his recommendation as to the *suitability* or nonsuitability of each such area or island *for preservation as wilderness*." The term is similarly used in section 603(a) of FLPMA, which directs the Secretary of the Interior to review certain roadless areas and islands and to "report to the President his recommendation as to the *suitability* or nonsuitability of each such area or island *for preservation as wilderness*". (Emphasis added.)

In the Wilderness Act and FLPMA, the term "suitability" implies two things. First, it implies that, at the minimum, the area satisfies the definition of wilderness in section 2(c) of the Wilderness Act:

> A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

The Department therefore has a responsibility under the nonimpairment standard to ensure that each wilderness study area satisfies this definition at the time Congress makes a decision on the area. As a practical matter, this means that it must meet this definition by the time the Secretary reports his recommendation to the President, because the President might immediately send his recommendation to Congress, and Congress might act immediately.

The word "suitability" takes on a second meaning in the context of recommendations made by the Secretary to the President. Congress made it clear in section 603 of FLPMA that an area with all necessary wilderness characteristics defined in section 2(c) of the Wilderness Act might be found by the Secretary to be either "suitable" or "nonsuitable" for preservation as wilderness. Since each area must have been determined to have wilderness characteristics in order to qualify for wilderness study under the mandate of FLPMA, it seems clear that the principal factor to be used by the Secretary in arriving at a suitable/nonsuitable recommendation is the value of an area as wilderness compared to its value for other uses, such as commercial forest management or mineral development. The Department therefore has a responsibility to ensure that an area's existing wilderness values are not degraded so far, compared with the area's values for other purposes, as to significantly constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness.

Management under the nonimpairment standard, to which there are two exceptions described later, has these goals: (1) to ensure that any area that now satisfies the wilderness definition in section 2(c) of the Wilderness Act will satisfy that definition when the Secretary sends his wilderness recommendation to the President and thereafter until Congress acts, and (2) to ensure that, by the time the Secretary sends his wilderness recommendation to the President, the area's wilderness values have not been degraded so far, compared with the area's values for other purposes, as to significantly constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness.

Anything that would conflict with these goals would constitute impairment of the area's suitability for preservation as wilderness.

Management to the nonimpairment standard does not mean that the lands will be managed as though they had already been designated as wilderness. For example, some uses that could not take place in a designated wilderness area may be permitted under the Interim Management Policy because they are only temporary uses that leave no physical or aesthetic impacts on the land and that can easily be terminated if Congress decides to designate the area as wilderness.

Some temporary uses can be permitted even though they cause physical or aesthetic impacts, because those impacts are temporary and will be reclaimed promptly. It is generally felt to be in the public interest, for instance, for wilderness study areas to be explored, within the nonimpairment standard, so as to learn as much as possible about all the resource values that are present.

On the other hand, some uses that were explicitly permitted by the Wilderness Act of 1964 in wilderness areas of the national forests (such as mining and mineral leasing) must be restricted under the Interim Management Policy because their impacts clearly could disqualify the area from satisfying the wilderness definition, and thus would impair wilderness suitability. During the wilderness review it is the later and more explicit FLPMA, and not the Wilderness Act, that dictates what is permissible.

The final decision on permanent wilderness designation for each wilderness study area belongs to Congress. Management under the nonimpairment standard protects Congress' right to make the designation decision by preventing actions that would pre-empt that decision.

Grandfathered Uses

To determine what uses are protected under the "grandfather" provision, we must examine what Congress meant by "continuation of existing mining and grazing uses and mineral leasing in the manner and degree in which the same was being conducted on the date of approval of this Act."

To be an "existing" use, the use clearly must have been taking place on the lands as of the date of FLPMA (October 21, 1976). An existing use might have been temporarily inactive for reasons such as bad weather or a short-term depression in market conditions, but clearly a use that had last occurred 5 or 10 years earlier when there was no demonstrable intention of resuming immediately would not qualify, except where the use involved a long "start-up" time.

An existing use would have created actual physical impacts on the land before October 21, 1976. However, the impacts of an existing grazing use would not necessarily be noticeable on that date, because grazing, conducted under good range management practices, leaves no noticeable impacts, except those of range improvement installations.

Continuation in the same "manner and degree" implies different things for the different uses mentioned in the grandfather clause. Mineral uses generally operate by a logical progression that begins with exploration and proceeds through development of a given deposit by geographic extension until the deposit has been exhausted. By contrast, grazing use is done by grazing a given land area on a continuing basis, because range forage is a renewable resource. No change in the area of use is inherent in grazing.

In both cases, the benchmark for the "manner and degree" of an existing use is the physical and aesthetic impact that use was having on the area on October 21, 1976, because it is that impact that could affect the wilderness review.

For mineral uses, continuation in the same manner and degree implies that the use may proceed by a *logical pace and progression* — either a geographic extension or a change in the type of activity, so long as the impacts of the extension or of the new activity are not of a significantly different kind than the impacts existing on October 21, 1976. This may take place even if the activity impairs wilderness suitability.

For grazing uses, continuation in the same manner and degree implies that grazing may continue on the lands authorized as of October 21, 1976, so long as the impacts of that use do not increase.

Appropriation Under the Mining Laws

As it appears in section 603(c), the mandate that lands under wilderness review continue to be subject to appropriation under the mining laws is a prohibition against withdrawal of lands under wilderness review from appropriation under the mining laws for the purpose of preserving the land's wilderness character. It is not an exception to the nonimpairment mandate. Although they may still take place, activities entailed in appropriation under the mining laws — including the location of new claims, assessment work, exploration activities on claims, and the issuance of patents — must be regulated so as not to impair wilderness suitability. (Of course, mining activities covered by the grandfather provision and certain valid existing rights are exceptions to the nonimpairment mandate.)

If a mining claimant, using methods that do not impair wilderness suitability, makes a valid discovery and can show proof of that discovery to the BLM, the discovery represents a right to patent the claim. If a patent is issued, title to the land is transferred to the claimant.

At that point the claim ceases to be public land and is therefore no longer subject to wilderness review or to the Interim Management Policy.

Valid Existing Rights

The "valid existing rights" provision of FLPMA (Section 701(h)) clearly applies only to valid rights outstanding ("existing") on October 21, 1976. Those valid rights will be recognized, but they are not necessarily exempt from the nonimpairment mandate.

In cases where the Department has authority to regulate a valid existing right, the nonimpairment mandate of section 603 requires the Department to regulate it to avoid impairing wilderness suitability. This is the case with the majority of mineral leases issued before October 21, 1976. The right granted by those leases is not an absolute, uncontrolled right. It is a right conditioned on compliance by the lessee with the Department's rules, orders, and regulations in effect either on or after the date of the lease. Therefore, lessees will be required to comply with the nonimpairment mandate of FLPMA, unless the activities on the leases qualify as grandfathered uses. If a lessee proposes to conduct activities that cannot meet the nonimpairment standard and those proposed activities are denied for this reason, the lessee has the right to request a suspension of operation. The policy on lease suspensions is explained more fully in Chapter III. J. 1(d).

In cases where the Department has no such authority to regulate the valid existing rights to the nonimpairment standard, those rights may be exercised, even if this will impair wilderness suitability. This is the case with mining claims on which a valid discovery had been made before October 21, 1976. If the claimant can show evidence to the BLM that a discovery was made before that date, the operation will not be regulated to the nonimpairment standard, regardless of the kind of impacts from activities on the claim on October 21, 1976.

The valid existing rights and grandfather provisions create a significant overlap, because some mineral uses qualify under both provisions:

Mining Claims: Mining claims located before October 21, 1976, represent a valid existing right if a valid discovery had been made on the claim before October 21, 1976. Of course, if any such claims were actively being worked as of October 21, 1976, they would also qualify as grandfathered uses. But they enjoy a more liberal development standard under the valid existing rights provision, because in this case they would be able to proceed even if the activities exceeded the manner and degree that existed on October 21, 1976.

Mineral Leases: Mineral leases issued before October 21, 1976, represent a valid existing right. If they were actively being worked as of October 21, 1976, and if physical impacts had been created on the ground, these leases would also qualify as grandfathered uses. In most if not all cases (depending upon the legal rights conveyed by the specific lease in question), the grandfather provision provides the more liberal development standard, allowing continuation in the same manner and degree as on October 21, 1976; otherwise, the nonimpairment standard would apply. If a lessee proposed to conduct activities that cannot meet the nonimpairment standard and those proposed activities were denied for this reason, the lessee would have the right to request a suspension of operation. The policy on lease suspension is explained more fully in Chapter III. J. 1(d).

Chapter I. Management Policy for Lands Under Wilderness Review

A. General Policy

1. The Department of the Interior's management policy is, except in the cases stated below, to continue resource uses on lands under wilderness review in a manner that maintains the areas' suitability for preservation as wilderness. This Interim Management Policy will be in effect until one of the following occurs:

a. In some cases the BLM wilderness inventory process will result in a determination that a wilderness inventory unit does not meet the Wilderness Act's definition of wilderness. In such cases, as soon as the BLM State Director has announced a final decision and any relevant administrative review process has been exhausted, the Interim Management Policy will no longer apply.

b. If Congress designates a wilderness study area as wilderness, the BLM will manage the area for preservation of its wilderness character. The Federal Land Policy and Management Act (FLPMA) requires that designated wilderness areas be managed under provisions of the Wilderness Act that apply to national forest wilderness. BLM will prepare a management policy to implement this mandate for any BLM areas that Congress may decide to designate as wilderness.

c. If Congress determines that a wilderness study area will not be designated as wilderness, the Interim Management Policy will no longer apply.

2. The law provides for, and the Department's policy is to allow, continuation of grazing, mining, and mineral leasing uses on lands under wilderness review in the manner and degree in which these uses were being done on October 21, 1976, so long as they do not cause unnecessary or undue degradation of the lands. These are referred to as the "grandfathered" uses.

3. The Department's policy is to allow appropriation under the mining laws; i.e., these areas, in accordance with the congressional mandate, will not be withdrawn from the operation of the mining laws for the purpose of preserving their wilderness character. Activities involved in appropriation under the mining laws — including location of new claims and the assessment work necessary to hold claims — will be allowed so long as these activities are carried out in a manner that does not impair the area's wilderness suitability.

4. The Department's policy is to recognize valid existing rights that were outstanding on October 21, 1976. A further explanation of the policy on valid existing rights appears in section B. 7, below.

5. If a wilderness study area or inventory unit (except islands) is smaller than 5,000 acres, existing and new mining activities under the 1872 Mining Law will be regulated in that area only to prevent unnecessary or undue degradation of the lands — not to prevent impairment of wilderness suitability. All other activities will be managed under the Interim Management Policy. The *Wilderness Inventory Handbook* provides for identification of wilderness study areas under 5,000 acres under certain conditions specified on page 12 of the handbook. Although section 603 of FLPMA does not require these areas to be given interim management, the Department has the authority under section 302 of FLPMA to manage these lands similarly. The Department's policy is to manage them under the Interim Management Policy, except with respect to mining claims located under the 1872 Mining Law. The authority to regulate activities to the nonimpairment standard with respect to the mining laws only applies to the areas that meet the criteria of section 603 — i.e., either islands or roadless areas of 5,000 acres or more. Section 302 provides the authority to regulate mining on all public lands to prevent unnecessary or undue degradation.

B. Specific Policy Guidance

This section tells how the Bureau of Land Management will apply the general policies set forth in section A, above.

1. **Lands under Wilderness Review.** The Bureau of Land Management is conducting a wilderness inventory under procedures described in the *Wilderness Inventory Handbook*, issued on September 27, 1978. The inventory will sort lands into two categories: (a) wilderness study areas, to which the Interim Management Policy will apply, and (b) lands that are determined not to have wilderness characteristics and therefore will not be subject to the Interim Management Policy. Lands that are being reviewed in the wilderness inventory and have not yet been dropped from the inventory by a final decision of the BLM will be subject to the Interim Management Policy because they may be identified as wilderness study areas by that final decision.

2. **Nonimpairment.** Any activity that BLM has determined does not impair the land's suitability for preservation as wilderness may be permitted on lands under wilderness review. Before approving proposed activities generally identified as nonimpairing in this document, BLM will first ensure that they conform to the existing management framework plan, if one has been prepared for the affected lands (see 43 CFR 1601.8), and will then review the proposal through an environmental assessment to determine whether, in a specific case, they will be nonimpairing and to ensure that approval of such activities will not create a situation in which the cumulative effect of existing uses and the new proposed uses would impair wilderness suitability.

Activities that protect or enhance the land's wilderness values or that provide the minimum necessary facilities for public enjoyment of the wilderness values are considered nonimpairing. For example, trails and sanitary facilities could be built for primitive recreational use.

All other activities will be considered nonimpairing if the BLM determines that they meet each of the following criteria, referred to hereafter as the "nonimpairment criteria":

a. It is temporary. This means that the use or activity may continue until the time when it must be terminated in order to meet the reclamation requirement of paragraphs (b) and (c) below. A temporary use that creates no new surface disturbance may continue unless Congress designates the area as wilderness, so long as it can easily and immediately be terminated at that time, if necessary to management of the area as wilderness.

b. Any temporary impacts caused by the activity must, at a minimum, be capable of being reclaimed to a condition of being substantially unnoticeable in the wilderness study area (or inventory unit) as a whole by the time the Secretary of the Interior is scheduled to send his recommendations on that area to the President, and the operator will be required to reclaim the impacts to that standard by that date. If the wilderness study is postponed, the reclamation deadline will be extended accordingly. If the wilderness study is accelerated, the reclamation deadline will not be changed. A full schedule of wilderness studies will be developed by the Department upon completion of the intensive wilderness inventory. In the meantime, in areas not yet scheduled for wilderness study, the reclamation will be scheduled for completion within 4 years after approval of the activity. (Obviously, if and when the Interim Management Policy ceases to apply to an inventory unit dropped from wilderness review following a final wilderness inventory decision of the BLM State Director, the reclamation deadline previously specified will cease to apply.) The Secretary's schedule for transmitting his recommendations to the President will not be changed as a result of any unexpected inability to complete the reclamation by the specified date, and such inability will not constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness.

The reclamation will, to the extent practicable, be done while the activity is in progress. Reclamation will include the complete recontouring of all cuts and fills to blend with the natural topography, the replacement of topsoil, and the restoration of plant cover at least to the point where natural succession is occurring. Plant cover will be restored by means of reseeding or replanting, using species previously occurring in the area. If necessary, irrigation will be required. The reclamation schedule will be based on conservative assumptions with regard to growing conditions, so as to ensure that the reclamation will be complete, and the impacts will be substantially unnoticeable in the area as a whole, by the time the Secretary is scheduled to send his recommendations

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to the President. ("Substantially unnoticeable" is defined in Appendix F.)

c. When the activity is terminated, and after any needed reclamation is complete, the area's wilderness values must not have been degraded so far, compared with the area's values for other purposes, as to significantly constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness. The wilderness values to be considered are those mentioned in section 2(c) of the Wilderness Act, including naturalness, outstanding opportunities for solitude or for primitive and unconfined recreation, and ecological, geological or other features of scientific, educational, scenic, or historical value.

Any temporary impacts authorized by the BLM under these criteria will be ignored during the wilderness study; the area will be considered in its expected condition at the time reclamation is complete, as required by paragraphs (b) and (c) above.

3. **Supporting Activities.** Some activities that in themselves are nonimpairing may require supporting facilities or activities that could impair wilderness suitability. (For example: a boat launching ramp and associated parking area as supporting facilities for boating, or the cross-country use of motor vehicles to retrieve sailplanes or hang gliders.) When this is the case, the supporting activity will be limited as necessary to meet the nonimpairment criteria (see section 2, above). If the supporting activity cannot be done in a nonimpairing manner, then the principal activity will not be approved.

4. **Cumulative Impacts.** It is recognized that many minor impacts of nonimpairing activities could accumulate to a point at which the total impact would impair wilderness suitability either by creating impacts that overall are *noticeable* (i.e., are not substantially unnoticeable) or by degrading the area's wilderness values so far, compared with the area's values for other purposes, as to significantly constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness.

To prevent such cumulative impacts from impairing wilderness suitability, the BLM will monitor the cumulative impacts of ongoing activities. If those impacts are growing so great that the area's wilderness suitability could be impaired, the BLM will take steps to control that impact by adjusting the conditions of use (such as time, place, and quantity), by prohibiting the expansion of the activity, or, if necessary, by prohibiting the activity altogether on the affected lands. The BLM will also consider cumulative effects in making decisions on new proposals to conduct what individually would be nonimpairing activities; if the proposed activity will create an unacceptable additional increment of impact, it will not be approved.

5. **Existing Facilities.** Some lands under wilderness review may contain minor man-made facilities that were found in the wilderness inventory process to be substantially unnoticeable in the area. For example, these may include primitive vehicle routes ("ways") and range improvements such as fences and spring developments. There is nothing in this Interim Management Policy that requires such facilities to be removed or shut down. On the contrary, they may remain, and they may be used as before, so long as this does not cause new impacts that would impair the area's wilderness suitability. (Grandfathered uses are, of course, exempt from the nonimpairment standard.)

6. **"Grandfathered" Uses.**

a. **General.** Section 603(c) of FLPMA provides a special exception to the nonimpairment standard. Grazing, mining, and mineral leasing uses that existed on the date of approval of FLPMA (October 21, 1976) may continue in lands under wilderness review in the same manner and degree as on that date, even if this impairs wilderness suitability. These are the "grandfathered" uses, protected by the "grandfather" clause of section 603. These uses must be regulated to ensure that they do not cause unnecessary or undue degradation of the lands.

Although activities on mining claims on which a valid mineral discovery was made prior to October 21, 1976, may qualify as grandfathered uses, these claims qualify for a more liberal development standard under the policy for valid existing rights (see section 7, below).

b. **Criteria.** A grandfathered use is a mineral or grazing use that was taking place on the land as of the date of approval of FLPMA (October 21, 1976). A grandfathered mineral use must have created *actual physical impacts* before that date.

In some circumstances, a grazing or mineral use may have been temporarily inactive on October 21, 1976, for reasons such as bad weather, natural disaster, a labor strike, or a short-term depression in the market for the product, and the operator fully intended to resume immediately upon termination of the temporary source of inactivity. In such cases, a rule of reason will be followed, but "temporarily inactive" will normally mean no more than 12 months prior to October 21, 1976. There may be unusual circumstances causing more than 12 months of temporary inactivity; these will be considered case by case, but shutdowns for market reasons longer than 12 months will not qualify. In the case of pre-FLPMA exploration activity creating actual physical impacts, such as seismic operations for oil and gas or drilling for hardrock minerals, normal industry schedules or "start-up" times will be taken into account in determining the permissible period of inactivity. Diligent pursuit and logical progression of development of the lease or mining claim must be demonstrated before these circumstances will be considered.

If a grandfathered use is acquired by a different owner, the new owner may continue the grandfathered use. But a grandfathered use is not an abstract right or privilege that can be uprooted from one land area and applied to a completely different land area; it is based on the place where it was being conducted as of October 21, 1976.

c. **Manner and Degree for Mineral Uses.** Continuation of a grandfathered use is limited to the same "manner and degree" as on October 21, 1976. The manner and degree of a mineral use refers to the kind of physical and aesthetic impacts the grandfathered use caused as of October 21, 1976. Continuation of a grandfathered mineral use in the same manner and degree may include a logical progression of activity — a geographic extension of the existing activity, or a change in the type of activity — if these are done at a logical pace and if the new impacts are not of a significantly different kind than the impacts existing on October 21, 1976.

This means that the *quantity* of on-the-ground impacts may be increased by the logical pace and progression of a grandfathered use, but that the new impacts may not be of a significantly different *kind* than the impacts involved with the pre-FLPMA activity. In determining whether the kind of impact is significantly different, consideration should be given to degradation of the area's wilderness characteristics (see the definition in Appendix C), including changes in natural contours and visual impacts.

For instance, if oil and gas exploration had been taking place by deep drilling, and one well had been drilled before October 21, 1976, additional wells could be drilled following a logical geographic extension at a logical pace of exploration, so long as the impacts were not of a significantly different kind than those of the first well. If those wells could then go to production without causing new impacts of a significantly different kind, that too could be permitted. For instance, this might occur if collecting pipelines, power lines, tank batteries and pumpjack were installed on already-disturbed sites and routes. It is the kind of impact, rather than the quantity of impact or the stage of development, that will be controlling in determining the manner and degree.

A grandfathered mineral use outside the boundary of an area under wilderness review may continue into the area as long as the activity follows the logical pace and progression of development and the impacts are not of a significantly different kind.

It is the use, rather than the claim or lease, that is grandfathered. A grandfathered mineral use may continue in the same manner and degree onto adjacent leases or claims held by the same person. Mineral leases unitized prior to October 21, 1976, are grandfathered as a unit.

d. **Manner and Degree for Grazing Uses.** The manner and degree of a grazing use refers to the nature of physical and aesthetic impacts the use caused as of October 21, 1976, including the condition of the range and the range improvements installed or under construction at that time. Continuation of a grazing use in the same manner and degree does not include any logical adjacent geographic continuation, as is provided for grandfathered mineral uses. This is because of the difference in the way grazing and mineral uses are carried out. Mineral uses inherently require a geographic extension to cover the entire mineral deposit. Grazing uses, on the other hand, do not inherently require a geographic extension. Range forage is a renewable resource; therefore grazing utilizes a specified area on a continuing basis.

Continuation in the same manner and degree does not automatically include, nor does it automatically exclude, installation of new range improvements. In cases where a permit issued by the BLM before October 21, 1976, provided for the operator to install a series of improvements and part of that series had already been installed before October 21, 1976, that operator may complete the series after that date. Otherwise, the question as to what range improvements may be installed on lands under wilderness review is more meaningfully dealt with under the nonimpairment concept. Certain new range improvements may be installed under this concept, and existing improvements may be used and maintained, as is explained in the guidelines in Chapter III. H.

7. **Valid Existing Rights.** The valid existing rights of mining claimants and mineral lessees as of October 21, 1976, will be recognized. If the claimant or lessee transfers his claim or lease to another person, the same valid existing right will be recognized in the new holder. But a valid existing right is tied to a particular claim or lease, and cannot be transferred to a different claim or lease.

a. **Mining Claims.** Mining claimants are recognized as having a valid existing right if a valid discovery had been made on the claim before October 21, 1976. Activities for the use and development of such claims will be exempt from the nonimpairment policy and will be regulated only to prevent unnecessary or undue degradation of the lands. Before beginning operations whose impacts would impair wilderness suitability, the claimant must show evidence of his discovery to the BLM.

However, there is a narrow exception. If on-the-ground activities that would impair wilderness suitability are proposed on a pre-FLPMA claim with valid existing rights within a wilderness study area that the BLM Director has recommended to the Secretary as suitable for designation as wilderness, the proposed impairing activity may be temporarily disapproved by the Director. This is a narrow exception for extraordinary circumstances when the Secretary and the President may be expected to recommend the area as suitable for designation as wilderness and Congress may be expected to act in a short period of time. Such a disapproval would be for one year, subject to renewal, but not to exceed a total of two years. In such cases, the existing right remains, but its enjoyment may be postponed.

b. **Leases.** Valid existing rights for mineral leases issued prior to October 21, 1976, are dependent upon the specific terms and conditions of each lease. Those terms and conditions generally make existing mineral leases subject to regulations enacted and orders issued after issuance of the lease, to Secretarial approval of proposed development activities, and to Secretarial direction as to the rate and location of exploration and development. Those leases on which

actual physical impacts had occurred before October 21, 1976, and on which activities were being conducted as of that date, qualify as grandfathered uses and are subject to a more liberal standard of development (described in section 6 above) than is the case under valid existing rights. For the majority of pre-FLPMA leases, in accordance with the usual terms and conditions, where there were no pre-FLPMA physical impacts or where no activities were being conducted on the lease as of October 21, 1976, activities will be allowed so long as they are conducted in a manner that does not impair wilderness suitability. If activities proposed on a pre-FLPMA lease are denied because they cannot meet this standard, the lessee has the right to request a suspension of operation. The policy on lease suspension is explained more fully in Chapter III. J. 1 (d).

8. **Appropriation under the Mining Laws.** Lands under wilderness review will remain open to appropriation under the 1872 Mining Law except (a) lands that had been withdrawn from appropriation prior to the date of approval of FLPMA (October 21, 1976), and (b) lands withdrawn after October 21, 1976, for reasons other than preservation of their wilderness character. All mining activities, except grandfathered activities and activities on claims determined to have a pre-FLPMA discovery, will be regulated to prevent their impacts from impairing wilderness suitability. Claimants with a pre-FLPMA discovery are recognized as having valid existing rights (see section 7 above), and such operations will be regulated only to prevent unnecessary or undue degradation of the lands.

9. **Maintenance.** Existing structures and installations may be maintained to keep them in an effective, usable condition. Except for grandfathered uses and uses based on valid existing rights, maintenance will not be allowed to modify a structure or installation to a condition that would impair the area's suitability for wilderness designation. Measures required to carry out maintenance work will be allowed if these measures do not in themselves impair wilderness suitability. For this purpose — if necessary and only when authorized by the BLM — motor vehicles may be driven cross-country along routes designated by the BLM, without grading or blading. In such cases the operator will be required to reclaim any impacts caused by cross-country travel. In all cases, these activities must satisfy the nonimpairment criteria (see section B. 2 above).

10. **Motor Vehicles and Motorized Equipment.** The use of motor vehicles and motorized equipment does not necessarily impair wilderness suitability, if the use is on existing access routes or elsewhere so long as it does not cause impacts inconsistent with the reclamation requirements of the nonimpairment criteria (see section 2 above). Specific guidelines for recreation use of off-road vehicles appear in Chapter III. A.

Motor vehicles may be allowed off existing access routes when authorized by the BLM for these purposes: (a) in emergencies and search and rescue operations; (b) for maintenance, as described in section B. 9, above; (c) for construction and maintenance of approved structures mentioned elsewhere in this document; and (d) for official purposes by the BLM and other Federal, State, and local agencies and their agents only when necessary and specifically authorized by the BLM for protection of human life, safety, and property; for protection of the lands and their resources; and for gathering essential information on resources. In emergencies, the cross-country travel will not be held to the nonimpairment standard, but in all other cases cross-country travel must satisfy the nonimpairment criteria (see section 2 above), including reclamation requirements. Except in emergencies, the route must be approved by the BLM and will be the route least destructive of wilderness values, no grading or blading will be allowed, and any impacts will promptly be reclaimed by the agency responsible to meet the reclamation requirements of the nonimpairment criteria.

Helicopters and fixed-wing aircraft may be landed on existing airstrips, heliports, and helispots, and on unimproved sites (both land and water). No new landing facilities may be built, except under the following conditions: (a) temporary facilities that satisfy the nonimpairment criteria (see section 2, above), or (b) helispots that are necessary for fire control and are either (i) part of a fire management plan developed in accordance with Chapter III. D. of this Interim Management Policy, or (ii) necessary in an emergency, under section 11, below.

11. **Emergencies.** In emergencies, such as fire or flood, any action necessary to prevent loss of life or property may be taken, even if the action will impair wilderness suitability. This may include search and rescue operations in cases of lost or injured persons, or removal of the deceased. To the greatest extent feasible, emergency actions will be conducted in the manner that least impairs wilderness suitability, and the resulting impacts will be reclaimed as soon as possible to meet the reclamation requirements of the nonimpairment criteria (see section 2 above). Within 7 days after the emergency action is completed, a record of the circumstances and the action taken will be placed in the WSA case file in the BLM District Office.

12. **Air Quality.** Under the Clean Air Act (as amended, 1977), all BLM-administered lands were given Class II air quality classification, which allows moderate deterioration associated with moderate, well-controlled industrial and population growth. The BLM will continue to manage wilderness study areas as Class II.

The Department of the Interior will not recommend reclassification to the more strict Class I in connection with future wilderness recommendations resulting from the BLM wilderness review. The two processes are separate and distinct, and are accomplished under two different laws, FLPMA and the Clean Air Act. Recommendations for wilderness designation are made by the BLM through the Secretary of the Interior and the President to Congress. Air quality reclassification is the prerogative of the States, and it must follow a process mandated by the Clean Air Act Amendments of 1977, involving a study of health, environmental, economic, social, and energy effects,

a public hearing, and a report to the Environmental Protection Agency. The Department will not recommend any change in air quality classification as part of wilderness recommendations. (The Department's preliminary recommendation of September 7, 1979, on reclassification to Class I of 10 BLM primitive areas was an action taken pursuant to the Clean Air Act Amendments of 1977, which required a study and recommendation on these primitive areas. Those recommendations are not related to the wilderness review, and no such recommendations will be made as part of the wilderness review process.)

14. **Water Resource Projects.** Some lands under wilderness review may contain minor water resource facilities that were found in the wilderness inventory process to be substantially unnoticeable in the area. If such structures are present, they may be maintained under the maintenance policy set forth in section 9, above, so long as the maintenance does not change the location, size, or type, or increase the storage capacity of a reservoir. Survey and investigation activities for new water resource projects may be permitted so long as these activities are nonimpairing as defined by section 2, above. Motor vehicles may be used cross-country if necessary and specifically authorized by the BLM under the policy set forth in section 10, above.

15. **Pre-FLPMA Management.** Some lands under wilderness review (particularly among the instant study areas) were subject to more strict protection, prior to approval of FLPMA, than the Interim Management Policy requires. (For instance, some areas were withdrawn from mineral entry.) In these cases, any use will be controlled by the more strict protection of the wilderness resource, regardless of whether that is provided by the IMP or by a pre-FLPMA withdrawal or regulation that is still in effect.

16. **Contrast Rating.** The Bureau's contrast rating process (BLM Manual Section 8431, and the Contrast Rating Worksheet, Form 8400-4) may be used as an aid in determining whether the impacts of a proposed activity are substantially unnoticeable. However, results of the contrast rating will not be adequate in themselves to document a conclusion; contrast rating must be used in combination with other methods.

Chapter II. Implementation of the Interim Management Policy

This chapter explains how the Bureau of Land Management (BLM) will implement the Interim Management Policy (IMP). It tells (1) how actions or activities affected by the IMP will be identified, (2) how to evaluate these actions and determine whether they are permissible under the IMP, (3) how BLM interim management decisions will be reached, (4) how the IMP will be enforced, and (5) how interim management records will be kept.

A. Activities Subject to the IMP

To determine whether a proposed activity is subject to the Interim Management Policy, the following four questions must be considered regarding the affected lands.

1. Are the affected lands exempt from any wilderness review? If so, the IMP does not apply. The proposal will be assessed through normal BLM procedures.

2. Have the affected lands been dropped from further wilderness review by a final decision in the BLM wilderness inventory? If so, the IMP does not apply once the final inventory decision has been announced and any relevant administrative review process has been exhausted. In this case, the proposal will be assessed through normal BLM procedures.

3. Does the proposal involve public lands that are subject to the wilderness inventory, but on which there has not yet been a final inventory decision? If so, the Interim Management Policy will apply at least until the final inventory decision is made. Proceed with the evaluation described in section B, below.

If the responsible BLM official concludes or has reason to believe that the proposal is not permissible under the IMP, there is another option that may be appropriate in some cases. The BLM State Director has the option of initiating a "special project inventory" using the procedures of the intensive inventory (Step 4–6 in the *Wilderness Inventory Handbook*). This accelerated inventory will sort the lands into two categories:

a. Those identified as WSA's, in this case, the IMP will apply.

b. Those that do not qualify as WSA's and therefore are no longer subject to the Interim Management Policy. The proposal will be further assessed through normal BLM procedures.

If appropriate, this inventory may be done at the same time as the evaluation described in section B, below.

4. Does the proposal involve public lands identified by the BLM as a wilderness study area? If so, the Interim Management Policy will apply. Proceed with the evaluation described in section B, below.

B. Evaluation Procedures

1. **Exceptions to the Nonimpairment Standard.** Determine whether the activity is covered by one of the exceptions to the "nonimpairment" standard:

a. Does the activity qualify as a grandfathered mineral or grazing use continuing in the same manner and degree as on October 21, 1976? (Consult the applicable policies in Chapter I. B. 6 and Chapter III. H and J.)

b. Is the activity part of the development of a mining claim on which a valid discovery had been made before October 21, 1976? (Consult the applicable policies in Chapter I. B. 7 and Chapter III. J. 5(b).)

c. In a wilderness study area or inventory unit smaller than 5,000 acres (except islands), is the activity a mining activity under the 1872 Mining Law?

If one of these (a, b, c) is applicable, the activity will be considered acceptable under the Interim Management Policy, and it will be processed through normal BLM procedures. The determination that an activity is acceptable under the IMP will be recorded in appropriate case files and included in any decision documents.

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2. **Evaluation Under the Nonimpairment Standard.** BLM field officials will cooperate with applicants to help identify ways by which a proposal can be brought into compliance with the nonimpairment standard, whenever possible. A proposed activity satisfies the nonimpairment standard if the BLM determines that it meets each of the following criteria, which are referred to as the "nonimpairment criteria":

a. It is temporary. This means that the use or activity may continue until the time when it must be terminated in order to meet the reclamation requirement of paragraphs (b) and (c) below. A temporary use that creates no new surface disturbance may continue unless Congress designates the area as wilderness, so long as it can easily and immediately be terminated at that time, if necessary to management of the area as wilderness.

b. Any temporary impacts caused by the activity must, at a minimum, be capable of being reclaimed to a condition of being substantially unnoticeable in the wilderness study area (or inventory unit) as a whole by the time the Secretary of the Interior is scheduled to send his recommendations on that area to the President, and the operator will be required to reclaim the impacts to that standard by that date. If the wilderness study is postponed, the reclamation deadline will be extended accordingly. If the wilderness study is accelerated, the reclamation deadline will not be changed. A full schedule of wilderness studies will be developed by the Department upon completion of the intensive wilderness inventory. In the meantime, in areas not yet scheduled for wilderness study, the reclamation will be scheduled for completion within 4 years after approval of the project. (Obviously, if and when the Interim Management Policy ceases to apply to an inventory unit dropped from wilderness review following a final wilderness inventory decision of the BLM State Director, the reclamation deadline previously specified will cease to apply.) The Secretary's schedule for transmitting his recommendations to the President will not be changed as a result of any unexpected inability to complete the reclamation by the specified date, and such inability will not constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness.

The reclamation will, to the extent practicable, be done while the activity is in progress. Reclamation will include the complete recontouring of all cuts and fills to blend with the natural topography, the replacement of topsoil, and the restoration of plant cover at least to the point where natural succession is occurring. Plant cover will be restored by means of reseeding or replanting, using species previously occurring in the area. If necessary, irrigation will be required. The reclamation schedule will be based on conservative assumptions with regard to growing conditions, so as to ensure that the reclamation will be complete, and the impacts will be substantially unnoticeable in the area as a whole, by the time the Secretary is scheduled to send his recommendations to the President. ("Substantially unnoticeable" is defined in Appendix F.)

c. When the activity is terminated, and after any needed reclamation is complete, the area's wilderness values must not have been degraded so far, compared with the area's values for other purposes, as to significantly constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness. The wilderness values to be considered are those mentioned in section 2(c) of the Wilderness Act, incfuding naturalness, outstanding opportunities for solitude or for primitive and unconfined recreation, and ecological, geological or other features of scientific, educational, scenic, or historical value.

3. **Information for the Evaluation.** The information needed to reach conclusions on the nonimpairment criteria cited above will be documented in the environmental assessment (EA) or environmental impact statement (EIS) that is routinely prepared for every proposed action on public lands. A normal EA or EIS determines and records whether the activity will cause unnecessary or undue degradation of the lands. For lands under wilderness review, the EA or EIS for the proposed action will also address the nonimpairment standard. It will include the following information, most of which is already required by the normal EA or EIS procedure:

a. A description of the proposal and its alternatives, including:

- Purpose and need for the action
- Exact location
- Access required, including projected use and location
- Design considerations such as size, color, and materials
- Support facilities or structures
- Construction methods, including machinery or vehicles to be used
- Maintenance schedules and procedures
- Miles and/or acres of soil and vegetation disturbance.

b. A description of the affected environment, considering both the specific site and the wilderness study area (or inventory unit) in its entirety:

- Meaningful descriptions of soils, erosion potential, vegetation, reclamation potential, topography and climate including precipitation
- Existing uses and manmade or man-caused features
- Wilderness characteristics as documented in the intensive inventory report
- Discussion of scenery characteristics, vistas, key viewing areas and visitor use areas.

c. Analysis of reclamation:

- What the particular reclamation plan will accomplish
- How the process will be implemented (type and amounts of hand and machine work)
- Vegetation to be reestablished
- Schedule
- Probability for success
- If a reclamation plan is not available or is inadequate, assess what measures would be needed to return the disturbed areas to the required reclamation level.

d. Written assessment of cumulative impacts including the following:

- If the project's impacts (after reclamation) had existed at the time of intensive inventory, would those impacts have disqualified the area from being identified as a wilderness study area?
- Will the addition of this proposal produce an aggregate effect upon the area's wilderness characteristics and values that would constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness, considering the area in its expected condition at the time the Secretary sends his recommendation to the President?
- For wilderness study areas that are pristine in character, will the addition of this proposal significantly reduce the overall wilderness quality of the WSA?

C. Decisions and Appeals

BLM decisions will continue to be made through existing procedures by those officials having delegated authority. IMP considerations will be factors in these decisions, but the decision authority, procedures and documentation will remain unchanged. The determination as to whether the project complies with the Interim Management Policy must be included in any decision documents and recorded in appropriate case files, as well as in the WSA files described in section E, below. Appeal procedures remain the same as provided by regulations governing the decision appealed. Applicants who are adversely affected by a management decision within lands under wilderness review will be informed of appeal procedures.

D. Enforcement

BLM will take all actions necessary to ensure full compliance with the Interim Management Policy. Every effort will be made to obtain voluntary compliance with the Interim Management Policy by users of the public lands. Where such efforts fail, BLM will promptly initiate additional appropriate action to achieve immediate compliance with the Interim Management Policy.

If unauthorized activities result in surface disturbance or other degradation of the area's suitability for preservation as wilderness, legal action will be initiated as appropriate to obtain full restoration of the area. Impacts resulting from unauthorized activities will not disqualify an area from WSA status.

All action to achieve compliance with the Interim Management Policy will be initiated pursuant to existing regulations governing the noncomplying activity.

In addition to normal enforcement procedures, the following additional steps must be taken whenever a District Manager believes an activity is taking place on lands under wilderness review that is not in compliance with the Interim Management Policy:

1. Immediately contact the owner of the operation, in any manner that can be verified with documentation. Explain the situation and, depending on the situation or activity, seek the owner's assistance in bringing the operation into compliance with the IMP.

2. If this approach does not resolve the matter, notify the State Director so that additional appropriate action may be taken immediately to prevent impairment of the area's wilderness suitability. The State Director will work with the Regional Solicitor to initiate appropriate legal action, if necessary. Send a copy of the case file to the Director, Bureau of Land Management, for transmittal to the Office of the Solicitor, Division of Energy and Resources, for information.

Criminal penalties are prescribed for prohibited acts under section 303 of FLPMA (43 USC 1733) and under the following other laws and regulations relevant to the Interim Management Policy:

- Range Management
  Unauthorized grazing use: 43 CFR 4140.1(b), 4150.1, 4170.2, 4210.4, 9239.2–1, 9239.3
  Wild Free-Roaming Horse and Burro: 43 CFR 4760.2; 18 USC 3401
- Timber Management
  Unauthorized cutting of timber — mineral and nonmineral lands and public lands in Alaska: 43 CFR §511.1–1(f)(3), §511.1–4(e), §511.1–4(f), §511.2–5, 9239.1–1, 9239.1–2; 18 USC 1852, 1853
- Recreation Management
  Public property and resources: 43 CFR B363.1–6, B363.5
  Public land closures: 43 CFR B364.2, 9239.2–1
  Special recreation permits: 43 CFR B372.0–7; 18 USC 3401, 16 USC 460 l–6a, 16 USC 670 g-n, 16 USC 1241–1249
  Off-road vehicle use: 43 CFR 8340.0–7
- Minerals Management
  Coal trespass — unauthorized exploration: 43 CFR 9239.5; 18 USC 1851.

E. Record Keeping

The BLM District Office will maintain an individual file for each wilderness study area or inventory unit. In addition to the required inventory documentation, this file should be used to record all actions (including authorized access routes) that are proposed or authorized after the effective date of this policy and to record activities believed to be in violation of FLPMA, section 603, within the WSA or inventory unit. The file should contain the following information for any individual proposal:

1. The WSA or inventory unit number.
2. A brief description of the action.
3. Accurate map notations of the proposal.
4. A description of action taken on proposed and authorized activities (approved/disapproved/pending) and on activities believed to be in violation of FLPMA.
5. A cross-reference to the pertinent case files or decision documentation and the name of staff member handling the case.
6. Comments on problems encountered and on the current status of the proposal or investigation.

Chapter III. Guidelines for Specific Activities

The guidelines in this chapter are an application of the Interim Management Policy (IMP) to some of the most common activities that take place on the public lands. It should be recognized that factors other than the IMP enter into the decisions made by the Bureau of Land Management on specific projects and activities — among them the laws, policies, and regulations governing that type of activity, and resource management plans for the affected land.

The decisions on most of these activities will be made by BLM field officials. These decisions will not be a matter of simply approving or denying proposals. BLM field officials will assist applicants to find ways, if possible, of achieving their goals by methods that are consistent with the Interim Management Policy. To be sure, activities that cause major surface disturbance are not likely to be consistent with the IMP, except in grandfathered uses and valid existing rights. But many activities can be designed and carried out in a manner that does not cause such major disturbance, and these may be able to satisfy the IMP requirements.

A. Recreation

Most recreation activities (including fishing and hunting) are permitted on lands under wilderness review. However, some activities may be prohibited or restricted because they require permanent structures or because they depend on cross-country use of motor vehicles (for example: pickup vehicles for balloons or sailplanes).

BLM will analyze the magnitude of all proposed activities to ensure that recreation use will not cause impacts that impair the area's wilderness suitability.

Most recreation uses take place under general permission from the BLM rather than under specific project applications. There is a possibility that a continuing use or an increasing use could gradually cause increased impacts and, over time, impair the area's wilderness suitability. An example might be erosion caused by increased off-road vehicle travel on trails. To prevent this type of impairment caused by cumulative impacts, the BLM will monitor ongoing recreation uses and, if necessary, adjust the time, location, or quantity of use, or prohibit that use in the impacted area.

1. No new permanent recreational roads, structures, or installations will be permitted, except structures or installations that are the minimum necessary for human health and safety or the minimum necessary for public enjoyment of wilderness values. In these cases, facilities will be installed so that they are substantially unnoticeable and minimize surface disturbance. Temporary access routes, structures, and installations may be permitted if they meet the nonimpairment criteria.

2. Hobby collecting of mineral specimens (rockhounding) and vegetative specimens may be permitted.

3. Recreational use of off-road vehicles (ORVs) may be permitted on existing ways and trails and within "open" areas designated prior to approval of FLPMA (October 21, 1976). The BLM will cooperate with ORV organizations to achieve the least amount of new impact on lands under wilderness review. If impacts of ORVs, either on or off existing ways and trails, threaten to impair the area's wilderness suitability, the BLM may close the affected lands to the type of ORVs causing the problem. In some cases, time or space zoning, public education, or a rest-rotation system may make a total closure unnecessary.

No lands will be designated as "closed" solely because they are under wilderness review, but if increasing impacts threaten to impair wilderness suitability, the BLM will move to control those impacts and may designate the area as "closed" to the type of vehicles causing the problem, in order to control the impacts. The Bureau also has authority under other programs to regulate ORV use to minimize damage to wildlife and other resource values.

4. Organized ORV events may be allowed to pass through areas under wilderness review on existing ways and trails, so long as the BLM has determined that such use satisfies the nonimpairment criteria. Participants and spectators using ORVs will be restricted to the designated ways and trails, which will be appropriately flagged. Assembly areas, start or finish lines, and gasoline pit stops will not be allowed. Care will be taken to ensure that the event and its impacts will not cause degradation of the area's wilderness values (including archeological and paleontological values) so far, compared with the area's values for other purposes, as to significantly constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness.

Based on past practice, it is expected that ORV events involving cross-country travel (off existing ways and trails) as part of the route would rarely satisfy the nonimpairment criteria. However, if the BLM determines that the event can and will be carefully controlled to ensure that it fully satisfies the nonimpairment criteria, the use of cross-country route segments may be approved. Participants and spectators using ORVs will be restricted to the

Nonimpairment Criteria

The following three criteria, previously set forth in Chapter I, B. 2 of this document, are referred to many times in this chapter as the "nonimpairment criteria." They are restated here for ready reference.

Activities will be considered nonimpairing if the BLM determines that they meet each of the following criteria:

(a) It is temporary. This means that the use or activity may continue until the time when it must be terminated in order to meet the reclamation requirement of paragraphs (b) and (c) below. A temporary use that creates no new surface disturbance may continue unless Congress designates the area as wilderness, so long as it can easily and immediately be terminated at that time, if necessary to management of the area as wilderness.

(b) Any temporary impacts caused by the activity must, at a minimum, be capable of being reclaimed to a condition of being substantially unnoticeable in the wilderness study area (or inventory unit) as a whole by the time the Secretary of the Interior is scheduled to send his recommendations on that area to the President, and the operator will be required to reclaim the impacts to that standard by that date. If the wilderness study is postponed, the reclamation deadline will be extended accordingly. If the wilderness study is accelerated, the reclamation deadline will not be changed. A full schedule of wilderness studies will be developed by the Department upon completion of the intensive wilderness inventory. In the meantime, in areas not yet scheduled for wilderness study, the reclamation will be scheduled for completion within 4 years after approval of the activity. (Obviously, if and when the Interim Management Policy ceases to apply to an inventory unit dropped from wilderness review following a final wilderness inventory decision of the BLM State Director, the reclamation deadline previously specified will cease to apply.) The Secretary's schedule for transmitting his recommendations to the President will not be changed as a result of any unexpected inability to complete the reclamation by the specified date, and such inability will not constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness.

The reclamation will, to the extent practicable, be done while the activity is in progress. Reclamation will include the complete recontouring of all cuts and fills to blend with the natural topography, the replacement of topsoil, and the restoration of plant cover at least to the point where natural succession is occurring. Plant cover will be restored by means of reseeding or replanting, using species previously occurring in the area. If necessary, irrigation will be required. The reclamation will be complete, and the impacts will be substantially unnoticeable in the area as a whole, by the time the Secretary is scheduled to send his recommendations to the President. ("Substantially unnoticeable" is defined in Appendix F.)

(c) When the activity is terminated, and after any needed reclamation is complete, the area's wilderness values must not have been degraded so far, compared with the area's values for other purposes, as to significantly constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness. The wilderness values to be considered are those mentioned in section 2(c) of the Wilderness Act, including naturalness, outstanding opportunities for solitude or for primitive and unconfined recreation, and ecological, geological or other features of scientific, educational, scenic, or historical value.

designated route and designated spectator zones, which will be appropriately flagged. Any impacts caused by the event must be reclaimed as specified in the nonimpairment criteria; therefore, the cross-country route segment and the spectator zones will not be open to recreational ORV use except during the event. Assembly areas, start or finish lines, and gasoline pit stops will not be allowed. Care will be taken to ensure that the event and its impacts will not cause degradation of the area's wilderness values (including archeological and paleontological values) so far, compared with the area's values for other purposes, as to significantly constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness.

5. Vehicles designed for travel across snow or sand dunes may be permitted cross-country in areas designated for use by snow or sand vehicles. These vehicles may also be permitted on existing ways and trails under the guidelines in sections 3 and 4 above.

6. Facilities necessary for visitors' health and safety may be provided in either of two ways: (a) permanent facilities that are the minimum necessary for public enjoyment of wilderness values (for example: vault toilets, water well with hand pump); (b) temporary facilities that meet the nonimpairment criteria (for example: portable toilets). These facilities will be installed so that they are substantially unnoticeable and minimize surface disturbance.

7. Boating may be permitted, with or without motors. The BLM does not necessarily have authority over all waters within the public lands; some are under jurisdiction of the States. Therefore, the following guidelines apply only to those waters on which the BLM has authority to regulate boating.

No waters will be closed to motorboats solely because they are in areas under wilderness review, but if increasing impacts of boating (such as shore erosion or water pollution) threaten to impair wilderness suitability, the BLM may close the affected waters to motorboats. In some cases, time or space zoning or public education may make a total closure unnecessary. The Bureau also has authority under other programs to regulate boating to minimize damage to wildlife and other resource values.

River running, with or without motors, may be permitted. Cumulative impacts on river campsites will be monitored to prevent impairment of wilderness suitability.

No permanent launching ramps or boat docks will be built. A "brow log" may be used to reduce erosion at boat landings. Temporary launching ramps and boat docks may be installed only if they satisfy the nonimpairment criteria.

8. Environmental education and interpretive programs may be conducted so long as no permanent facilities are required.

9. New trails for foot or horse travel may be built, if they are the minimum necessary for public enjoyment of wilderness values and are constructed in a manner that causes minimal surface disturbance and ensures that the trails blend into the natural setting. Motor vehicles will not be permitted on the new foot or horse trails.

10. Camping may be permitted. Campsites for primitive recreation use may be established if they are the minimum necessary for public enjoyment of wilderness values. Otherwise, campsites and campgrounds may be installed only if they are temporary facilities that satisfy the nonimpairment criteria. Camping with recreational vehicles may occur along existing ways so long as this use satisfies the nonimpairment criteria.

11. Cross-country skiing may be permitted. Downhill (Alpine) skiing may be permitted only if any support facilities are temporary ones that satisfy the nonimpairment criteria.

12. Aerial activities may be permitted so long as they do not require the use of motorized vehicles off ways and trails to retrieve equipment, except in areas designated as "open" before October 21, 1976. Among these are ballooning, sailplaning, hang gliding, and parachuting (sky diving).

13. Recreational gold dredging and panning, when conducted without location of a mining claim, may be permitted so long as it is done in a manner that satisfies the nonimpairment criteria. If the activity would cause significant damage to fish spawning or rearing areas lasting after the Secretary is scheduled to send his wilderness recommendation on the area to the President, it will be considered to impair wilderness suitability, and the activity will be controlled to prevent such impacts. (This activity is so regulated because it is not done on a mining claim, and therefore is not covered by the exception for "appropriation under the mining laws.") In locations where gold dredging or panning was being done as of October 21, 1976, it may qualify as a grandfathered use. (For further information on grandfathered uses see Chapter I. B. 6.)

14. Concessions will be permitted only if the use and related facilities are temporary and satisfy the nonimpairment criteria. Examples that may qualify include mobile refreshment stands, river trip outfitters, guides, and providers of pack animals and saddle horses.

B. Cultural and Paleontological Resources

Cultural and paleontological resource inventories, studies, and research involving surface examination or limited subsurface sampling may be permitted. Salvage of archeological and paleontological sites; rehabilitation, stabilization, reconstruction, and restoration work on historic structures; excavation; and extensive surface collection may be permitted if the specific project satisfies the nonimpairment criteria. Permanent physical protection, such as fences, will be limited to those measures needed to protect high-value resources, and will be substantially unnoticeable in the area as a whole.

C. Lands Actions — Disposal, Rights-of-Way, Access, and Withdrawals

1. **Disposal.** With the exceptions provided below, lands under wilderness review may not be disposed of through any means, including public sales, exchanges, patents under the Recreation and Public Purposes Act, color of title classes I and II, sales under the Unintentional Trespass Act, agricultural leases, desert land entries (except where a vested right was established prior to October 21, 1976), or State selections. (Lands tentatively approved for State selection in Alaska are exempt from wilderness review and are not subject to the Interim Management Policy.)

Disposals of the following types may be permitted under normal BLM procedures: mining patents; desert land entries in which a vested right was established prior to October 21, 1976; exchanges approved prior to October 21, 1976, under authority of the Taylor Grazing Act, section B; and homestead entries in which a vested right was established prior to October 21, 1976.

Disposals of the following types may be permitted only if BLM determines that the case in question satisfies the nonimpairment criteria: temporary use permits, and leases under the Recreation and Public Purposes Act.

Land exchanges may be made when BLM receives lands within an area under wilderness review, in exchange for public lands that are not under wilderness review.

2. **Rights-of-Way.** Existing rights-of-way may be renewed if they are still being used for their authorized purpose. If necessary for normal, routine maintenance to keep an existing pipeline in a safe and reliable condition, a temporary work area, temporary access route, or cross-country use of motor vehicles may be permitted so long as the activity is determined to satisfy the nonimpairment criteria. Emergency maintenance or emergency repairs may be made to protect human health and safety or to protect wilderness values, even if the activity impairs wilderness suitability; in such cases, the policy on emergencies, set forth in Chapter I. B. 11, must be complied with.

New rights-of-way may be approved only for temporary uses that satisfy the nonimpairment criteria.

3. **Right-of-Way Corridors.** Right-of-way corridors may be designated on lands under wilderness review. However, this will in no way interfere with the wilderness review. No new rights-of-way or expansions of existing rights-of-way will be approved except under the criteria in paragraph 2 above. A right-of-way corridor is not an authorization, but a planning tool. The need for actual rights-of-way within a designated corridor will be considered during the wilderness study, but any recommended rights-of-way inconsistent with the nonimpairment criteria will not be approved unless Congress decides not to designate the area as wilderness.

4. **Access to Mining Claims and Non-Federal Land**[1]. Construction of permanent access routes will not be approved on lands under wilderness review, except in two conditions: (a) when such access qualifies as part of the same manner and degree of grandfathered mineral uses and there is no reasonable, less impairing, alternative access available, and (b) when necessary for operations on mining claims that had a valid discovery prior to October 21, 1976, under criteria described in section J of this chapter, and there is no reasonable, less impairing, alternative access available. Temporary access routes may be approved only if they satisfy the nonimpairment criteria. The BLM will cooperate with applicants to identify reasonable alternative routes or means of access. Access by use of existing ways and trails, by air or water, by horse or pack train, or on foot are among the available methods that probably would satisfy the nonimpairment criteria. If the access constraints are unsatisfactory to the legal owners of property to which access is being sought, the BLM may consider acquiring the property either through exchange of lands or through some other agreeable method of acquisition.

5. **Withdrawals.** Existing withdrawals for military purposes or for specific purposes of agencies other than the BLM may be renewed if the withdrawal is still serving its purpose. No new withdrawals may be made for such purposes, except temporary withdrawals that satisfy the nonimpairment criteria.

Withdrawals transferring land to the U.S. Fish and Wildlife Service, U.S. Forest Service, or National Park Service may be approved if the land is part of an already-designated unit of the National Wilderness Preservation System or is part of a wilderness study area mandated by Act of Congress.

[1] **Access to State School Lands.** The law is not entirely clear on the extent to which a State (or its permittees or lessees) has a right of access to State school trust lands which are entirely surrounded by public lands. A Federal district court in Utah has recently held that the State has a right of access which is subject to regulation by BLM so long as the State may reasonably develop the State lands economically to fulfill the purpose of the State school land grant. Appeal of this decision is now under consideration by the Solicitor General of the United States. Moreover, the Attorney General of the United States is preparing an opinion, at the request of the U.S. Forest Service, on the right of access a State or private landowner has across national forest lands, and the Attorney General's opinion obviously may have implications for the BLM in the management of its lands. Finally, the Supreme Court has under consideration issues concerning the nature of the State school land grant, and the authority of the Secretary of the Interior with respect to those grants.

Because of the pendency of all these matters, the position expressed in this Interim Management Policy may be subject to change, based on further guidance the Department of the Interior may receive from the Department of Justice or the courts. It seems likely, however, that no matter how these issues are ultimately resolved, the BLM has authority to control the method and route of access, if reasonable alternative methods and routes of access are available that would not impair an area's suitability for preservation as wilderness, and therefore can exercise such regulatory authority to prevent impairment of an area's wilderness suitability. Final guidance will be issued by the BLM at a later date.

Withdrawals for purposes of resource protection may be made (except withdrawals from appropriation under the mining laws in order to preserve wilderness character), so long as the intended use satisfies the nonimpairment criteria.

D. Forestry

Those Oregon and California Grant (O & C) lands that are managed for permanent forest production (i.e., commercial timber production) are exempt from wilderness review, and therefore from the Interim Management Policy.

Commercial timber harvest is not permitted on lands under wilderness review, except where an existing contract, permit, lease, or license for timber harvest issued prior to October 21, 1976, cannot be modified to comply with the nonimpairment criteria. The BLM will reevaluate all such instruments to determine whether their terms permit BLM to revoke, cancel, or modify them so as to satisfy the nonimpairment criteria.

Clearcuts, selective cuts, thinning, and stand conversion will not be permitted. Pruning, site preparation, and reforestation will be permitted only in cases that satisfy the nonimpairment criteria. Reforestation using native species may be done following fire or other natural disaster if natural seeding is not adequate.

Salvage logging after natural disaster may be permitted if this can be done through nonimpairing methods, such as use of existing access routes or temporary access routes that satisfy the nonimpairment criteria. Motorized wheeled or track-laying logging equipment may be used in the area of salvage operations if the activity satisfies the nonimpairment criteria.

Trees may be cut when necessary as part of a mining operation on a pre-FLPMA claim with a valid pre-FLPMA discovery, or when the BLM has determined that this is necessary for insect and disease control or in emergencies such as fire.

Tree improvement (genetic selection and pollination), seed collection (climbing and squirrel cache), and pine nut gathering may be permitted. Insect and disease control by chemical means may be permitted if applied to individual trees or areas up to 5 acres, or to larger areas under emergency conditions when there is no effective alternative.

Domestic firewood gathering, conducted under BLM permits, may be allowed to continue in areas where it was being done before October 21, 1976 (including cross-country use of motor vehicles), only so long as it satisfies the nonimpairment criteria.

E. Wildlife

Hunting, fishing, and trapping are permitted on lands under wilderness review, under State regulations. The BLM will continue to cooperate with State wildlife agencies in the management of resident wildlife species in accordance with established policies and procedures.

Stocking of wildlife and fish species native to North America may be permitted. Species such as the chukar partridge and brown trout, which are not native to North America but are now widely established in the West and elsewhere, may also be introduced. Where exotics were being stocked before October 21, 1976, the stocking may continue.

Introduction of threatened, endangered, or sensitive species native to North America may be allowed. If necessary, enclosures and related facilities may be built, so long as they satisfy the nonimpairment criteria.

Vegetative manipulation by chemical, mechanical, or biological means will not be permitted, except to maintain plantings or seedings established before October 21, 1976. Prescribed burning may also be done where it is required to maintain the natural condition of fire-dependent ecosystems. Hand or aerial seeding of native species may be done to restore natural vegetation.

State and Federal agencies may use temporary enclosures and facilities to trap or transplant wildlife so long as the nonimpairment criteria are met. Certain permanent installations may be permitted to maintain or improve conditions for wildlife and fish, if the benefiting species enhance wilderness values. Installations to protect sources of water on which native wildlife depend, such as exclosures, may be built for permanent use if they are substantially unnoticeable in the area as a whole and blend into the natural setting. Springs, wells, and guzzlers may be maintained, and new ones may be installed if they are substantially unnoticeable in the area and would not require maintenance involving motor vehicles if the area were designated as wilderness. (However, motor vehicles may be used to install and maintain these facilities while the area is under wilderness review, as is discussed below.) Construction activities must satisfy the nonimpairment criteria.

Fisheries enhancement activities may be permitted as long as their purpose is to protect natural conditions and to restore deteriorated habitat, and so long as they are substantially unnoticeable in the area as a whole. Fish traps, fish ladders, stream barriers, sediment control projects, and aerial stocking are among these permitted activities. Any new structures must not require maintenance by motor vehicles if the area is designated as wilderness. Construction activities must satisfy the nonimpairment criteria.

Helicopters may be used in fisheries and wildlife enhancement projects and in enforcement of fish and wildlife laws. Under the policy set forth in Chapter I. B. 10 of this document, the BLM may authorize State or local law enforcement officers to use patrol vehicles cross-country when necessary to protect the lands and their resources.

Motor vehicles may also be used cross-country to build or maintain structures and installations authorized under the above guidelines, and temporary access routes may be built for this purpose so long as they satisfy the nonimpairment criteria.

Animal damage control activities directed at individual offending animals, and not indiscriminate control of populations, may be permitted, so long as this will not jeopardize the continued presence of any species in the area.

F. Fire Management

BLM will continue all presuppression, suppression, and post-suppression fire activities under current methods of operation, using caution to avoid unnecessary impairment of an area's suitability for preservation as wilderness, until new fire management plans are developed for specific wilderness study areas. These new fire management plans, including prescribed burning and control of wild fire, will be developed promptly. Management objectives for the area must take into account the existing wilderness characteristics of the area, the need to prevent actions that would impair the suitability of the area for designation as wilderness, historic fire occurrence, natural role of fire, proposed degree of suppression, expected fire behavior, acceptable suppresston techniques, adequate buffer zones, smoke management, effect on private or other agency inholdings and on adjacent landowners, the limits of acceptable fire weather, fire behavior, fire effects, and the access requirements of other agencies. Emergency fire rehabilitation measures will continue to be carried out under guidelines in Manual Section 7441 and Departmental Manual Part 910.

To hold fire to the desired level, fire management plans will rely on (1) the most effective methods of suppression that are least damaging to wilderness values, other resources, and the environment, while requiring the least expenditure of public funds to rehabilitate the area; (2) an aggressive fire prevention program; and (3) an integrated cooperative suppression program by agencies of the Department among themselves or with other qualified suppression organizations. Present suppression methods may be used, including use of tool caches, aircraft, motorboats, and motorized fire-fighting equipment. Existing fire lookout towers and helispots may be used and maintained; new ones may be approved as part of the fire management plan if they are the minimum necessary for fire suppression in the wilderness study area.

G. Watershed Management

Land treatments (e.g., trenching, ripping, pitting, terracing, plowing) will not be permitted on lands under wilderness review. Vegetative manipulation by chemical, mechanical, or biological means will not be permitted except: (1) plantings or seedings established before October 21, 1976, may be maintained, but not expanded; and (2) such activities may be approved if they qualify under the "manner and degree" provision for grandfathered grazing uses (see section H, below). (There is also a provision for vegetative manipulation for insect and disease control, in section H. 4(e) of this chapter.) Hand or aerial seeding of native species may be done to restore natural vegetation. Structural and similar watershed rehabilitation measures will be permitted only if they satisfy the nonimpairment criteria.

Permanent snow gauges, air quality monitoring instruments, water quantity and quality measuring instruments, and hydrometeorologic devices may be established if these are the minimum necessary for determination of real or potential threats to human health, safety, or property and if they are substantially unnoticeable in the area. These must, however, use miniaturized equipment, be adequately camouflaged, and must not require access by motor vehicle if the area were designated as wilderness. Temporary monitoring devices for the same purposes may be installed without the above restrictions on use of motor vehicles if they satisfy the nonimpairment criteria.

Watershed rehabilitation work required by emergency conditions caused by fire, flood, storms, biological phenomena, landslides, or fumes may involve any treatments needed but must be conducted to the extent feasible in a manner that will not impair wilderness suitability. For example, the rehabilitation work will use the methods least damaging to the wilderness resource. To the extent feasible, reseeding and planting under emergency conditions will utilize species native to the area and will avoid cross-country use of motorized equipment. Seedings and plantings will be staggered or irregular, so as to avoid a straight-line plantation appearance. Any unavoidable impacts which cannot be reclaimed by the time specified under the nonimpairment criteria must receive intensive reclamation efforts to achieve full reclamation as soon as possible.

Rehabilitation projects will be documented according to standard BLM procedures.

H. Rangeland Management

1. **General.** In some respects, rangeland management activities are less restricted by the Interim Management Policy than other activities. This is partly because livestock grazing, at appropriate stocking levels, in itself, is compatible with maintaining wilderness suitability; it is partly because most grazing operations on the public lands qualify as grandfathered uses; and it is partly because some range improvements enhance wilderness values by better protecting the rangeland in a natural condition.

Some of the rangeland management activities involve a distinction between grazing uses that are "grandfathered" by section 603(c) of FLPMA and those that are not. The criteria for these two categories follow:

a. Grandfathered grazing use is that grazing authorized and used during the 1976 grazing fee year, including areas that were in the "rest" cycle of a grazing system.

b. Non-grandfathered grazing use is any grazing that was not authorized and used during the 1976 grazing fee year.

APPENDIX 1

2. **Grazing.**

a. **Changes in Grazing.** In both grandfathered and non-grandfathered grazing, changes in number and kind of livestock or period of use may be permitted, so long as (1) the changes do not cause declining condition or trend of the vegetation or soil, and (2) the changes do not cause unnecessary or undue degradation of the lands.

b. **Prevention of Unnecessary or Undue Degradation.** The grandfather clause does not freeze grandfathered grazing uses at the same level as existed on October 21, 1976. The mandate, in section 603(c), to prevent unnecessary or undue degradation of the lands explicitly applies to grandfathered uses. Thus, the grandfather provision will not prevent implementation of reductions in authorized use adopted in allotment management plans.

c. **Grazing Systems.** Grazing systems in operation during the 1976 grazing fee year may continue to be used and maintained; any new range improvements must satisfy the guidelines for range improvements in section 3, below. New grazing systems may be established as long as the new range improvements needed to implement the system are permissible under the guidelines in section 3.

d. **Motor Vehicles.** Motorized access on existing access routes may be permitted. Cross-country motorized access may be authorized along routes specified by the BLM if it satisfies the nonimpairment criteria, including reclamation requirements; no grading or blading will be permitted. Temporary roads may be built if the BLM has determined that they satisfy the nonimpairment criteria.

3. **Range Improvements.** This section sets forth the general criteria that will govern the use, maintenance, and installation of range improvements. The following section 4 shows how these criteria will affect certain specific types of improvements.

a. **Pre-FLPMA Range Improvements.** Range improvements existing or under construction on October 21, 1976, may continue to be used and maintained.

b. **New, Grandfathered Range Improvements.** In a grandfathered grazing operation, if a permit between the BLM and the grazing operator, issued before October 21, 1976, provided for installation by the operator of a series or system of improvements and part of that series or system had been installed before that date, the remaining improvements of the same kind may be installed.

c. **New, Temporary Range Improvements.** Temporary range improvements may be installed if they satisfy the nonimpairment criteria.

d. **New, Permanent Range Improvements.** New, permanent range improvements not permissible under (b) above may be approved for the purpose of enhancing wilderness values by better protecting the rangeland in a natural condition. In such cases they must meet all of the following criteria:

— they would not require motorized access if the area were designated as wilderness;

— the improvements are substantially unnoticeable in the wilderness study area (or inventory unit) as a whole;

— after any needed reclamation is complete, the area's wilderness values must not have been degraded so far, compared with the area's values for other purposes, as to significantly constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness.

For construction of approved range improvements, cross-country use of motor vehicles or construction of temporary access routes may be approved if BLM has determined that they satisfy the nonimpairment criteria.

4. **Specific Guidelines for Range Improvements.**

a. **Salting.** In both grandfathered and non-grandfathered grazing operations, salting practices may be continued. New salting locations may be established to improve the distribution of grazing use so long as motorized access is on existing ways and trails or is cross-country access determined by the BLM to satisfy the nonimpairment criteria.

b. **Supplemental Feeding.** Supplemental feeding may be continued in grandfathered grazing operations if it was part of the operation in the 1976 grazing fee year. Otherwise, in both grandfathered and non-grandfathered grazing, supplemental feeding may be done in cases where BLM has determined that it satisfies the nonimpairment criteria and under emergency conditions, such as unexpected heavy snowfall.

c. **Fences.** In both grandfathered and non-grandfathered grazing, new, permanent fences may be built and maintained if the BLM determines that they are needed to better protect the rangeland in a natural condition. Barbed wire and wood or steel fence posts may be used; the fence will be designed to blend with the landscape and topography, and must meet the criteria in section 3 (d) above.

d. **Water Developments.** In both grandfathered and non-grandfathered grazing, new, permanent water developments will be limited as follows, and must meet the criteria in section 3 (d) above:

— Springs may be developed so long as the water trough blends into the surrounding landscape, and the pipeline area is put back to original contour, and plant cover restored as specified in the nonimpairment criteria.

— Reservoirs, pits, and charcos may be developed if they are designed and constructed to blend into the surrounding landscape. They should be no larger than necessary, and not to exceed 10 acre feet in storage capacity. Borrow areas for fills will be from the impoundment area or within the high-water area.

e. **Vegetative Manipulation.** This includes chemical, mechanical, and biological methods. In grandfathered grazing operations, if vegetative manipulation had been done on the allotment before October 21, 1976, and its impacts were noticeable to the

average visitor on that date, the improvement may be maintained by applying the same treatment again on the land previously treated. Otherwise, vegetative manipulation may be used only for control of small areas of poisonous plants or in emergencies for control of insects and disease when there is no effective alternative. Limited exceptions are specified as follows:

— Prescribed burning may also be used where necessary to maintain fire-dependent natural ecosystems.

— Reseeding may also be done by hand or aerial methods to restore natural vegetation. (There is also a provision for reseeding in emergency rehabilitation projects, described in section G of this chapter.)

5. **Wild Horse and Burro Management.** Temporary facilities for management of wild horses and burros may be installed if they satisfy the nonimpairment criteria. The above guidelines for grazing practices and range improvements will also apply to wild horse and burro management, where appropriate.

J. Mineral Uses.

An understanding of several concepts is necessary before reading the following text on mining and mineral leasing operations. In Chapter I we have explained the meaning of the "grandfather" concept, "manner and degree," "nonimpairment," and "valid existing rights." Definitions of "unnecessary or undue degradation" and "substantially unnoticeable" appear in Appendix F.

The meaning and intent of these key terms will guide the minerals management in wilderness study areas during the study period. Once the wilderness study is completed and if an area is designated by Congress as wilderness, minerals management will then be directed by section 4(d) of the Wilderness Act of 1964, unless the terms of particular leases allow for greater regulation than the Wilderness Act, or unless Congress provides otherwise.

All mineral activities that were existing on October 21, 1976, may continue in the same manner and degree in which they were being conducted on October 21, 1976, even if they would impair wilderness suitability. These activities fall within the grandfather concept as discussed in Chapter I. B. 6. They will, however, be regulated to prevent unnecessary or undue degradation of the lands.

On pre-FLPMA oil and gas, geothermal, and coal leases which had no surface-disturbing impacts as of October 21, 1976, if proposed activities are denied because they cannot meet the nonimpairment criteria, the lessee has the right to request a suspension of operation. The policy on lease suspension is explained more fully in section 1 (d), below.

Valid existing rights of mining claimants will be recognized. For a claim to qualify as a valid existing right, a "discovery" of a valuable mineral, the test of

which has been accepted in case law as the "prudent man test," must be demonstrated. Activities under valid existing rights may impair wilderness suitability, but they will be regulated to prevent unnecessary or undue degradation of the lands.

All leases issued on or before October 21, 1976, have valid existing rights, the extent of which is defined by the terms and conditions of each specific lease. For the majority of pre-FLPMA leases the lease rights are not absolute nor unqualified. In other words, if there were no pre-FLPMA grandfathered activities, post-FLPMA operations would not be allowed if they would impair wilderness suitability.

Activities proposed under leases, permits and mining claims which are not covered by the grandfather or valid existing rights provisions will be subject to the nonimpairment criteria as described at the beginning of Chapter III.

1. **Oil and Gas and Geothermal Leasing, Exploration, and Development.**

a. **Pre-FLPMA Leases.** All pre-FLPMA leases on which actual pre-FLPMA physical impacts had been created through such activities as seismic, thermal gradient or other exploration drilling, production drilling, or construction of production-related facilities, are grandfathered. Operations on these leases may continue even if impairing, so long as they do not exceed manner and degree as defined in the grandfather concept. As explained in Chapter I. B. 6, this may mean that pre-FLPMA activities which began outside the boundary of a wilderness study area may be continued by that lessee onto the same or other leases held by that lessee in an adjacent wilderness study area, as long as the activity follows the logical pace and progression of development and the impacts are not of a significantly different kind.

Activities on pre-FLPMA leases on which there were no pre-FLPMA impacts will be allowed if the BLM determines that the impacts satisfy the nonimpairment criteria. If proposed activities are denied because they cannot satisfy the nonimpairment criteria, the lessee has the right to request a suspension of operation. The policy on lease suspension is explained more fully in section (d), below.

b. **Post-FLPMA Leases Issued Prior to the Issuance of the Interim Management Policy.** Regardless of the conditions and terms under which these leases were issued, there are no grandfathered uses inherent in post-FLPMA leases. Activities on post-FLPMA leases will be subject to a special wilderness protection stipulation as stated in Appendix A. If there is already production on any lease issued in this period, it would be allowed to continue in the least impairing manner. Increases in production or production facilities would not be allowed if the resultant impacts would further impair.

c. **New Leases.** New leases may be issued provided the special stipulation (Appendix A) is attached. Activities may occur under these leases so long as the BLM determines that they satisfy the nonimpairment criteria.

d. **Suspension of Lease Terms - Oil and Gas and Geothermal.** The Secretary of the Interior has the discretionary authority to direct or assent to a suspension of the operating and producing requirements of an oil and gas or geothermal resources lease if it is in the interest of conservation to do so and when the specific circumstances involved warrant such an action.

When the U.S. Geological Survey (GS) notifies a proponent that an application to conduct operations is being denied because of the prospect for impairment of wilderness suitability of an area under study or review as to its potential for study, it should advise the proponent of the right to (1) appeal that denial, (2) request a suspension of operation, and (3) take such other actions as are deemed appropriate to protect the rights granted by the lease. It is not appropriate for the GS or BLM to speculate as to the potential for suspension since the specific circumstances involved in each case will be determining factors in any decision. However, if the lessees who are denied the right to conduct operations because of conflicts with wilderness review are to be given a reasonable opportunity to preserve their leases, it is imperative that these potential conflicts be identified as promptly as possible during the review of requests for a preliminary environmental review, applications to conduct operations, and plans of operation, and that any written recommendation for denial be provided promptly to the GS so that it may in turn promptly notify the lessee.

For leases not encumbered with wilderness protection or no-surface-occupancy stipulations and on which an application for an otherwise acceptable plan of operations was denied for wilderness or endangered species considerations, the Secretary has established a policy of assenting to a suspension of operation or production for the time necessary to complete necessary studies and consultations and, if applicable, for a decision on wilderness status to be made. The same policy would apply in cases where a discovery of oil and/or gas has been made in a nonimpairing manner on a leasehold encumbered with a wilderness protection stipulation and for which an otherwise acceptable plan of development and production operations has been denied because it would impair suitability for wilderness.

On the other hand, in instances where a lease is encumbered by a wilderness protection or no-surface-occupancy stipulation and there has been no discovery and a lessee's request for application for permit to drill has been denied, the Secretary's policy generally has been and will be to not grant relief from the terms of the stipulation by granting a suspension.

Lessees are hereby advised that in cases where wilderness review is a factor, applications for proposed operations should be filed no later than 120 days before expiration of the lease term in order to provide adequate processing time, including time for BLM to determine whether the proposed operations would impair the suitability of the area of proposed activity for preservation as wilderness.

e. **Exploration.** Post-FLPMA oil and gas or geothermal exploration applied for under 43 CFR 3045 or 43 CFR 3209 will continue to be approved if the BLM determines that it satisfies the nonimpairment criteria. Pre-FLPMA exploration will be allowed to continue as provided under the grandfather concept. Consistent with sections 302(b) and 603(c) of FLPMA, all oil and gas and geothermal "Notices of Intent to Conduct Exploration" must be approved by BLM prior to commencement of operations.

2. **Coal.** The policy for coal is more exclusive than the other leasable minerals because of the recent regulations 43 CFR 3461, which were issued on July 19, 1979. These regulations, promulgated as a result of the Surface Mining Control and Reclamation Act and FLPMA, establish criteria for identifying lands that are unsuitable for all or certain stipulated methods of coal mining. These rules, then, supplemented by section 603(c) of FLPMA, will provide the basis for coal management in wilderness study areas.

a. **Pre-FLPMA Leases and Prospecting Permits.** All pre-FLPMA coal leases on which actual pre-FLPMA physical impacts had been created through such activities as production or construction of production-related facilities, may continue consistent with the grandfather provision, even if this would impair wilderness suitability. As explained in Chapter I. B. 6, this may include the logical extension of grandfathered activities which began outside the boundary of a wilderness study area into an adjacent wilderness study area. Mining plans on pre-FLPMA non-producing coal leases, even leases on which pre-FLPMA exploration drilling has taken place, will not be recommended for approval by BLM if the proposed mining methods are by surface methods or if the impacts resulting from underground mining would impair the suitability of the area for preservation as wilderness.

b. **Preference Right Lease Applications.** The preference right lease applicant's right to adjudication of his right to a lease will be recognized. Application of the right, however, involves application of the coal unsuitability criteria, including the wilderness review criterion number 4, of 43 CFR 3461(d)(1) and the imposition of conditions in the proposed lease to prevent impairment of the area's suitability for preservation as wilderness.

The Secretary may initiate exchange proceedings for coal under 43 CFR 3430.5-4 if he determines that, among other things, the lands are unsuitable for coal mining because of wilderness considerations.

c. **New Competitive Leases.** The coal unsuitability criteria will be applied to all coal lands being considered in the BLM's planning system. The only BLM-administered lands that will be offered for competitive lease sale are those on which a final wilderness inventory decision has determined that the lands lack wilderness characteristics. Once the Congress has determined that a WSA will not be designated as wilderness, the area may be considered for competitive lease.

d. **Exploration Licenses.** Exploration licenses are issued for exploration of unleased Federal land.

Unsuitability criteria will not be applied to exploration licenses. If the activities proposed under an exploration license would create impacts that do not satisfy the nonimpairment criteria, they would not be approved.

e. **Suspension of Lease Terms.** The lease suspension policy cited in section 1(d) above will apply to coal leases. One factor in the Secretary's decisions will be the diligent development requirement that must be met by the lessee.

3. **Oil Shale and Tar Sands Leasing.**

a. **Pre-FLPMA Leases.** There are no pre-FLPMA leases for tar sand and only four pre-FLPMA oil shale leases. All pre-FLPMA leases on which actual pre-FLPMA physical impacts have been created through such activities as exploration drilling, production, or construction of production-related facilities, may continue in the same manner and degree under the grandfather provisions as discussed in Chapter I. B. 6, even if these activities impair wilderness suitability. Any proposed activity which would exceed that manner and degree, as determined by BLM, would be allowed only if it satisfies the nonimpairment criteria.

Activities on pre-FLPMA leases on which no pre-FLPMA impacts have taken place will be allowed if they satisfy the nonimpairment criteria. If proposed activities are denied because they cannot meet the nonimpairment criteria, the lessee has the right to request a suspension of operation. The policy on lease suspension is explained more fully in section 1(d) above.

b. **New Leases Issued After the Implementation of FLPMA.** New leases may be issued provided the special stipulation (Appendix A) is attached. Activities may occur under these leases so long as the BLM determines that they satisfy the nonimpairment criteria.

c. **Suspension of Lease Terms.** The policy cited in section 1(d) above will apply.

4. **Other Leasable Minerals (Phosphate, Potash, Sodium, Sulphur, and Hardrock (Solid) Minerals on Acquired Lands, Including Uranium).**

a. **Pre-FLPMA Leases and Permits.** All pre-FLPMA leases on which actual pre-FLPMA physical impacts have been created through such activities as exploration drilling, production drilling, or construction of production-related facilities, may continue consistent with the grandfather provisions. As explained in Chapter I. B. 6, this may include logical extension of grandfathered activities which began outside the boundary of a wilderness study area into an adjacent wilderness study area. These activities will continue to be regulated to prevent unnecessary or undue degradation of the lands. Activities on pre-FLPMA leases on which no pre-FLPMA impacts have taken place will be allowed if the BLM determines that they satisfy the nonimpairment criteria.

b. **Prospecting Permits.** Prospecting permits may continue to be issued in wilderness study areas (or inventory units), subject to a stipulation that no preference right lease will be issued until or unless an environmental analysis (or environmental impact statement) is completed and it is demonstrated, on the basis of the environmental analysis and a mining plan

submitted with the application for a preference right lease, that the minerals can be removed by mining methods that will not impair the area's suitability for preservation as wilderness. Each permit will also condition exploration operations by a stipulation to insure that the impact caused by the activities will not impair the area's wilderness suitability.

c. **Preference Right Lease Applications.** Existing rights to preference right leases will be recognized. However, conditions will be imposed in such leases to prevent impairment of the area's suitability for preservation as wilderness.

d. **Post-FLPMA Leases Issued Prior to the Issuance of the Interim Management Policy.** Regardless of the conditions and terms under which these leases were issued, there are no grandfathered uses inherent in post-FLPMA leases. Activities on post-FLPMA leases will be subject to the special wilderness protection stipulation as stated in Appendix A. If there is already production on any lease issued in this time frame it would be allowed to continue in the least impairing manner and so as to prevent unnecessary or undue degradation of the lands. Increases in production or in production facilities would not be allowed if the resultant impacts would further impair wilderness suitability.

e. **New Leases or Permits Issued After Implementation of FLPMA.** New leases and prospecting permits will be issued subject to the special wilderness protection stipulation (Appendix A). Activities that would impair wilderness suitability will not be allowed.

5. **Mining Operations Under the 1872 Mining Law.**

a. **Location, Prospecting, Exploration, and Mining.** Mining operations conducted on lands under wilderness review will be subject to the forthcoming regulations 43 CFR 3802. The regulations will not apply to areas where a final decision that the area lacks wilderness characteristics has been made through the BLM wilderness inventory process. These regulations will provide a procedure for notifying the BLM of activities being conducted or proposed to be conducted on mining claims and will also establish the standards for approval of the conduct of those operations, including reclamation.

The regulations have several purposes: (1) to prevent impairment of the wilderness suitability of areas under wilderness review; (2) to recognize valid existing rights; (3) to allow grandfathered activities to continue; (4) to allow continued location and operations under the mining laws; and (5) to prevent unnecessary or undue degradation of the lands.

b. **Valid Existing Rights.** All mining claimants who located claims on or before October 21, 1976, and are able to demonstrate a discovery as of that date, as required under the 1872 Mining Law, as amended (prudent man test — must show that the claim has a reasonable prospect of being mined at a profit), will be allowed to continue their mining operations to full development even if the operations are causing or will cause impairment. Before BLM will grant approval of such operations, the operator will be required to show evidence of such discovery. If warranted, BLM

APPENDIX 1

may verify data through a field examination and, if necessary, initiate contest proceedings.

Reasonable access to pre-FLPMA valid mining claims will also be granted. Such access shall be regulated to prevent or minimize impairment of the area's wilderness suitability, to the extent possible consistent with the enjoyment of the claimant's rights. Mineral patent applications on these pre-FLPMA valid claims will continue to be processed.

Whether or not the claims have a pre-FLPMA discovery determines only whether the nonimpairment standard applies. *All* operations will be regulated to prevent unnecessary or undue degradation of the lands until the claims are patented. (Any claim patented in the California Desert Conservation Area will continue to be regulated to prevent unnecessary or undue degradation.) All operations will be subject to the forthcoming regulations 43 CFR 3802, which will specify in what circumstances and in what manner notification will be required.

c. **Temporary Limitation on the Exercise of Valid Existing Rights.** If impairing activities are proposed on a pre-FLPMA claim with valid existing rights, within a wilderness study area (WSA) which the BLM Director has recommended to the Secretary as suitable for preservation as wilderness, the proposed impairing activity may be temporarily disapproved by the Director of the BLM. This is a narrow exception for extraordinary circumstances when the Secretary and the President may be expected to recommend the WSA as suitable for wilderness designation and Congress may be expected to act in a short period of time. Such a disapproval would be for one year, subject to renewal, but not to exceed a total of two years.

d. **Grandfathered Activities.** Owners of unpatented mining claims located on or before October 21, 1976, who cannot establish a valid existing right by demonstrating a "discovery" on the above date will be allowed to continue in the same manner and degree as on that date, even if this impairs wilderness suitability. (See grandfather provision in Chapter I. B. 6.) For pre-FLPMA claims which have neither valid existing rights nor grandfathered uses, further exploration work to "prove-up" a discovery will be allowed only if the BLM determines that the proposed operations satisfy the nonimpairment criteria.

e. **Assessment Work.** Assessment work will be permitted only if the BLM determines that it satisfies the nonimpairment criteria. However, assessment work on claims which qualify under valid existing rights or the grandfather concept may, in fact, impair.

f. **Deferment of Assessment Work.** If proposed assessment work would impair the area's suitability for preservation as wilderness, a deferment of annual assessment work, under 30 USC 28b, may be granted for a period not to exceed two years. At the end of that period, the mining claimant must find other ways of completing nonimpairing assessment work, such as the geological, geochemical, and geophysical work allowed by the Act of September 2, 1958 (30 USC 28-1).

g. **Mining Claims Located After October 21, 1976.** Lands under wilderness review will continue to be subject to location under the mining laws. Location methods and subsequent assessment work will be restricted to operations which the BLM determines satisfy the nonimpairment criteria. Work towards post-FLPMA discoveries may take place, but not to the extent that impairment is caused. If discoveries are made in a nonimpairing manner or claims located after October 21, 1976, patents may issue.

h. **Mining Activities in Areas Smaller Than 5,000 Acres.** If the wilderness study area (or inventory unit) is smaller than 5,000 acres, all mining activities under the 1872 Mining Law will be exempt from the nonimpairment standard, and will be regulated only to prevent unnecessary or undue degradation of the lands. (The basis for this guideline is explained in Chapter I. A. 6.)

6. **Disposal of Minerals Materials (Salable).** Sale and free use of mineral materials will be allowed so long as the operation can be conducted consistent with the nonimpairment criteria.

(a) It is temporary. This means that the use or activity may continue until the time when it must be terminated in order to meet the reclamation requirement of paragraphs (b) and (c) below. A temporary use that creates no new surface disturbance may continue unless Congress designates the area as wilderness, so long as it can easily and immediately be terminated at that time, if necessary to management of the area as wilderness.

(b) Any temporary impacts caused by the activity must, at a minimum, be capable of being reclaimed to a condition of being substantially unnoticeable in the wilderness study area (or inventory unit) as a whole by the time the Secretary of the Interior is scheduled to send his recommendations on that area to the President, and the operator will be required to reclaim the impacts to that standard by that date. If the wilderness study is postponed, the reclamation deadline will be extended accordingly. If the wilderness study is accelerated, the reclamation deadline will not be changed. A full schedule of wilderness studies will be developed by the Department upon completion of the intensive wilderness inventory. In the meantime, in areas not yet scheduled for wilderness study, the reclamation will be scheduled for completion within 4 years after approval of the activity. (Obviously, if and when the Interim Management Policy ceases to apply to an inventory unit dropped from wilderness review following a final wilderness inventory decision of the BLM State Director, the reclamation deadline previously specified will cease to apply.) The Secretary's schedule for transmitting his recommendations to the President will not be changed as a result of any unexpected inability to complete the reclamation by the specified date, and such inability will not constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness.

The reclamation will, to the extent practicable, be done while the activity is in progress. Reclamation will include the complete recontouring of all cuts and fills to blend with the natural topography, the replacement of topsoil, and the restoration of plant cover at least to the point where natural succession is occurring. Plant cover will be restored by means of reseeding or replanting, using species previously occurring in the area. If necessary, irrigation will be required. The reclamation schedule will be based on conservative assumptions with regard to growing conditions, so as to ensure that the reclamation will be complete, and the impacts will be substantially unnoticeable in the area as a whole, by the time the Secretary is scheduled to send his recommendations to the President. ("Substantially unnoticeable" is defined in Appendix F of the *Interim Management Policy and Guidelines for Lands under Wilderness Review.*)

(c) When the activity is terminated, and after any needed reclamation is complete, the area's wilderness values must not have been degraded so far, compared with the area's values for other purposes, as to significantly constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness. The wilderness values to be considered are those mentioned in section 2(c) of the Wilderness Act, including naturalness, outstanding opportunities for solitude or for primitive and unconfined recreation, and ecological, geological or other features of scientific, educational, scenic, or historical value.

If all or any part of the area included within the leasehold estate is formally designated by Congress as wilderness, exploration and development operations taking place or to take place on that part of the lease will remain subject to the requirements of this stipulation, except as modified by the Act of Congress designating the land as wilderness. If Congress does not specify in such act how existing leases like this one will be managed, then the provisions of the Wilderness Act of 1964 will apply, as implemented by rules and regulations promulgated by the Department of the Interior.

APPENDIX A

WILDERNESS PROTECTION STIPULATION

By accepting this lease, the lessee acknowledges that the lands contained in this lease are being inventoried or evaluated for their wilderness potential by the Bureau of Land Management (BLM) under section 603 of the Federal Land Policy and Management Act of 1976, 90 Stat. 2743 (43 USC Sec. 1782), and that exploration or production activities which are not in conformity with section 603 may never be permitted. Expenditures in leases on which exploration drilling or production are not allowed will create no additional rights in the lease, and such leases will expire in accordance with law.

Activities will be permitted under the lease so long as BLM determines they will not impair wilderness suitability. This will be the case either until the BLM wilderness inventory process has resulted in a final wilderness inventory decision that an area lacks wilderness characteristics, or in the case of a wilderness study area until Congress has decided not to designate the lands included within this lease as wilderness. Activities will be considered nonimpairing if the BLM determines that they meet each of the following three criteria:

APPENDIX B

THE FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (P.L. 94-579)

Bureau of Land Management Wilderness Study

Sec. 603. (a) Within fifteen years after the date of approval of this Act, the Secretary shall review those roadless areas of five thousand acres or more and roadless islands of the public lands, identified during the inventory required by section 201(a) of the Act as having wilderness characteristics described in the Wilderness Act of September 3, 1964 (78 Stat. 890; 16 U.S.C. 1131 et seq.) and shall from time to time report to the President his recommendation as to the suitability or nonsuitability of each such area or island for preservation as wilderness: Provided, that prior to any recommendations for the designation of an area as wilderness the Secretary shall cause mineral surveys to be conducted by the U.S. Geological Survey and

the Bureau of Mines to determine the mineral values if any, that may be present in such areas: Provided further, that the Secretary shall report to the President by July 1, 1980, his recommendations on those areas which the Secretary has prior to November 1, 1975, formally identified as natural or primitive areas. The review required by this subsection shall be conducted in accordance with the procedures specified in section 3(d) of the Wilderness Act.

(b) The President shall advise the President of the Senate and the Speaker of the House of Representatives of his recommendations with respect to designation as wilderness of each such area, together with a map thereof and a definition of its boundaries. Such advice by the President shall be given within two years of the receipt of each report from the Secretary. A recommendation of the President for designation as wilderness shall become effective only if so provided by an Act of Congress.

(c) During the period of review of such areas and until Congress has determined otherwise, the Secretary shall continue to manage such lands according to his authority under this Act and other applicable law in a manner so as not to impair the suitability of such areas for preservation as wilderness, subject, however, to the continuation of existing mining and grazing uses and mineral leasing in the manner and degree in which the same was being conducted on the date of approval of this Act: Provided, that, in managing the public land the Secretary shall by regulation or otherwise take any action required to prevent unnecessary or undue degradation of the lands and their resources or to afford environmental protection. Unless previously withdrawn from appropriation under the mining laws, such lands shall continue to be subject to such appropriation during the period of review unless withdrawn by the Secretary under the procedures of section 204 of this Act for reasons other than preservation of their wilderness character. Once an area has been designated for preservation as wilderness, the provisions of the Wilderness Act which apply to national forest wilderness areas shall apply with respect to the administration and use of such designated area, including mineral surveys required by section 4(d)(2) of the Wilderness Act, and mineral development, access, exchange of lands, and ingress and egress for mining claimants.

APPENDIX C

SECTION 2(c) OF THE WILDERNESS ACT OF SEPTEMBER 3, 1964 (P.L. 88-577)

A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

APPENDIX D

AUTHORITY AND REGULATIONS

1. AUTHORITY

The Interim Management Policy is based on the following authorities:

- The Federal Land Policy and Management Act of 1976 (Public Law 94-579, 90 Stat. 2743, 43 USC 1701), sections 603, 302, 201, and 701, as modified by other applicable provisions of that Act and by other laws. (See Appendix B for the text of section 603.)
- The Wilderness Act of 1964 (Public Law 88-577, 78 Stat. 890, 16 USC 1131). (See Appendix C for the text of section 2(c).)

2. REGULATIONS

Requirements of the Interim Management Policy will be considered by the BLM, to the extent necessary, as part of its decisionmaking process in considering approval of any activity on the public lands pursuant to existing or new regulations.

Most of the policies in this document can and will be implemented through existing regulations covering specific activities. However, some of the policies will be implemented through the promulgation of new regulations — either proposed regulations that are now in preparation, or revisions to existing regulations.

One rulemaking now in progress concerns mining activities on lands under wilderness review:

- Exploration and Mining — Wilderness Review Program (43 CFR 3802). These regulations pertain only to locatable minerals under the 1872 Mining Law. (See Chapter III. J. 5(a) of this document.)

Two other proposed rulemakings in preparation concern mineral leasing and mining activities on all BLM-administered lands and will reflect the Interim Management Policy:

- Geophysical Exploration — Oil and Gas (43 CFR 3045).
- Surface Management of Mining Claims (43 CFR 3809). When these regulations are promulgated, they will incorporate the regulations (43 CFR 3802) for exploration and mining on lands under wilderness review.

The interim management requirements are already reflected in general terms in the following regulations, which are now in effect:

- Federal Lands Review — Unsuitability for Mining (43 CFR 3461). This covers coal mining on public lands.
- Off-Road Vehicles (43 CFR 8340).

Changes in existing regulations will also be proposed wherever this is found necessary to implement the Interim Management Policy.

APPENDIX E

THE WILDERNESS REVIEW PROGRAM

To carry out the mandate of section 603 of FLPMA, the Bureau of Land Management has developed a comprehensive wilderness review program. Key elements of the overall program include:

1. **Wilderness Review.** The wilderness review process has three phases: inventory, study, and reporting to Congress. Public involvement is encouraged in all phases of the process, with opportunity provided for comment, participation, and review. The wilderness review applies to all public lands administered by the BLM except:

- Lands where the United States owns the minerals but the surface is not Federally owned.
- Lands being held for the benefit of Indians, Aleuts, and Eskimos.
- Lands tentatively approved for State selection in Alaska.
- Lands on the Outer Continental Shelf.
- Oregon and California grant (O & C) lands that are managed for commercial timber production.

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The phases of the wilderness review process are as follows:

a. **Inventory.** First, BLM does an inventory of the public lands to identify areas that meet the definition of wilderness established by Congress. Such areas are identified as wilderness study areas (WSA's). The procedures for this inventory are described in the *Wilderness Inventory Handbook*. The inventory is scheduled for completion in the contiguous Western States in 1980.

b. **Study.** Each WSA must be studied through the BLM land-use planning system to analyze all values, resources, and uses within the WSA. The findings of the study determine whether the area will be recommended as suitable or nonsuitable for designation as wilderness.

c. **Reporting.** When the study has been completed, a recommendation as to whether the WSA is suitable or nonsuitable for designation as wilderness is submitted through the Secretary of the Interior and the President to Congress. A mineral survey by the U.S. Geological Survey and Bureau of Mines will accompany every "suitable" recommendation. Reports on all WSA's must reach the President no later than October 21, 1991, and reach Congress by October 21, 1993. Only Congress can designate an area as wilderness.

2. **Instant Study Areas.** FLPMA also requires that by July 1, 1980, the Secretary of the Interior must submit recommendations to the President on the wilderness suitability of 55 public land areas that were formally identified as "natural" or "primitive" areas prior to November 1, 1975. These are known as "instant study areas" because Congress directed study and reporting on these areas, without awaiting completion of the wilderness inventory.

3. **Management of Areas under Wilderness Review.** This is the Interim Management Policy which is the subject of this document. It establishes the guidelines for determining uses and activities that may occur in areas under wilderness review. It applies until Congress takes action on the President's recommendations.

APPENDIX F

DEFINITIONS

Some of the terms used in this document have specific meanings and are defined as follows:

Cross-country: Refers to travel that is not on existing access routes (ways and trails) and does not involve any surface disturbance other than that caused solely by the passage of vehicles.

Cumulative Impact: The aggregate impact of existing and proposed activities. Individual intrusions when considered by themselves may not impair wilderness suitability; however, when combined with other existing and proposed substantially unnoticeable impacts, the total effect may be sufficient to impair an area's suitability for preservation as wilderness.

FLPMA: The Federal Land Policy and Management Act of 1976 (Public Law 94–579, 90 Stat. 2743, 43 USC 1701).

Impact: The effect, influence, alteration, or imprint of an activity.

Impair: To diminish in value or excellence.

Impair Wilderness Suitability: Refers to activities that are considered to impair an area's suitability for preservation as wilderness — i.e., that do not satisfy the "nonimpairment criteria" set forth in Chapter I. B. 2 of this document.

Instant Study Area: One of the 55 primitive and natural areas formally identified by BLM through a final action published in the *Federal Register* before November 1, 1975. FLPMA requires an accelerated wilderness review of these areas.

Multiple Use: "... the management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output." (From section 103, FLPMA).

Pre-FLPMA: Before October 21, 1976, the date of approval of the Federal Land Policy and Management Act.

Primitive and Unconfined Recreation: Nonmotorized and nondeveloped types of outdoor recreational activities.

Public Lands: For the purpose of the wilderness review program, any lands and interest in lands owned by the United States within the several States and administered by the Secretary of the Interior through the Bureau of Land Management, without regard to how the United States acquired ownership, except:

1. Lands where the United States owns the minerals but the surface is not Federally owned.

2. Lands being held for the benefit of Indians, Aleuts, and Eskimos.

3. Lands tentatively approved for State selection in Alaska.

4. Lands on the Outer Continental Shelf.

5. Oregon and California grant (O & C) lands that are managed for commercial timber production.

Roadless: For the purpose of the wilderness review program, this refers to the absence of roads which have been improved and maintained by mechanical means to ensure relatively regular and continuous use. A way maintained solely by the passage of vehicles does not constitute a road.

Words and phrases used in the above definition of "roadless" are defined as follows:

1. Improved and maintained: Actions taken physically by man to keep the road open to vehicular traffic. "Improved" does not necessarily mean formal construction. "Maintained" does not necessarily mean annual maintenance.

2. Mechanical means: Use of hand or power machinery or tools.

3. Relatively regular and continuous use: Vehicular use which has occurred and will continue to occur on a relatively regular basis. Examples are: Access roads for equipment to maintain a stock water tank or other established water sources; access roads to maintained recreation sites or facilities; or access roads to mining claims.

Solitude: 1. The state of being alone or remote from habitations; isolation. 2. A lonely, unfrequented, or secluded place.

Substantially Unnoticeable: Refers to something that either is so insignificant as to be only a very minor feature of the overall area or is not distinctly recognizable by the average visitor as being manmade or man-caused because of age, weathering, or biological change. An example of the first would be a few minor dams or abandoned mine buildings that are widely scattered over a large area, so that they are an inconspicuous part of the scene. Serious intrusions of this kind, or many of them, may preclude inclusion of the land in a wilderness study area. (See also "Cumulative Impact," above.) An example of the second would be an old juniper control project that has grown up to a natural appearance, the old fallen trees largely decomposed.

Unnecessary or Undue Degradation: Impacts greater than those that would normally be expected from an activity being accomplished in compliance with current standards and regulations and based on sound practices, including use of the best reasonably available technology.

Wilderness: The definition contained in section 2(c) of the Wilderness Act of 1964 (78 Stat. 891). (See Appendix C for its full text.)

Wilderness Area: An area formally designated by Congress as part of the National Wilderness Preservation System.

Wilderness Characteristics: The definition contained in section 2(c) of the Wilderness Act of 1964 (78 Stat. 891). (See Appendix C for its full text.)

Wilderness Inventory: An evaluation of the public lands in the form of a written description and map showing those lands that meet the wilderness criteria as established under section 603(a) of FLPMA and section 2(c) of the Wilderness Act, which will be referred to as wilderness study areas (WSA's). (See *Wilderness Inventory Handbook*, dated September 27, 1978.)

Wilderness Review Program: The term used to cover the entire process of wilderness inventory, study, and reporting for the wilderness resource, culminating in recommendations submitted through the Secretary of the Interior and the President to Congress as to the suitability or nonsuitability of each wilderness study area for inclusion in the National Wilderness Preservation System. (For a summary of the program, see Appendix E.)

Wilderness Study Area (WSA): A roadless area or island that has been inventoried and found to have wilderness characteristics as described in section 603 of FLPMA and section 2(c) of the Wilderness Act of 1964 (78 Stat. 891).

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APPENDIX 2

WILDERNESS MANAGEMENT POLICY

WILDERNESS MANAGEMENT POLICY

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Chapter I. Introduction

I. A. The Purpose of This Document

The purpose of this document is to describe how the Bureau of Land Management (BLM) will manage lands administered by the BLM which are designated by Congress as part of the National Wilderness Preservation System. At present, the Bureau of Land Management administers no wilderness areas. The Bureau has developed a Wilderness Management Policy at this time for the following reasons: (1) to inform BLM field officials, Congress, and the public as to how BLM will manage wilderness areas, so this can be taken into account during BLM wilderness studies and during deliberations on wilderness recommendations affecting BLM public lands, and (2) to provide guidance for BLM personnel to use in managing future BLM wilderness areas at such time as Congress designates them.

The BLM's Wilderness Management Policy will apply to public lands administered by BLM that have been specifically designated as wilderness by an Act of Congress. The Wilderness Management Policy has a different purpose than BLM's *Interim Management Policy and Guidelines for Lands under Wilderness Review*. The *Interim* Management Policy is an interim measure governing lands under wilderness review. The Wilderness Management Policy governs lands designated by Congress as wilderness. (Appendix C of this document summarizes BLM's wilderness review process.) If Congress designates a wilderness study area as wilderness, the Interim Management Policy ceases to apply, and instead the Wilderness Management Policy applies thereafter. If Congress decides that a particular wilderness study area will *not* be designated as wilderness, the Interim Management Policy ceases to apply, and the area is managed for the uses and activities indicated in the pertinent BLM planning documents for the area.

This policy document does not apply to BLM-administered public lands in Alaska. If public lands in Alaska are designated as wilderness in the future, they will be managed under applicable provisions of the Wilderness Act of 1964 and in accordance with additional congressional guidance in the Alaska National Interest Lands Conservation Act of 1980 (ANILCA). The ANILCA recognized special conditions in Alaska in connection with such activities as subsistence uses, access and transportation.

I. B. Mandate from Congress

The BLM wilderness review program stems from Section 603 of the Federal Land Policy and Management Act of 1976 (FLPMA). In FLPMA, Congress gave BLM its first unified, comprehensive mandate on how the public lands should be managed. The law establishes a policy of generally retaining the public lands in Federal ownership, and it directs the BLM to manage them under principles of multiple use and sustained yield. The BLM is to prepare an inventory of the public lands and their resources, including identification of areas having wilderness characteristics. Management decisions for the public lands are to be made through a land-use planning process that considers all potential uses of each land area. All public lands are to be managed so as to prevent unnecessary or undue degradation of the lands.

Under FLPMA, wilderness preservation is part of BLM's multiple-use mandate, and wilderness values are recognized as part of the spectrum of resource values and uses to be considered in the inventory and in the land-use planning process. Section 603 of FLPMA specifically directs the BLM, for the first time, to carry out a wilderness review of the public lands. (The complete text of section 603 appears in Appendix A of this document. The BLM's wilderness review process implementing section 603 is summarized in Appendix C.)

Section 603(c) of FLPMA tells the BLM how to manage public lands designated as wilderness, in these words:

> "Once an area has been designated for preservation as wilderness, the provisions of the Wilderness Act which apply to national forest wilderness areas shall apply with respect to the administration and use of such designated area, including mineral surveys required by section 4(d)(2) of the Wilderness Act, and mineral development, access, exchange of lands, and ingress and egress for mining claimants and occupants."

The Wilderness Act of 1964 contains a number of provisions addressing the administration and use of national forest wilderness areas. Those most pertinent to BLM wilderness management are cited in the following paragraphs. Section 2(a) says:

> "...it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. For this purpose there is hereby established a National Wilderness Preservation System to be composed of federally owned areas designated by Congress as 'wilderness areas', and these shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness...."

Section 4 of the Wilderness Act is devoted to the use of wilderness areas. Section 4(b) says:

> "Except as otherwise provided in this Act, each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character. Except as otherwise provided in this Act, wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use."

Section 4(c) prohibits certain activities, in these words:

> "Except as specifically provided for in this Act, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this Act and, except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area."

Sections 4(c), 4(d), and 5 provide special exceptions to the prohibitions in section 4(c) by providing for the following activities:

- existing private rights.
- measures required in emergencies involving the health and safety of persons within the area.
- activities and structures that are the minimum necessary for the administration of the area as wilderness.
- use of aircraft and motorboats, where already established, may be permitted to continue.
- measures necessary in the control of fire, insects, and diseases.
- any activity, including prospecting, for the purpose of gathering information about mineral or other resources, if carried on in a manner compatible with the preservation of the wilderness environment. (This includes mineral surveys conducted on a planned, recurring basis by the Geological Survey and Bureau of Mines.)
- continued application of the U.S. mining and mineral leasing laws until December 31, 1983.
- water resource developments may be authorized by the President where he determines that such use will better serve the interests of the United States and the people thereof than will its denial.
- livestock grazing, where already established, shall be permitted to continue.
- commercial services necessary for activities which are proper for realizing the recreational or other wilderness purposes of the areas.
- adequate access to surrounded State-owned and privately-owned lands, or such lands shall be exchanged for Federally-owned land.
- ingress and egress to surrounded valid mining claims and other valid occupancies.

Section 5(c) provides land acquisition authority, in these words:

> "Subject to the appropriation of funds by Congress, the Secretary of Agriculture is authorized

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to acquire privately owned land within the perimeter of any area designated by this Act as Wilderness if (1) the owner concurs in such acquisition or (2) the acquisition is specifically authorized by Congress."

In addition to the basic management authority in the Wilderness Act, management provisions may appear in the legislation establishing each wilderness area. Standard provisions included in most wilderness legislation make clear that the effective date of the new law will apply wherever the Wilderness Act's management provisions mentioned the effective date of the Wilderness Act, and, for areas administered by the Department of the Interior, make clear that the Secretary of the Interior will continue to administer the areas.

In some cases, special provisions have been incorporated into the legislation (e.g., special mining area in the River of No Return Wilderness in Idaho). These provisions override the general management provisions of the Wilderness Act and must be regarded as specific direction for management of the area in question.

Congress has subsequently commented on wilderness management in House and Senate committee reports and conference reports accompanying wilderness legislation. These reports are part of the legislative history of the laws they accompany and can be helpful in determining the intent of Congress where the language in the law itself is unclear. Although reports on wilderness laws passed after 1964 do not become part of the legislative history of the Wilderness Act, they nonetheless indicate the interpretation given to the Wilderness Act by the congressional committees during their consideration of the subsequent legislation. Such report language addresses a variety of subjects. For example, guidelines for administering grazing use in wilderness areas appear in the Conference Report (House Report 96-1126) on the Central Idaho Wilderness Act of 1980 (P.L. 96-312). House Report 95-540 on the Endangered American Wilderness Act of 1978 discusses the interpretation of the Wilderness Act as it relates to such uses and activities as: hunting and fishing; trails, bridges, and trail signs; control of fire, insects, and diseases; cabins and sanitary facilities; shelters and campsite facilities; and weather modification and special equipment.

The provisions of FLPMA, the Wilderness Act, and future Acts of Congress designating specific BLM areas as wilderness are BLM's mandates on the management of wilderness areas. All activities in wilderness areas must be carried out in conformance with these mandates.

I. C. Meaning of the Congressional Mandate

The congressional mandate contains three basic concepts which form the basis for BLM's Wilderness Management Policy.

— *Wilderness Preservation Concept:*

Congress has directed the BLM to perpetuate the wilderness resource by managing designated wilderness areas so that their wilderness character is preserved unimpaired.

— *Wilderness Use Concept:*

Congress has directed the BLM to provide opportunities for the public to use designated wilderness areas for recreational, scenic, scientific, educational, conservation, and historical purposes in a manner so as to leave the wilderness area unimpaired for future use and enjoyment as wilderness.

— *Nonconforming Use Concept:*

Congress has directed the BLM to accommodate in wilderness areas certain activities, existing uses, and private rights which are generally nonconforming to wilderness preservation and wilderness use.

The meaning of each of these concepts is discussed below.

1. **Wilderness Preservation Concept**
The Wilderness Act directs that wilderness areas be managed to provide for their protection, the preservation of their natural conditions, and the preservation of their wilderness character. The factors which make up an area's wilderness character are spelled out in the Wilderness Act's definition of wilderness (section 2(c)). These factors are referred to in FLPMA collectively as "wilderness characteristics," and they fall into three broad categories:

a. Naturalness—A wilderness area "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable." Wilderness areas must be managed to ensure that this description remains accurate.

b. Outstanding Opportunities for Solitude or a Primitive and Unconfined Type of Recreation—A wilderness area "has outstanding opportunities for solitude or a primitive and unconfined type of recreation." Solitude is defined as (1) the state of being alone or remote from habitations; isolation; (2) a lonely, unfrequented or secluded place. The emphasis is on the opportunities a person has to avoid the sights, sounds, and evidence of other people within a particular area. Primitive and unconfined types of recreation are defined as those activities that provide dispersed, undeveloped recreation which do not require facilities or motorized equipment. In most cases, opportunities for solitude and primitive recreation go hand-in-hand, and both are dependent on naturalness. Wilderness areas must be managed to ensure that these opportunities are not degraded.

c. Special Features—Congress specified that wilderness areas "may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value." These are optional wilderness characteristics; an area may meet the Wilderness Act's definition of wilderness without having these special features, but they are usually present in wilderness areas, and in some cases they may be a prime reason for wilderness designation. Also, these features contribute to an area's opportunities for primitive recreation. Wilderness areas must be managed to ensure that these opportunities are not degraded.

In order to preserve these wilderness characteristics as Congress directed, the management of BLM-administered wilderness must be based on a *principle of nondegradation*. Under this principle, the central thrust of BLM wilderness management is to prevent degradation of natural conditions, opportunities for solitude or primitive recreation and special features.

It is recognized that there is often variation in the level of naturalness, solitude, types of primitive recreation, and special features, present within a wilderness—or between different wilderness areas. Also, different lands have different capabilities to sustain types and amounts of use. The principle of nondegradation means that wilderness areas will be managed to provide for the protection and perpetuation of the values of the wilderness resource and prevent deterioration caused by other resource activities or by visitor use, and, when necessary, to restore deteriorated sites to an acceptable condition.

Most uses will result in some changes in the condition of the wilderness resource. Some uses cause little or no change, while others have the potential for serious change. Therefore, it is necessary to define limits of acceptable change. This must be established using the conditions *generally* prevailing in each wilderness at the time of congressional designation as a benchmark unless there is unacceptable biological, physical, or social degradation present. This does not mean that existing human-caused impacts in some areas will set a standard, or a sort of "lowest common denominator", which other more natural areas will be allowed to reach. Managers must determine what human-caused changes can be allowed without causing degradation and what measures can be taken to bring situations below the limit of acceptable change back to an acceptable level. This may influence the ways in which recreational, scenic, scientific, educational, conservation, and historical uses, as well as nonconforming uses, are done in the area, so their impact on the wilderness resource can be kept within the limits of acceptable change.

In the case of some of the nonconforming uses, such as mining, provided for by Congress in the Wilderness Act and subsequent legislation, the condition of the wilderness resource may be degraded as a result of an allowed use. However, in such cases, the principle of nondegradation and the limits of acceptable change should be used as an analysis tool for the reasonable mitigation of impacts, consistent with the applicant's conduct of the allowed use, and as a standard for determining the condition to which the area will be returned where and when rehabilitation is appropriate.

In this document, the principle of nondegradation is reflected in the policies and guidelines for specific activities.

Two equivalent terms used many times in this document reflect the wilderness preservation concept—"preservation of wilderness character" and "protection of the wilderness resource."

2. **Wilderness Use Concept**
Section 4(b) of the Wilderness Act provides fundamental guidance on how wilderness areas shall be used, in these words:

> "Except as otherwise provided in this Act, each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character. Except as otherwise provided in this Act, wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use."

Wilderness areas are thus open to use and provide a variety of benefits to society. Use might be "on-site," taking direct advantage of the multiple resources of the area. Or the use and benefits may be derived "off-site," such as through enjoyment of the scenery at a distance from a nearby highway, through indirect benefits from the area's resources (i.e., water quality, wildlife, etc.), or just the knowledge that the area exists.

There is a limit to the extent to which such uses as recreation and education may take place within wilderness, because the Wilderness Act also says that they must occur in a manner so as to leave the wilderness unimpaired for future use and enjoyment as wilderness. Provision may be made for recreational, scenic, scientific, educational, conservation, and historical use of wilderness areas in ways that do not jeopardize the conditions of naturalness, the opportunities for solitude or a primitive and unconfined type of recreation, or the special features that existed at the time an area was designated as wilderness by Congress. All public use will be administered to ensure that the wilderness resource is kept unimpaired.

Public use for recreation purposes is generally a prevalent use of wilderness. However, the Wilderness Act makes it clear that recreation is only one of the purposes of the National Wilderness Preservation System. Sometimes there are places within wilderness where particularly sensitive values—such as colonial bird nesting sites—may dictate that recreation activities be restricted or entirely excluded.

Use capacity (recreational, historic, educational, etc.), based on social and ecological elements, will be established for each wilderness area, and will be considered in determining how much use to allow.

A second factor which may limit the use of wilderness has to do with the nonconforming use provisions of the Wilderness Act and subsequent legislation. In portions of a wilderness area where nonconforming activities such as mining and grazing are permitted, there may be instances when the public purposes listed in section 4(b) may be displaced either temporarily or permanently.

3. **Nonconforming But Accepted Use Concept**
Congress specially provided for certain activities and existing uses which otherwise would have been prohibited in wilderness areas under the general management provisions of sections 2(a), 4(b) and 4(c). For a complete list of these nonconforming but accepted activities, refer to section I.B.; generally they are: existing private rights; aircraft and motorboats; control of fire, insects, and diseases; gathering of resource information; mining; grazing; water resource development; commercial recreation services; and access to non-Federal inholdings.

The FLPMA directs that all uses of the public lands be conducted so as to prevent unnecessary or undue degradation of the lands. In wilderness areas, this means that the BLM must manage the nonconforming but accepted uses described above so as to prevent unnecessary or undue degradation of the area's wilderness character. As on nonwilderness public lands, some of the nonconforming but accepted uses may be restricted or entirely excluded where particularly sensitive resource values occur or where the public interest would be better served by restricting or excluding them.

Chapter II. Management Policy for BLM-Administered Wilderness

The policy guidance in this chapter is followed in Chapter III by guidelines for specific activities, based on these policies and on their interaction with other applicable policies for the management of public lands. No policy document can address every potential situation. Managers must use their best judgment in applying these policies and guidelines to particular situations. In cases not covered by specific guidance, managers will resolve questions by testing alternative courses of action against the policies in this chapter to arrive at the alternative that is most consistent with the policy as a whole.

Uses and values will vary between wilderness areas and frequently vary among different parts of an individual wilderness. There may be wide differences in terrain and other geographic characteristics, climate, vegetation, and wildlife. Historical patterns of use, local customs, and the traditional attitudes of visitors also differ between and within wilderness areas. Consequently, activities that are accepted and management practices that are necessary and appropriate on one wilderness may be either unnecessary or unacceptable on others. While this may require some flexibility in the management and administration of the individual units of wilderness, all are part of one National Wilderness Preservation System and shall be consistently managed within the intent of the Wilderness Act.

This policy document prescribes the general objectives, policies, and specific activity guidance applicable to all BLM wilderness areas. Specific management objectives, requirements, and decisions implementing administrative practices and visitor

activities in individual wilderness areas are developed and described in the wilderness management plan for each unit.

II. A. General Policy

1. The Department of the Interior's policy is to manage wilderness areas under the administration of the Bureau of Land Management so as to preserve their wilderness character, and to manage them for the use and enjoyment of the American people in a manner that will leave them unimpaired for future use and enjoyment as wilderness. The wilderness areas will be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use.

2. The Department's policy is to allow the nonconforming but accepted uses specifically permitted in wilderness areas by the Wilderness Act and subsequent laws in a manner that will prevent unnecessary or undue degradation of the area's wilderness character.

3. The Department's policy is to manage BLM wilderness areas consistent with the policies above so as to augment multiple use management of adjacent and nearby lands through protection of watersheds and water yield; wildlife habitat; natural plant communities; and similar natural values.

II. B. Specific Policy Guidance

1. **Preservation of Wilderness Character.** BLM wilderness areas will be managed so as to be affected primarily by the forces of nature, with the imprint of human work substantially unnoticeable; so as to maintain the area's outstanding opportunities for solitude or primitive and unconfined recreation; and so as to protect any ecological, geological, or other features of scientific, educational, scenic, or historical value which the area may contain.

a. **Naturalness.** BLM will foster a natural distribution of native species of wildlife, fish, and plants by ensuring that natural ecosystems and ecological processes continue to function naturally. The BLM will minimize human influence on wildlife populations and work to prevent the extinction by human causes of plants and animals found in the areas. Hunting, fishing, and trapping will continue as authorized by State law, when carried out in a manner consistent with preservation of an area's wilderness character.

The BLM will allow fire, insects, and diseases to play a natural role in the wilderness ecosystem, except where these activities threaten human life, property, or high value resources on adjacent nonwilderness lands, or where these would result in unacceptable change to the wilderness resource. (The guidelines in Chapter III will indicate some types of unacceptable change.)

The BLM will keep watersheds, water bodies, water quality, and soils in a natural condition and will allow associated ecological processes previously altered by human influences to return to their natural condition. The limits of acceptable change will be defined in the wilderness management plan for each wilderness area, and the BLM will endeavor to restore those sites which have dropped below this level.

b. **Solitude.** BLM will maintain and enhance the area's outstanding opportunities for solitude by providing natural settings with few reminders of human activity or civilization and by providing opportunities for relatively few contacts with other visitors.

c. **Special Features.** BLM will maintain unimpaired the ecological, geological, and other features of scientific, educational, scenic, or historical value found in BLM wilderness areas.

2. **Prohibition of Certain Uses**
Except where subject to existing private rights, where necessary to meet minimum requirements for the administration of the wilderness area for the purposes of the Act or as specifically provided for elsewhere in these policies, there shall be no temporary road; no use of motor vehicles, motorized equipment, or motor boats; no landing of aircraft; no other form of mechanical transport and no structure or installation within wilderness areas. There shall be no commercial enterprise or permanent road, except where subject to existing private rights or as specifically provided for in this policy.

3. **Minimum Tool**
Tools, equipment, or structures may be used for managment when they are the minimum necessary for protection of the wilderness resource or when necessary in emergency situations for the health and safety of the visitor. Management will use the *minimum* tool, equipment, or structure necessary to successfully, safely, and economically accomplish the objective. The chosen tool, equipment, or structure should be the one that least degrades wilderness values temporarily or permanently.

For the purpose of the above paragraph, accepted tools, equipment, and structures may include but are not limited to: fire towers, patrol cabins, pit toilets, temporary roads, spraying equipment, hand tools, fire-fighting equipment caches, fencing, and controlled burning. In special or emergency cases involving the health and safety of wilderness visitors, or the protection of wilderness values, aircraft, motorboats, and motorized vehicles may be used.

4. **Visitor Use.** BLM wilderness areas will be managed to provide for their use and enjoyment in ways that are consistent with preservation of their wilderness character and that will leave them unimpaired for future use and enjoyment as wilderness.

Visitor use may be related to any of the following public purposes: recreation, scenic, scientific, educational, conservation, and historical use.

Visitor use facilities may be installed if they are the minimum necessary for the health and safety of wilderness visitors, or for the protection of the wilderness resource. (See also "minimum tool," in section B.3. above.) Facilities that are solely for the convenience of the visitor are not compatible with preservation of wilderness character and therefore will not be provided in wilderness areas.

The use capacity of the wilderness area will be determined, and will be used by managers to anticipate and avert degradation of the area's wilderness character and as a basis for mitigating the impacts caused by various uses.

If visitor use threatens to impair the area's wilderness character, managers will take action to prevent impairment. Indirect methods of reducing visitors' impact, such as trail design, information, and education, will be preferred over direct (regulatory) methods, such as limits on party size, length of stay, or number of parties. In case of conflict between visitor uses that depend upon a wilderness setting and those that do not, the uses dependent upon a wilderness setting will be favored.

Visitor use in wilderness involves certain risks to the visitor as a consequence of isolation from the conveniences of a technological world. The visitor must accept these risks in entering a wilderness area. In emergencies involving the health and safety of persons within the area, managers will take appropriate measures, such as search and rescue operations.

5. **Nonconforming Uses.**

a. **Valid Existing Rights.** Private rights existing as of the date an area was designated as wilderness will be recognized. In some cases, such rights may involve activities addressed elsewhere in this document under standards prescribed by the Wilderness Act. (One example of this is valid mining claims, addressed in section (h).) Valid existing rights in situations not covered by these policies will be considered by the BLM on a case-by-case basis, in consultation with the Regional Solicitor, to determine the nature of the rights and the extent to which the BLM must regulate the exercise of those rights pursuant to the Wilderness Act and other laws.

b. **Aircraft and Motorboats.** Use of aircraft or motorboats may be permitted to continue in wilderness areas where such uses were established prior to the date the area entered the National Wilderness Preservation System. Such use, when permitted to continue, will be monitored on a regular basis to determine if its continuation is appropriate. Use may be regulated or discontinued as necessary to protect resources in the area or to preserve the area's wilderness character.

c. **Control of Fires, Insects, and Diseases.** Where fire, insects and diseases threaten human life, property, or high value resources on adjacent nonwilderness lands, or where they would cause unacceptable change to the wilderness resource, measures may be taken as necessary to control them. Allowable actions will be specified in the wilderness management plan for each wilderness area.

d. **Gathering Information About Resources.** Any activity, including mineral prospecting, for the purpose of gathering information about natural resources in wilderness, will be permitted provided it is carried on in a manner compatible with the

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preservation of the wilderness resource. (This section does not affect mineral prospecting activities conducted under the mining laws, which are covered in section (h) below. The Wilderness Act provides for these activities in wilderness areas until midnight December 31, 1983.)

(1) No form of overland mechanical transport may be used in connection with prospecting for minerals or any activity for the purpose of gathering information about individual resources, unless approved by the BLM in accordance with the regulations 43 CFR 2920 - Leases, Permits, and Easements (effective April 15, 1981) (published in 46 FR 5772).

(2) Any person desiring to use motor vehicles, motorized equipment, mechanized transport, or to land aircraft, for mineral prospecting or for gathering information about resources is required to notify the BLM in writing. Approval documents will assure activities are conducted in a manner compatible with the preservation of the wilderness resource. No degradation of wilderness resources or values will be allowed. Restoration of disturbed areas is required and must take place as soon as possible once activities terminate. Performance bonds may be required.

e. **Proposed Water Resource Facilities.** If the President authorizes new water resource facilities or activities, pursuant to section 4(d)(4)(1) of the Wilderness Act, the BLM will manage those authorized operations to prevent unnecessary or undue degradation of the area's wilderness character. (Existing water resource facilities are discussed in (f) below, and water facilities for livestock grazing are discussed in (g) below.)

f. **Existing Water Resource Facilities.** Some wilderness areas may contain minor water resource facilities that were found to be substantially unnoticeable in the area. If such structures are present and were explicitly recognized by Congress as being acceptable in a specific wilderness, they may be operated and maintained to keep them in an effective, usable condition. Maintenance may not change the location, size, or type of the facility, or increase the storage capacity of a reservoir.

g. **Livestock Grazing.** Grazing of livestock, where established prior to the effective date of the Act designating the area as wilderness, shall be permitted to continue subject to this policy and the BLM grazing regulations 43 CFR 4100. Existing grazing may include not only the utilization of the forage resource, but also the use and maintenance of livestock management improvements and facilities associated with the grazing activity at the time of designation and which are in compliance with an approved Allotment Management Plan.

Congressional guidelines regarding "Grazing in National Forest Wilderness Areas," published in House Report 96-1126, dated June 24, 1980, will be implemented in all BLM-administered wilderness with pre-existing grazing. These guidelines will be applied using the normal planning and environmental assessment process and will be integrated into all management plans for the wilderness area.

h. **Minerals Management.** Until midnight December 31, 1983, the United States mining laws and all laws pertaining to mineral leasing shall extend to BLM-administered wilderness areas to the same extent as applicable prior to the date the wilderness was incorporated into the National Wilderness Preservation System.

(1) **Mining Law Administration.** Holders of unpatented mining claims validly established on any BLM-administered wilderness prior to inclusion of such unit in the National Wilderness Preservation System are accorded the rights provided by the United States mining laws as then applicable to public land involved. Persons prospecting or locating mining claims in BLM-administered wilderness on or after the date on which the said unit was included in the National Wilderness Preservation System are accorded similar rights subject to the provisions of the Wilderness Act and subsequent establishing legislation. All claimants must comply with reasonable conditions for the protection of resources in accordance with the general purposes of maintaining the National Wilderness Preservation System unimpaired for future use and enjoyment of its wilderness character.

Timber on mining claims within BLM-administered wilderness may be cut only for the actual development of the claim or uses reasonably incident thereto. Any severance or removal of timber, other than that necessary to provide clearance, on the claim shall be in accordance with sound principles of forest management and shall be done in such a manner as to minimize adverse effects on the wilderness resource. In the development and operation of mining claims, claimants will be required to prevent erosion and the obstruction, pollution, or siltation of streams, lakes, or springs or deterioration of the land.

A bond as prescribed in 43 CFR 3809.1-9 may be required. All reasonable measures will be required of the operator to reclaim disturbed lands as soon as feasible after operations cease. Ordinarily, needed work will be accomplished within one year after operations cease, unless provided otherwise by the BLM. Whenever possible and feasible the objectives of reclamation shall be to restore the surface to a contour which appears to be natural, although this may not be the original contour. Where such measures are impractical or impossible, the objective shall be to provide for the maximum achievable slope stability. Reclamation shall in all cases include revegetation where feasible and practical. If revegetation by natural means will not occur in time to prevent serious soil loss or other damage to wilderness values, revegetation by planting may be required, with preference given to the use of native species, where practical and reasonable.

If an application for patent has been filed but not acted upon when the requirements of the immediately preceding paragraph would normally be invoked, the requirements will be suspended while the patent application is under consideration. However, those requirements for the prevention of erosion and pollution, siltation or obstruction of streams, lakes, or springs or deterioration of the land will continue to be observed.

The title to timber on patented mining claims validly established after the land was included in the National Wilderness Preservation System will remain in the United States, subject to a right of the patentee to cut and use timber. The patentee may cut and use as much of the mature timber as is needed in the extraction, removal and beneficiation of the mineral deposits, if needed timber is not otherwise reasonably available. The cutting shall comply with the requirements for sound principles of forest management as set forth in stipulations issued by the BLM.

In the development and operation of mining claims, claimants will be required to prevent unnecessary or undue degradation of the land.

(2) **Mineral Leasing.** Until January 1, 1984, all laws pertaining to mineral leasing will continue to apply in wilderness areas to the same extent they applied before the area was designated.

State Directors will make decisions on whether or not to issue mineral leases, permits, and licenses in wilderness areas. The State Director's decision to issue mineral leases will be made through the environmental assessment process and after consideration of what will best serve the public interest.

Reasonable stipulations for the protection of the wilderness character of the land will be incorporated into mineral leases, permits, and licenses covering lands within BLM-administered wilderness. Stipulations will be consistent with the use of the land for purposes for which they are leased, permitted, or licensed.

(3) **Common Varieties.** Permits shall not be issued for the removal of mineral materials commonly known as common varieties under the Materials Act of July 31, 1947, as amended and supplemented.

(4) **Withdrawal.** Subject to valid rights then existing, effective January 1, 1984, the minerals in lands designated as wilderness are withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral leasing, unless Congress specifically provides otherwise in the law designating the area as part of the National Wilderness Preservation System or in subsequent legislation.

i. **Commercial Services.** Commercial services such as those provided by packers, outfitters, and guides may be provided within wilderness areas to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of the areas.

j. **Access to Non-Federal Lands.** States or persons, and their successors in interest, who own land completely surrounded by a wilderness area shall be given such rights as may be necessary to assure adequate access to that land. Adequate access is defined as the combination of routes and modes of travel which will, as determined by the BLM, cause the least lasting impact on the wilderness resource, and at the same time serve the reasonable purposes for which the State or private land is held or used.

No road shall be constructed across wilderness until authorized by the BLM. Access by routes or modes of travel not available to the general public may, when fully justified, be permitted by written authorization. The authorization will prescribe routes and modes of travel which will result in the least lasting impact on wilderness values and, at the same time, serve the reasonable purposes for which the land is held or used. A performance bond will usually be required (in accordance with Title V of the Federal Land Policy and Management Act).

Where the exercise of rights of access to surrounded State or private land would be detrimental to wilderness values, the BLM shall, before granting access, attempt to acquire such land by purchase or by exchange.

6. **Existing Structures and Installations**

After Congress has designated a wilderness area, an inventory will be made of existing structures and installations, critically evaluating the purposes and need for each, and its historical significance, if any. If a structure or installation has historical significance, it may be retained as a historic feature of the area. If it does not have historical significance, it may be maintained for continued use if it meets the "minimum tool" policy in paragraph 3 above, or if it is necessary for a use specifically permitted by the Wilderness Act or by the law designating the affected wilderness area. Any structure or installation that does not qualify for retention under the above criteria will be removed.

In maintaining or modifying existing structures and installations, the manager should consider the potential for using native materials and alternative technological approaches to make them as unobtrusive as possible.

7. **Acquisition of Non-Federal Lands**

Acquisition of non-Federal lands within wilderness areas is authorized by purchase or exchange. When such lands are to be acquired, the BLM will seek to acquire the mineral rights as well as the surface rights. Acquisition of privately-owned lands will occur only if the private owner concurs with the acquisition, or if the acquisition is specifically authorized by Congress to be accomplished by eminent domain.

8. **Research and Collection of Management Information**

Wilderness areas administered by BLM will provide opportunities for research and scientific activities that use wilderness areas for study of natural environments and ecosystems. Information collection activities by resource managers for wilderness and other purposes may also be conducted in wilderness. All research and collection of management information within the wilderness area will be conducted in an unobtrusive manner, by methods compatible with the preservation of the area's wilderness character. (Refer to section II. B. 5. d. for policy on gathering information about resources and section III. L. for specific policies on research.)

9. **Buffer Zones and Adjacent Lands**

No buffer zones will be created around wilderness areas to protect them from the influence of activities on adjacent land. The fact that nonwilderness activities or uses can be seen or heard from areas within the wilderness shall not, of itself, preclude such activities or uses up to the boundary of the wilderness area.

When activities on adjacent lands are proposed, the specific impacts on those activities upon the wilderness resource and upon public use of the wilderness area will be addressed in environmental assessments or environmental impact statements, as appropriate. Mitigation of impacts from outside wilderness will not be so restrictive as to preclude or seriously impede such activities.

10. **Visitor Information and Education**

Part of the wilderness experience valued by many visitors is the freedom from rules and regulations. Visitor education will be used to achieve management objectives where feasible. Only the minimum amount of regulation necessary to achieve desired objectives will be used.

To protect the natural appearance of wilderness areas, visitor informational and educational programs, signs, and poster boards will normally be located outside the wilderness boundary. An exception to this general rule is that informational or regulatory signs may be placed within wilderness areas as a management tool to correct specific problems and protect the wilderness resource or for the health and safety of visitors when these signs meet the "minimum tool" standard (see section II. B. 3.)

Informational and educational materials pertaining to the management of BLM-administered wilderness in general or to specific wilderness areas will be readily available to the wilderness user at BLM offices. Such materials will inform visitors of the responsibilities and risks involved in visiting a wilderness area.

11. **Administration**

a. **Wilderness Management Plans.** A wilderness management plan will be developed for each BLM-administered wilderness area as a means of applying the Wilderness Management Policy to that specific area. The plan will be tailored to the local conditions of each wilderness by prescribing any specific objectives appropriate to the area, consistent with the Wilderness Management Policy. Plans should consider the different kinds of environmental settings, history of use, and management situations pertaining to the individual wilderness area. The wilderness management plan will describe the strategy to be used to implement both the Wilderness Management Policy and the specific objectives prescribed for the area.

Management plans for individual wilderness areas should be flexible and must be updated periodically to reflect changes in conditions and use. New inventory data, use patterns, demand trends, supply conditions, management concerns, etc., may change over a period of time, and some goals and objectives applicable soon after a wilderness area is designated may not be appropriate further in the future. Managers should use the land management planning process to analyze all available options, so as to respond to changing conditions.

In developing wilderness management plans, the concept of stratification or zoning between wilderness areas or within individual areas should be considered as a means of achieving management objectives or providing different experiences and opportunities. For example, it may be desirable to manage one wilderness or a portion of an area within a wilderness primarily for protection of an endangered wildlife species. In another wilderness, managers may want to establish different zones of experience, providing recreational opportunities ranging from (1) high concentrations of use to (2) a series of more natural areas as one penetrates into the inner core, to (3) a pristine area which may have no trails or signs. Stratification or zoning can help the wilderness manager achieve objectives, protect resources, and satisfy user demands and expectations.

b. **Coordination.** When a wilderness area's boundaries overlap BLM administrative boundaries, management will be coordinated between District and State Offices to ensure uniformity in management practices.

When a wilderness area involves contiguous lands administered by BLM and by another Federal agency, the BLM will remain an active manager of lands under its administration, unless it has been determined that more effective wilderness management can be achieved by transferring the land to the other agency or by some form of cooperative management. State Directors have the option of approving cooperative management agreements with other Federal agencies on a case-by-case basis. Wherever appropriate, a joint management plan by all agencies involved will be encouraged.

Coordinated planning efforts will also involve State fish and wildlife agencies and all other Federal, State, county, and local agencies, Indian tribal governments, and organizations that may be affected by wilderness management activities.

c. **Wilderness Management Personnel.** Wilderness management personnel may be employed to help implement the provisions of a wilderness management plan. They can facilitate protecting the wilderness resource by assisting visitors with suggestions, advice, and information; enforcing regulations; performing minor trail repairs; and removing trash. Wilderness management personnel can reduce site-specific problems, such as the overuse of popular camp areas, by relocating camp sites and performing rehabilitation work. The manager may also use wilderness management personnel to gather information about resource trends and visitor use. The decision to employ wilderness management personnel should be made on a case-by-case basis. Their use may or may not be required, depending on local conditions. In cases where personnel are not employed specifically for wilderness management, the BLM will assign appropriate personnel as needed to monitor the condition of the wilderness resource.

Chapter III. Guidelines for Specific Activities

The guidelines in this chapter are an application of the policies set forth in Chapter II to various activities that may or may not take place in BLM-administered wilderness areas. These guidelines are also based on other applicable laws and on other policies and regulations of the Department of the Interior.

These guidelines will be used in developing a Wilderness Management Plan for each BLM-administered wilderness area, containing guidance on how specific activities will be treated in that area. Until such time as a Wilderness Management Plan is approved by the State Director, interim decisions on specific activities in a wilderness area will be made by BLM field officials based on these guidelines.

Decisions on any activities not addressed in these guidelines will be made on the basis of the policies in Chapter II.

III. A. Recreation and Visitor Use

Wilderness areas administered by the BLM shall provide a variety of uses including, but not limited to, recreational, scenic, scientific, educational, conservation, and historical.

The wilderness resource will be dominant in all management decisions where a choice must be made between preservation of wilderness character and visitor use. There are places and times within wilderness where unique values may require that recreation and visitor use activities be restricted or entirely prohibited in order to preserve an enduring resource of wilderness. The highest priority among various kinds of visitor use will be accorded those activities which (1) are most dependent upon the wilderness environment and cannot be reasonably accommodated outside of wilderness, (2) least affect the wilderness environment.

Consideration must be given to the ability of the wilderness resource to sustain visitor use without loss or degradation of the wilderness resource itself. Carrying capacity—social, biological, and physical—may vary widely within and between wilderness areas due to variations in types and amounts of uses, resource characteristics, and the capabilities of the resources to sustain different types and amounts of uses. The leading management tool and document to consider these factors and set guidelines for managing visitor use will be the Wilderness Management Plan. These plans will describe the level at which an area is able to absorb use and impacts and will describe measures needed to protect wilderness values.

The following specific guidance applies to visitor use within BLM wilderness:

1. **Visitor Management**

Visitor management techniques will be utilized in wilderness when necessary to preserve both the wilderness resource and the visitor's wilderness experience and opportunities. Management of visitor use will be the minimum necessary to provide for use of the area as wilderness, and to preserve the wilderness character of the area.

Visitor management should be planned to maintain a high-quality wilderness resource and to protect the quality of the wilderness experience. The Wilderness Management Plan will consider all appropriate and compatible methods to manage levels of use that are within the capacity of the wilderness. Visitor management may be carried out by both direct and indirect methods.

a. **Indirect Methods.** Visitor use may be managed through such indirect efforts as:

(1) Wilderness rangers informing visitors about less congested areas.

(2) Obliteration of improvements at overcrowded or undesirable sites.

(3) Improved access to tributary, lightly used areas.

(4) Information to (a) encourage use of lightly used or relatively unknown areas, or to (b) stress the experiences and value to be found outside the peak use period.

(5) Minimize the promotion of an outdoor experience in wilderness and emphasize such uses of undeveloped areas outside wilderness.

(6) Reroute primary transportation away from major destination areas. Have spur trails to vistas or camp areas.

(7) Design and management of trail-head areas, including access roads and parking areas.

(8) Education of visitors about good wilderness manners and ethics.

(9) Use of built-in frictions or obstacles, such as low-standard access roads.

(10) Removal of trail-head improvements and/or restriction of travel into areas already overused or where capacity use already occurs.

b. **Direct Methods.** More direct methods to achieve visitor management may include:

(1) Regulating the use of saddle horses and/or pack stock.

(2) Managing areas strictly for foot or horse use only, to protect sensitive sites and resources, or to provide different recreation opportunities or experiences within the wilderness.

(3) Requiring permits for specific areas or time periods. A permit or registration system can be an important tool for both the wilderness manager and wilderness visitor. Both systems provide visitor use data on the number and distribution of visitors. In addition, a permit or registration system can give the visitor site-specific information helpful in preplanning a trip. A permit system can be utilized also to limit or redistribute and disperse visitor use.

(4) Limiting the number of people in parties or the number permitted to stay overnight at specific locations.

(5) Limiting numbers of users. The Wilderness

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Management Plan will analyze needed methods and identify necessary measures.

(6) Stock grazing or canoe/boat-beaching restrictions, both private and commercial, on over-used or concentration areas.

2. **Improvements and Facilities**

Facilities and improvements such as trails, bridges, signs, and campsites, will be provided only where they are the minimum necessary for protection of the wilderness resource and for the health and safety of persons within the area. No facilities or improvements will be provided for the comfort and convenience of the visitor. The need for proposed facilities, such as latrines, fire circles, and fences will be justified in the Wilderness Management Plan. Improvements and facilities when approved will be constructed of materials which harmonize with the natural environment.

Existing improvements or facilities not specifically provided for in these guidelines—those having no historical value and not necessary for preservation of an area's wilderness character or for the health and safety of persons within the area—will be removed.

Construction, maintenance, and removal of facilities and improvements will be by primitive means. Exceptions to this policy, such as using handpowered portable tools and aircraft, may be approved by the State Director if no other alternatives exist, the mechanized or mechanical equipment is the minimum necessary, and they will not degrade or impair the area's wilderness character.

a. **Trail Systems**

(1) New trails will be constructed only if they are needed to preserve wilderness values and resources and they will not significantly degrade the degree of naturalness or solitude in the area. Trails are an acceptable improvement provided they are constructed and maintained so they have an insignificant impact on wilderness values. Wilderness management plans will address where trails and related facilities are appropriate.

(2) Existing trails and trail systems will be evaluated to determine if they are the minimum necessary to meet wilderness management objectives. Trails may be expanded, relocated, restored, or closed as a result of the evaluation. Wilderness Management Plans will address the present situation and evaluate future needs. Trailhead access points will be evaluated at this time. Trailhead locations should be carefully chosen as they have a profound influence over management of visitor use. It may be desirable to locate trailhead access points well outside the wilderness boundary to reduce their impact upon the wilderness area.

(3) Trail routes shall be selected to provide scenic vistas and, where possible, a varied scene. Heavily used areas should generally be served by spur trails and should be bypassed by primary trails. Trails will not be constructed with treads of more than 24 inches in width except where a wider trail is justified for protection of the wilderness resource. Trails should follow natural contours where possible and result in minimum disturbance to soil and ground cover.

(4) Bridges will be designed and constructed so as to harmonize with the environment and will be the minimum size and complexity necessary to allow foot or stock use. Besides adhering to the basic standards set out for improvements and facilities above, bridges will be provided only:

(a) When no other route or crossing is reasonably available.

(b) Where the crossing, during the primary season of public use:

—Cannot be safely negotiated on foot.

—Cannot be safely forded by horses.

(c) Where less formal devices are frequently destroyed or damaged by flood water.

b. **Signing**

Only a minimum of signs will be provided for the visitor, in combination with availability of accurate maps, route descriptions, brochures, etc. Signs will be provided primarily for visitor safety and resource protection. Signs will not be placed within the wilderness for the convenience of the user.

(1) Signs may be erected at trail junctions, showing directions with arrows.

(2) Informational or interpretive signs will not be used to mark streams, lakes, mountain peaks, passes, or points of interest.

(3) Regulatory signs will be kept to the minimum necessary, and may be of materials other than wood. When regulatory signs are posted within a wilderness, notice pertaining to these regulations will also be posted at trailheads or major access points and published where feasible on brochures or maps or otherwise made available to the user prior to entry into the wilderness.

c. **Use of Campsites**

(1) Campsites or camping areas may be designated if necessary for the purpose of wilderness resource protection. They will be located sufficiently distant from lakes, streams, trails, or other natural attractions as to allow appropriate use without unacceptable degradation of the focal point of public interest. Space between sites should be sufficient to ensure a reasonable degree of solitude and quiet. A "no-trace" camping concept will be promoted.

(2) Shelters or lean-tos will not be constructed, and existing shelters will be removed from within wilderness. Shelters or lean-tos determined to have historical value may remain, and their protection and use will be addressed in the Wilderness Management Plan.

(3) Garbage pits will not be permitted, and existing garbage pits will be closed. A "pack-it-in, pack-it-out" philosophy will be encouraged with visitors. Every practicable medium will be used to educate and inform the visitor on this point.

(4) Improvised camp structures constructed by visitors will not be permitted. They will be dismantled and obliterated when and where found.

(5) Hitchracks or corrals and other improvements to facilitate stock use may be used as necessary to prevent damage to the wilderness resource. They will be located away from main-traveled trails, streams, lakes, camping areas, and focal points of interest, and will be constructed of materials which harmonize with the environment.

d. **Outfitter Camps**

The Wilderness Management Plan will carefully analyze the role of the outfitter-guide in a particular wilderness. Some wilderness areas may not be particularly suited to this kind of service due to size, shape, location, etc., or to the objectives for management of a particular wilderness. Also, the visitor-use capacity of the wilderness as well as public needs must be considered in making a decision to permit or not permit outfitter-guide services. If allowed, these services will be planned and administered to meet public needs while maintaining the wilderness resource. Operations will be so administered as to be harmonious with those of wilderness visitors who do not employ such services.

Outfitter-guide camps will be located off the primary trails or scenic spur trails and at sufficient distance from attractions to avoid conflicts with other visitors. The BLM will select the location of outfitter-guide campsites as necessary to protect wilderness resources and the wilderness experience of other visitors. Outfitter-guides will operate under special recreation permits, which will include stipulations for management of the use. The Wilderness Management Plan shall evaluate the need for temporary caches not involving erection of structures and shall designate their locations, if caches are to be approved.

3. **Fuelwood**

If campsites or cooking fires are permitted, fuelwood cutting should be limited to dead and down material. The use of portable cookstoves will be encouraged whenever possible. The Wilderness Management Plan will define any regulations or restrictions needed for wilderness resource protection.

4. **Contests**

Contests, such as physical or mental endurance of a person or animal; foot races; canoe or boat races; competitive trail rides; survival contests or exercises (including military); and other activities of this nature shall not be permitted in wilderness areas. These activities do not depend on a wilderness setting, and they cause impacts that degrade the wilderness character of the area, thus adversely affecting wilderness-dependent uses.

5. **Recreational or Hobby Mineral Collecting**

Recreational or hobby collecting of mineral specimens (rockhounding) will be allowed in wilderness. Such use will be limited to hand methods or detection equipment that does not cause surface disturbance, such as a metal detector or Geiger counter. In addition, methods shall not be permitted that in any way adversely affect or degrade the wilderness resource or the experiences of visitors in the area. (This paragraph does not cover mining claims, which are addressed in section III. I below.)

III. B. Cultural and Historic Resources

Archeological and historical sites and values are a unique and nonrenewable part of the wilderness resource. They are protected by provisions of the Uniform Rules and Regulations (43 CFR Part 3) to carry out the Antiquities Act of 1906, the Historic Sites Act of 1935, Executive Order 11593, the National Historic Preservation Act of 1966, as amended, and the Archeological Resources Protection Act of 1979. To the extent not inconsistent with the concept of wilderness preservation and the intent of the Wilderness Act, and objectives for cultural resource management, these resources are available for recreational, scenic, scientific, educational, conservation, and historical uses (including ceremonial or religious use by Native Americans).

Cultural resources, in most instances, will be subject to the forces of nature in the same manner as other wilderness resources. Study or management will not normally include any excavation, stabilization, or interpretation activities. Salvage, rehabilitation, stabilization, reconstruction, and restoration work on archeological and historic sites; excavation; and intensive inventories may be permitted on a case-by-case basis where the project will not degrade the overall wilderness character of the area and such activity is needed to preserve the particular resource. State Director approval is required for all such projects.

The National Historic Preservation Act and Executive Order 11593 require an inventory and evaluation of cultural resources. The evaluation study for National Register of Historic Places eligibility is made using criteria in 36 CFR 1202.6 and in consultation with the State Historic Preservation Officer (SHPO). Those cultural resources found to qualify are nominated to the National Register of Historic Places.

Those sites or structures that do not qualify for the National Register may be allowed to deteriorate naturally, or be removed or obliterated. However, some structures may qualify for retention as historic features or under the "minimum tool" policy (refer to section II. B. 3), or as facilities necessary for a use specifically permitted by the Wilderness Act or by the law designating the affected wilderness area.

Management direction for cultural resources that qualify for nomination to the National Register is subject to compliance with Section 106 of the National Historic Preservation Act and 36 CFR 800. A decision to remove, maintain, or allow historic or prehistoric structures to deteriorate naturally is a Federal undertaking which will affect the resources. In working through the compliance processes, a determination will be made as to what feasible and prudent alternatives exist to satisfactorily mitigate adverse effects of the proposed decision on the cultural resources. A Memorandum of Understanding will be developed with all consulting parties whenever an adverse effect determination is made (36 CFR 800). The range of alternatives might include recording to established standards (by drawings and photographs), salvage (by removing or dismantling), stabilizing, or restoration. Stabilization or restoration and subsequent maintenance may be considered for administrative structures that meet the "minimum tool" policy (refer to secton II. B. 3).

III. C. Forestry Resources

1. **Cutting of Trees and Shrubs**

Management of the forest cover will be directed toward retaining the primeval character of the environment and allowing natural ecological processes to operate freely. Trees, shrubs, and other vegetative products will not be sold or cut for nonwilderness purposes except under specified conditions set forth in these guidelines for valid mining claims and under emergency conditions such as fire, insect, and disease control.

2. **Cutting of Trees for Administrative Purposes**

Trees may be cut for use in the construction and maintenance of authorized improvements that are located within the wilderness when the necessary material cannot be reasonably obtained or brought in from outside the wilderness. Such cutting within the wilderness shall be done away from trails or campsites, and all evidence of the cutting shall be disposed of insofar as possible.

3. **Cutting of Trees for Fuelwood**

(Refer to section III. A. 3., Fuelwood, for specific guidance.)

4. **Reforestation**

Reforestation, in the absence of natural revegetation, will generally be prohibited, but in rare cases may be authorized by the Director to prevent deterioration or loss of the wilderness resource when the cause of the damage or loss is due to human activities and there is no reasonable expectation of natural reforestation. The natural processes of ecological succession will be the preferred method of site-restoration. When reforestation action is necessary, only native species and only primitive methods, such as hand planting, will be used.

III. D. Fish and Wildlife

Management will seek a natural distribution, number, and interaction of indigenous species of fish and wildlife. Natural processes will be allowed to occur in wilderness ecosystems, which include fish and wildlife populations, as far as possible without human influences. Management will protect the conditions that allow natural processes a maximum degree of freedom.

To the extent possible, wildlife species in BLM wilderness should be allowed to maintain a natural balance with their habitat and with each other. Wildlife may be harvested under State regulations, fisheries management will be consistent with preservation of the area's wilderness character, and direct fish and wildlife control measures will be applied only upon a showing of need under standards described below.

The BLM, in cooperation with State and Federal public health and fish and game officials, may make special exceptions, where necessary to control disease epidemics or other health hazards in which wildlife species are involved as carriers.

The basic responsibilities of the BLM and other cooperating State and Federal agencies in the management of fish and wildlife are not altered by the Wilderness Act. However, the constraints of the Act and the intent of the Congress articulated in the Act and in subsequent legislation will guide the management of wildlife in wilderness. Memoranda of Understanding will be developed with appropriate State game and fish agencies to clarify wildlife management jurisdictions. Wilderness Management Plans will specify wildlife habitat conditions to be maintained. Development of management plans will fully involve all Federal, State, and local agencies and organizations in the formation of management direction.

The preservation of sensitive, rare, threatened, and endangered species dependent on wilderness conditions will be favored.

The killing of native birds and mammals which are a natural component of the biotic community, but are not provided protection by State or Federal law, will be discouraged or controlled if necessary through public education and Memoranda of Understanding with State game and fish agencies.

1. **Hunting and Fishing**

Hunting and fishing are permitted in BLM-administered wilderness, subject to applicable State and Federal laws and regulations. Coordination with State game and fish agencies for the management of resident wildlife and fish species will be sought in order to ensure maintenance of the wilderness resource. Specific management criteria may be cited in Memoranda of Understanding and the Wilderness Management Plan.

2. **Fish and Wildlife Habitat**

The proper balance of fish and game animals with their habitat may be achieved by managing public hunting and fishing. Objectives for the management of fish and wildlife habitat are normally compatible with the objectives for maintaining general wilderness character, or careful planning usually can make them so. Where incompatible, the requirements for maintenance of wilderness values will be overriding.

Vegetative manipulation projects for fish and wildlife purposes may be approved by the State Director on a project-by-project basis if they do not degrade wilderness character, or if they correct conditions which are a result of human influence, or if the project will promote the perpetuation of a threatened or endangered species.

Habitat manipulation by chemical or mechanical means may only be approved on a project-by-project basis where necessary for threatened or endangered species, or to correct unnatural conditions resulting from human influence. Such activities will be allowed only where manipulation would enhance the wilderness resource and where natural processes have been unsuccessful. Hand or aerial seeding of native vegetation species may be permitted after disturbances, such as wildfire, to restore essential food plants to a wilderness where the natural process of healing is not expected to occur. Actions of this type will be allowed only to enhance wilderness values and not to optimize habitat needs of any single wildlife species to the detriment of wildlife diversity in an untrammeled environment.

Wildfire or prescribed burning may be used as a wildlife management tool if carefully designed to maintain or enhance the wilderness resource. Wildfire or prescribed burning is to be used only when the project can be accomplished without serious or long-lasting damage to watershed or the area's wilderness character. Prescribed burning will not be permitted to improve wildlife utilization. It may be done only for the following purposes:

a. It is needed to maintain the natural condition of a fire-dependent ecosystem or to re-introduce fire where past strict wildfire control measures have interfered with natural ecological processes.

b. A primary value of a given wilderness will be sustained as a result of the burning.

c. It will promote the perpetuation of a threatened or endangered species.

Additional specific guidelines on prescribed burning appear in section III. E, Fire Management.

The BLM may authorize State and Federal agencies to use temporary enclosures and facilities to trap or transplant wildlife as long as they are the minimum necessary to protect or maintain the wilderness resource.

Although construction of facilities to enhance an area's value for wildlife or fish is not consistent with the free operation of natural processes, there are situations where such measures may be necessary for the continued existence or welfare of wildlife or fish living in wilderness. This is particularly true in the case of species adversely affected through human activities in such areas. Certain permanent installations to maintain conditions for wildlife and fish, upon consideration of their design, placement, duration, and use, may be permitted if the resulting change is compatible with preservation of wilderness character and is consistent with wilderness management objectives for the area, and if the installations are the minimum necessary to accomplish the task. Permissible actions under these criteria may include: installations to protect sources of water on which wildlife depend, such as enclosures; and water sources such as springs, wells, and guzzlers. Fisheries activities may be permitted as long as their purpose is to protect natural conditions, restore deteriorated habitat, and maintain wilderness values.

3. **Wildlife Manipulation**

In some instances, wildlife species once native to the wilderness have been forced from their original habitat by the encroachment of human beings and human activities. To the extent that these factors can be altered or managed within the intent of the Wilderness Act, native species no longer established in the wilderness area may be reintroduced and managed as a part of the wilderness resource. Care must be exercised to be certain that the species is native. Such programs will be addressed in the wilderness management plan.

Management of established exotic species (e.g., chukar partridge, pheasant) not natural to an area may continue where they enhance the wilderness character of a particular wilderness. Introduction of new exotics will not be permitted. Coordination with State and Federal agencies should be established for control of undesirable exotic populations.

4. **Fish Stocking**

Fish-stocking programs needed to meet wilderness management objectives shall be developed in cooperation with the State agencies or the Fish and Wildlife Service and shall be coordinated with overall wilderness management objectives. The probability of increased visitor use at stocked waters and the full impact and effect of such use on the wilderness resource will be recognized and considered.

Memoranda of Understanding with State agencies should be developed to establish a stocking policy for each wilderness where stocking is permitted, as a basis for a stocking plan. Basic decisions will be spelled out in the wilderness management plan for each wilderness. Aerial stocking of fish by State agencies or the Fish and Wildlife Service may continue where this was an established practice prior to designation. Authorization will be on a case-by-case basis. Aerial stocking should be done outside of general visitor use seasons when possible. Wilderness management plans should contain all necessary justification, mitigation, and definition of planting programs.

Some general guides for fish stocking in BLM wilderness units are:

a. Native species should be favored in waters with a history of supporting such species. Species native to the vicinity or region may be considered as an alternative. Exotic fish will not be considered, except where such practice existed prior to wilderness designation and it meets wilderness management objectives.

b. Waters with established undesirable fish or where overpopulations of fish have occurred should be managed for fish best suited to the water under natural conditions, and to meet wilderness management objectives. Barren waters may be stocked only if the wilderness management plan defines the desirability of such an action. The scientific value of barren lakes will be considered prior to approval to stock.

c. Presently nonstocked waters which at one time supported a native fish population, and which would provide suitable habitat for native fish species that would enhance the wilderness experience of visitors, may be considered for stocking on a case-by-case basis.

d. In all fish-stocking activities, threatened or endangered species shall receive primary consideration.

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5. **Trapping**
Trapping of furbearers, such as mink, marten, beaver, and muskrat, is a compatible wilderness use and will be allowed under State laws and regulations. Commercial trapping will not be permitted. Incidental trapping, if it is not the trapper's sole source of livelihood, is permitted.

6. **Rodents**
Rodents in BLM-administered wilderness areas shall be exempt from control programs, except where overpopulations pose a serious threat to other wilderness values or resources and property outside the boundaries of the wilderness. Control projects must be approved on a case-by-case basis.

7. **Predators**
Predacious animals are an important part of natural life systems within wilderness. They play an important role in the natural selection and survival processes, helping to maintain critical population balances of wild species. They should be able to survive and compete with other species, free from unregulated human interference and the traditional pursuit of sport or bounty. Where control of predators is necessary to protect threatened or endangered wildlife species or on a case-by-case basis to prevent special and serious losses of domestic livestock, it will be accomplished by methods which are directed at eliminating the offending individuals while at the same time presenting the least possible hazard to other animals or to wilderness visitors. Poison baits or cyanide guns are not compatible. Control programs will be carried out by or under the direction of the U.S. Fish and Wildlife Service (FWS), the BLM, or State agencies, and will be consistent with the Secretary of the Interior's policies on animal damage control and with the Memorandum of Understanding between the BLM and FWS. Programs will comply with BLM Animal Damage Control plans where these have been previously adopted. The State Director will approve predator-control programs on a case-by-case basis, and under such conditions as to ensure minimum disturbance to the wilderness resource and visitors.

Approval of predator control actions must be contingent upon a clear showing that the removal of the offending predators will not diminish the wilderness values of the area, because this kind of wildlife is an integral part of the wilderness, as well as an adjunct to the visitor's experience.

III. E. Fire, Insect, and Disease Management

1. **Fire Management**
a. **Overriding Fire Guidance**
All fires will be controlled to prevent loss of human life or property within wilderness areas or to prevent the spread of fire to areas outside of the wilderness where life, resources, or property may be threatened. Human-caused wildfires will be prevented and/or controlled unless the fire meets wilderness fire management objectives.
b. **Natural Fire**
Natural fire (i.e., lightning-caused) is normally a part of the ecology of the wilderness, and human efforts to ban this agent may have resulted in significant ecological changes in the flora and fauna of some areas. In order to return some wilderness ecosystems to a more natural state, it may be appropriate to allow natural fire to burn, but only in conformance with an approved Fire Management Plan and the overriding fire guidance in section (a) above.
c. **Prescribed Burning**
Where natural fire under prescription does not meet wilderness fire management objectives, prescribed burning with ignition by Bureau personnel may be allowed on a case-by-case basis for the following purposes:
(1) To reintroduce or maintain the natural condition of a fire-dependent ecosystem.
(2) To restore fire where past strict fire control measures had interfered with natural, ecological processes.
(3) Where a primary value of a given wilderness will be perpetuated as a result of the burning, or
(4) Where it will perpetuate a threatened or endangered species.

Prescribed fires will be allowed only in conformance with an approved Fire Management Plan. State Director approval is required.
d. **Removal of Evidence of Fire Control Activities**
Temporary fire camps, helispots, and other sites used for fire suppression or control activities shall be removed upon completion of use and the site rehabilitated to as natural a state as possible.
e. **Fire Detection**
Fire detection methods necessary to meet wilderness objectives will be used. Structures such as lookouts may be maintained or constructed if they are the minimum necessary to achieve wilderness management objectives and there is no other alternative detection method. Preference will be given to detection methods which have the least permanent impact on wilderness values, such as aircraft overflights and lookouts located outside the wilderness boundary.
f. **Pre-Suppression**
Pre-suppression activities may be allowed to meet wilderness management objectives and where necessary for the protection of the public health or safety. All pre-suppression programs will be addressed in the Fire Management Plan.
g. **Suppression**
Fire-suppression measures and techniques shall be used which achieve the wilderness management objectives with the minimum adverse impact on the wilderness resource. Preference shall be given to the methods and equipment which least alter the landscape or disturb the land surface. Structures and improvements shall be located outside the wilderness boundary, except those that are the minimum necessary to achieve wilderness management objectives.
h. **Fire Management Plans**
The following considerations will be covered in each Fire Management Plan: wilderness management objectives for the area, historic fire occurrence, natural role of fire, proposed degree of suppression, expected fire behavior, acceptable suppression techniques, smoke management, and effects on adjacent landowners. The plan will conform to criteria established by the BLM defining the limits of acceptable fire weather, fire behavior, and fire effects. Each Fire Management Plan will be written to conform to the Wilderness Management Plan (WMP) for the area it addresses and will become an addendum to the WMP upon approval.

2. **Control of Insects and Diseases**
Insect and disease outbreaks will not be artificially controlled, unless it is necessary to protect timber or other valuable resources outside of the wilderness area, or in special instances when loss to resources within a wilderness is undesirable (e.g., absence of control would threaten rare or endangered plants or animals). Such control measures will consist of the effective combination of actions which have the least adverse impact on the wilderness resource.

Special care must be taken when using chemicals or other artificial methods to control insect and disease outbreaks because of their possible adverse effect on the total biological community.

Insect or disease suppression projects in BLM wilderness must be approved by the Director.

III. F. Water Resource Management

1. **Watershed Restoration**
Watershed restoration may be undertaken where deteriorated soil and hydrologic conditions caused by human beings or human influences create a serious threat or loss of wilderness values; or where, even though not human-caused, these conditions present a definite hazard to life or property, or where such conditions could cause serious depreciation of important environmental quality outside the wilderness. Where such dangers are not imminent or where natural vegetation may be expected to return in a reasonable time, restoration work will not be done.

Re-establishment of vegetation as a watershed-restoration measure, where there is no reasonable expectation of natural healing, will be accomplished using native or naturalized species. Overland motorized equipment will not be used where more primitive equipment can accomplish the restoration objectives. Exceptions must be fully justified, based upon serious imminent threat to high downstream values. Approval by the Director is required for all watershed restoration proposals.

2. **Water Improvements**
a. **Water-yield Improvements**
Protection of wilderness values and management objectives generally preclude use of water-yield improvement techniques. Water-yield improvement prescriptions, if contemplated, must be clearly compatible with maintenance of the wilderness resource. The Director's approval is required for project approval.
b. **New Water-Development Structures**
The establishment of new water-regulating structures, power installations, and related improvements is subject to approval by the President. (Range and wildlife water-development structures are discussed under separate subheadings and are not subject to Presidential approval.)

The BLM's conclusions and recommendations in connection with proposals for new water-resource developments will be based upon comprehensive, factual information developed by an environmental analysis, and draft and final environmental impact statements, as prescribed by the National Environmental Policy Act. The final environmental impact statement requires the Director's approval. Any recommendation in favor of the proposal must be based upon a clear showing that the public values to be gained exceed the values that would be lost, and that the need cannot be met outside the wilderness. When a proposed structure is thus found to be in the public interest, consideration should also be given to a recommendation to exclude the applicable area from wilderness.

c. **Existing Structures**
Reservoirs, ditches, catchments, and related facilities for the control or use of water may have existed within BLM wilderness under valid permits or other authority prior to the area's designation as wilderness. These may be maintained if they are needed in the public interest, or are a part of a valid existing right.

Routine maintenance and repair of an existing structure which does not change the location, size or type, or increase the original intended storage capacity of a reservoir may be approved by the State Director. The operation, maintenance and repair of such facilities may include occasional motorized access where no other reasonable or practical alternatives exist.

Reconstruction of any structure or restoration of a natural body of water to its original or historic level must be approved by the State Director. Primitive means of transport and hand tools will be used wherever and whenever feasible.

Any proposal to increase the storage capacity of a reservoir, or replace a reservoir, which was not under a valid permit at the time the unit was incorporated into the National Wilderness Preservation System, will be considered as a new structure and subject to approval by the President.

The wilderness management plan should carefully evaluate each improvement to determine if the continuation of the use is needed in the public interest, or is part of a valid existing right. Maintenance needs and methods must be specifically stated if the improvement is to remain. If not, the improvement should be allowed to deteriorate naturally. When natural processes themselves cannot effectively and safely return the abandoned improvement back to a natural condition, restoration by other means may be used. Only hand labor and tools, and seeding with native or naturalized species may be permitted. All restoration projects are subject to approval by the State Director.

d. **Snow Measurement**
The measurement of snow within BLM wilderness is permitted under the following conditions:
(1) Measurement of snow will be accomplished by primitive means. If use of a helicopter was an established practice in measuring snow within an area prior to wilderness designation, that same use may be permitted. However, ways and means of eliminating the need will be explored.
(2) No new data sites can be established unless they are parts of projects approved by the President under provisions of Section 4(d)(4) of the Wilderness Act. Use of existing data sites may continue until adequate correlation can be established with data sites outside the wilderness. Installation of automated equipment (sensing devices, data collection platforms, etc.) may be permitted on a temporary basis at existing data sites to accelerate the development of correlations with data sites outside the wilderness. Access will be by primitive means except as specifically provided for in (1) above.
(3) Only miniaturized and unobtrusive types of equipment may be installed, and must be camouflaged to blend with the terrain as much as possible. Practices such as burying equipment and using antennae which can be removed during nonuse periods, will be used to minimize the visual impacts of the data site.
e. **Water Quality**
Maintaining or enhancing water quality is of high priority in management of the wilderness resource. Water quality monitoring instruments and hydrometeorological devices may be permitted if these are the minimum necessary for protection of the wilderness resource. All instruments and devices must be miniaturized and unobtrusive. No motorized vehicles will be permitted for installation, maintenance, or monitoring and surveillance.
f. **Weather Modification Over Wilderness**
Use of lands within the National Wilderness Preservation System as target areas for weather modification activities will not be approved unless the following conditions are met:
(1) The proponent can provide reasonable, scientifically supportable assurance that the activities will not produce permanent, substantial changes in natural conditions.
(2) The proposal does not include any feature that might reasonably be expected to produce conditions incompatible in appearance with the wilderness environment or reduce its value for recreation, scenic, scientific, education, conservation, or historical use.

The effects of weather modification activities may be permanent or temporary depending upon the type, duration, and degree of change in weather brought about by that activity.

Generally, short-term weather-modification activities, which will produce only occasional, incidental, temporary, or transitory changes in the weather with carryover effects on the ground lasting only a few days beyond the actual seeding period, can be permitted over wilderness because little or no permanent, identifiable ecological or physical impact is likely. Conversely, long-term weather modification programs, which will produce a repeated or prolonged change in the weather during any part of successive years, are likely to have a direct and often substantial impact in terms of ecological and physical effects. Even though the human contribution to these impacts on the ecology and physical conditions on the ground may be obscured by the fact that the activities are carried on outside or above the wilderness, they nevertheless can be recognized to be the result of human activities and therefore cannot be permitted where they will directly affect wilderness areas.

State Directors will gather necessary information relative to items 1 and 2 and make recommendations to the Director on any activity or application. The Director will approve activities or installations relative to weather modification affecting wilderness.

III. G. Air Quality

Under the Clean Air Act (as amended, 1977), BLM-administered lands were given Class II air quality classification, which allows moderate deterioration associated with moderate, well-controlled industrial and population growth. The BLM will manage designated wilderness areas as Class II unless they are reclassified by the State as a result of the procedures prescribed in the Clean Air Act (as amended, 1977).

According to the Clean Air Act, air quality reclassification is the prerogative of the States. The States must follow a process mandated by the Clean Air Act Amendments of 1977, involving a study of health, environmental, economic, social, and energy effects, a public hearing, and a report to the Environmental Protection Agency.

Administrative actions within wilderness areas will comply with the air quality classification for that specific area.

III. H. Rangeland Management

1. **Livestock Grazing Operations**
Section 4(d)(4)(2) of the Wilderness Act provides for continued livestock grazing where established prior to designating the area as wilderness. The objective of livestock management in wilderness is:

> Utilize the forage resource in conformity with established wilderness objectives for each area and the BLM grazing regulations (43 CFR 4100), and through practical, reasonable, and uniform application of the congressional guidelines and policy.

Further insight on the subject is in the Conference Report on S.2009 (House Report 96-1126) under the heading "Grazing in National Forest Wilderness Areas." These congressional guidelines and policy are to be considered in the overall context of the purposes and direction of the Wilderness Act and will be applied nationwide. They are reprinted here verbatim as an excerpt from House Report 96-1126:

Grazing in National Forest Wilderness Areas
Section 4(d)(4)(2) of the Wilderness Act states: "the grazing of livestock, where established prior to the effective date of this Act, shall be permitted to continue subject to such reasonable regulations as are deemed necessary by the Secretary of Agriculture."

The legislative history of this language is very clear in its intent that livestock grazing, and activities and the necessary facilities to support a livestock grazing program, will be permitted to continue in National Forest wilderness areas, when such grazing was established prior to classification of an area as wilderness.

Including those areas established in the Wilderness Act of 1964, Congress has designated some 188 areas, covering lands administered by the Forest Service, Fish and Wildlife Service, National Park Service and Bureau of Land Management as components of the National Wilderness Preservation System. A number of these areas contain active grazing programs, which are conducted pursuant to existing authorities. In all such cases, when enacting legislation classifying an area as wilderness, it has been the intent of the Congress, based on solid evidence developed by testimony at public hearings, that the practical language of the Wilderness Act would apply to grazing within wilderness areas administered by all Federal agencies, not just the Forest Service. In fact, special language appears in all wilderness legislation, the intent of which is to assure that the applicable provisions of the Wilderness Act, including Section 4(d)(4)(2), will apply to all wilderness areas, regardless of agency jurisdiction.

Further, during the 95th Congress, Congressional committees became increasingly disturbed that, despite the language of section 4(d)(4)(2) of the Wilderness Act and despite a history of nearly 15 years in addressing and providing guidance to the wilderness management agencies for development of wilderness management policies, National Forest administrative regulations and policies were acting to discourage grazing in wilderness; or unduly restricting on-the-ground activities necessary for proper grazing management. To address this problem, two House Committee on Interior and Insular Affairs Reports (95-620 and 95-1321) specifically provided guidance as to how section 4(d)(4)(2) of the Wilderness Act should be interpreted. This guidance appeared in these reports as follows:

> Section 4(d)(4)(2) of the Wilderness Act states that grazing in wilderness areas, if established prior to designation of the area as wilderness, "shall be permitted to continue subject to such reasonable regulations as are deemed necessary by the Secretary of Agriculture". To clarify any lingering doubts, the committee wishes to stress that this language means that there shall be no curtailment of grazing permits or privileges in an area simply because it is designated as wilderness. As stated in the Forest Service regulations (36 CFR 293.7), grazing in wilderness areas ordinarily will be controlled under the general regulations governing grazing of livestock on National Forests. . . . This includes the establishment of normal range allotments and allotment management plans. Furthermore, wilderness designation should not prevent the maintenance of existing fences or other livestock management improvements, nor the construction and maintenance of new fences or improvements which are consistent with allotment management plans and/or which are necessary for the protection of the range.

Despite the language of these two reports, BARE II hearings and field inspection trips in the 96th Congress have revealed that National Forest administrative policies on grazing in wilderness are subject to varying interpretations in the field, and are fraught with pronouncements that simply are not in accordance with Section 4(d)(4)(2) of the Wilderness Act. This had led to demands on the part of grazing permittees that section 4(d)(4)(2) of the Wilderness Act be amended to clarify the intentions of Congress. However, because of the great diversity of conditions under which grazing uses (including different classes of livestock) are managed on the public lands, the Conferees feel that the original broad language of the Wilderness Act is best left unchanged. Any attempts to draft specific statutory language covering grazing in the entire wilderness system (presently administered by four separate agencies in two different Departments) might prove to be unduly rigid in a specific area, and deprive the land management agencies of flexible opportunities to manage grazing in a creative and realistic site specific fashion.

Therefore, the conferees declined to amend section 4(d)(4)(2) of the Wilderness Act, agreeing instead to reaffirm the existing language and to include the following nationwide guidelines and specific statements of legislative policy. It is the intention of the conferees that the guidelines and policies be considered in the overall context of the purposes and direction of the Wilderness Act of 1964 and this Act, and that they be promptly, fully, and diligently implemented and made available to Forest Service personnel at all levels and to all holders of permits for grazing in National Forest Wilderness areas:

1. There shall be no curtailments of grazing in wilderness areas simply because an area is, or has been designated as wilderness, nor should wilderness designations be used as an excuse by administrators to slowly "phase out" grazing. Any adjustments in the numbers of livestock permitted to graze in wilderness areas should be made as a result of revisions in the normal grazing and land management planning and policy setting process, giving consideration to legal mandates, range condition, and the protection of the range resource from deterioration.

It is anticipated that the numbers of livestock permitted to graze in wilderness would remain at the approximate levels existing at the time an area enters the wilderness system. If land management plans reveal conclusively that increased livestock numbers or animal unit months (AUMs) could be made available with no adverse impact on wilderness values such as plant communities, primitive recreation, and wildlife populations or habitat, some increases in AUMs may be permissible. This is not to imply, however, that wilderness lends itself to AUM or livestock increases and construction of substantial new facilities that might be appropriate for intensive grazing management in non-wilderness areas.

2. The maintenance of supporting facilities, existing in an area prior to its classification as wilderness (including fences, line cabins, water wells and lines, stock tanks, etc.), is permissible in wilderness.

Where practical alternatives do not exist, maintenance or other activities may be accomplished through the occasional use of motorized equipment. This may include, for example, the use of backhoes to maintain stock ponds, pickup trucks for major fence repairs, or specialized equipment to repair stock watering facilities. Such occasional use of motorized equipment should be expressly authorized in the grazing permits for the area involved. The use of motorized equipment should be based on a rule of practical necessity and reasonableness. For example, motorized equipment need not be allowed for the placement of small quantities of salt or other activities where such activities can reasonably and practically be accomplished on horseback or foot. On the other hand, it may be appropriate to permit

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the occasional use of motorized equipment to haul large quantities of salt to distribution points. Moreover, under the rule of reasonableness, occasional use of motorized equipment should be permitted where practical alternatives are not available and such use would not have a significant adverse impact on the natural environment. Such motorized equipment uses will normally only be permitted to those portions of a wilderness area where they had occurred prior to the area's designation as wilderness or are established by prior agreement.

3. The replacement or reconstruction of deteriorated facilities or improvements should not be required to be accomplished using "natural materials", unless the material and labor costs of using natural materials are such that their use would not impose unreasonable additional costs on grazing permittees.

4. The construction of new improvements or replacement of deteriorated facilities in wilderness is permissible if in accordance with those guidelines and management plans governing the area involved. However, the construction of new improvements should be primarily for the purpose of resource protection and the more effective management of these resources rather than to accommodate increased numbers of livestock.

5. The use of motorized equipment for emergency purposes such as rescuing sick animals or the placement of feed in emergency situations is also permissible. This privilege is to be exercised only in true emergencies, and should not be abused by permittees.

In summary, subject to the conditions and policies outlined above, the general rule of thumb on grazing management in wilderness should be that activities or facilities established prior to the date of an area's designation as wilderness should be allowed to remain in place and may be replaced when necessary for the permittee to properly administer the grazing program. Thus, if livestock grazing activities and facilities were established in an area at the time Congress determined that the area was suitable for wilderness and placed the specific area in the wilderness system, they should be allowed to continue. With respect to areas designated as wilderness prior to the date of this Act, these guidelines shall not be considered as a direction to re-establish uses where such uses have been discontinued.

It is also the understanding of the conferees that the authorizing Committees intend to closely monitor the implementation of the guidelines through subsequent oversight hearings to insure that the spirit, as well as the letter, of the guidelines are adhered to by the Forest Service. Of course, the inclusion of these guidelines in this Joint Statement of Managers does not preclude the Congress from dealing with the issue of grazing in wilderness areas statutorily in the future.

This concludes the excerpt from House Report 96-1126.

a. **Management Plans**

The above congressional guidelines and policies will be applied in accordance with the environmental analysis process. Management prescriptions will be determined through the BLM resource management planning process and implemented by the allotment management plan.

Planning for livestock grazing operations in designated wilderness will be through the normal BLM resource management planning processes.

(1) Resource management plans establish:

(a) Objectives and prescriptions for management of wilderness. These are based on resource inventory data which includes, but is not limited to, ecosystem identification, rangeland conditions, existing uses, and areas of existing or potential conflict.

(b) Use levels of the rangeland resource and its relationship with other uses.

(2) Allotment management plans, within the direction established by the resource management plan, prescribe:

(a) The manner and extent to which livestock grazing will be conducted to meet wilderness objectives, rangeland resource needs, desired conditions of ecosystems, and other resource values.

(b) Direction and scheduling for accomplishing goals and objectives on individual allotments, including the development of rangeland improvement schedules and grazing system to be followed.

b. **Permits.**

Grazing operations within wilderness areas will be authorized by grazing permits. Permits for livestock operations will be issued only in areas where grazing was established at the time the wilderness was designated.

c. **Rangeland Analysis**

(1) Rangeland analysis in wilderness areas will follow the normal BLM standards.

(2) The development of the allotment management plan will determine the need for and standards of rangeland improvements and will prescribe the grazing system to be followed.

Where an approved allotment management plan exists at the time an area is designated as wilderness, it will be reviewed in context with the congressional guidelines and policy. Necessary modification will be integrated into the resource management plan and the allotment management plan.

Allotment management plans for allotments partially or entirely within designated wilderness will specifically identify the following:

(a) The use of motor vehicles, motorized equipment or other forms of mechanical equipment including: specific equipment, where it is to be used, when it is to be used, and what it is to be used for.

(b) Rangeland improvement structures and installations to be maintained, constructed, or reconstructed in achieving rangeland management objectives, including maintenance standards.

(c) The means to handle emergencies. In bonafide emergencies or urgent situations, decisions will be based on consideration of all relevant factors and use of good judgment.

d. **Rangeland Improvements.**

The following criteria should be considered in determining the use of motor vehicles, motorized equipment or mechanical transport in constructing, maintaining or applying rangeland improvements and practices.

(1) Minimizing threat to or loss of property.

(2) Minimum use of motorized equipment within wilderness.

(3) Develop and manage the rangeland resource in a cost-effective manner.

(4) Achieve least amount of impact by nonconforming uses on wilderness values through:

(a) Scheduling during periods of low use.

(b) Harmonizing improvements to surrounding landscape.

(c) Locate improvements to achieve maximum screening and fully utilize natural feature opportunities.

(5) Type of practice or construction material.

(6) Timeliness, including frequency and time of year.

(7) Need to deal with emergency or urgent situations that develop through acts of nature, such as drought, heavy snow.

(8) Location of nearest ranch facilities in relation to the project.

(9) Availability of primitive transport, e.g., team and wagon, saddle and pack stock, etc.

(10) Length of time to complete a project by alternative methods.

(11) Availability of temporary camp and feed sites.

(12) Age and health factors of permittee.

Documentation of the environmental analysis which considers the authorization of rangeland improvement construction and/or maintenance, and the use of motor vehicles, motorized equipment, and mechanical transport shall be made in an environmental assessment.

e. **Structural Rangeland Improvements**

Rangeland improvement alternatives will be developed and evaluated through the environmental analysis process, including consultation with grazing permittees and other interested publics. Alternatives which utilize a practical and reasonable approach to meet rangeland and wilderness management objectives will be selected.

Permit modifications for the construction of new rangeland improvements or replacement of existing rangeland improvements will be made in accordance with BLM grazing regulations. Special consideration will be given to construction standards and techniques to achieve the most practical and reasonable approach considering the wilderness resource. Specific consideration will be given to:

— Costs of using natural materials.

— Alternative means of construction which harmonize to the extent possible with the wilderness resource.

— Use of motor vehicles, motorized equipment or mechanical transport needed for construction of improvements.

All rangeland improvements will be listed in the allotment management plan along with maintenance schedules.

(1) **Maintenance.**

The maintenance of existing necessary rangeland improvements may be allowed to continue. Those determined unnecessary through an environmental analysis will be phased out and removed on an agreed upon schedule.

The techniques by which maintenance of rangeland improvements and other related grazing activities are performed will require careful study, consideration of options, and a practical and reasonable solution. Existing use and requests for new use of motor vehicles, motorized equipment or other forms of mechanical transport, including emergencies, will be reviewed and congressional grazing guidelines applied. The occasional use of motor vehicles, motorized equipment or mechanical transport may be permitted where practical alternatives are not available.

The guidelines address occasional use of motor vehicles, motorized equipment, or mechanical transport where practical alternatives do not exist, with application only to those portions of a wilderness where they occurred prior to wilderness designation. It is important to look at all options and their impacts. Good judgment will be necessary in the decisionmaking process.

(2) **New Improvements.**

The construction of new rangeland improvements is permissible if determined to be necessary for the purpose of resource protection (rangeland and/or wilderness) and the effective management of these resources, rather than to accommodate increased numbers of livestock. The rangeland analysis may indicate that a reduction of use is necessary for rangeland protection, or new rangeland improvements are necessary for improved management or protection of wilderness values. New improvements will not be justified solely on the basis that they will aid intensive management resulting in increased grazing.

(3) **Types of Materials.**

When permitted, new or existing improvements should be of materials which harmonize with the wilderness character of the area to reduce the impact of artificial objects on the natural environment. Natural (native) materials for improvements will be used unless costs are unreasonable or they do not harmonize with the wilderness.

When replacement of an existing range improvement is contemplated, the following will be considered:

(a) The necessity of the rangeland improvement for livestock grazing operations, resource protection, or enhancement of wilderness values. Some improvements may no longer be needed or should be relocated. Existing rangeland improvements may be necessary for management of the rangeland and wilderness resources. Other alternatives for meeting needs will be explored.

(d) Design, location, and type of materials feasible to serve the purpose and yet be harmonious with natural features of the wilderness will be considered. A steel post and wire fence may be less obtrusive than native pole fence. A redwood water trough may be less noticeable than a steel one. A windmill may better harmonize with wilderness values than an earthen stock pond.

(c) Material and labor costs for natural materials vs. artificial materials. Good judgment, in

consultation with permittees, will provide the basis for determining what is reasonable for the permittee's livestock grazing operation and the particular wilderness values involved.

f. **Non-Structural Rangeland Improvements**

Non-structural rangeland improvement practices can be approved where they were part of the management at the time the wilderness was established and where their continuance is necessary to maintain livestock grazing operations. The need for non-structural rangeland improvements and practices will be carefully analyzed using the following criteria:

(1) **Seeding.**

The need for seeding will be carefully analyzed. Seeding will be approved only for:

(a) Areas where human activities have caused the loss or threaten the existence of indigenous species.

(b) Areas where human activities have denuded or caused loss of soil, providing the actions or activities responsible for the deterioration have been corrected and natural vegetation is insufficient and ineffective.

(c) Maintenance of livestock grazing operations where seeding was practiced prior to the designation of wilderness. Species seeded will be those that are native or naturalized to the area. Seed will be broadcast, except in special situations where other seeding methods are necessary.

(2) **Plant Control.**

Plant control will be approved only for:

(a) Native plants when needed to maintain livestock grazing operations where practiced prior to the designation of wilderness.

(b) Noxious farm weeds by grubbing or with chemicals when they threaten lands outside wilderness or are spreading within the wilderness, provided the control can be effected without serious adverse impacts on wilderness values.

(3) **Irrigation.**

Artificial irrigation or water spreading will be done only to maintain livestock grazing operations where practiced prior to the designation of wilderness.

(4) **Fertilizing.**

Fertilization may be used only as an aid to revegetation of disturbed areas approved in item (1) or to maintain livestock grazing operations where practiced prior to the designation of wilderness. Liming will be considered a fertilization practice.

(5) **Prescribed Burning.**

Prescribed burning will be approved for rangeland management purposes only where it was practiced prior to the designation of wilderness and is necessary to achieve maintenance of livestock grazing operations; such use must be approved in a fire management plan. (Prescribed burning may be permitted for other purposes, under guidelines in section III. D. 2. and III. E. 1 of this document, such as in cases where reestablishment of natural fire regimes is desired. Rangeland management objectives may be achieved through such prescribed burns and through management of natural fire as prescribed in fire management plans.)

2. **Recreational Livestock**

Commercial recreational livestock, such as that used by packers and outfitters, will be grazed under permit. Noncommercial recreational livestock may also be subject to permit when necessary for the administration or protection of the wilderness. All recreational livestock users, including commercial outfitters, will be required to pack in feed for their domestic animals when it is determined that adequate forage is not available within the area to be visited. The Wilderness Management Plan will analyze the need for regulations or restrictions relating to recreational saddle and pack stock: including, but not limited to, hobbling rather than tethering of horses, restrictive zoning, horse-party size limits, and use of native feed or pellets.

3. **Wild Horses and Burros**

The Wild Free-Roaming Horse and Burro Act of 1971 declares that wild horses and burros "...are to be considered in the area where presently found, as an integral part of the natural system of the public lands."

Viable, healthy populations of wild horses and burros will be maintained in wilderness areas at levels determined appropriate by the BLM planning system. Herd numbers and management techniques will not degrade, and will be compatible with preservation of, the area's wilderness character.

Herd Management Area Plans (HMAP's) will be developed in wilderness areas containing wild horses or burros. The plans will detail the present condition and potential of the herd and herd management area. The plans will describe management actions required to meet the wilderness objectives as well as the herd needs. The HMAP's will establish the habitat requirements and any necessary improvements; herd structure (sex and age ratios, etc.); methods of population manipulation and control (including removal, if necessary); migratory habits; and projections of population changes over time. Monitoring studies for the herd and its habitat will be an integral part of the plan. The HMAP's will describe the physical improvements necessary for maintenance of healthy, viable herds and their habitat.

Use of motorized and mechanical equipment, including aircraft; use, maintenance and type of material, and equipment such as temporary corrals; and the location, frequency, and timing of such uses will be specified in HMAP's and wilderness management plans. Such uses will be allowed when no other alternatives exist, they are the minimum necessary to accomplish the task, and they are the least degrading of wilderness values temporarily or permanently. Use of these facilities and equipment require State Director approval.

Environmental assessments will analyze the impacts of the management prescribed by the HMAP's, and alternatives and mitigating measures to minimize those impacts upon the wilderness resource.

III. I. Minerals Management

1. **Mining Law Administration**

The Wilderness Act of 1964 provides the basis for the minerals management policy to be followed in approving minerals exploration and development in designated wilderness areas. The Act recognizes the rights of the mining claimant under the mining laws and provides for prospecting and mining in wilderness while providing for protection of the wilderness resource. Under the Wilderness Act, the mining laws shall, to the same extent as applicable prior to the designation of an area as wilderness, apply until midnight December 31, 1983. Thereafter, subject to valid rights then existing, the lands are withdrawn from all forms of appropriation under the mining laws. Therefore, BLM's policy on mining operations on unpatented mining claims will comprise two categories: those operations occurring on or before midnight December 31, 1983, and those operations occurring after midnight December 31, 1983, which may proceed because they qualify as valid existing rights as of that date.

a. **Plans of Operations**

(1) Whether or not the operations occur before or after midnight December 31, 1983, an approved plan of operations called for by 43 CFR 3809 is required in all BLM-administered wilderness areas. The plan of operations will include all access, functions, work, facilities, and activities in connection with prospecting, development, extraction, and processing of mineral deposits and all other uses related to these activities whether on or off a mining claim. All BLM officials involved must ensure that provisions approved in operating plans protect the rights of the operator while minimizing the impact on the wilderness resource. Operators must be allowed to carry out operations that are necessary and reasonably incidental to the mining operation, but may not, in any circumstance, cause unnecessary or undue degradation. District Managers may call for the expertise of all necessary specialists to ensure that both the wilderness and the rights of the operator are adequately and properly served.

Before approving the plan the BLM may assist the operator in selecting the most appropriate means and type of access and access route. The final approved access must be that which creates the least lasting impact on the wilderness resource, while still reasonably serving the needs of the operator.

Those activities otherwise generally prohibited in wilderness, including the use of mechanical transport, motorized equipment, or aircraft, shall be authorized only when there is no reasonable alternative. An approved operating plan will serve as authorization for such otherwise prohibited activities on mining claims within wilderness.

Casual use permissible in wilderness areas consists of operations resulting in only negligible disturbance to wilderness resources and not involving the use of mechanical or motorized equipment, landing of aircraft, or explosives. Examples of casual use would be: access by foot or horseback, or overflights to conduct magnetic surveys. Flights used to transport equipment or personnel into and out of the wilderness will not be considered as casual use. An approved plan of operations is not required for casual use.

(2) Contents of a plan of operations and plan approval procedures shall comply with the 43 CFR 3809 regulations. The following criteria shall also be satisfied:

(a) **Operations Prior to Midnight December 31, 1983.**

Until this deadline, lands within wilderness areas are open to appropriation under the mining laws to the same extent as before wilderness designation. In other words, claim staking, prospecting, exploration, development, and patenting may occur. Before approving operations submitted in a plan of operations during this time, the District Manager shall be satisfied that:

i. There will be no unnecessary or undue degradation of wilderness character.

ii. If mechanical or motorized equipment, including helicopter and fixed wing aircraft (beyond casual use), will be used, there is no reasonable alternative.

iii. The reclamation measures included in the plan of operations are adequate to provide for resotration as near as practicable of the surface of the land disturbed.

Any disapproval or denial of a plan of operations by the authorized officer is subject to appeal by the operator under the provisions of 43 CFR 3809.4.

(b) **Operations After December 31, 1983**

Development work, extraction, and patenting will be allowed to continue after midnight December 31, 1983, only on valid claims located on or before that date. After that date, prospecting and exploration work under the mining laws will not be allowed, as the right to continue those kinds of operations terminated on midnight December 31, 1983.

Prior to approving plans submitted after December 31, 1983, for operations on claims, or allowing operations to continue that had been approved prior to midnight December 31, 1983, the District Manager shall cause an examination of the unpatented claim(s) by a BLM minerals examiner to verify whether or not a valid claim exists. Operations on producing mines will be allowed to continue pending determination of valid existing rights. The minerals examination and subsequent minerals report must confirm that as of midnight December 31, 1983, minerals had been found and the evidence is of such a character that a person of ordinary prudence would be justified in the further expenditure of his labor and means, with a reasonable prospect of success in developing a valuable mine. Any disapproval or denial of a plan of operations by the authorized officer is subject to appeal by the operator under the provisions of 43 CFR 3809.4.

Before approving a plan of operations applicable after December 31, 1983, the District Manager shall be satisfied that:

i. There will be no unnecessary or undue degradation of wilderness character.

ii. If mechanical or motorized equipment, including helicopter and fixed wing aircraft (beyond casual use), will be used, there is no reasonable alternative.

iii. The reclamation measures included in the plan of operations are adequate to provide for restoration as near as practicable of the surface of the land disturbed.

(c) **Timber**—Timber determined necessary for removal to facilitate mining activities will be cut following principles of sound forest management and in such a manner as to minimize lasting evidence of its removal. Individual trees will be carefully selected so as not to make obvious artificial openings. Stumps will be cut as close to the ground as practical.

(d) **Fire**—The operator will be required to keep spark arresters and fire extinguishers on all internal combustion engines during periods of fire danger. The operator will generally be required to maintain caches of handtools in sufficient quantities to equip those personnel expected to be on the operation. The operator and his personnel will be expected to take initial action on any fire in the vicinity of the operation.

Slash and other flammable debris will generally require complete disposal to reduce fire hazard, prevent insect buildup, and more rapidly reduce evidence of the timber cutting. If burning is performed it will be in accordance with a prescribed burn plan that establishes fire and resource management objectives. Burning will be performed at a time approved by the BLM District Manager.

(e) **Site Reclamation**—The reclamation of the site and other disturbed areas will vary with the location, type of soil erosion hazard, type of vegetative cover, and type and extent of disturbance. As a minimum, all sites will be treated in such a manner that they will not cause accelerated erosion, siltation of streams, a hazard to wilderness visitors, or unnecessary or undue degradation of the land. Also, as a minimum, all excavations with vertical cuts in soil will be sloped to a stable angle of repose. Generally, hand-dug pits or shafts with the excavated material still at hand will be refilled. Here, as with timber cutting, the main objective will be to minimize remaining evidence of human activities. It may not be practical to return an area to its original contour, but it will generally be entirely reasonable to return it to a contour which might appear to be natural. An effort will be made when practical and reasonable to put topsoil equal in quality to that which was removed over disturbed soil surfaces to promote natural revegetation or to aid in seeding. Where native seed is available and its use is reasonable, disturbed areas will be seeded to native plant species provided the area originally supported such vegetation.

(f) **Structures and Improvements**—Plans of operations shall identify all structures and improvements planned as an adjunct to the operation. The plan will also show the ultimate disposition of the improvements and when this will occur. The objective will be to ensure the removal of all works or improvements when they are no longer needed for the prospect or future mining.

(g) **Unnecessary or Undue Degradation**—A plan of operations shall include measures to be taken to prevent unnecessary or undue degradation of the area resulting from the proposed operation. This may require measures to prevent water pollution through contamination or siltation of streams while the operation is in progress and to leave the site in such a condition that a vegetative cover can be reestablished when the operation is abandoned. Such measures may include trenching of disturbed slopes, placing retaining walls to prevent tailings from entering stream channels, etc. It may also require the scalping and stockpiling of the topsoil or sod from the area to be disturbed so that it might be spread over the surface to aid in reestablishing vegetation. Air and noise pollution are also critical elements. Plans shall identify mitigating measures to minimize noise and air pollution.

b. **Performance Bond**

No bond shall be required for operations considered as casual use. A bond may be required for any operator who conducts operations under an approved plan of operations. The primary purpose for a bond is to ensure compliance with the plan of operations. Requirement for posting a bond is at the discretion of the authorized officer.

c. **Environmental Assessment**

Operating plans for prospecting and mining activities will normally involve surface disturbance of the wilderness resource and will require an environmental assessment which considers the impact of the proposed operation on the lands and all feasible alternatives for complying with the rights of the claimant. Upon completion of the analysis, the District Manager will determine if no environmental impact statement is needed. The State Director's approval is required for preparation of an environmental impact statement.

2. **Mineral Leasing**

Section 4(d)(3) of the Wilderness Act of 1964 prescribes that mineral exploration and development will continue in designated wilderness areas by stating "until midnight December 31, 1983, the United States mining laws and all laws pertaining to mineral leasing shall, to the same extent as applicable prior to the effective date of this Act, extend to those . . . lands designated by this Act as 'wilderness areas'".

Designation of an area as wilderness may not be the basis for denying a mineral lease, permit, or license. Mineral leasing applications will be evaluated through the environmental assessment process. A State Director's determination to deny an application must be based upon background data and facts of record indicating the public interest would be better served by the rejection so as to protect other resource values. Wilderness character may be taken into account when making mineral leasing decisions, but leases or permits may not be denied solely on the basis of a desire to protect wilderness character. Leases, permits, or licenses issued after an area is designated as wilderness and prior to midnight December 31, 1983, must contain reasonable stipulations for the protection of the wilderness character of the land consistent with the use of the lands for the purposes for which they are leased, permitted, or licensed.

Mineral leases, permits, or licenses confer certain rights upon individuals to conduct certain activities upon the public lands. Regulations imposed on existing lessees, permittees, or licensees must be reasonable and consistent with the continued use of the lands for the purposes for which the leases, permits or licenses were issued.

Geothermal leasing is within the scope of the "laws pertaining to mineral leasing" in section 4(d)(3) of the Wilderness Act. Designated wilderness areas will remain available for geothermal leasing to the same extent they were at the time of designation, and the above guidelines on mineral leasing will apply.

3. **Mineral Patents**

A patent conveying both surface and mineral rights may be issued on a valid claim located prior to the date the area was included as a part of the National Wilderness Preservation System and prior to midnight December 31, 1983.

Mining locations shall be held and used solely for mining. For a valid claim located *after* the date an area is established as wilderness and prior to midnight December 31, 1983, the patent conveys title to mineral rights only. The patentee may cut and use so much of the mature timber from the claim as may be needed in the extraction, removal, and beneficiation of the mineral deposits, if the timber is not otherwise reasonably available. All timber shall be cut under sound principles of forest management. All surface rights are reserved to the United States. Except as specifically provided in the Wilderness Act or the act designating the area as wilderness, no use of the surface of the claim or its resources not reasonably required for carrying on mining or prospecting shall be allowed.

No patent shall issue after December 31, 1983, except for the valid claims existing on or before midnight December 31, 1983.

Once a claim has been patented it becomes private land or interest in lands. Access will then not be governed by a plan of operations, but under the policy in section III. B. 5. j.

4. **Common Varieties of Mineral Materials**

Permits to remove such materials will not be issued.

5. **Paleontological Resources**

To the extent not inconsistent with the concept of wilderness preservation and the intent of the Wilderness Act, paleontological resources are available for recreational, scenic, scientific, educational, conservation, and historical uses. Paleontological resources, in most instances, will be subject to the forces of nature in the same manner as other wilderness resources. Study or management will not normally include any excavation, stabilization, or interpretation activities. Salvage of paleontological sites, excavation, and collection of artifacts may be permitted on a case-by-case basis where the project will not degrade the overall wilderness character of the area and such activity is needed to preserve the particular resource. State Director approval is required for all such projects.

III. J. Administrative Structures and Facilities

1. **Administrative Sites**

Existing administrative sites will be limited to the existing structures or their replacement with similar structures of compatible design provided their continued use is necessary to meet minimum requirements for the administration of the area. Tents will usually be used to supplement housing and kitchen demands brought about by special projects and expanding workloads. As maintenance becomes impractical, first consideration will be given to eliminating the site. Replacement of facilities will require the Director's approval. The Wilderness Management Plan will address the need for existing sites. No new sites will be planned unless they are the minimum necessary for management of the area as wilderness.

2. **Fences**

Corrals and fences for the control of administrative pack and saddle stock may be built only at administrative sites where the animals are regularly used for periods of more than a few days' duration. New permanent fences shall be constructed of materials compatible with the particular wilderness. The Wilderness Management Plan will consider the need for, location of, and material to be used in administrative fence construction.

3. **Trails**

Trails for administrative purposes may be constructed when they are the minimum necessary for the preservation of the wilderness resource and have been authorized in the Wilderness Management Plan. (Trails and associated structures for visitor use are discussed as part of the specific guidance under Recreation and Visitor Use, section III. A. of this document.)

4. **Airfields**

New airfields, including emergency airstrips, shall not be located in BLM-administered wilderness. The Wilderness Management Plan shall review existing airstrips and determine whether or not to permit the continued use of existing airfields. Such use will be monitored on a regular basis to determine if its continuation is appropriate. Use may be restricted when necessary to protect wilderness resources, such as wildlife values during nesting season. If use is approved, maintenance will generally be by primitive, non-motorized equipment only.

5. **Heliports and Helispots**

a. **Heliports**

Heliports may be constructed and maintained at existing administrative sites where they are the minimum necessary for wilderness purposes. Complete justification for continuing heliports or constructing new ones will be required. Unless otherwise approved by the Director, other heliports shall not be located within wilderness areas. The Wilderness Management Plan will fully evaluate the need for heliports. Only those heliports considered the minimum necessary for wilderness resource management will be continued.

b. **Helispots**

State Directors may approve construction of individual helispots or systems of helispots when they are the minimum necessary for administration or protection of the area as wilderness. The Wilderness Management Plan will fully evaluate helispot needs. Except for emergencies, helispot construction is prohibited if not specifically identified in the Wilderness Management Plan.

6. **Communication Facilities**

Communication facilities will be constructed and maintained only when they are the minimum necessary for administration and protection of the area as wilderness. The Wilderness Management Plan will fully evaluate the need for existing and proposed sites and their maintenance. Facilities should blend with the natural environment.

7. **Structures and Facilities Constructed, Used or Proposed by Other Agencies**

Other agencies conducting activities within BLM wilderness shall be equally constrained by provisions of the Wilderness Act that are applicable to the BLM. These guidelines will apply:

a. Authorized structures, installations, or facilities used by other agencies shall be reviewed periodically to determine whether their continued existence is essential for meeting the minimum requirements for administration of the area as wilderness. If it is not, the authorization shall be terminated and the improvement removed. The Wilderness Management Plan will assess and determine the disposition of all such improvements.

b. When existing improvements deteriorate to the point that normal maintenance will not suffice to keep them usable, the necessity for such improvements shall be critically analyzed. If they are not essential to meet the minimum requirements of administration of the wilderness, or essential to a continuing program that was established on the basis of the structure, they shall not be replaced. Permits for new improvements or replacement of existing improvements must be approved by the Director.

c. The maintenance or replacement of existing signs, instruments, and other improvements of a minor nature, used in connection with such projects as snow surveys, water measurement, game and fish management, and geological studies may be approved by the State Director. New installations may be approved if they are essential to meet the minimum requirements for administration of the wilderness for the purposes of the Wilderness Act.

III. K. Use of Motorized and Mechanical Equipment

Travel within a BLM-administered wilderness will normally be by non-motorized, non-mechanical means consistent with the preservation of wilderness character.

The wilderness management plan will specify the instances and places in which administrative use of mechanized equipment, mechanical transport, or aircraft is the minimum necessary to protect and administer the wilderness resource or is necessary as part of a nonconforming, but accepted, use. Where approved, that equipment which is the minimum necessary to accomplish the task with the least lasting and damaging impact on the wilderness resource will be selected. Such motorized and mechanical equipment use will be scheduled at times and locations which will have the least impact on the visitors' wilderness experience.

Conditions under which use may be allowed (unless otherwise stated, all use is subject to the standards spelled out in the preceding paragraph) are:

1. The public use of aircraft or motorboats, where these uses were established prior to the area's designation as wilderness, may be permitted to continue. Wilderness Management Plans will assure periodic review of such use to determine if its continuation is necessary and impacts on the area's wilderness character are minimized.

2. Motorized and mechanical equipment use may be authorized for mining or prospecting purposes if approved in a Plan of Operation or in association with valid existing rights. Refer to specific guidance for Minerals Management in section III. I.

3. The use of motor vehicles, motorized equipment, and mechanical transport may be approved for certain situations involving established livestock grazing operations. Refer to specific guidance for Rangeland Management in section III. H.

4. Motorized equipment and mechanical transport use may be allowed when an emergency condition exists which involves the health and safety of visitors. The District Manager (or Area Manager, if delegated) may approve such action.

5. Motorized equipment and mechanical transport may be permitted during a fire suppression emergency. Impacts resulting from overland vehicle travel (either cross-country travel or temporary road construction) and impacts from equipment use will be obliterated and rehabilitated in a manner which permits the wilderness resource an opportunity to heal rapidly. Motorized equipment and mechanical transport uses will be specifically addressed in a wilderness area's Fire Management Plan. The District Manager (or Area Manager, if delegated) may approve such action. Refer to specific guidance for Fire Management.

6. The use of aircraft may be allowed in nonemergency situations to deliver supplies or materials to construct or maintain improvements needed for administration of the area as wilderness when use of pack and saddle stock or other non-mechanized means is not feasible. Approval must be authorized by the State Director.

7. Powered hand-portable tools, such as chain saws or rock drills, may be approved by the State Director when they are the minimum necessary for administrative purposes where work cannot be accomplished with nonpowered tools. (In some cases, such tools may be necessary in trail construction and maintenance, due to limitations of time, season, etc.)

8. Mechanized or motorized equipment may be used for wilderness research, other wilderness-enhancing purposes where no other alternatives exist and where such use is the minimum necessary for administration of the area as wilderness and will not degrade the area's wilderness character. Instances could include wildlife transplants or fish stocking by State Divisions of Wildlife. State Director approval is required. (Refer also to specific guidance for Research and Studies.)

9. Mechanized or motorized equipment may be used in gathering information about resources, so long as the use is compatible with preservation of the wilderness environment. Instances could include mineral surveys by the U.S. Geological Survey or water resource investigations. State Director approval is required.

10. Where feasible, control of insects and disease will be conducted without use of motorized equipment. Otherwise, aircraft use is permissible without landing of aircraft. Approval must be authorized by the State Director on a case-by-case basis.

11. Motorized equipment necessary to meet temporary emergencies involving violations of criminal law and/or including the pursuit of fugitives may be approved by the District Manager (or Area Manager, if delegated).

12. There is no specific prohibition of overflight of wilderness by aircraft. Low-flying aircraft cause disturbance of the solitude of an area. Except in bona fide emergencies, such as search and rescue efforts and essential military missions, low flight should be discouraged. Where low overflight is a problem, or expected to become a problem, wilderness management plans will provide for liaison with proper military authorities, the Federal Aviation Administration, and contact with pilots in the general area in an effort to reduce low flight.

III. L. Research and Studies

Research is a valid and important use of the wilderness resource. Research will be permitted and encouraged as long as all projects are conducted in such a manner as to preserve the area's wilderness character and they further the management, scientific, educational, historical, and conservation purposes of the area.

Research will be conducted or supported to evaluate the effectiveness in achieving objectives of ongoing wilderness management. Research will also be encouraged to identify problems and improve management techniques to increase efforts to further the purposes of the Wilderness Act.

Research and studies to investigate scientific values may also be conducted in wilderness provided that wilderness is essential to results of such research, and wilderness values would not be jeopardized.

Research and other studies will be conducted without use of motorized equipment or construction of temporary or permanent structures. Exceptions to this policy may be approved by the State Director in projects that are essential to management of the specific wilderness when no other feasible alternatives exist. Such use, when approved, must be the minimum necessary and must not degrade the area's wilderness character.

Chapter IV. Implementation of the Wilderness Management Policy

This chapter explains how the BLM will implement the Wilderness Management Policy through the process of developing a plan for each wilderness area under its administration.

The purpose of the Wilderness Management Plan (WMP) is to describe the management strategy that will be used to work toward attainment of the objectives of the Wilderness Management Policy. The plan must clearly show the actions that will be taken to preserve the wilderness resource, and the linkage between these actions and the objectives.

Each WMP will address the management situation present in an individual wilderness area or in two or more closely related areas. Plans should reflect the different kinds of environmental settings, history of use, and management situations found in individual areas within the framework of this policy.

Public involvement must be included in the development of each WMP. A minimum of at least one meeting or workshop must be open to the general public, and the public must be given at least 45 days to comment upon the proposed Wilderness Management Plan. Issues, questions, and problems raised by the public will be considered during the development of the final WMP. The WMP's will be updated on a regular basis or as conditions change. The public will be given the opportunity to be involved in plan changes.

The Wilderness Management Plan will include the general policy for all BLM wilderness areas. Additions may be made to tailor the policy to the current management situation for each area. Selected statements from the Wilderness Management Policy may be included to show the connection between actions proposed in the Plan and the objectives found in the management policy. Other policy statements may be included where appropriate, so long as they do not conflict with the Wilderness Management Policy.

During the time period before a WMP is prepared for a wilderness area, the Wilderness Management Policy will guide the conduct of day-to-day activities. The approval of activities, programs, or projects initiated by the Bureau of Land Management, other governmental bodies, or private individuals will be contingent upon the completion of an environmental assessment. Proposals determined to be inconsistent with the intent of the Wilderness Management Policy or other elements of the BLM's legislative and regulatory mandate will be modified or disapproved, as appropriate.

APPENDIX 2

Upon completion of the WMP for an area, the viability of activities, programs, or projects will be determined through the BLM's environmental assessment process. If the proposed action is part of an approved WMP, the environmental assessment will consider if it is the best way to meet objectives of the plan from an on-the-ground perspective and if the action conforms to other applicable elements of the BLM's legislative and regulatory mandate. If the proposal is not part of the WMP, the environmental assessment will be used also to determine if it is in conformance with the WMP. Proposals found to be inconsistent with the WMP or other applicable BLM guidance will be modified or disapproved, as appropriate.

The BLM will issue any regulations necessary to manage visitor use and other problems peculiar to a particular wilderness area. Regulations might cover such topics as camping, river running, use of firewood, etc. Managers should use the minimum amount of regulation necessary, but should not hesitate when a problem calls for them.

Specific guidance regarding the procedure for developing Wilderness Management Plans will be issued to BLM field offices after issuance of the final Wilderness Management Policy.

APPENDIX A

Section 603 of THE FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (P.L. 94-579)

Sec. 603. (a) Within fifteen years after the date of approval of this Act, the Secretary shall review those roadless areas of five thousand acres or more and roadless islands of the public lands, identified during the inventory required by section 201(a) of this Act as having wilderness characteristics described in the Wilderness Act of September 3, 1964 (78 Stat. 890; 16 U.S.C. 1131 et seq.) and shall from time to time report to the President his recommendation as to the suitability or nonsuitability of each such area or island for preservation as wilderness: *Provided*, That prior to any recommendations for the designation of an area as wilderness the Secretary shall cause mineral surveys to be conducted by the Geological Survey and the Bureau of Mines to determine the mineral values, if any, that may be present in such areas: *Provided further*, That the Secretary shall report to the President by July 1, 1980, his recommendations on those areas which the Secretary has prior to November 1, 1975, formally identified as natural or primitive areas. The review required by this subsection shall be conducted in accordance with the procedures specified in section 3(d) of the Wilderness Act.

(b) The President shall advise the President of the Senate and the Speaker of the House of Representatives of his recommendations with respect to designation as wilderness of each such area, together with a map thereof and a definition of its boundaries. Such advice by the President shall be given within two years of the receipt of each report from the Secretary. A recommendation of the President for designation as wilderness shall become effective only if so provided by an Act of Congress.

(c) During the period of review of such areas and until Congress has determined otherwise, the Secretary shall continue to manage such lands according to his authority under this Act and other applicable law in a manner so as not to impair the suitability of such areas for preservation as wilderness, subject, however, to the continuation of existing mining and grazing uses and mineral leasing in the manner and degree in which the same was being conducted on the date of approval of this Act: *Provided*, That, in managing the public lands the Secretary shall by regulation or otherwise take any action required to prevent unnecessary or undue degradation of the lands and their resources or to afford environmental protection. Unless previously withdrawn from appropriation under the mining laws, such lands shall continue to be subject to such appropriation during the period of review unless withdrawn by the Secretary under the procedures of section 204 of this Act for reasons other than preservation of their wilderness character. Once an area has been designated for preservation as wilderness, the provisions of the Wilderness Act which apply to national forest wilderness areas shall apply with respect to the administration and use of such designated area, including mineral surveys required by section 4(d)(2) of the Wilderness Act, and mineral development, access, exchange of lands, and ingress and egress for mining claimants and occupants.

APPENDIX B

THE WILDERNESS ACT OF SEPTEMBER 3, 1964

Public Law 88-577
88th Congress, S. 4

AN ACT

To establish a National Wilderness Preservation System for the permanent good of the whole people, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SHORT TITLE

Section 1. This Act may be cited as the "Wilderness Act".

WILDERNESS SYSTEM ESTABLISHED—STATEMENT OF POLICY

Section 2.(a) In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. For this purpose there is hereby established a National Wilderness Preservation System to be composed of federally owned areas designated by Congress as "wilderness areas", and these shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness; and no Federal lands shall be designated as "wilderness areas" except as provided for in this Act or by a subsequent Act.

(b) The inclusion of an area in the National Wilderness Preservation System notwithstanding, the area shall continue to be managed by the Department and agency having jurisdiction thereover immediately before its inclusion in the National Wilderness Preservation System unless otherwise provided by Act of Congress. No appropriation shall be available for the payment of expenses or salaries for the administration of the National Wilderness Preservation System as a separate unit nor shall any appropriations be available for additional personnel stated as being required solely for the purpose of managing or administering areas solely because they are included within the National Wilderness Preservation System.

DEFINITION OF WILDERNESS

(c) A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

NATIONAL WILDERNESS PRESERVATION SYSTEM—EXTENT OF SYSTEM

Section 3.(a) All areas within the national forests classified at least 30 days before the effective date of this Act by the Secretary of Agriculture or the Chief of the Forest Service as "wilderness", "wild", or "canoe" are hereby designated as wilderness areas. The Secretary of Agriculture shall—

(1) Within one year after the effective date of this Act, file a map and legal description of each wilderness area with the Interior and Insular Affairs Committees of the United States Senate and the House of Representatives, and such descriptions shall have the same force and effect as if included in this Act: *Provided, however*, That correction of clerical and typographical errors in such legal descriptions and maps may be made.

(2) Maintain, available to the public, records pertaining to said wilderness areas, including maps and legal descriptions, copies of regulations governing them, copies of public notices of, and reports submitted to Congress regarding pending additions, eliminations, or modifications. Maps, legal descriptions, and regulations pertaining to wilderness areas within their respective jurisdictions also shall be available to the public in the offices of regional foresters, national forest supervisors, and forest rangers.

Classification. (b) The Secretary of Agriculture shall, within ten years after the enactment of this Act, review, as to its suitability or nonsuitability for preservation as wilderness, each area in the national forests classified on the effective date of this Act by the Secretary of Agriculture or the Chief of the Forest Service as "primitive" and report his findings to the President.

Presidential recommendation to Congress. The President shall advise the United States Senate and House of Representatives of his recommendations with respect to the designation as "wilderness" or other reclassification of each area on which review has been completed, together with maps and a definition of boundaries. Such advice shall be given with respect to not less than one-third of all the areas now classified as "primitive" within three years after the enactment of this Act, not less than two-thirds within seven years after the enactment of this Act, and the remaining areas within ten years after the enactment of this Act.

Congressional approval. Each recommendation of the President for designation as "wilderness" shall become effective only if so provided by an Act of Congress. Areas classified as "primitive" on the effective date of this Act shall continue to be administered under the rules and regulations affecting such areas on the effective date of this Act until Congress has determined otherwise. Any such area may be increased in size by the President at the time he submits his recommendations to the Congress by not more than five thousand acres with no more than one thousand two hundred and eighty acres of such increase in any one compact unit; if it is proposed to increase the size of any such area by more than five thousand acres or by more than one thousand two hundred and eighty acres in any one compact unit the increase in size shall not become effective until acted upon by Congress. Nothing herein contained shall limit the President in proposing, as part of his recommendations to Congress, the alteration of existing boundaries of primitive areas or recommending the addition of any contiguous area of national forest lands predominantly of wilderness value. Notwithstanding any other provisions of this Act, the Secretary of Agriculture may complete his review and delete such areas as may be necessary, but not to exceed seven thousand acres, from the southern tip of the Gore Range-Eagles Nest Primitive Area, Colorado, if the Secretary determines that such action is in the public interest.

Report to President. (c) Within ten years after the effective date of this Act the Secretary of the Interior shall review every roadless area of five thousand contiguous acres or more in the national parks, monuments and other units of the national park system and every such area of, and every roadless island within, the national wildlife refuges and game ranges, under his jurisdiction on the effective date of this Act and shall report to the President his recommendation as to the suitability or nonsuitability of each such area or island for preservation as wilderness.

Presidential recommendation to Congress. The President shall advise the President of the Senate and the Speaker of the House of Representatives of his recommendation with respect to the designation as wilderness of each such area or island on which review has been completed, together with a map thereof and a definition of its boundaries. Such advice shall be given with respect to not less than one-third of the areas and islands to be reviewed under this subsection within three years after enactment of this Act, not less than two-thirds within seven years of enactment of this Act, and the remainder within ten years of enactment of this Act.

Congressional approval. A recommendation of the President for designation as wilderness shall become effective only if so provided by an Act of Congress. Nothing contained herein shall, by implication or otherwise, be construed to lessen the present statutory authority of the Secretary of the Interior with respect to the maintenance of roadless areas within units of the national park system.

Suitability. (d)(1) The Secretary of Agriculture and the Secretary of the Interior shall, prior to submitting any recommendations to the President with respect to the suitability of any area for preservation as wilderness—

Publication in Federal Register. (A) give such public notice of the proposed action as they deem appropriate, including publication in the Federal Register and in a newspaper having general circulation in the area or areas in the vicinity of the affected land;

Hearings. (B) hold a public hearing or hearings at a location or locations convenient to the area affected. The hearings shall be announced through such means as the respective Secretaries involved deem appropriate, including notices in the Federal Register and in newspapers of general circulation in the area: *Provided*, That if the lands involved are located in more than one State, at least one hearing shall be held in each State in which a portion of the land lies;

(C) at least thirty days before the date of a hearing advise the Governor of each State and the governing board of each county, or in Alaska the borough, in which the lands are located, and Federal departments and agencies concerned, and invite such officials and Federal agencies to submit their views on the proposed action at the hearing or by no later than thirty days following the date of the hearing.

(2) Any views submitted to the appropriate Secretary under the provisions of (1) of this subsection with respect to any area shall be included with any recommendations to the President and to Congress with respect to such area.

Proposed modification. (e) Any modification or adjustment of boundaries of any wilderness area shall be recommended by the appropriate Secretary after public notice of such proposal and public hearing or hearings as provided in subsection (d) of this section. The proposed modification or adjustment shall then be recommended with map and description thereof to the President. The President shall advise the United States Senate and the House of Representatives of his recommendations with respect to such modification or adjustment and such recommendations shall become effective only in the same manner as provided for in subsections (b) and (c) of this section.

USE OF WILDERNESS AREAS

Section 4. (a) The purposes of this Act are hereby declared to be within and supplemental to the purposes for which national forests and units of the national park and national wildlife refuge systems are established and administered and—

(1) Nothing in this Act shall be deemed to be in interference with the purpose for which national forests are established as set forth in the Act of June 4, 1897 (30 Stat. 11), and the Multiple-Use Sustained-Yield Act of June 12, 1960 (74 Stat. 215).

(2) Nothing in this Act shall modify the restrictions and provisions of the Shipstead-Nolan Act (Public Law 539, Seventy-first Congress, July 10, 1930; 46 Stat. 1020), the Thye-Blatnik Act (Public Law 733, Eighieth Congress, June 22, 1948; 62 Stat. 568), and the Humphrey-Thye-Blatnik-Andresen Act (Public Law 607, Eighty-fourth Congress, June 22, 1956; 70 Stat. 326), as applying to the Superior National Forest or the regulations of the Secretary of Agriculture.

(3) Nothing in this Act shall modify the statutory authority under which units of the national park system are created. Further, the designation of any area of any park, monument, or other unit of the national park system as a wilderness area pursuant to this Act shall in no manner lower the standards evolved for the use and preservation of such park, monument, or other unit of the national park system in accordance with the Act of August 25, 1916, the statutory authority under which the area was created, or any other Act of Congress which might pertain to or affect such area, including but not limited to, the Act of June 8, 1906 (34 Stat. 225; 16 U.S.C. 432 et seq.); section 3 (2) of the Federal Power Act (16 U.S.C. 796 (2)); and the Act of August 21, 1935 (49 Stat. 666; 16 U.S.C. 461 et seq.).

(b) Except as otherwise provided in this Act, each agency administering any area designated as wilderness shall be responsible for preserving the wilderness character of the area and shall so administer such area for such other purposes for which it may have been established as also to preserve its wilderness character. Except as otherwise provided in this Act, wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use.

PROHIBITION OF CERTAIN USES

(c) Except as specifically provided for in this Act, and subject to existing private rights, there shall be no commercial enterprise and no permanent road within any wilderness area designated by this Act and, except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation within any such area.

SPECIAL PROVISIONS

(d) The following special provisions are hereby made:

(1) Within wilderness areas designated by this Act the use of aircraft or motorboats, where these uses have already become established, may be permitted to continue subject to such restrictions as the Secretary of Agriculture deems desirable. In addition, such measures may be taken as may be necessary in the control of fire, insects, and diseases, subject to such conditions as the Secretary deems desirable.

(2) Nothing in this Act shall prevent within national forest wilderness areas any activity, including prospecting, for the purpose of gathering information about mineral or other resources, if such activity is carried on in a manner compatible with the preservation of the wilderness environment. Furthermore, in accordance with such program as the Secretary of the Interior shall develop and conduct in consultation with the Secretary of Agriculture, such areas shall be surveyed on a planned, recurring basis consistent with the concept of wilderness preservation by the Geological Survey and the Bureau of Mines to determine the mineral values, if any, that may be present; and the results of such surveys shall be made available to the public and submitted to the President and Congress.

Mineral leases, claims, etc. (3) Notwithstanding any other provisions of this Act, until midnight December 31, 1983, the United States mining laws and all laws pertaining to mineral leasing shall, to the same extent as applicable prior to the effective date of this Act, extend to those national forest lands designated by this Act as "wilderness areas"; subject, however, to such reasonable regulations governing ingress and egress as may be prescribed by the Secretary of Agriculture consistent with the use of the land for mineral location and development and exploration, drilling, and production, and use of land for transmission lines, waterlines, telephone lines, or facilities necessary in exploring, drilling, producing, mining, and processing operations, including where essential the use of mechanized ground or air equipment and restoration as near as practicable of the surface of the land disturbed in performing prospecting, location, and, in oil and gas leasing, discovery work, exploration, drilling, and production, as soon as they have served their purpose. Mining locations lying within the boundaries of said wilderness areas shall be held and used solely for mining or processing operations and uses reasonably incident thereto; and hereafter, subject to valid existing rights, all patents issued under the mining laws of the United States affecting national forest lands designated by this Act as wilderness areas shall convey title to the mineral deposits within the claim, together with the right to cut and use so much of the mature timber therefrom as may be needed in the extraction removal and beneficiation of the mineral deposits, if needed timber is not otherwise reasonably available, and if the timber is cut under sound principles of forest management as defined by the national forest rules and regulations, but each such patent shall reserve to the United States all title in or to the surface of the lands and products thereof, and no use of the surface of the claim or the resources therefrom not reasonably required for carrying on mining or prospecting shall be allowed except as otherwise expressly provided in this Act: *Provided*, That, unless hereafter specifically authorized, no patent within wilderness areas designated by this Act shall issue after December 31, 1983, except for the valid claims existing on or before December 31, 1983. Mining claims located after the effective date of this Act within the boundaries of wilderness areas designated by this Act shall create no rights in excess of those rights which may be patented under the provisions of this subsection. Mineral leases, permits, and licenses covering lands within national forest wilderness areas designated by this Act shall contain such reasonable stipulations as may be prescribed by the Secretary of Agriculture for the protection of the wilderness character of the land consistent with the use of the land for the purposes for which they are leased, permitted, or licensed. Subject to valid rights then existing, effective January 1, 1984, the minerals in lands designated by this Act as wilderness areas are withdrawn from all forms of appropriation under the mining laws and from deposition under all laws pertaining to mineral leasing and all amendments thereto.

Water resources. (4) Within wilderness areas in the national forests designated by this Act, (1) the President may, within a specific area and in accordance with such regulations as he may deem desirable, authorize prospecting for water resources, the establishment and maintenance of reservoirs, water-conservation works, power projects, transmission lines, and other facilities needed in the public interest, including the road construction and maintenance essential to development and use thereof, upon his determination that such use or uses in the specific area will better serve the interests of the United States and the people thereof than will its denial; and (2) the grazing of livestock, where established prior to the effective date of this Act, shall be permitted to continue subject to such reasonable regulations as are deemed necessary by the Secretary of Agriculture.

(5) Other provisions of this Act to the contrary notwithstanding, the management of the Boundary Waters Canoe Area, formerly designated as the Superior, Little Indian Sioux, and Caribou Roadless Areas, in the Superior National Forest, Minnesota, shall be in accordance with regulations established by the Secretary of Agriculture in accordance with the general purpose of maintaining, without unnecessary restrictions on other uses, including that of timber, the primitive character of the area, particularly in the vicinity of lakes, streams, and portages: *Provided*, That nothing in this Act shall preclude the continuance within the area of any already established use of motorboats.

(6) Commercial services may be performed within the wilderness areas designated by this Act to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of the areas.

(7) Nothing in this Act shall constitute an express or implied claim or denial on the part of the Federal Government as to exemption from State water laws.

(8) Nothing in this Act shall be construed as affecting the jurisdiction or responsibilities of the several States with respect to wildlife and fish in the national forests.

STATE AND PRIVATE LANDS WITHIN WILDERNESS AREAS

Section 5. (a) In any case where State-owned or privately owned land is completely surrounded by national forest lands within areas designated by this Act as wilderness, such State or private owner shall be given such rights as may be necessary to assure adequate access to such State-owned or privately owned land by such State or private owner and their successors in interest, or the State-owned land or privately owned land shall be exchanged for federally owned land in the same State of approximately equal value under authorities available to the Secretary of Agriculture:

Transfers, restriction. *Provided, however*, That the United States shall not transfer to a State or private owner any mineral interests unless the State or private owner relinquishes or causes to be relinquished to the United States the mineral interest in the surrounded land.

(b) In any case where valid mining claims or other valid occupancies are wholly within a designated national forest wilderness area, the Secretary of Agriculture shall, by reasonable regulations consistent with the preservation of the area as wilderness, permit ingress and egress to such surrounded areas by means which have been or are being customarily enjoyed with respect to other such areas similarly situated.

Acquisition. (c) Subject to the appropriation of funds by Congress, the Secretary of Agriculture is authorized to acquire privately owned land within the perimeter of any area designated by this Act as wilderness if (1) the owner concurs in such acquisition or (2) the acquisition is specifically authorized by Congress.

GIFTS, BEQUESTS, AND CONTRIBUTIONS

Section 6. (a) The Secretary of Agriculture may accept gifts or bequests of land within wilderness areas designated by this Act for preservation as wilderness. The Secretary of Agriculture may also accept gifts or bequests of land adjacent to wilderness areas designated by this Act for preservation as wilderness if he has given sixty days advance notice thereof to the President of the Senate and the Speaker of the House of Representatives. Land accepted by the Secretary of Agriculture under this section shall become part of the wilderness area involved. Regulations with regard to any such land may be in accordance with such agreements, consistent with the policy of this Act, as are made at the time of such gift, or such conditions, consistent with such policy, as may be included in, and accepted with, such bequest.

(b) The Secretary of Agriculture or the Secretary of the Interior is authorized to accept private contributions and gifts to be used to further the purposes of this Act.

ANNUAL REPORTS

Section 7. At the opening of each session of Congress, the Secretaries of Agriculture and Interior shall jointly report to the President for transmission to Congress on the status of the wilderness system, including a list and descriptions of the areas in the system, regulations in effect, and other pertinent information, together with any recommendations they may care to make.

APPENDIX C

THE BUREAU OF LAND MANAGEMENT WILDERNESS REVIEW PROCESS

To carry out the wilderness mandate of FLPMA, the Bureau of Land Management has developed a wilderness review process with three phases: inventory, study, and reporting to Congress.

Inventory: In the wilderness inventory, the BLM examined the public lands, with public participation, and identified those areas that meet the definition of wilderness established by Congress. These areas were identified as wilderness study areas (WSA's). The inventory was completed by November 14, 1980, in the contiguous Western States, resulting in identification of approximately 24 million acres as wilderness study areas and in elimination from further wilderness consideration of approximately 150 million acres.

Study: Each wilderness study area will be studied through the BLM resource management planning system to analyze all values, resources, and uses within the area. The findings of the study, including public participation, determine whether the area will be recommended as suitable or nonsuitable for designation as wilderness. In practice, determining an area's "suitability or nonsuitability . . . for preservation as wilderness," in the words of FLPMA, means determining whether the area is more suitable for wilderness designation or more suitable for other uses.

Reporting: When the study has been completed, a recommendation as to whether the wilderness study area is suitable or nonsuitable for designation as wilderness is submitted through the Secretary of the Interior and the President to Congress. A mineral survey will be conducted by the Geological Survey and Bureau of Mines for any area recommended as suitable. Reports on all wilderness study areas must reach the President no later than October 21, 1991, and reach Congress by October 21, 1993. Only Congress can designate an area as wilderness.

APPENDIX D

DEFINITIONS

Some of the terms used in this document have specific meanings and are defined as follows:

Domestic Livestock: Animals kept and managed for their products or for breeding purposes, not visitors' animals or administrative livestock.

FLPMA: The Federal Land Policy and Management Act of 1976 (Public Law 94-579, 90 Stat. 2743, 43 USC 1701).

Livestock Grazing Operations: Those operations under permit where the primary purpose is the grazing of livestock for the production of food and fiber. Includes pack and saddle stock used in conjunction with such operations.

Mechanical Transport: "Mechanical transport" means any device for transporting personnel or material with wheels, tracks, skids, or by flotation for traveling over land, water, or snow and is propelled by a nonliving power source contained or carried on or within the device.

Motorized Equipment: "Motorized equipment" means any machine activated by a nonliving power source except small battery-powered, handcarried devices such as flashlights, shavers, Geiger counters, and cameras.

Motor Vehicle: "Motor vehicle" means any vehicle which is self-propelled or any vehicle which is propelled by electric power obtained from batteries.

Multiple Use: ". . . the management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output." (From Section 103, FLPMA)

Naturalized: Refers to a non-native species of plant or animal which is well established in the area as a part of the wilderness ecosystem and which sustains its population without requiring human assistance (such as stocking or reseeding). Non-native species that are not in equilibrium with the wilderness ecosystem (such as those which are increasing their population and displacing native species) are not considered naturalized.

Naturalness: Refers to an area which "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable." (From Section 2(c), Wilderness Act).

Outstanding: Standing out among others of its kind; conspicious; prominent. Superior to others of its kind; distinguished; excellent.

Permanent Improvement: A manmade structural or nonstructural improvement which will remain at a particular location for more than one field sesson—as differentiated from temporary structures; includes such items as toilet buildings, trails, cabins, signs, fences, vegetative cover manipulation, shelters, and fire grills.

Primitive and Unconfined Recreation: Nonmotorized and nondeveloped types of outdoor recreational activities.

Rangeland Improvements: Any structural or nonstructural improvement which directly affects or supports the use of the forage resource by domestic livestock, such as fences, line cabins, water lines, and stock tanks.

Recreational Livestock: Horses, mules, or burros used for recreational purposes to transport people and/or their supplies.

Solitude: The state of being alone or remote from habitations; isolation. A lonely, unfrequented, or secluded place.

Temporary Structure: Any structure which can be readily and completely dismantled and removed from the site between periods of actual use. It may or may not be authorized at the same site from season to season or from year to year.

Unnecessary or Undue Degradation: Surface disturbance greater than what would normally result when an activity is being accomplished by a prudent operator in usual, customary, and proficient operations of similar character and taking into consideration the effects of operations on other resources and land uses, including those resources and uses outside the area of operations. Failure to initiate and complete reasonable mitigation measures, including reclamation of disturbed areas, or creation of a nuisance may constitute unnecessary or undue degradation. Failure to comply with applicable environmental protection statutes and regulations thereunder will constitute unnecesary or undue degradation.

Visitor Use: Visitor use of the wilderness resource for inspiration, stimulation, solitude, relaxation, education, pleasure, or satisfaction.

Wilderness: The definition contained in Section 2(c) of the Wilderness Act of 1964 (78 Stat. 891). (See Appendix B for its full text.)

Wilderness Characteristics: The definition contained in Section 2(c) of the Wilderness Act of 1964 (78 Stat. 891. (See Appendix B for its full text.)

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GLOSSARY, REFERENCES, AND INDEX

GLOSSARY

ABBREVIATIONS

The following abbreviations are used in this EIS. Those representing terms are defined in the glossary.

ACEC	area of critical environmental concern
AG&FD	Arizona Game and Fish Department
AMP	allotment management plan
AUM	animal unit month
BLM	Bureau of Land Management
CCD	Census County Division
EIS	environmental impact statement
ESA	economic study area
FWS	Fish and Wildlife Service
HMA	herd management area
HMAP	herd management area plan
HMP	habitat management plan
ISA	instant study area
MFP	management framework plan
NRHP	National Register of Historic Places
ORV	off-road vehicle
SCS	Soil Conservation Service
URA	unit resource analysis
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
VRM	visual resource management
WSA	wilderness study area

TERMS

ACCELERATED EROSION. Soil erosion or loss exceeding normal geologic erosion, which is caused by human disturbances.

ADMINISTRATIVELY ENDORSED WILDERNESS PROPOSAL. An area that the President of the United States has recommended to Congress as suitable for wilderness designation.

AIR QUALITY CLASSES. Classes established by the Environmental Protection Agency that define the amount of air pollution considered significant within an area. Class I applies to areas where almost any change in air quality would be considered significant; Class II applies to areas where the deterioration normally accompanying moderate well-controlled growth would be considered insignificant; and Class III applies to areas where deterioration up to the national standards would be considered insignificant.

ALLOTMENT. A land area where one or more operators graze their livestock. It generally consists of public land but may include parcels of private and state-owned lands. The number of livestock and season of use are stipulated for each allotment. An allotment may consist of one or several pastures.

ALLOTMENT MANAGEMENT PLAN (AMP). A livestock grazing management plan for a specific allotment, based on multiple-use resource management objectives. The AMP considers livestock grazing in relation to other uses of the range and in relation to renewable resources — watershed, vegetation, and wildlife. An AMP establishes the seasons of use, the number of livestock to be permitted on the range, and the rangeland developments needed.

ALLUVIAL FAN. A sloping, fan-shaped mass of sediment deposited by a stream where it emerges from an upland onto a plain. See Bajada.

ANIMAL UNIT MONTH (AUM). The amount of foliage needed to sustain one cow or its equivalent for 1 month.

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC). An area within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife or natural systems or processes, or to protect life and safety from natural hazards.

AUTHORIZED GRAZING PREFERENCE (QUALIFICATIONS). The total number of AUMs that livestock annually are allowed to graze on public lands. Preference is apportioned and attached to base waters or property owned or controlled by a permittee or lessee.

BAJADA. A broad, gently inclined slope at the foot of a mountain, formed by the coalescing of alluvial fans.

BASALT. A dark rock, usually of volcanic origin.

BRECCIA PIPE. A geologic structural condition characterized by an agglomeration of angular fragments held together loosely in the form of a vertical cylinder. It averages several hundred feet in diameter and extends up to 2,000 or more feet vertically. A breccia pipe is a permeable zone, subject to mineralizing solutions and highly conducive to mineralization.

BROWSE. The tender shoots, twigs, and leaves of trees and shrubs often used as food by cattle, deer, elk, and other animals; or to feed or eat on browse.

BURRO HERD. One or more jacks (male burros) and their jennies (females).

BURRO HERD AREA. The area used by free-roaming burros during their yearly movements to obtain biological requirements; the area occupied by wild free-roaming burros at the passage of the Act of December 15, 1971 and limited to that area by the act, not to be expanded by the relocating of animals.

CABLE LOGGING. The use of a cable and tower to drag logs to a place they can be hauled off.

CAT LOGGING. The use of a bulldozer to drag cut trees to where they can be hauled off. This method can be used on slopes up to 40 percent.

CENSUS COUNTY DIVISION (CCD). County division used by U.S. Bureau of the Census for listing some census data.

CHAINING. The use of two bulldozers to drag an anchor chain across an area and uproot target plants, particularly pinyon and juniper.

CHERRYSTEM ROAD. A dead-end road extending into and surrounded by a wilderness study area (WSA) but not within its boundaries. Such roads may lead to range developments, mines, or inholdings. Cherrystemming is the delimiting of WSAs to exclude a cherrystem road.

CULTURAL RESOURCE SITE. A physical location of past human activities or events. Sites range in size from the location of a single cultural resource object to a cluster of cultural resource structures with associated objects and features.

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.

ECONOMIC MINERAL DEPOSIT. Any mineral deposit of sufficient quality and quantity to produce a profit when mined. (See Subeconomic Resource.)

ECONOMIC STUDY AREA (ESA). For this EIS, the area surrounding the WSAs whose residents might be affected by wilderness designation. The ESA includes Washington and Kane Counties, Utah and portions of Mohave and Coconino Counties, Arizona north of the Grand Canyon and east to Page.

GLOSSARY

ENDANGERED ANIMAL SPECIES. Any 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. See Threatened and Sensitive Plant Species.

ENVIRONMENT. The surrounding conditions, influences, or forces that affect or modify an organism or an ecological community.

FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (FLPMA). Public law 94-579, which gives BLM the legal authority to establish public land policy; to establish guidelines for administering such policy; and to provide for the management, protection, development, and enhancement of the public lands.

FORAGE. All browse and herbaceous foods available to grazing animals, which may be grazed or harvested for feeding (Range Term Glossary Committee, 1974).

FORB. A herbaceous plant that is not a grass, sedge, or rush.

GRANDFATHERED USES. Mineral, grazing, or right-of-way use that occurred on the land on the date of approval of the Federal Land Policy and Management Act (FLPMA) (October 21, 1976). Under BLM Interim Management Policy and Guidelines for Lands Under Wilderness Review (Appendix 1), grandfathered uses may continue on lands under wilderness review in the same manner and degree as on the date of FLPMA's approval, even if such uses impair wilderness suitability. These uses, however, must be regulated to ensure that they do not unnecessarily degrade these lands.

HABITAT. A specific set of physical conditions that surround the single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

HABITAT MANAGEMENT PLAN (HMP). A written and officially approved plan for a specific geographical area of public land that identifies wildlife habitat and related objectives, establishes the sequence of actions for achieving objectives, and outlines procedures for evaluating accomplishments.

HERBACEOUS. Pertaining to plants having little or no woody tissue.

HERD MANAGEMENT AREA PLAN (HMAP). Plan for the management of an area used by wild horses or burros. A HMAP outlines details of a burro or horse capture plan, adoption program, and long-term management of populations.

INSTANT STUDY AREAS (ISAs). BLM primitive and natural areas designated before November 1, 1975.

KERF. Sawdust.

LINE SHACK. A cabin, shack, or other structure temporarily used as shelter by livestock operators and their help while looking after their livestock on the range.

LITHIC SITE. An archaeological site containing debris left from the manufacture, use, or maintenance of flaked stone tools.

LIVESTOCK OPERATOR. In this EIS, an individual, family, corporation, or other entity that runs a livestock operation. An operator may have a single allotment, more than one allotment, or a portion of an allotment.

LOCATABLE MINERALS. Minerals such as gold, copper, and silver that can be staked and claimed under the General Mining Law of 1872. See Saleable Minerals.

MANAGEMENT FRAMEWORK PLAN (MFP). A land use plan for public lands that provides a set of goals, objectives, and constraints for a specific planning area to guide the development of detailed plans for the management of each resource.

MINERALIZATION. The processes taking place in the earth's crust resulting in the formation of valuable minerals or ore bodies.

MINING PLAN OF OPERATION. A plan for extracting minerals that a miner must submit to BLM before beginning operations. The plan is required by the Federal Land Policy Management Act of 1976.

MONOCLINE. Rock layers that dip in one direction for an unknown or indefinite length.

MULTIPLE-USE MANAGEMENT. The management of the public land and its resources to allow their use in a combination to best meet the needs of the American people and ensure balanced and diverse resource use.

NATIONAL REGISTER OF HISTORIC PLACES. A register of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture, maintained by the Secretary of the Interior.

NATURAL AREA. Lands managed for retention of their typical or unusual plant or animal types, associations, or other biotic phenomena; or for their outstanding scenic, geologic, pedologic, or aquatic features or processes.

NICHE. The place in the plant or animal community that a species occupies (Soil Conservation Society of America, 1970).

OFF-ROAD VEHICLE (ORV). Any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland or other natural terrain, excluding (a) any registered motorboat, (b) any fire, military, emergency, or law enforcement vehicle when used for emergencies and any combat or combat support vehicle when used for national defense, and (c) any vehicle whose use is expressly authorized by the respective agency head under a permit, lease, license, or contract.

ORE. A mineral of sufficient quality and quantity to be mined at a profit.

OVERTHRUST ZONE. A thrust fault whose hanging wall has overthrust the foot wall for many miles, sometimes duplicating the stratigraphic section. In the western United States the potential for oil and gas accumulation in an extensive overthrust zone has aroused great interest in exploration.

PEGMATITES. A course variety of granite occurring in dikes and veins.

PRE-COMMERCIAL THINNING. Removal of trees in a forest to give remaining trees room to grow. The trees removed have no commercial value.

PRESCRIBED BURNING. The intentional burning of the wildland fuels of a predetermined area under proper weather, fuel moisture, and soil moisture conditions to achieve planned benefits with the least damage at acceptable costs.

PRIMITIVE AND UNCONFINED RECREATION. Nonmotorized and nondeveloped types of outdoor recreation.

PRIMITIVE AREA. An area established to preserve, protect, and enhance lands of scenic splendor, natural wonder, scientific interest, primitive environment, and other natural values for the enjoyment and use of present and future generations. BLM primitive areas are managed to maintain the same quality of lands included in the National Wilderness Preservation System.

PUBLIC LAND. Federal lands administered by the Bureau of Land Management.

RANGE IMPROVEMENT. A structure, development, or treatment used in concert with management to rehabilitate, protect, and improve public land and its resources; to arrest rangeland deterioration; and to improve forage condition, fish and wildlife habitat, watershed protection, and livestock production, all consistent with land use plans.

GLOSSARY

RANGELAND (RANGE). Land dominated by vegetation that can be grazed or browsed and whose husbandry is provided routinely through grazing management instead of renovation or cultural treatment.

RAPTOR. A bird of prey.

RELICT. A remnant of plant life from a time when the plant life was more widely distributed.

RESOURCE AREA. An administrative division of a BLM District, which is headed by an area manager.

RESOURCE MANGEMENT PLAN (RMP). A BLM planning document that presents systematic guidelines for making resource management decisions for a resource area. An RMP is based on an analysis of an area's resources, their existing mnagement, and their capability for alternative uses. RMPs are issue-oriented and developed by an interdisciplinary team with public participation.

RIPARIAN. Situated on or pertaining to the bank of a river, stream, or other body of water. Riparian is normally used to refer to the plants of all types that grow along streams or around springs.

ROADLESS. The absence of roads that have been improved and maintained by mechanical means to ensure relatively regular and continuous use. A way maintained solely by the passage of vehicles does not constitute a road.

SALEABLE MINERALS. Minerals subject to sale on the public lands, including common varieties of sand, gravel, stone, pumice, pumicite, cinders, and clay. They are purchased under the Materials Act of 1947. See Locatable Minerals.

SALVAGE (ARCHEOLOGICAL). Emergency recovery of cultural or paleontological data to prevent their loss from human or natural disturbance. Recovery techniques usually include partial or complete excavation.

SCOPING. The early and open process for determining the scope of issues to be addressed in an EIS and for identifying the significant issues related to a proposed action. Scoping determines in depth the scope and the significant issues to be analyzed in the EIS and identifies and eliminates from detailed study insignificant issues or issues addressed in earlier environmental reviews.

SENSITIVE PLANT SPECIES. Plants whose populations are consistently small and widely dispersed, or whose ranges are restricted to a few localities, such that any appreciable reduction in numbers, habitat availability, or habitat condition might lead toward extinction. Sensitive plants also include species rare in one locality (such as in Arizona) but abundant elsewhere. See Endangered and Threatened Plant Species.

SOCIOCULTURAL RESOURCES. Places, objects, structures, and things of importance to a subgroup or population at large. Included are values that reflect the concepts, religion, social heritage, habits, skills, arts, and lifestyles of a given people.

STAGNANT CONDITION. A forest condition in which so many stems exist per acre that trees compete with themselves and none can break out and establish dominance. As a result, trees can't grow big enough to be harvested.

STATE HISTORIC PRESERVATION OFFICER (SHPO). The official within each state, authorized by the state at the request of the Secretary of the Interior, to act as a liaison for implementing the National Historic Preservation Act of 1966.

SUBECONOMIC MINERAL DEPOSIT. Known mineral deposits of sufficient quantity but insufficient quality to be mined at a profit under present conditions. See Economic Mineral Deposit.

SUPPLEMENTAL WILDERNESS VALUES. Resources not required for an area to be designated a wilderness but that are considered in assessing an area's wilderness potential. Such values include ecological, geologic, and other features of scientific, educational, scenic, or historical value.

SUSTAINED YIELD. Achieving and maintaining a permanently high level, annual or regular period production of the various renewable land resources without impairing the productivity of the land and its environmental values.

TARGET SPECIES. Plant species to be reduced or eliminated by land treatment.

THREATENED ANIMAL SPECIES. Any animal species likely to become endangered within the foreseeable future throughout all or a significant part of its range. See Endangered Animal Species.

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. See Endangered Plant Species and Sensitive Plant Species.

TOTAL DISSOLVED SOLIDS (TDS). Salt – an aggregate of carbonates, bicarbonates, chlorides, sulfates, phosphates, and nitrates of calcium, magnesium, manganese, sodium, potassium, and other cations that form salts. High TDS solutions can change the chemical nature of water, exert varying degrees of osmotic pressures, and often become lethal to life in an aquatic environment.

UNIT RESOURCE ANALYSIS (URA). The system of data gathering and analysis that precedes land use planning for public lands.

UTILIZATION (FORAGE). The proportion of the current year's forage consumed or destroyed by grazing animals. Utilization is usually expressed as a percentage.

VEGETATION SUBTYPE. Subdivision of a vegetation type, which generally indicates an aspect to the viewer of dominant species or a single dominant species. For example, vegetation type = conifer; vegetation subtype = pinyon-juniper.

VEHICLE WAY. A vehicle route established and maintained solely by the passage of motor vehicles.

VISITOR DAY. 12 visitor hours, which may be aggregated continuously, intermittently, or simultaneously by one or more people.

VISUAL RESOURCE MANAGEMENT (VRM) CLASSES. Classification containing specific objectives for maintaining or enhancing visual resources, including the kinds of structures and modifications acceptable to meet established visual goals.

WILDERNESS. An uncultivated, uninhabited, and usually roadless area set aside for preservation of natural conditions. According to Section 2(c) of the Wilderness Act of 1964,

> A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a vistor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

WILDERNESS REVIEW. The entire inventory, study, and reporting phases of the BLM's wilderness program.

WILDERNESS STUDY AREA (WSA). Areas determined through BLM's wilderness inventory to meet the definition of wilderness established by Congress.

WORKMONTH. One person working for 1 month.

YARDING COST. Cost of hauling a log from its stump to where it can be loaded for shipment.

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MT BALDY WILDERNESS

YUMA DISTRICT

YUMA RA

SUPERSTITION WILDERNESS

GILA RA

SAFFORD DISTRICT

SAN SIMON RA

SAFFORD DISTRICT WILDERNESS EIS AREA

PHOENIX DISTRICT

PUSH RIDGE WILDERNESS

TUCSON SAGUARO WILDERNESS

ORGAN PIPE WILDERNESS

CHIRICAHUA WILDERNESS

WILCOX BOMBING RANGE

ELECTRONIC PROVING GROUND

FORT HUACHUCA

LUKE AIR FORCE RANGE

YUMA TEST STATION

LEGEND

	BLM	USFS	NPS	FWS
Designated Wilderness	NONE			NONE
Administratively Endorsed as Suitable (Prior to 1981)	NONE		NONE	
Further Planning or Study			NONE	NONE
Other Agency Lands				

BLM Wilderness Inventory Not Completed — NONE

BLM Lands Administratively Endorsed as Nonsuitable — NONE

BLM Lands Under Appeal (WSA's)

USFS Rare II Under Litigation (California) — NONE

State Designated Wilderness — NONE

Indian Reservations

Military Reservations

BLM Non WSA's Under Appeal

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

STATE OF ARIZONA

WILDERNESS STATUS MAP

JUNE-1981

Scale 1:1,000,000

BASE MAP BY U.S. GEOLOGICAL SURVEY

PLATE 1

Legend

- State capital
- County seat
- City, town, or village
- Scheduled service airport
- Built up area shown for towns over 1,000 population

ARIZONA

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
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