

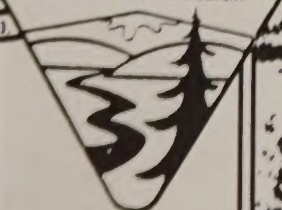
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Utah BLM Statewide Wilderness Final Environmental Impact Statement

Volume III Part B South-West Region



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





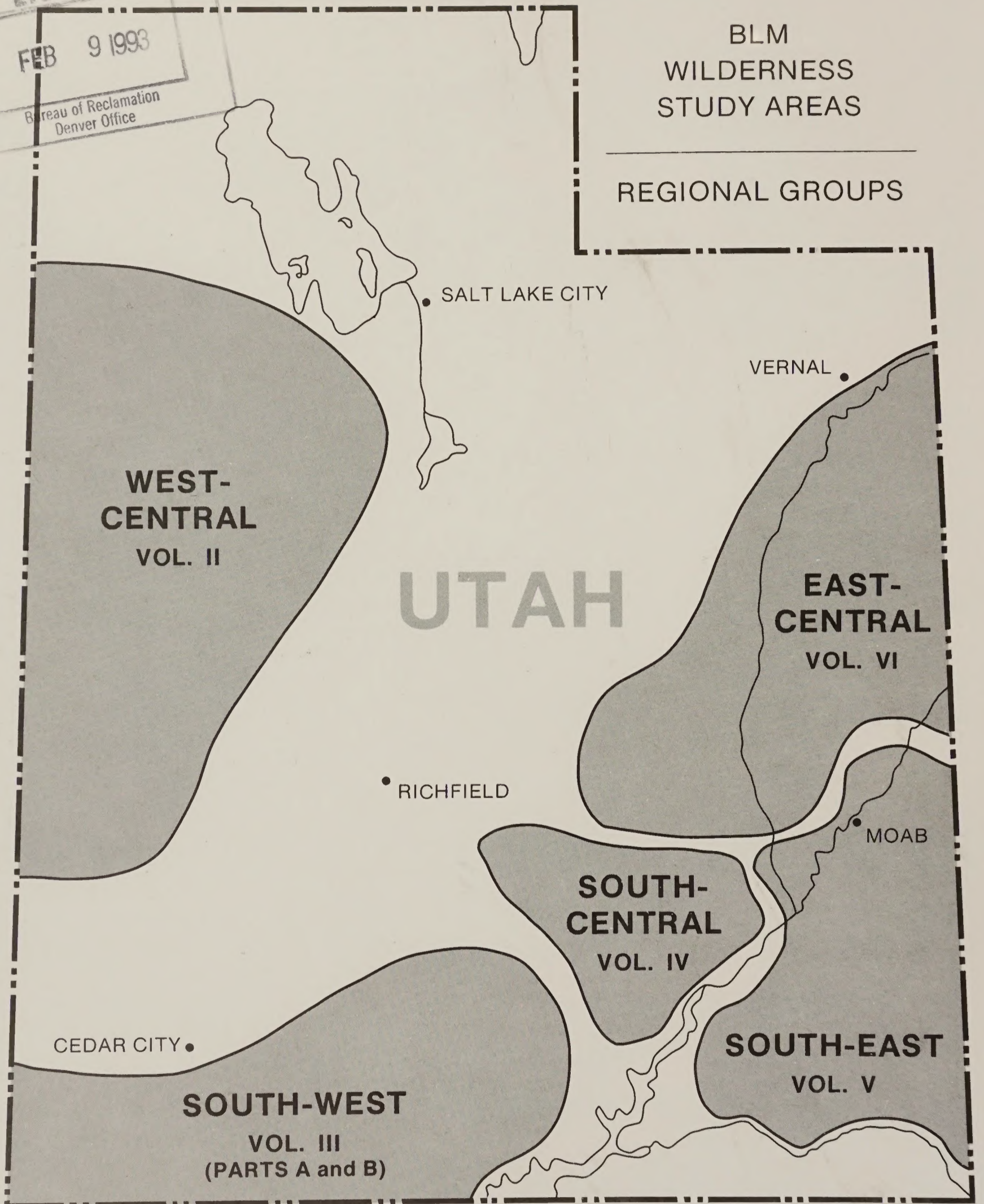
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This is **Volume III B** of a seven volume set. Volume I is the state wide overview. It contains the Glossary and Appendices for all volumes. Volumes II-VI contain analyses for individual Wilderness Study Areas. Volume VII (parts A and B) contain public comments and responses.

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INTRODUCTION TO VOLUME III-B -- SOUTH-WEST WSAs

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The Utah Bureau of Land Management (BLM) State-wide Wilderness Final Environmental Impact Statement (EIS) is comprised of seven volumes which include one individual analysis of each of 83 Wilderness Study Areas (WSAs) (Volumes II through VI), a State-wide overview (Volume I), and public comments and responses on the Draft EIS (Volume VII). The individual WSA analyses are grouped into volumes by geographic location. Volume III-B is comprised of individual analyses of the following sixteen WSAs and Instant Study Areas (ISAs) located in the South-West Region of Utah:

| Map Reference Number | WSA | Acres |
|----------------------|---------------------------------------|---------|
| 26 | Wahweap | 134,400 |
| 27 | Burning Hills | 61,550 |
| 28 | Death Ridge | 62,870 |
| 29 | Phipps-Death Hollow ISA | 42,731 |
| 30 | Steep Creek | 21,896 |
| 31 | North Escalante Canyons/The Gulch ISA | 119,752 |
| 32 | Carcass Canyon | 46,711 |
| 33 | Scorpion | 35,884 |
| 34 | Escalante Canyons/Tract 5 ISA | 760 |
| 35 | Fifty Mile Mountain | 146,143 |
| A | Red Butte | 804 |
| B | Spring Creek Canyon | 4,433 |
| C | The Watchman | 600 |
| D | Taylor Creek Canyon | 35 |
| E | Goose Creek Canyon | 89 |
| F | Beartrap Canyon | 40 |

The alternatives analyzed for each WSA are: No Action/No Wilderness designation and All Wilderness, which would be designation of the entire WSA to the National Wilderness Preservation System (NWPS). In addition, one or more Partial Wilderness Alternatives are analyzed, where designation of a portion of the WSA would avoid conflicts between wilderness management and development and use of other resources, or where certain portions of WSAs have low quality wilderness values. Partial Wilderness Alternatives, based on wilderness values, would designate the portions of the WSA with outstanding opportunities for solitude, primitive recreation, and special features that are within a manageable boundary.

CHANGES FOR THE FINAL EIS

In response to public comment, and changing resource conditions and plans, the following changes have been made for the ~~BLM Library~~ all of the South-West WSAs:

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Denver, CO 80225

1. The sections entitled Alternatives Considered and Eliminated from Detailed Study discuss citizen alternatives suggested during the public comment period.
2. New statements that further explain management of water resources, aircraft overflights, cultural resources, noxious weeds, and predators have been added to the Analysis Assumptions and Guidelines for All Alternatives.
3. The sections entitled Affected Environment include new or updated information on wilderness values, geology, water resources, soil reclamation potential, threatened and endangered species, mineral resource, livestock grazing, land use plans, and economic conditions.
4. Issue identification sections have been revised and expanded.
5. The environmental consequences of alternatives described in the individual analyses have been modified to address only significant issues.
6. The Analysis Assumptions and Guidelines for All Alternatives have been moved to the Introduction to Volume III-B. The specific assumptions on potential future activities inside the WSAs have been changed as described in the Assumed Action Scenarios in the descriptions of the alternatives analyzed in the individual WSA analyses.
7. The State-of-Utah's position on the exchange of in-held State lands has changed from requiring the exchange of in-holdings, to exchanging only when it is in the best interests of the citizens of Utah. In the Final EIS, it is assumed that State lands would not be exchanged, and access to in-held State sections could be required following wilderness designation.
8. The bibliographies for the region have been merged into a comprehensive bibliography that is located at the end of Volume III-A.

Additional changes specific to WSAs are identified in the introductions to the WSA analyses.

ISSUE IDENTIFICATION

BLM used the information obtained from scoping meetings, workshops, comments received during the public comment period on the Draft EIS, and input from BLM professionals to identify the issues for detailed

INTRODUCTION TO VOLUME III-B: SOUTH-WEST WSAs

analysis. Issues related to wilderness in general are addressed in Volume I, the Statewide overview. Several Statewide issues also pertain to the South-West WSAs.

In determining the significance of issues, BLM considered the nature and magnitude of potential impacts, resources covered by law, requirements of BLM's wilderness review guidelines, and the level of public interest or concern over the potential impacts.

Issues Not Analyzed in Detail for the South-West WSAs

1. Impacts on Air Quality: The public has expressed concern that wilderness designation could lead to re-designation of WSAs from the existing Class II, Prevention of Significant Deterioration (PSD) classification, to the more stringent Class I rating. A PSD Class I area could restrict future industrial developments in South-West Utah. Since the BLM Wilderness Management Policy (found in BLM Manual 8560) states that BLM will manage all wilderness areas to comply with the existing air quality classification, wilderness designation or nondesignation would not cause the air quality classification to change. The decision to change air quality classification is the prerogative of the State of Utah, rather than BLM. Therefore, the impact of wilderness designation on air quality is not analyzed in detail for the South-West WSAs.

2. Geology and Topography: With the No Action/No Wilderness Alternative, development of coal resources is projected for the Wahweap, Burning Hills, Death Ridge, Carcass Canyon, and Fifty Mile Mountain WSA's in the long-term future. As described in the individual WSA analyses, all mining activity would be by underground methods.

No significant changes are anticipated to geology or topography on the areas that would be leased for coal exploration and development. However, an undetermined amount of subsidence would be expected. The surface area that would be susceptible to subsidence would range from 90 to 130 percent of the area actually mined. Subsidence would be greatest at the center of the mined-out area and much less in the peripheral areas. Maximum subsidence would be from 50 to 90 percent of the thickness of the coal removed. Expressions of subsidence reflected at the land surface would include open and closed fractures, buckled and bulged bedrock, sinkholes, and other depressions (Dunrud, 1976). However, thick overburden would

limit surface expressions of subsidence. Because impacted areas would tend to subside at a uniform rate, no visual effects to the geology and topography would be noticeable to the casual visitor to the area.

3. Impacts on Water Rights: In November, 1985, U.S. District Court Judge John Kane ruled (Sierra Club vs. Block) that Federal wilderness in Colorado carries an implicit water right. The public is concerned that wilderness designation would interfere with development of existing water rights and would establish Federal reserved water rights that would conflict with future filings, transfers, or changes in points of diversion for water use. After study of the issue by the Department of the Interior Solicitor, the Secretary of the Interior asked the U.S. Attorney General's Office for concurrence with the Solicitor's opinion. On July 28, 1988, the Attorney General (Meese, 1988) concluded that no legally sufficient basis exists for an implication of Federal reserved water rights for wilderness purposes. Therefore, impacts on water rights are not considered significant issues for analysis in the EIS.

4. Land Use Plans and Policies: Issues related to land use plans and policies include: (a) consistency of wilderness designation with the plans and policies of BLM, other Federal agencies, and State and local governments; (b) impacts on the management and use of in-held private and State lands; (c) relationship of the BLM WSAs and ISAs to management of adjacent National Park Service (NPS) lands and (d) impacts on special land use designations, existing facilities, and future proposals for rights-of-way for communication facilities, power transmissions lines, pipelines etc.

Wilderness designation as proposed in the Utah BLM Statewide Wilderness Final EIS is not addressed in the current BLM land use plans. Wilderness designation is part of the BLM multiple-use concept, and the Statewide Wilderness EIS is linked to the current plans through analysis of the plans as the No Action/No Wilderness Alternative. Congressional designation of all or part of any of the WSAs would amend the applicable BLM land use plans.

The Federal Land Policy and Management Act (FLPMA) and the BLM Wilderness Study Policy (USDI, BLM, 1981) require BLM to consider and document the extent to which BLM's recommendations are consistent with the plans and policies of other agencies and governments. Wilderness designation is perceived by State and local governments as a threat to development of in-held State lands. The Utah State

INTRODUCTION TO VOLUME III-B: SOUTH-WEST WSAs

Legislature passed S.C.R. No. 1 in 1986 opposing any additional wilderness designation. The Consolidated Local Government Response to Wilderness (Utah Counties, 1986) also opposes wilderness designation of BLM lands in Utah. Designation of all or part of any WSA would not be consistent with the policies of State and local governments. The current policy of the State of Utah is to maximize economic returns and to reserve its position regarding exchange of in-held State lands (see Chapter 1 in Volume I). Given this position, BLM assumes that reasonable access would be provided to in-held State lands in response to proposals for development and use. Therefore, impacts on the development of in-held State lands are not analyzed in detail. Likewise, BLM's Wilderness Management Guidelines require that access be provided to in-held private lands, and impacts of designation on the use of private lands are not an issue for detailed analysis.

BLM recognizes that wilderness designation would not be consistent with State and local land use plans and policies. These plans and policies are described in the Description of the Affected Environment, but this conflict is not repetitively analyzed for each of the alternatives.

The affects of wilderness designation on specific proposals and existing facilities or rights in WSAs may or may not be significant issues. Refer to the Issue Identification sections found in the introductions to the individual WSA analyses for further discussion on these and other resource related issues not described above.

ANALYSIS ASSUMPTIONS AND GUIDELINES FOR ALL ALTERNATIVES

The following analysis assumptions and guidelines are applicable to the analysis of the WSA alternatives described in the Final EIS:

1. The alternatives would be carried out as cited in the Description of the Alternatives section.

2. For the No Action/No Wilderness alternatives, and the nondesignated portions of WSAs with the Partial Wilderness Alternatives, it is assumed that BLM would manage according to the current BLM land use planning document. The following general management practices would apply to all of the South-West WSAs:

BLM would establish and maintain land use management practices which assure the protection of water

supplies and aquatic habitat from chemical, physical, or biological deterioration as defined by the Environmental Protection Agency (EPA) and State water quality standards to protect the health of the public and other beneficial uses.

Private, commercial, and military aircraft use of air space over the WSA would continue as at present.

Cultural resources would be protected by provisions of the Uniform Rules and Regulations (43 Code of Federal Regulations [CFR] Part 3) to carry out the Antiquities Act, the Historic Sites Act, Executive Order 11593, the National Historic Preservation Act, and the Archaeological Resources Protection Act. Cultural resources could be excavated, stabilized, or interpreted without regard for wilderness values.

Prior to authorizing surface disturbing activities, BLM would consult with the U.S. Fish and Wildlife Service (FWS) as required under the provisions of the Endangered Species Act. Appropriate measures would be taken to protect endangered, threatened, or sensitive species.

Measures to control fire, insects, noxious weeds, or disease would be taken as required, if in conformance with land use plans and BLM guidelines.

Activities for the purpose of gathering information would be allowed by permit provided they are carried out in an environmentally sound manner.

Hunting would be allowed subject to applicable State and Federal laws and regulations.

Control of predators would be allowed without wilderness considerations and would be conducted according to State law and Animal and Plant Health Inspection Service (APHIS) guidelines. Methods of control would be determined as appropriate.

3. With the All Wilderness Alternative, and for the portions of the WSAs that would be designated as wilderness with the Partial Wilderness Alternatives, it is assumed that BLM would manage according to provisions of the BLM Wilderness Management Policy (BLM Manual 8560). The following general measures would apply to all WSAs (see Appendix 1 in Volume I):

All designated areas would be withdrawn from mineral location and closed to new mineral leasing and sale.

INTRODUCTION TO VOLUME III-B: SOUTH-WEST WSAs

Livestock grazing would continue as authorized in the BLM land use plans. New rangeland developments would be allowed on a case-by-case basis if necessary for rangeland and/or wilderness protection and effective management of these resources. Occasional use of motor vehicles, motorized equipment, or mechanical transport may be permitted where practical alternatives are not available.

New water resource facilities or watershed activities (not related to rangeland or wildlife management) would be allowed only if they would enhance wilderness values, correct conditions presenting imminent hazard to life or property, or if authorized by the President pursuant to Section 4(d)(1) of the Wilderness Act (Eighty-Eighth Congress of the U.S., 1964)

BLM would establish and maintain land use management practices which assure the protection of water supplies and aquatic habitat from chemical, physical, or biological deterioration as defined by EPA and State water quality standards to protect the health of the public and other beneficial uses. Management practices would be consistent with the BLM Wilderness Management Guidelines.

Prior to authorizing surface disturbing activities BLM would consult with the FWS as required under the provisions of the Endangered Species Act. Appropriate measures would be taken to protect endangered, threatened, or sensitive species.

Wildlife transplants or habitat developments would be allowed if compatible with wilderness values. Projects would be considered for approval on a case-by-case basis.

Designated areas would be closed to off-road vehicle (ORV) use except for users with valid existing rights if approved by BLM in accordance with 43 CFR 8560 provisions.

Specific Wilderness Management Plans would be developed that would govern the use and protection of the wilderness areas. It is assumed that a maintenance-and-use border would be allowed along roads that are adjacent to or cherry-stem the wilderness areas, for purposes of road maintenance, temporary vehicle pull-off, and trailhead parking. This border would be up to 100 feet from the edge of the road travel surface.

Private, commercial, and military aircraft use of air space over the WSA would continue, but a minimum

elevation of 2,000 feet would be encouraged by BLM and the Federal Aviation Administration (FAA).

The harvest of forest products would not be allowed in designated areas, except for the harvest of pine nuts or the noncommercial gathering of dead-and-down wood, if accomplished by other than mechanical means for use in the wilderness areas. Increased vehicular access for the harvest of forest products would not be allowed.

Cultural resources would be protected with the various antiquities and cultural resource protection acts. However, in most instances they would be subject to the forces of nature, and study and management would not normally include any excavation, stabilization, or interpretation activities. Exceptions would be allowed on a case-by-case basis after special approval of the BLM State Director.

Visual resources would be managed in accordance with Visual Resource Management (VRM) Class I standards which generally allow for only natural ecological change.

Measures to control fire, insects, noxious weeds, or disease would be taken in designated areas in instances that threaten human life, property, or high-value resources on adjacent nonwilderness lands, or where unacceptable change to the wilderness resource would result if the measures were not taken. Measures taken would be those having the least adverse impact to wilderness values (i.e., those that least alter the landscape or disturb the land surface). Therefore, it is assumed that firefighting would be limited to hand and aerial techniques.

Any activity for the purpose of gathering information about natural resources would be allowed by permit provided it is carried out in a manner compatible with the preservation of the wilderness resource. Research and other studies would be conducted without the use of motorized equipment or construction of temporary or permanent structures unless no other feasible alternatives exist.

Hunting would be allowed subject to applicable State and Federal laws and regulations, but would be limited to nonmotorized access.

Where control of predators is necessary to protect endangered or threatened wildlife species, or on a case-by-case basis to prevent special and serious losses of domestic livestock, it would be accomplished by methods directed at eliminating the offending individuals

INTRODUCTION TO VOLUME III-B: SOUTH-WEST WSAs

while at the same time presenting the least possible hazard to other animals or to wilderness visitors. Poison baits or cyanide guns (M-44s) would not be allowed. Approval of a predator control program would be contingent upon a clear showing that removal of the offending predators would not diminish the wilderness values of the areas.

4. Future users in WSAs would meet requirements for all applicable Federal, State, and local permits. Stipulations, mitigating measures, and reclamation procedures would be carried out in compliance with Federal, State, and local laws and regulations.

5. Designation of an area as wilderness would not result in impacts due to direct disturbance of resources. Any direct disturbance of resources with wilderness designation would result from use of prior rights that must be recognized by BLM. Such disturbance could occur with or without wilderness designation.

6. The impacts of wilderness designation would result from: (a) protection of certain resources; (b) denial of opportunity to develop certain resources; or (c) restrictions on/or changes in allowable management practices and land uses.

7. The short term is defined as that time from the present to the year 2020. The long term is defined as beyond the year 2020. The term foreseeable future refers to both the short and long terms in reference to activities that are likely to occur in the WSA.

Although the degree of future development cannot be predicted accurately, Assumed Action Scenarios are presented for analysis purposes in the description of the alternatives. Based on known plans and proposals, known estimated resource values, and projections of future economic conditions, the assumed action scenarios describe activities likely to occur in the WSAs over the foreseeable future, if the alternative is implemented.

8. Development potential in many of the WSAs has been divided into short-term and long-term projections. Even within the short term the quality of data varies. From the present time to about the year 2005, there are relatively good data with which to make development projections. From the year 2005 to the year 2020, little data exists and development expectations are more speculative. Surface disturbance figures, and subsequent environmental impact

analysis in the Final EIS, are based on activities projected in the foreseeable future.

9. Mineral evaluations and estimates of in-place mineral resources are based on a mineral resource evaluation of the WSAs by the Science Applications Inc. (SAI), the United States Geological Survey (USGS), and the United States Bureau of Mines (USBM) Mineral Survey Reports, where available, and subsequent evaluations conducted by BLM personnel. These estimates are generally based on literature studies and known mineral and energy activities in the vicinity of the WSA. The analysis estimates the potentially recoverable mineral resources and then, using BLM's field experience and judgment, determines the probability of short-term and long-term development. Appendix 6 in Volume I explains the mineral exploration and development projections. Appendix 10 in Volume I explains the method used for estimating surface disturbance from projected activities in the WSA.

10. It is assumed that, once designated, the management of WSAs as wilderness would continue over the long term.

11. The environmental consequences of alternatives analyze only the significant issues identified in the Introduction to the WSA analyses.

Volume III
Part B
South-West
Region

Wahweap WSA

Burning Hills WSA

Death Ridge WSA

Phipps-Death Hollow ISA Complex

Steep Creek WSA

North Escalante Canyons/The Gulch ISA Complex

Carcass Canyon WSA

Scorpion WSA

Escalante Canyons Tract 5 ISA Complex

Fifty Mile Mountain WSA

Red Butte WSA

Spring Creek Canyon WSA

The Watchman WSA

Taylor Creek Canyon WSA

Goose Creek Canyon WSA

Beartrap Canyon WSA

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- Changes for the Final EIS
- How to Access Material Through Scoping and Public Comment



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WAHWEAP WSA

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WAHWEAP WSA

(UT-040-248)

INTRODUCTION

General Description of the Area

The Wahweap WSA is located on the Kaiparowits Plateau 2 miles north of Big Water City, Kane County, Utah. It extends on the south almost to Highway 89 and is bounded by Cottonwood Canyon on the west, the road from Grosvenor Arch to Horse Mountain on the north, and the Smoky Mountain-Head of the Creeks roads on the east.

There are 134,400 acres of public land and 10,361 acres of State land enclosed within the WSA. The WSA is administered by the BLM Cedar City District Kanab Resource Area office.

The WSA is characterized by a tilted topography with south-facing escarpments and gently northward-sloping benches. Over 70 percent (98,112 acres) of the WSA is covered by pinyon-juniper woodland; the remainder of the area is covered by desert shrub.

Annual precipitation in the Wahweap WSA is variable due to the large size of the unit and variations in altitude. The overall annual average is 12 inches. Highest monthly precipitation occurs from July through December, during which time two-thirds of the yearly total falls. Intensive thunderstorms are common during the summer months.

Temperatures vary greatly with aspect and altitude. July and January are the warmest and coldest months, respectively. July temperatures range from 50 degrees to over 100 degrees Fahrenheit (F), while the January range is from below 0 degrees to 60 degrees F.

Changes for the Final EIS

In addition to the changes noted in the Introduction to Volume III-B, the following changes specific to the Wahweap WSA have been made since publication of the Draft EIS.

1. Small portions of the boundary of the WSA (T. 40 S., R. 1 E., secs. 4, 5, 6, and 29; T. 40 S., R. 3 E., secs. 29, and 33; and T. 41 S., R. 2 E., secs. 8, 21, and 22) have been redrawn to correct minor errors in the Draft EIS maps. These changes did not require acreage adjustments because acreage calculations

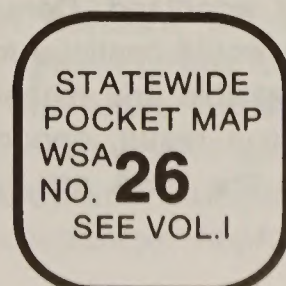
were based on the boundaries as shown in the inventory document and Final EIS.

2. The BLM proposed action in the Draft EIS was the Partial Wilderness Alternative. The BLM proposed action for the Final EIS is the No Action/No Wilderness Alternative (0 acres). Refer to Appendix 11 in Volume I for a summary of the rationale for the proposed action.

3. The anticipated surface disturbance presented in the Draft EIS (45,230 acres) was based on the assumption that all mineral and other resources potentially within the WSA would be developed sometime in the future without consideration of technical or economic feasibility. In response to public comments relative to the feasibility of developments, the disturbance estimates have been revised to focus on activities projected to be feasible within the foreseeable future (see Appendix 6 in Volume I). This resulted in a reduction of surface disturbance estimates from the 45,230 acres reported in the Draft EIS to 7,191 acres of surface disturbance for the Final EIS.

4. As part of the 45,230 acres of disturbance, the Draft EIS identified 43,100 acres of vegetation treatments (chaining, burning, spraying, and seeding) within the WSA to improve wildlife habitat, increase livestock forage production, and improve watershed. However, BLM does not anticipate sufficient funding in the foreseeable future to complete these projects. As a result, the land treatment estimates have been revised downward to 7,100 acres in the Final EIS to reflect more realistic funding projections. Estimates of potential increases in wildlife populations and livestock forage have been revised accordingly. Treatment would not occur in the old pinyon-juniper woodland area on Four Mile Bench.

5. The Final EIS projects approximately 20 acres of surface disturbance resulting from the construction of several rangeland projects including 4 miles of fence, 4 reservoirs, 6 miles of pipelines, three spring developments, three catchments and 3 miles of trails. This was not analyzed in the Draft EIS.



WAHWEAP WSA

Specific Issues Identified Through Scoping and Public Comment

• Issues Considered But Not Analyzed in Detail

In addition to the issues discussed and eliminated from further consideration in the Introduction to Volume III-B (i.e., impacts on air quality, geology and topography, water rights, and land use plans and policies), the following issues or impacts specific to the Wahweap WSA were considered but are not analyzed in detail in the Final EIS for the reasons described below.

1. Soils: Soil disturbance estimates have been revised downward from 45,230 acres analyzed in the Draft EIS to 7,191 acres in the Final EIS. About 7,100 acres of the projected disturbance would result from vegetation treatments which would be reclaimed and existing soil conditions would be improved over the long term. Further, this disturbance would take place in those portions of the WSA where reclamation potential is the highest. Given this new scenario, the impacts of direct disturbance of soil would affect only about 5.3 percent (7,191 acres) of the WSA. Therefore, impacts on soils are not significant issues for analysis in the Final EIS.

2. Water Resources: There are no perennial streams in the Wahweap WSA. Four creeks have intermittent water and often flow following summer thunderstorms. About 23 undeveloped springs and 13 live-stock reservoirs are located in the WSA. Existing water developments could be maintained as in the past and would not be affected. Precipitation is low and all streams are ephemeral within the WSA; therefore, no significant sedimentation or change in total dissolved solids (TDS) is expected to occur. The proposed vegetation treatments of 7,100 acres could cause a temporary (2 to 3 year) increase in TDS. However, after the new seedlings are established, water quality would improve. Therefore, impacts on water resources, uses, and quality would not be significant for any alternative and are not discussed in detail in the Final EIS.

3. Forest Resources: The forest resources in the WSA consist of approximately 98,112 acres of scattered pinyon-juniper woodland. Demand for forest resources in the WSA would continue to be very low due mainly to more accessible and higher quality areas located elsewhere. As a result, opportunities for forest resource harvest in the WSA are limited. Therefore,

impacts on forest resources are not significant issues for analysis in the Final EIS.

4. Visual Resources: As already discussed, estimates of surface disturbance have been substantially reduced for the Final EIS. The 7,191 acres of surface disturbance projected to occur in the foreseeable future would directly affect only about 5.3 percent of the WSA. Disturbance would occur in Scenic Class B and C areas and in VRM Class IV areas. Impacts on visual resources are considered in the Final EIS as part of the discussion of naturalness and special features in the Wilderness Values section.

5. Cultural Resources: Approximately 65 archaeological or historical sites are known to occur in the WSA. Surface-disturbing activities could potentially disturb or destroy sites not now known to occur in the WSA. Inventories for the purpose of site recordation and mitigations of impacts would take place prior to any surface disturbance. Given these conditions, impacts on cultural resources are not significant issues for the Wahweap WSA.

6. Recreation: Recreational use of the Wahweap WSA is light, probably less than 100 visitor-use days per year. About 25 percent of this use is motorized use by hunters and sightseers. This use is generally restricted to the 40 miles of ways and dry streambeds in canyon bottoms in the WSA. BLM believes recreational changes resulting from designation or nondesignation would not be significant due to the limited use now occurring and projected to occur in the future in the WSA.

7. Kaiparowits Coal Transportation and Other Corridors: Potential coal transportation and railroad corridors pass through the WSA (ERT, 1980). The Union Pacific Railroad has also identified a specific route paralleling the Cockscomb that could be used for the transportation of Kaiparowits coal if development in the area were to occur. Over 13 million tons of Kaiparowits coal would need to be mined annually to make this a feasible route.

Commentors on the Draft EIS expressed concern that designated wilderness areas, including the Wahweap WSA, could block the use of these corridors. If wilderness designation were to occur, development of the coal transportation systems would not be allowed within the WSA. However the transportation corridors described in the ERT study extend beyond the WSA boundary; therefore, coal transportation systems could be sited outside the WSA and still be

WAHWEAP WSA

within the designated corridors. The Union Pacific route could be rerouted outside of the WSA. The Kaiparowits Coal Transportation Study directs that natural topographic features, such as The Cockscomb, be avoided. Therefore, impacts related to potential coal transportation systems are not analyzed in detail for the Wahweap WSA. Potential impacts resulting from coal development are discussed in the Final EIS but the reader is referred to the ERT study for an analysis of the transportation corridors.

- Issues Analyzed in Detail

The significant issues for the Wahweap WSA are:

1. Impacts of wilderness designation or nondesignation on the wilderness values of naturalness, opportunities for solitude and primitive recreation, and special features.
2. Impacts on vegetation including special status species.
3. Impacts on leasable mineral exploration and production.
4. Impacts on wildlife habitat and populations including status species.
5. Impacts on livestock management.
6. Impacts on local economic conditions.

Comments made during the public comment period for the Draft EIS centered mainly on the need for, and adequacy of, the rationale for the BLM proposed action; the need for further inventories of resource values; and BLM's assessments of wilderness values, visual resources, and mineral values.

See Volume VII-B for responses to general comments applicable to all WSAs and/or the Statewide analysis and Volume VII-C, Section 26, for responses to specific comments about the Wahweap WSA.

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated from Detailed Study

An alternative that would add 16,840 acres of Federal and State lands on the northern, southwestern, and southeastern portions of the WSA was suggested in the public comments. This alternative is not ana-

lyzed because the inclusion of State lands is not consistent with BLM's wilderness review guidelines (refer to Volume VII-B, General Comment Response 6.4) and because the Federal lands were dropped from study during the inventory phase (refer to Volume VII-B, General Comment Response 3.1). Other citizen-proposed alternatives are comparable to the All Wilderness Alternative of 134,400 acres.

Alternatives Analyzed

Three alternatives are analyzed for this WSA: (1) No Action/No Wilderness (Proposed Action); (2) All Wilderness (134,400 acres); and (3) Partial Wilderness (70,380 acres). A description of BLM's management practices for each alternative follows. Where management intentions have not been clearly identified, assumptions are made based on projections with each alternative. These assumptions are indicated in each case. The assumed management actions presented in the Introduction to Volume III-B are also applicable.

- No Action/No Wilderness Alternative (Proposed Action)

With this alternative, none of the 134,400-acre Wahweap WSA would be designated by Congress as part of the NWPS. Although BLM's land use plans are regularly updated, it is assumed that the area would continue to be managed in accordance with the Paria Planning Unit Management Framework Plan (MFP) (USDI, BLM, 1981c) and other BLM planning documents. The 10,361 acres of State land within the WSA (refer to Map 1 and Appendix 3 in Volume I) have not been identified for special Federal acquisition through exchange or purchase. No private or split-estate lands are located within the WSA. The figures and acreages given are for Federal lands only.

- Management Conditions and Constraints

All 134,400 acres would remain open to mineral location, leasing with standard and special stipulations, and sale. Development work, extraction, and patenting would be allowed on 32 existing mining claims (about 640 acres) and future mining claims. Development would be regulated by unnecessary or undue degradation regulations (43 CFR 3809) without concern for wilderness values. Four existing post-FLPMA oil and gas leases (1,225 acres) and future leases could be developed with leasing Category 1 (standard stipulations) on 127,220 acres and Category 3 on 6,480 acres (no surface occupancy). Approximately 700 acres

WAHWEAP WSA

would be managed as Category 4 (closed to leasing). Although mineral resources would be managed as described above, no locatable mineral or oil and gas exploration or development is projected in the WSA in the foreseeable future because the level of known resources and the probability of their development are too low to support that assumption. Appendix 6 in Volume I explains the mineral exploration and development projections. Coal leasing and development, including 12 existing leases (17,628 acres), could occur without regard for wilderness values. Because of the substantial coal resource known to occur in the WSA, development of the resource is projected in the long-term future. Mining would be by underground methods.

The present level of domestic livestock grazing use of the 134,400-acre WSA would continue as authorized in the Paria MFP (an estimated 3,084 Animal Unit Months [AUMs]). Use of existing rangeland developments (approximately 18 miles of fence, 13 reservoirs, a 0.2 mile of pipeline, a 30-foot ring tank, and a 66,000-gallon storage tank) would continue as in the past. New rangeland developments could be implemented without wilderness considerations. Proposed developments include 4 miles of fence, four reservoirs, 6 miles of pipeline with troughs, three spring developments, three water catchments, and 3 miles of trail. The 7,100 acres of vegetation treatment projected for the WSA would result in an estimated additional 1,160 AUMs annually. The vegetation treatment would not occur in an old pinyon-juniper woodland area on Four Mile Bench. The approximately 40 miles of way would remain open for livestock management purposes.

Developments for wildlife, watershed, and water resources would be allowed without concern for wilderness values if in conformance with the Paria MFP. The 7,100 acres of vegetation treatments discussed above would improve wildlife habitat and watershed. The livestock developments listed above would also benefit wildlife.

Approximately 122,700 acres, including about 40 miles of way in 25 separate locations, would be open to ORV use. ORV use would be limited to existing roads and trails on 8,400 acres along Wahweap Creek, Four Mile Creek, Tommy Canyon, and Nipple Creek. An additional 3,300 acres would be closed to vehicle use from March 1 to July 1 of each year near the lower reaches of Wahweap Creek to protect wildlife values.

The entire 134,400-acre area would continue to be open to woodland product harvest. There is a minimal harvest of forest products at the present time, and no increase is projected due to remoteness and lack of demand.

The WSA would continue to be managed under VRM Class II on 6,000 acres, Class III on 4,300 acres, and Class IV on 124,100 acres.

- Action Scenario

It is projected that implementation of the No Action/No Wilderness Alternative would result in approximately 7,191 acres of surface disturbance in the foreseeable future. In the short term, about 7,100 acres of anticipated disturbance would result from vegetation treatments designed to improve livestock forage, wildlife habitat, and watershed. The treatments would include pinyon-juniper woodland chaining and seeding, sagebrush spraying and seeding, and tillage and seeding. The planned treatment areas are scattered through the WSA. The treatments would be maintained over the foreseeable future. Other planned rangeland projects would disturb approximately 20 acres and include 4 miles of fence, 4 reservoirs, 6 miles of pipelines with troughs, 3 spring developments, 3 water catchments and 3 miles of trail. An additional 7 acres would be disturbed due to the construction of about 13 water catchments for wildlife. At least 4 months of on-the-ground work would be necessary to complete these projects which would be maintained over the long term. It is recognized, however, that installation of these projects would take place over a several year period. About 24 acres of surface disturbance would result from the construction of 12 miles of access roads to in-held State lands for the purpose of mineral exploration.

No other rangeland, wildlife habitat, watershed projects, or other developments are projected. No leasable or locatable mineral resource exploration or development is projected in the short term.

In the long term, it is projected that coal in the northeastern portion of the WSA would be eventually developed. Development would be by the underground methods and access would be from the east where the thickest coal seams are found and where the coal is nearest the surface and could be more easily accessed. The size of individual coal operations, typical of the intermountain area,

R 1 W

R 1 E

WAHWEAP WSA

R 2 E

T. 39 S.

T. 40 S.

T. 41 S.


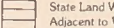
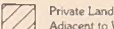
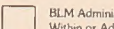
T. 42 S.

Map 1

LAND STATUS

Wahweap WSA
UT-040-248

Legend

-  WSA Boundary
-  State Land Within or Adjacent to WSA
-  Private Land within or Adjacent to WSA
-  BLM Administered Land Within or Adjacent to WSA



SCALE IN MILES

SCALE IN KILOMETERS

ELEVATION EXPRESSED IN METERS

WAHWEAP WSA

differ. Each surface facility site, including up to 5 miles of access roads, would occupy up to 20 acres. Additional surface disturbance would result from exploratory drilling activities. Employees, including supervisory personnel, would number from 20 to 300. Operations would last from 30 to 40 years. All disturbed areas would be reclaimed upon abandonment. Up to 2 separate operations are projected for the WSA which would disturb a total of 40 acres.

No disturbance from ORV use is projected because visitation is low and the area is remote. Recreational use is expected to increase over the current estimated use of 100 visitor days per year at a rate of 2 to 7 percent annually. As much as 25 percent of this use would continue to be motorized recreation, generally on 40 miles of existing ways or in washes.

- All Wilderness Alternative

With the All Wilderness Alternative, all 134,400 acres of the Wahweap WSA would be designated by an act of Congress as part of the NWPS (refer to Map 2). It would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) to preserve its wilderness character.

The policy of the State of Utah is to reserve its position regarding the exchange of in-held lands within any particular WSA (see Chapter 1 in Volume I). Based on this policy regarding the exchange of State lands, it is assumed that the State lands in the WSA would remain under existing ownership. There are 16 State sections (10,361 acres) within the WSA (refer to Map 1 and Appendix 3 in Volume I). The figures and acreages given with this alternative are for Federal lands only.

- Management Conditions and Constraints

After wilderness designation, all 134,400 acres would be withdrawn from mineral location and closed to new mineral leasing and sale. Development work, extraction, and patenting would be allowed to continue on that portion of the approximately 640 acres of 32 existing mining claims and on any future claims located prior to wilderness designation that may be determined valid. Development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809) with concern for wilderness values. BLM does not

project location or development of mining claims with this alternative.

The four existing post-FLPMA oil and gas leases (1,225 acres) would not be reissued upon expiration unless a find of oil or gas resources in commercial quantities is shown. New oil and gas leases would not be issued. The probability of oil and gas development is considered to be low and no exploration or development is projected.

Present domestic livestock grazing would be allowed to continue as authorized in the Paria MFP. The estimated 3,084 AUMs in the WSA would remain available to livestock as presently allotted. After designation, existing rangeland developments as listed in the No Action/No Wilderness Alternative could be maintained in a manner as in the past based on practical necessity and reasonableness. New rangeland developments (4 miles of fence, 6 miles of pipeline with troughs, three spring developments, three water catchments, and 3 miles of trail) would be allowed on a case-by-case basis if necessary for resource protection (rangeland and/or wilderness) and management, provided that wilderness protection standards are met (refer to Appendix 1 in Volume I). The proposed four reservoirs and 7,100 acres of vegetation treatment would not be allowed.

The proposed 13 wildlife watering catchments would be allowed subject to wilderness protection standards.

The entire 134,400-acre area would be closed to ORV use except for: (1) users with valid existing rights if approved by BLM in accordance with 43 CFR 8560 provisions; or (2) for occasional and short-term vehicular access approved by BLM for maintenance of approved livestock and wildlife developments. About 40 miles of existing vehicular ways would not be available for vehicular use except as indicated above. Approximately 25 miles of cherry-stemmed roads would remain open to vehicular use. About 45 miles of the WSA boundary follow existing gravel and dirt roads that would remain open to vehicular travel.

- Action Scenario

A total of 46 acres of surface disturbance would occur in the WSA in the foreseeable future following wilderness designation. About 16 acres of disturbance would result from the construction of

WAHWEAP WSA

rangeland projects, including the fence, pipeline with troughs, spring developments, and catchments and trails, as described in the No Action/No Wilderness Alternative. Six acres would be disturbed from construction of watering facilities for wildlife. These projects would be designed and installed consistent with wilderness protection standards. The vegetation treatments and reservoirs would not be allowed. No additional rangeland, wildlife habitat, watershed projects, or other developments are planned following wilderness designation. About 24 acres of surface disturbance would result from the construction of 12 miles of access road to in-held State lands for the purpose of mineral exploration.

No mineral resource exploration or development is projected for existing leases or mining claims in the WSA. Implementation of the All Wilderness Alternative would preclude new mineral location and mineral leasing. Therefore, no exploration or development of locatable or leasable mineral resources, including coal, is anticipated following wilderness designation.

No disturbance from ORV use is projected because of wilderness management restrictions and the remoteness of the area. Primitive recreational use is expected to increase over the current estimated primitive use of 75 visitor days per year at a rate of 2 to 7 percent annually. Use of vehicles would not be allowed following designation.

- Partial Wilderness Alternative

With this alternative, 70,380 acres of the Wahweap WSA would be designated as wilderness (refer to Map 3). The objective of this alternative is to analyze as wilderness that part of the WSA with the highest wilderness values, as well as to minimize conflict with areas of greatest mineral (coal) development potential and avoid part of the conflict with proposed vegetation treatment areas. The Partial Wilderness Alternative essentially includes Wahweap Creek and the area west. However, it also includes the major canyons that drain into Wahweap Creek from the east, including Ty Hatch, Smith Run, Tommy Canyon, Long Flat Canyon, Four Mile Canyon, and Tommy Smith Creeks. It also includes the majority of the Cockscomb Formation near the western boundary.

The 64,020 acres within the northern and northeastern part of the WSA, but outside of that designated as wilderness, would be managed in accordance with the

Paria MFP as described for the No Action/No Wilderness Alternative. The 70,380-acre area designated as wilderness would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) as described in the All Wilderness Alternative.

The policy of the State is to reserve its position regarding the exchange of in-held lands within any particular WSA (see Chapter 1 in Volume I). Based on this policy regarding the exchange of State lands and provisions of BLM Wilderness Management Guidelines, it is assumed that State and private lands would remain under existing ownership. There are eight State sections (5,191.6 acres) in the portion of the WSA that would be designated wilderness (refer to Map 1 and Appendix 3 in Volume I). The figures and acreages given for this alternative are for Federal lands only.

- Management Conditions and Constraints

The 70,380-acre wilderness would be withdrawn from mineral entry and closed to new mineral leasing and sale. Development work, extraction, and patenting would be allowed to continue on 24 existing mining claims (480 acres) and any future claims located prior to wilderness designation, provided they are valid. Development would be regulated by unnecessary and undue degradation guidelines (43 CFR 3809) with consideration given to wilderness values. An existing post-FLPMA oil and gas lease covering 40 acres would not be reissued upon expiration unless a find of oil or gas in commercial quantities is shown. BLM does not project location or development of mining claims in the designated area of the WSA. No leasable minerals, including coal, would be developed.

The 64,020-acre area within the WSA not designated wilderness would be open to future mineral location, leasing, and sale. Mining would be allowed on the eight existing claims and future claims if valid. Development of such claims would be regulated by unnecessary or undue degradation criteria (43 CFR 3809) without wilderness consideration. Three existing post-FLPMA oil and gas leases (1,185 acres) and future leases would be managed as leasing Category 1 (standard stipulations) on 62,670 acres and Category 3 (no surface occupancy) on 1,350 acres. Although mineral resources would be managed as described above, no locatable or oil and gas exploration or development is projected in the nondesignated portion of the WSA in the foreseeable future because the level of known resources and the probability of

R 1 W

R 1 E

WAHWEAP WSA

R 2 E

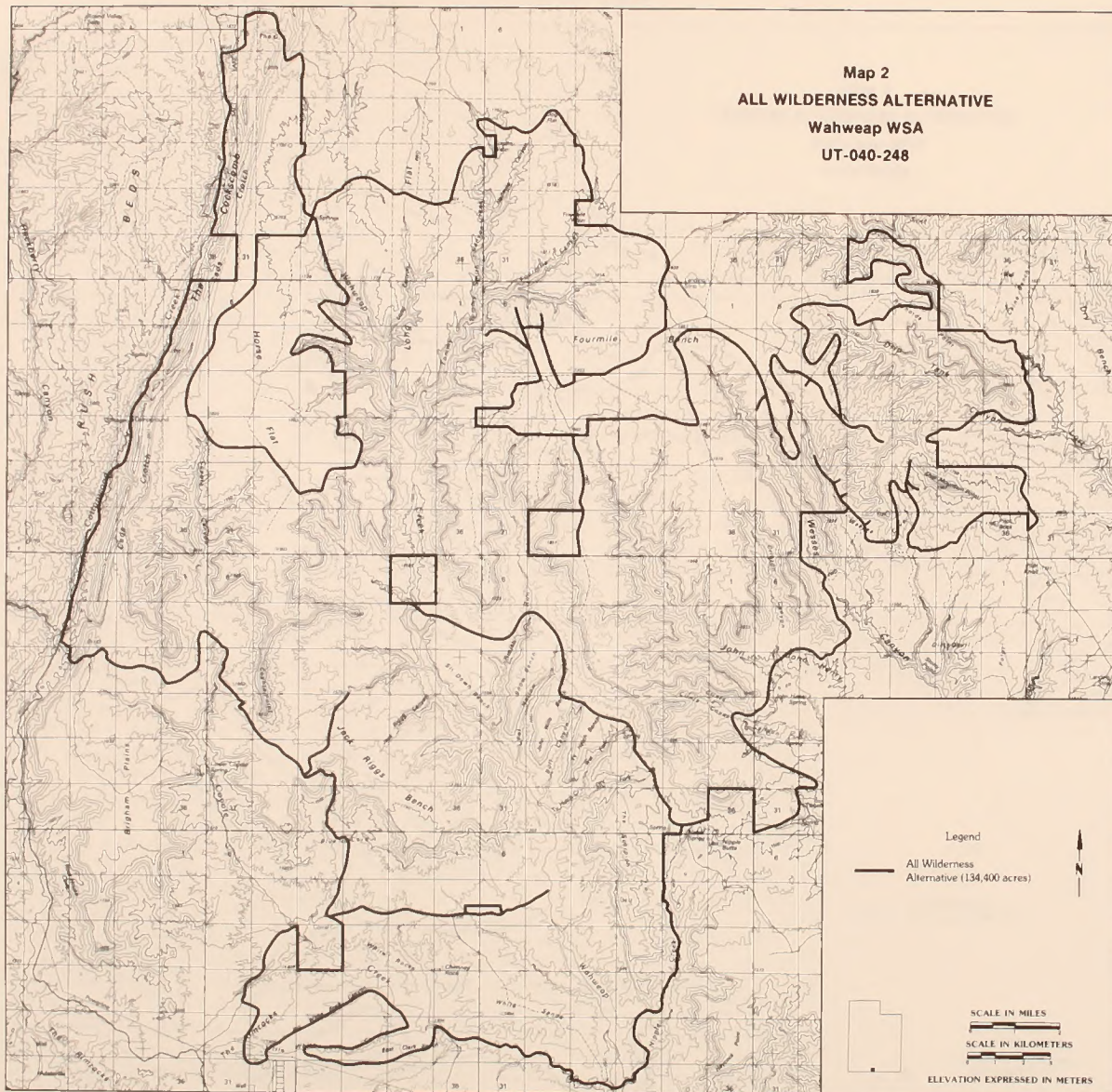
T. 39 S.

T. 40 S.

T. 41 S.

T. 42 S.

Map 2
ALL WILDERNESS ALTERNATIVE
Wahweap WSA
UT-040-248



WAHWEAP WSA
R 2 E

R 1 W

R 1 E

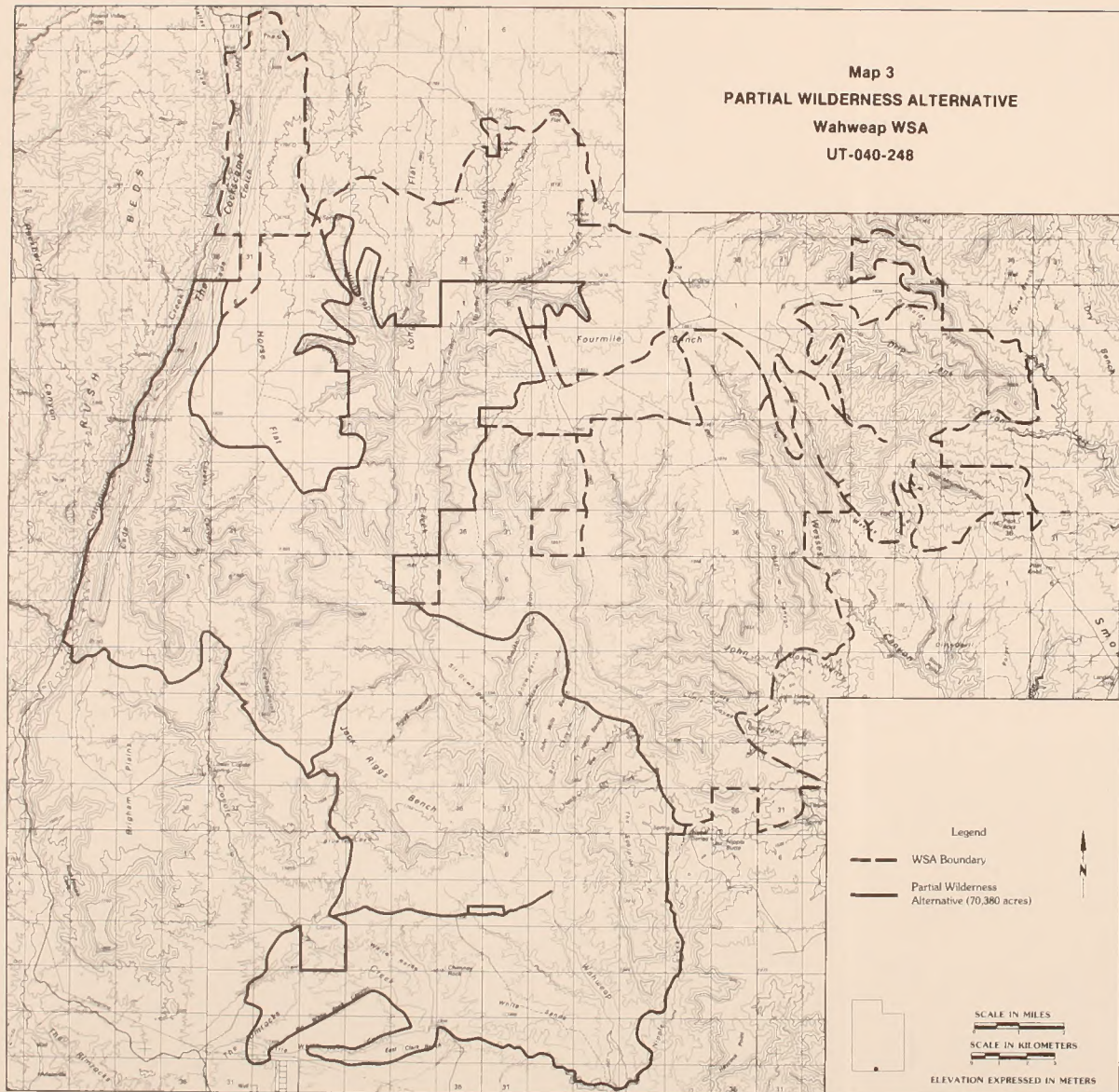
T 39 S

T 40 S

T 41 S

T 42 S

Map 3
PARTIAL WILDERNESS ALTERNATIVE
Wahweap WSA
UT-040-248



WAHWEAP WSA

their development are too low to support that assumption.

Appendix 6 in Volume I explains the mineral exploration and development projections. Because of the substantial coal resource known to occur in the WSA, development of that resource is projected in the long-term future. Mining would be by underground methods.

Domestic livestock grazing would continue to occur in the 70,380-acre wilderness area. The estimated 1,574 AUMs in the area would remain available to livestock as presently allotted. New rangeland development (5 miles of pipeline, 4 miles of fence, two spring developments, and three catchments) could be allowed in the wilderness area if necessary for protection and management of the rangeland and/or wilderness resource, provided that wilderness protection standards are met. About 4,100 acres of vegetation treatments for livestock, wildlife, and watershed would not be allowed. In the 64,020-acre nonwilderness area, grazing use of an estimated 1,510 AUMs would continue and new rangeland developments (1 mile of pipeline, 4 reservoirs, 1 spring development, 3 miles of trail, and 3,000 acres of vegetation treatments) could be allowed without concern for wilderness values.

In the 70,380-acre wilderness, proposed wildlife watering facilities would be allowed subject to wilderness protection standards. In the nondesignated area, wildlife watering facilities (for a total of 13 acres proposed for the entire WSA) would be allowed without concern for wilderness values.

The canyons and benches that would comprise the 70,380-acre wilderness would be closed to ORV use. About 10 miles of existing ways in the wilderness area would not be available for vehicular use except in situations described under the All Wilderness Alternative. Three existing roads (totaling 8 miles) would be cherry-stemmed into the wilderness area. The 64,020-acre nondesignated portion would remain open to vehicular travel.

Visual resources on the 70,380-acre wilderness area would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change. The remaining 64,020 acres would be managed as Class II on 4,600

acres, Class III on 3,500 acres, and Class IV on 55,920 acres.

• Action Scenario

A total of 3,089 acres of surface disturbance is projected in the WSA in the foreseeable future with this alternative. Approximately 32 acres of surface disturbance would occur in the designated portion of the WSA. Ten acres would be disturbed as a result of the construction of rangeland projects, including 5 miles of pipeline with troughs, 4 miles of fence, 2 spring developments, and 3 catchments. An additional 2 acres would be disturbed due to the construction of watering facilities for wildlife. These developments would be designed and installed consistent with wilderness protection standards. Vegetation treatments would not be allowed. Twenty acres would be disturbed as a result of 10 miles of access road construction to in-held State lands. No exploration or development is projected on existing leases or mining claims on Federal lands in the designated portion. No mineral leasing or mineral location would be allowed following wilderness designation. Therefore, no exploration or development of mineral resources, including coal, is anticipated in the designated portion of the WSA.

It is projected that approximately 3,017 acres of surface disturbance would occur in the 64,020-acre nondesignated portion of the WSA in the short term. About 3,000 acres of vegetation treatments would be allowed as described in the No Action/No Wilderness Alternative. Eight acres would be disturbed due to construction of rangeland projects including 1 mile of pipeline, four reservoirs, 1 spring development and 3 miles of trail. Five acres would be disturbed as a result of the construction of wildlife watering facilities.

No surface disturbance is projected from mineral resource exploration or development in the short term. However, the entire nondesignated portion of the WSA would be open to mineral location. The nondesignated portion would be open to mineral leasing with standard stipulations on 62,670 acres and open but with no surface occupancy on 1,350 acres.

Access to State lands would also occur as a result of exploration and development of the mineral resources located on the nondesignated lands. About

WAHWEAP WSA

4 acres would be disturbed for access road construction.

It is expected that the coal resource in this portion of the WSA would be explored and developed in the long term and would disturb 40 acres as discussed in the No Action/No Wilderness Alternative.

No disturbance from ORV use is projected because of wilderness restrictions and remoteness of the area. Recreational use is expected to increase over the current estimated use of 100 visitor days per year at a rate of 2 to 7 percent annually. Projected motorized recreational use would continue to be about 25 percent of the total use, and would run largely on the 30 miles of ways, as well as washes and future roads in the nondesignated area.

Summary of Environmental Consequences

Table 1 presents the environmental consequences of the alternatives analyzed in detail.

AFFECTED ENVIRONMENT

This section describes the overall environmental setting. This information allows for independent assessment by the public as required by the CEQ guidelines and provides a data base for the cumulative State-wide analysis found in Volume I, as well as the Environmental Consequences of Alternatives in this WSA analysis.

Unless otherwise indicated, information for this section was taken from BLM staff specialists, technical reports, and file documents.

Wilderness Values

- Size

The WSA contains 134,400 acres and is approximately 20 miles long (north to south) and 15 miles wide (east to west).

- Naturalness

Imprints of man that remain in the WSA include coal exploration ways on and below Reynolds Point, Four Mile Bench, and John Henry Bench (approximately 40 miles of way exist in the WSA); short fences in Wahweap and Tommy Smith Creeks; impoundments on

Jack Riggs Bench and near Chimney Rock; and ways and fences in Coyote Creek. These imprints combined involve less than 1 percent (46 acres) of the WSA.

Since establishment of the WSA, approximately 1 acre of the WSA has been disturbed. This disturbance is the result of (1) construction of a 500-foot live-stock gap fence in T. 41 S., R. 1 E., sec. 10, during 1984. The construction was completed by nonmechanical means (using horses) and was nonimpairing; (2) redevelopment of a spring in T. 41 S., R. 1 E., sec. 26 during 1984. The maintenance was completed by nonmechanical means and was nonimpairing, and (3) an unauthorized alabaster mining operation conducted in the NE1/4 sec. 13, T. 39 S., R. 1 W. during 1985. Required reclamation was completed during 1988. Success of the reclamation will result in nonimpairment and the entire WSA will meet the Wilderness Act criteria for naturalness.

- Solitude

Outstanding opportunities for solitude in the Wahweap WSA result from the combination of topographic and vegetation screening, configuration, and size.

The WSA is 134,400 acres and is compact in configuration, being approximately 20 miles long north to south and 15 miles wide in an east to west direction. Size and configuration of the unit would normally enhance the opportunities for solitude, however, numerous cherry-stemmed intrusions create fingers that penetrate into the unit and detract from the overall solitude experience.

Topographic characteristics that contribute to screening are upper reaches of drainages such as Wahweap and Coyote Creeks, John Henry Canyon, Drip Tank Canyon, and Wesses Canyon. These canyons form dendritic patterns in the WSA. The lower benches, canyons, and sandstone formations (Dakota Sandstone) in the southern portion of the WSA have produced sheer-walled canyons, hoodoos, and balanced rocks, all of which provide topographic screening. Large coves have also eroded into a maze of narrow canyons in this area.

Vegetation complements topography in providing opportunities for solitude in the WSA. The pinyon-juniper woodland type covers approximately 73 percent (98,112 acres) of the WSA and has a sparse understory of shrubs.

WAHWEAP WSA

Table 1
Summary of Environmental Consequences

| Resource | Alternatives | | |
|------------------------------|---|--|---|
| | No Action/No Wilderness (Proposed Action) | All Wilderness (134,400 Acres) | Partial Wilderness (70,380 Acres) |
| Impacts on Wilderness Values | <p>Wilderness values would not be protected by wilderness designation, and loss would occur as intrusions increase. In the short term, naturalness and opportunities for solitude and primitive recreation would be directly lost on 7,191 acres of the WSA because of vegetation treatments, rangeland projects, wildlife water projects, and development of access roads to State in-holdings and indirectly reduced in quality on up to an additional 33,600 acres. Special features would not be significantly affected. Vehicular use of 40 miles of existing ways and future roads would occasionally detract from opportunities for solitude and primitive recreation in the WSA. In the long term, coal development would directly eliminate wilderness values on 40 acres of the WSA, and would indirectly reduce wilderness values on up to 13,440 acres.</p> | <p>Wilderness designation would preserve overall the wilderness values in the WSA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 46 acres of the WSA because of rangeland projects, wildlife water projects, and development of access roads to State in-holdings. Special features, including Class A scenery and other scenic features, geologic features, special status species, wildlife associated with wilderness and special vegetation areas would be preserved overall.</p> | <p>Wilderness values would be preserved overall in the designated portion which is approximately 52 percent of the WSA. In the short term, naturalness and opportunities for solitude and primitive recreation would be directly lost on 3,049 acres because of vegetation treatments, rangeland projects, wildlife water projects, and development of access roads to State in-holdings, and would be indirectly reduced in quality on up to 16,128 acres. Most of the impact would be in the non-designated area. Special features would be preserved overall in the designated area. Although 25 percent of the scenic values and the old pinon-juniper woodland stand on Four Mile Bench would be in the nondesignated area, these values would most likely not be disturbed. Use of 30 miles of vehicular ways in the nondesignated portion would detract from opportunities for solitude and primitive recreation in the WSA. Coal development over the long term would directly disturb 40 acres of the WSA, and an indirect reduction in the quality of wilderness values would occur on up to 13,440 acres of the WSA.</p> |

WAHWEAP WSA

Table 1 (Continued)
Summary of Environmental Consequences

| Resource | Alternatives | | |
|---|--|---|---|
| | No Action/No Wilderness (Proposed Action) | All Wilderness (134,400 Acres) | Partial Wilderness (70,380 Acres) |
| Impacts on Vegetation | Special status plant species would not be significantly affected. The 7,191 acres of projected surface disturbance would alter only about 7.3 percent of the pinyon-juniper woodland in the WSA; therefore, there would not be significant changes in the vegetation types in the WSA. | Implementation of the All Wilderness Alternative would not significantly affect the vegetation resource in the WSA. Vegetation types and special status plant species would be protected because potential disturbance would be reduced to 46 acres. | Special status plant species would not be significantly affected. The 3,089 acres of projected surface disturbance would affect less than 3 percent of the vegetation in the WSA. |
| Impacts on Mineral and Energy Exploration and Development | There would be no adverse impacts on mineral and energy development with this alternative because minerals could be leased, claimed, and developed as at present. | Wilderness designation would preclude exploration and development of about 500 million tons of recoverable coal. Loss of exploration and development opportunities for other mineral and energy resources would not be significant, because the probability of development is low even if the WSA is not designated wilderness. | Implementation of the Partial Wilderness Alternative would not prevent the recovery of significant amounts of leasable or locatable or salable minerals. The majority of the significant coal resource would be located in the nondesignated portion of the WSA and could eventually be developed. |
| Impacts on Wildlife Habitat and Populations | Wildlife habitat and populations including special status animal species would not be significantly affected. Overall, implementation of the water and vegetation treatment projects would benefit wildlife by providing additional water, forage, and ecotones. Overall, less than 6 percent of the wildlife habitat in the WSA would be disturbed. | Wilderness designation would preclude 7,100 acres of vegetation treatments and resulting habitat improvement would be foregone. All species would benefit from additional opportunities for solitude. Less than 1 percent of the wildlife habitat in the WSA would be disturbed. | Partial wilderness designation would preclude 4,100 acres of vegetation treatments and resulting habitat improvement would be foregone. All species would be provided with additional opportunities for solitude on 52 percent of the WSA. Less than 3 percent of the wildlife habitat in the WSA would be disturbed. |

WAHWEAP WSA

**Table 1 (Continued)
Summary of Environmental Consequences**

| Resource | Alternatives | | |
|---------------------------------|--|---|--|
| | No Action/No Wilderness (Proposed Action) | All Wilderness (134,400 Acres) | Partial Wilderness (70,380 Acres) |
| Impacts on Livestock Management | <p>Present livestock management practices would continue. Permittees would benefit from 7,100 acres of vegetation treatments, which could provide an increase of 1,160 AUMs and improve livestock distribution.</p> | <p>Restrictions on motorized use of 40 miles of way would increase management costs and inconvenience to 42 permittees. The opportunity for an increase of 1,160 AUMs and better livestock distribution through vegetation treatments and construction of four reservoirs would be foregone.</p> | <p>Implementation of this alternative would not result in a change in the level of livestock use but would cause a minor change in livestock supervision and management in the designated portion of the WSA. Restrictions on access to 10 miles of the 40 miles of ways in the WSA would cause slight inconvenience and increases in management costs to livestock permittees. The opportunity for an increase of 669 AUMs and better livestock distribution through vegetation treatments would be foregone.</p> |
| Impacts on Economic Conditions | <p>No loss of local employment or income would occur. Federal and State revenues would not be reduced. Economic opportunities could be realized through mineral and energy resource exploration and eventual development of coal in the long term. There would be major beneficial and adverse affects in Kane county.</p> | <p>Wilderness designation would not significantly affect present local or regional economic conditions. However, new leasing in the WSA would not be allowed; therefore, potential sales and revenues from leasable minerals (coal) would be foregone. Over the long term, coal development and associated beneficial and adverse economic impacts would not occur. This would significantly change future economic conditions in Kane County from what they would be without wilderness designation.</p> | <p>Over the short term, the Partial Wilderness Alternative would not affect local economic conditions. Impacts could occur in the long term as a result of projected coal development in the non-designated portion of the WSA. There would be major beneficial and adverse effects in Kane County.</p> |

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The sights and sounds of human activities are not present in most places within the WSA. It would be easy for a visitor to find seclusion in the canyons and Dakota Sandstone area.

In all, about 10 percent (13,440 acres) of the WSA meets the outstanding opportunities for solitude criterion for areas under wilderness review. The bench areas such as Four Mile Bench, Jack Riggs Bench, and Horse Flat are not considered to have opportunities for solitude due to the lack of adequate screening. Approximately 120,960 acres do not meet the standard for outstanding opportunities for solitude.

- Primitive and Unconfined Recreation

No outstanding opportunities for primitive and unconfined recreation are present within the WSA. The unit does not contain a diversity of recreation activities nor a single activity of outstanding quality. One or the other of these two factors is necessary to provide for an outstanding opportunity for primitive recreation.

- Special Features

The Four Mile Bench Old Tree Area is a unique area of extremely old (1,400 years) pinyon and juniper trees. Prior to identification of the area, it was generally thought that the area's trees did not exceed 600 to 800 years of age. Protection for further scientific study has been considered for the area. The scientific values extend over approximately 1,000 acres of the WSA.

The BLM Intensive Wilderness Inventory identified specific locations that offer exceptional scenic geologic features. The lower portions of Wahweap Creek and Coyote Creek have exposed the Dakota Sandstone Formation. The sandstone is most evident in the Coyote Creek drainage in the White Rocks and the Rimrocks. Big White Rock Canyon, Little White Rock Canyon, Chimney Rock Canyon, and Chimney Rock are scenic features. The red-colored Entrada Formation is also exposed in this area and lends visual contrast to the white Dakota Formation. There are sheer-walled canyons, hoodoos, balanced rocks, and large coves with narrow canyons. Approximately 7,007 acres of scenic features are present in this portion of the WSA.

The East Kaibab monocline (The Cockscomb) extends along the western boundary of the WSA. The monocline contains a feature known as Cads Crotch which

is a trough running along the crest of the structure. Approximately 4,728 acres of scenic features are present in the Cads Crotch portion of the monocline.

Scenic features are present in the upper portions of the Coyote Creek drainage, in the inner canyon of the middle segment of the Wahweap Creek drainage including the West Fork of Ty Hatch Canyon, and in the upper reaches of the Wahweap drainage. The upper portion of the Wahweap system includes Tommy Smith Creek, Four Mile, Tommy, Wahweap, and Long Canyons. In contrast to the Warm Creek drainage canyons in the WSA, the Wahweap Creek drainage canyons exhibit some riparian vegetation such as cottonwood groves. The vegetation contributes to the landscape qualities of the canyon systems. The acreage of scenic features in these portions of the WSA is approximately 10,546 acres.

The WSA has resource values that, although not identified as such during the wilderness inventory, could be considered special features. There are two animal species (peregrine falcon and bald eagle) listed as endangered which may occasionally visit the WSA. There are nine animal species and six plant species that are considered sensitive that could inhabit the WSA. Cougar, which is a wildlife species associated with wilderness, is found in the WSA. Refer to the Vegetation and Wildlife Including Special Status Species sections for additional information. Approximately 5 percent (6,600 acres) of the WSA is rated Class A for scenic quality.

- Diversity

This WSA is in the Colorado Plateau Province Ecoregion and has the Potential Natural Vegetation (PNV) types of juniper-pinyon woodland and saltbush-greasewood. Refer to the Vegetation Including Special Status Species section for more discussion on ecoregions and PNV types. The ecoregion and PNV types represented by this WSA are compared with existing and other potential National Wilderness Preservation units in the Wilderness Values section of Volume I.

This WSA is not within a 5-hour drive from any standard metropolitan statistical area.

Air Quality

Measurements of air pollution or visibility levels made at Four Mile Bench indicate the air is generally free of pollutants and within National Ambient Air Quality Standards and State regulations.

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The area is presently classified as Class II air under the PSD regulations as outlined by the Clean Air Act as amended in 1977. The BLM will not consider nor recommend any change in air quality classification as part of the wilderness study or wilderness recommendations. Any further air quality reclassification is the prerogative of the State government, not of the BLM (USDI, BLM, 1982b). The nearest PSD Class I area is Bryce Canyon National Park approximately 15 miles to the west. Visibility within the WSA is excellent.

Geology and Topography

The Wahweap WSA is in the Canyonlands section of the Colorado Plateau Physiographic Province. The unit is within the western portion of the Kaiparowits Plateau. The WSA is characterized by plateaus and benches dissected by canyon systems draining to the Colorado River.

Jurassic to Cretaceous strata are exposed in the WSA. Jurassic rocks, consisting of the Carmel and Entrada Formations, are exposed in only a limited area in the extreme southernmost portion of the WSA. The Cretaceous rocks lie unconformably on the Jurassic rocks and include the Dakota, Tropic, Wahweap, and Straight Cliffs Formations. The Straight Cliffs is an important coal-bearing unit and, along with the Wahweap Formation, form the most extensive exposures in the unit.

The subsurface structure beneath the WSA consists of abundant north to south trending folds. Perhaps the most prominent structure is the steeply dipping East Kaibab monocline. The dips are eastward, usually 25 to 80 degrees. The bottom of the monocline forms the trough of the Kaiparowits syncline to the east. The monocline, or Cockscomb, as it is often called, is unique as a Colorado Plateau structure. Its alignment with the Paunsaugunt, Sevier, and Hurricane faults suggests that it too could be a fault at depth. It extends from the Colorado River north beyond Canaan Peak, trending north to northeast. Near the axis of the Kaiparowits syncline, about 7 miles east of The Cockscomb, the monocline has dipped 5,000 structural feet into a basin.

Continuous major unconformities exist between important stratigraphic divisions. A major angular unconformity occurs at the top of the Jurassic section. The Dakota Sandstone, oldest of the Cretaceous units, lies unconformably on this erosion surface. The angularity of this unconformity ranges from 0 to 1 degrees. A second major unconformity, occurs between the

Smoky Hollow and John Henry Members of the Straight Cliffs Formation (SAI, 1982). The angularity is slight, less than 1 degree regionally, but as high as 7 degrees where fluvial channels cut into erosional surfaces.

The general topography of the WSA is that of a slightly tilted staircase, with south-facing escarpments and gently northward-sloping benches. Each bench slopes to the north to the base of the next escarpment or stairstep. Imprinted on this generalized topographic form are the southward-draining canyons and tributaries of the Coyote, Wahweap, Warm Creek, and Last Chance Creeks. The double ridge system along the western edge of the unit is a portion of The Cockscomb, a major topographic feature in south-central Utah. The lowest elevation in the unit is at the confluence of Coyote and Wahweap Creeks (4,040 feet). The highest elevations are found on The Cockscomb near The Gut (6,742 feet), Ship Mountain Point (6,519 feet) and the south end of Horse Flat (6,433 feet).

Soils

Approximately 47 percent (63,168 acres) of the WSA consists of moderately coarse and medium-textured, very shallow to deep, and nearly level to moderately rolling soils on benches. Included in these soils are scattered areas of rock outcrop. About 40 percent (53,760 acres) are badland and rock outcrops on canyon walls, breaks, terraces, and valleys. About 6 percent (8,064 acres) of the WSA consists of badlands and medium, moderately fine and fine textured, very shallow to moderately deep and undulating soils. About 7 percent (9,408 acres) is moderately coarse, medium, and moderately fine-textured, very shallow to deep, and nearly level to moderately rolling soils on fans, terraces, and floodplain.

The soils are, for the most part, moderately to severely susceptible to erosion. Some are slightly susceptible. The rock outcrop and badland areas have natural erosion problems and have medium to high sediment and salt yields. Table 2 identifies the erosion conditions within the WSA.

A watershed tillage land treatment has been identified in the WSA by the Paria MFP. It is considered as a portion of the 7,100 acres of vegetation treatments projected to occur in the WSA in the foreseeable future.

According to an unpublished Kane County soil survey conducted by BLM, 75 percent of the soils within the

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WSA are classified as slightly saline. The remaining 25 percent (33,600 acres) are classified as variously saline. The estimated annual salt yield from undisturbed soils within the WSA is 55 lb per acre.

Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | Acres | Percent of WSA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|---------|----------------|--------------------------------------|
| Severe | 5.4 | 0 | 0 | 0 |
| Critical | 2.7 | 9,400 | 7 | 25,380 |
| Moderate | 1.3 | 102,000 | 76 | 132,380 |
| Slight | 0.6 | 23,000 | 17 | 13,800 |
| Stable | 0.3 | 0 | 0 | 0 |
| Total | | 134,400 | 100 | 171,560 |

Sources: USDI, BLM, 1978c and 1979c; Leifeste, 1978.

Reclamation potential is low on the majority of the area which contains rock outcrops and sandy soils. Potentials for seeding establishment is considered fair on deeper soil sites scattered throughout the WSA.

Vegetation Including Special Status Species

Existing vegetation in the WSA is composed primarily of three major vegetation types, pinyon-juniper woodland, shadscale, and other desert shrubs with very small amounts of three other types (big sagebrush, short grass, and mid grass).

The pinyon-juniper woodland type covers approximately 73 percent (98,112 acres) of the WSA and has a sparse understory of mountain mahogany, serviceberry, cliffrose, and silver buffaloberry. The shadscale type occurs on about 12 percent (16,128 acres) of the WSA while the other desert shrub type, primarily species of Ephedra and Grayia occupies approximately 8 percent (10,752 acres) of the unit. The big sagebrush type occurs on 3 percent (4,032 acres) of the WSA, the short grass type makes up 1 percent (1,344 acres), and the mid-grass type makes up 1 percent (1,344 acres) of the WSA. Small riparian areas, not considered in the overall acreage figure, occur in Wahweap and Tommy Smith Creeks and in Four Mile and Long Canyons. The remaining 2 percent (2,688 acres) of the unit is barren.

No threatened or endangered plant species are known to occur in the WSA. However, six Category 2 candidate species are found within or near this WSA. These include Cymopterus higginsii, Psoralea epipsila, Psoralea pariensis, Penstemon ammophilum, Lesquerella

tumulosa, and Xylorhiza cronquistii. Four of these species, Psoralea epipsila, Psoralea pariensis, Lesquerella tumulosa, and Xylorhiza cronquistii are found in the pinyon-juniper woodland areas where most of the projected surface disturbance would occur. The remaining species are generally found in more restricted environments such as riparian or blow sand areas (see Appendix 4 in Volume I). The habitats of all of these species extend beyond the WSA boundaries.

A unique pinyon-juniper woodland stand is located on Four Mile Bench. Many of these trees are extremely old (up to 1,400 years). The stand is about 1,000 acres in size. The Paria MFP recognizes the potential scientific value of this site and directs that no vegetation treatments or other surface disturbing activities be allowed in the area.

The Wahweap WSA is in the Colorado Plateau Province Ecoregion as shown on the Bailey-Kuchler ecosystems map (USDI, USGS, 1978). The PNV types of the WSA are juniper-pinyon woodland (100,000 acres) and saltbush-greasewood (34,400 acres).

Water Resources

The Wahweap WSA is within the Wahweap Creek sub-basin of the Upper Colorado River hydrologic subregion. There are no perennial streams in the WSA. Four creeks within the unit have water at intermittent portions of their length. These include Wahweap, Tommy Smith, Four Mile Canyon, and Long Canyon Creeks. A number of other drainages in the unit are dry and include Coyote, Ty Hatch, Smith Run, Tommy Canyon, Long Flat Canyon, Wesses Canyon, Clints Canyon, Drip Tank Canyon, and John Henry Canyon Creeks. There are 24 undeveloped springs and 13 livestock reservoirs, a 0.2 mile of pipeline, a 30-foot ring tank, and a 66,000-gallon water storage tank in the WSA. Proposed within the WSA are 16 water catchments, 6 miles of pipeline with troughs, four livestock reservoirs, and development of three of the 24 springs.

The Wahweap WSA is within the Paria River Adjudication Area 89. The waters in this adjudication area are considered to be fully appropriated on the surface and any directly connected underground aquifer. The State Engineer will consider applications to appropriate water for 0.015 cfs based on the proposed location, outside of any existing municipal, town, or subdivision system, and on the individual merits of the applications (UDNRE, DWR, 1988).

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Water right claims necessary for multiple-use management have been asserted through the State of Utah adjudication procedures. Some rights have already been recognized and granted, and others are pending. BLM has sufficient water rights for their present management activities within the WSA.

The water quality standards of Wahweap Creek, a tributary of Lake Powell, are as follows: Class 2B (protected for boating, waterskiing, and similar uses); Class 3B (protected for warm water species of game fish and other warm water aquatic life), and Class 4 (protected for agriculture uses).

Utah's 1986 305(b) water quality assessment report states that streams and tributaries entering Lake Powell in the southern portions of the upper Colorado River drainage have impairments to their beneficial uses from high levels of TDS and sodium. These impairments result mainly from natural sources and low flows.

Mineral and Energy Resources

The energy and mineral resource rating summary for the Wahweap WSA is given in Table 3. Appendix 5 in Volume I describes of the mineral and energy rating system.

Table 3
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|-------------|---------------------------|------------------------|---|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f3 | c1 | 10 to 50 million barrels of oil; 60 to 300 billion cubic-feet of natural gas |
| Uranium | f2 | c2 | Less than 500 metric-tons of uranium oxide |
| Coal | f4 | c4 | 1 billion metric-tons |

Source: SAI, 1982; USDI, BLM, 1987.

^aFavorability of the WSA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

There are no strategic or critical minerals known to occur within the WSA (USDoD, 1988).

• Leasable Minerals

There are no known deposits of any leasable minerals in the WSA. Currently, there are no active drilling,

mining, or exploration activities for leasable minerals.

• Oil and Gas

Numerous oil shows (including oil-impregnated rock deposits) have been reported from Cambrian, Devonian, Mississippian, Pennsylvanian, Permian, and Triassic rocks in south-central Utah (Heylmun, et al., 1965; Veal, 1976; and Campbell and Ritzma, 1979). The older rocks generally are only stained, whereas free oil has been recovered from Mississippian rocks at Upper Valley (Doelling, 1975). Because the obvious structures in the area have already been explored, many investigators considered subtle stratigraphic traps in Permian and Triassic rocks to offer the best potential for future petroleum discoveries.

The only oil and gas production in south-central Utah in the vicinity of the WSA comes from the Upper Valley field located approximately 10 miles to the north. This field was discovered on the Upper Valley anticline in 1964 and stimulated drilling activity on similar anticlinal structures in south-central Utah. To date, however, no commercial oil and gas potential has been identified in the WSA.

The oil reservoir is located along the prominent Upper Valley anticline, but the producing area is offset from the crest of the anticline to the west flank and the southern plunging nose. This offset is attributed to a regional, Southwest-directed hydrodynamic drive in the Kaibab Formation (Sharp, 1976). Oil accumulation in other anticlines within the region may be displaced to the south. Total production from this field is expected to approach 50 million barrels. Production is from four distinct zones in the Timpoweap Formation (Triassic age) and the Kaibab Formation (Permian age). Shows of oil were also reported in the Permian Cedar Mesa and Mississippian Redwall Formation (Sharp, 1976).

Very few exploration wells have been drilled in the vicinity of the Wahweap WSA. Oil shows and/or staining have been reported from only a few of these, chiefly from rocks of Permian age (Heylmun, et al., 1965; and Kunkel, 1965). Based on deep exploration wells in this area, the Paleozoic section in the WSA is thin, probably less than 5,000 feet (Heylmun, et al., 1965). Among the best prospects for petroleum discoveries in the WSA are (1) feather-edge stratigraphic traps in

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Pennsylvanian rocks that developed along the east-facing side of the Piute/Zuni/Defiance Platform in Pennsylvanian time, and (2) stratigraphic traps in lithologically variable Permian rocks. The WSA contains numerous untested structures. That fact, combined with the potential for subtle stratigraphic traps involving Mississippian, Pennsylvanian, and Permian rocks, leads to the conclusion that the WSA is favorable for small to moderate-sized petroleum accumulations. On this basis, the WSA is assigned a favorability rating of (f3) (SAI, 1982). The size of the hydrocarbon accumulation in such an environment is anticipated to be between 10 and 50 million barrels of oil or between 60 and 300 billion cubic-feet of gas. Based on the available information, the certainty of occurrence for oil and gas is rated very low (c1).

Under the current land use plan, 127,220 acres of the WSA are in Category 1 (standard stipulations) and 6,480 acres are in Category 2 (special stipulations) and 700 acres are in Category 4 (closed to leasing). There are presently four post-FLPMA oil and gas leases, covering 1,225 acres, in the WSA.

- Coal

The WSA is in the southern part of the Kaiparowits Plateau coal field, and most of the WSA is underlain by the coal-bearing Straight Cliffs Formation (Cretaceous). Other minor coal-bearing rocks occur in the Dakota Sandstone in the southwestern part of the WSA. It is exposed in only a few areas and consequently, dimensional information is sparse (USDI, USBM, 1987b). Coal in the Dakota is only locally thick and not considered to be minable (Doelling and Graham, 1972).

Estimated coal reserves within the entire Kaiparowits Plateau coal field total 15.2 billion tons (Doelling and Graham, 1972). A total of 32,225 acres containing an estimated 1 billion tons of minable coal (based on coal seams greater than 4 feet thick) occur within the northeastern part of the WSA. An estimated 170 million tons occur at depths less than 1,000 feet, 504 million tons occur between 1,000 and 2,000 feet, and 326 million tons occur between 2,000 and 3,000 feet (Doelling and Graham, 1972). Approximately one-third to one-half of the coal is recoverable. An analysis made at the single available surface outcrop measured in T. 41 S., R. 4 E., sec. 7 (Alvey

zone), shows an average content of 5.03 percent ash, 0.78 percent sulfur, and a heat value of 10,230 British thermal units (Btus) per lb (Doelling and Graham, 1972).

The WSA is within the Kaiparowits Plateau Known Recoverable Coal Resource Area (KRCRA), which includes the minable coal area. In accordance with the underground mining exemption from the unsuitability criteria (43 CFR 3401.2[a]), none of the areas in the KRCRA within the WSA were determined to be unsuitable for mining as a result of the application of the unsuitability criteria (USDI, BLM, 1981c).

Based on the above discussion, the coal in the WSA is assigned a favorability rating of (f4) (potential for large tonnages of coal) with a high (c4) certainty of occurrence. There are presently 12 coal leases, covering 17,628 acres, in the WSA.

- Locatable Minerals

There are no known deposits of locatable minerals in the WSA, and uranium is the only locatable mineral with potential for occurrence. Currently, there are 32 mining claims, covering 640 acres in the WSA.

- Uranium

The Colorado Plateau is one of the major uranium-producing regions in the United States. The most important deposits occur in conglomerates, sandstones, and mudstones within the Morrison Formation (Jurassic) and the Chinle Formation (Triassic). The most productive areas of the plateau are in northern New Mexico and southeastern Utah (SAI, 1982; Doelling, 1975).

The Morrison Formation has been removed by erosion throughout the western half of the Kaiparowits Plateau and it presumably does not underlie the WSA (Hackman and Wyant, 1973; and Peterson, et al., 1982). The Chinle Formation crops out a short distance west of the tract and some uranium occurrences have been reported in this area. However, the Chinle Formation in this area is not considered to be favorable for significant uranium deposits (Peterson, et al., 1982). A significant deposit is defined as one which contains economically extractable uranium oxide deposit that contains a total of at least 100 metric-tons of uranium oxide at a grade of at least 0.01 percent.

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On this basis, the uranium favorability rating for the WSA is (f2), potential for containing less than 500 metric-tons of uranium oxide. The certainty that uranium occurs in the tract is low (c2).

• Salable Minerals

Stream gravel and other loose rock material that could be used for construction occur within the WSA. These deposits are not unique or economically significant due to the presence of ample similar materials nearby.

Wildlife Including Special Status Species

Due to the many different habitat types within the area, it is assumed that a diversity of vertebrate species are present. The habitat types include pinyon-juniper woodland, sagebrush, desert shrub, grassland, riparian, and cliffs. Riparian habitat is located along segments of Wahweap Creek, Tommy Smith Creek, Four Mile Canyon, and Long Canyon.

These habitat types may support up to 52 species of mammals, 160 species of birds, 26 species of reptiles, and 8 species of amphibians. However, no site-specific inventory has been completed to determine if these species actually exist. No sport fish live within the WSA.

Game species known to be present in the unit include mule deer, cougar, a few transplanted pronghorn antelope, cottontail rabbit, and mourning dove. The endangered bald eagle is a suspected winter migrant and the endangered peregrine falcon may also occasionally use the WSA. In addition, the golden eagle (BLM sensitive species) and the following eight Category 2 candidate species could inhabit the WSA: Great Basin Silverspot butterfly, Arizona Bell's vireo, ferruginous hawk, long-billed curlew, southern spotted owl, Swainson's hawk, western snowy plover, and white-faced ibis (see Appendix 4 in Volume I). If present, most of these species would be associated with riparian and wet meadow areas or cliff faces and deep canyons, except for the ferruginous hawk and Swainson's hawk. The ferruginous hawk inhabits pinyon-juniper woodland areas where there are ecotones or edges that provide opportunities for nesting, cover, and hunting activities. The Swainson's hawk inhabits open plains, grasslands, and prairies. No critical wildlife habitat has been identified in the WSA.

Approximately 7,100 acres of vegetation treatments that would improve big game habitat are proposed for the WSA. These treatments consist of both pinyon-juniper woodland chaining and seeding, sagebrush treatment and seeding, and tilling and seeding. Development of 13 watering facilities is also proposed within the WSA.

Forest Resources

The forest resources in the WSA include approximately 98,112 acres of pinyon-juniper woodland. The WSA has resources suitable for firewood, fenceposts, pine nuts, and Christmas tree cutting. However, because of the area's remoteness and the same resources being available in abundance elsewhere, there is little demand for these forest resources at the present time and none is projected in the foreseeable future.

Livestock and Wild Horses/Burros

The Wahweap WSA covers parts of eight allotments (refer to Table 4). Forty-two operators graze cattle within these allotments. All the allotments are under a grazing management plan except for the Wahweap Allotment. The Wahweap Allotment, however, is a winter use allotment. Consequently, all the area within the WSA is under an approved grazing system. There are approximately 3,084 AUMs and 27 fences or gap fences totaling about 18 miles within the WSA. There are also 13 livestock reservoirs, a 0.2 mile of pipeline, a 30-foot ring tank, and a 66,000-gallon storage tank. Additional developments are located on State land within the boundaries of the WSA. The 40 miles of existing ways are currently used for livestock management primarily for hauling salt and maintenance of livestock developments.

The Wahweap WSA has a number of proposed range developments, including 7,100 acres of vegetation treatment, 6 miles of pipeline with troughs, four reservoirs, three spring developments, three water catchments, approximately 3 miles of trail, and 4 miles of fence. The projects were identified to better distribute livestock grazing in the allotments.

Predator control was not conducted during the 1986 to 1987 period in the grazing allotments that comprise the Wahweap WSA (USDA, APHIS, 1988). No wild horses or burros occur within the WSA.

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Table 4
Livestock Grazing Use Data

| Allotments | Total Acres | Acres in WSA | Total AUMs | Number of AUMs in WSA | Number and Kind of Livestock | Season of Use | Number of Operators |
|------------------|----------------|----------------|---------------|-----------------------|------------------------------|----------------------------|---------------------|
| Last Chance | 233,229 | 225 | 3,719 | 5 | 309 Cattle | yearlong | 1 |
| Headwaters | 239,122 | 52,623 | 5,930 | 666 | 246 Cattle | 11/01-03/31 05/01-04/30 | 20 |
| Upper Warm Creek | 47,638 | 16,774 | 1,076 | 365 | 240 Cattle | 11/01-04/30 | 2 |
| Nipple Banch | 26,942 | 5,684 | 885 | 88 | 240 Cattle | 12/01-04/30 | 1 |
| Clark Banch | 53,673 | 80 | 1,800 | 3 | 180 Cattle | 08/01-05/31 | 1 |
| Cottonwood | 83,998 | 25,800 | 4,318 | 324 | 430 Cattle | 11/01-05/31 | 10 |
| Wahweap | 15,202 | 15,202 | 400 | 460 | 94 Cattle | 12/01-04/30 | 1 |
| Coyote | 44,141 | 18,012 | 2,044 | 1,173 | 292 Cattle | 11/01-05/31 | 6 |
| Total | 743,945 | 134,400 | 20,172 | 3,084 | | | 42 |

Sources: BLM File Data.

Visual Resources

The BLM has classified approximately 6,600 acres as Class A scenery (5 percent of the WSA), 83,700 acres as Class B scenery (62 percent of the WSA), and 44,100 acres as Class C scenery (33 percent of the WSA). VRM classes are as follows: Class II on 6,000 acres (5 percent of the WSA), Class III on 4,300 acres (3 percent of the WSA), and Class IV on 124,100 acres (92 percent of the WSA). Class IV management is the least restrictive of the management classes. Refer to the Special Features section for a discussion of the scenic values of the WSA. Appendix 7 in Volume I describes the BLM VRM rating system.

Cultural Resources

A total of 65 sites have been recorded in the WSA (USDI, BLM, 1988a). Prehistoric sites include lithic and/or ceramic scatters, masonry structures (granaries and storage cists), and one rockshelter. Lithic scatters are the most numerous site-type represented and some are thought to be associated with buried archaeological strata. The masonry structures and some of the lithic/ceramic scatters are generally associated with the Virgin Anasazi and/or the Virgin-Kayenta Anasazi archaeologically defined cultures. Two of the sites in the WSA are thought to date to the Pueblo II-III time period. Some of the remaining lithic

scatters are associated with prehistoric Paiutes-age or Archaic-age peoples. One historic site, a brush fence dating from the 1930s is located in the WSA. At least eight of the recorded sites are considered to be eligible for nomination to the National Register of Historic Places.

Three cultural resource inventories have been conducted within the boundaries of the WSA and several inventories have been conducted adjacent to the unit. However, none of these surveys were conducted in such a manner that reliable estimates of site densities can be computed. Potential site densities for the WSA are unknown, but, are probably quite high judging from information from nearby WSAs (e.g., Paria-Hackberry WSA, Volume III-A).

Recreation

Although the Wahweap WSA offers opportunities for both primitive and nonprimitive types of recreation use (none of which are outstanding), reliable data on existing visitor use are not available. It is expected that visitor use is low, approximately 100 visitor use days annually. No visitor use is related to commercial outfitting. Approximately 75 percent of the visitor use is attributed to primitive activities and approximately 25 percent of the use is attributed to recreational activities such as hunting and sightseeing that utilize vehicular access on existing ways.

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ORV use is limited primarily to the existing ways and trails in the WSA. Existing use of these areas is assumed to be low. For example, most of the use is attributable to deer hunters. The number of hunters using the WSA is low. Livestock operators and mineral development interests also make some ORV use of the area. Approximately 8,400 acres are presently limited to existing roads and trails. This area is located along Wahweap, Tommy Canyon, Four Mile, and Nipple Creeks. Also, there are approximately 3,300 acres closed to vehicle use from March 1 to July 1 of each year to protect wildlife interests. This area is located in the lower reaches of Wahweap Creek.

Big game hunting opportunities in the WSA are probably average when compared to the Paria planning unit as a whole. However, big game populations are rated as low to moderate and shooting opportunities are low. The overall success rate in the WSA is approximately 20 percent. Small game populations are generally low, with a lower quality than much of southwestern Utah. The hunting that does take place is primarily by local residents since the poor quality of the hunting experiences here would draw few, if any, outside hunters to the area. Upland game hunting, primarily for mourning dove, is generally similar to the rest of southwestern Utah. The opportunity for quail hunting is poor because of limited huntable populations.

The main sightseeing attraction within the WSA is The Cockscomb or the East Kaibab monocline. The Cockscomb is a major topographic feature in south-central Utah that begins in the northwestern portion of this tract and runs south along the western edge of the unit. Within the WSA, The Cockscomb has an average relief of approximately 400 feet. The valley that dissects The Cockscomb is roughly 400 feet deep and forms the double ribs. The Cockscomb is visible to motor vehicle tourists from adjacent boundary roads.

Land Use Plans

The WSA is within the BLM Paria planning unit which is being managed from the land use decisions of the Paria MFP (USDI, BLM, 1981c). The present principal use within the WSA is livestock grazing. Wilderness is not addressed in the Paria MFP. However, wilderness designation is part of the BLM multiple-use concept. BLM's land use plan is linked to the Statewide Wilderness EIS through analysis of the present plan as the No Action/No Wilderness Alternative.

The WSA is BLM-administered public land except for 16 State sections (10,361 acres). The current policy of the State is to maximize economic returns from State lands and to reserve its position regarding the exchange of in-held lands (see Chapter 1 in Volume I). In 1986, the Utah State Legislature passed S.C.R. No. 1 opposing any additional wilderness designation in Utah and urging that State lands not be exchanged out of wilderness areas. Of the 10,361 acres of in-held State land, 9,037 are under lease for oil, gas, hydrocarbons and grazing. Two sections (1,280 acres) are also leased for coal. The only current activity on these lands is livestock grazing.

The Kane County Master Plan states, "Kane County supports the total concept of multiple use of lands. We reject exclusionary recreational forms that cannot be used by the average recreation visitor. Wilderness, as conceived by the Federal land agencies, is rejected because of the limited visitor utilization possibilities and rejection of the multiple use concept" (Kane County Board of Commissioners, 1982).

In addition, the Consolidated Local Government Response to Wilderness (Utah Counties, 1986) indicates that Kane County opposes wilderness designation of BLM lands in Utah.

The Kaiparowits Coal Development and Transportation Study (ERT, 1980) identified a number of transportation corridors and truck haul routes within the WSA. The objective of the study was to identify areas where it would be possible to construct and operate future coal transportation systems within the restrictions of general environmental and engineering constraints. Corridor segments were required to contain at least one potential route for a railroad or coal slurry pipeline. Specific routes, however, were not identified. By selecting corridors between 2 and 15 miles in width, maximum flexibility for future location of specific routes was maintained. Corridors C-13 through C-17 all extend into the WSA. However, the WSA does not extend across the entire width of any of the corridors.

The Union Pacific Railroad (1980) has identified a specific route that would be needed for a spur line into the Kaiparowits coal field. This line would cross through the WSA along the total length of the west side of The Cockscomb. Furthermore, a tunnel through The Cockscomb would be necessary near the northern edge of the unit. The line would exit the unit near "The Gut". This route has been delineated by the railroad and is on file with BLM. This route would be

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included within Corridors C-13 through C-15 as discussed above.

Also, the boundary road on the east side of the WSA has been proposed as an access route into the coal fields. A proposed loading area has been identified on the eastern edge of the WSA near Pilot Rock. Approximately 38,600 acres within the WSA have been identified as coal classification land. This withdrawal status essentially identifies that area potentially valuable for coal development within the WSA. It highlights the area in case other land or mineral proposals overlap that may conflict with future coal development plans. It does not, however, segregate the land from other entry.

Socioeconomics

• Demographics

The Wahweap WSA is located in Kane County, Utah. Kane County is a rural county with a 1980 population of 4,050 persons. The average population density is approximately one person per square mile. The density is very low when compared to the Statewide average of 17 persons per square mile (USDC, Bureau of the Census, 1981).

From 1970 to 1980, the population of Kane County grew from 2,421 to 4,050, an overall increase of about 67 percent. Table 5 presents the baseline and projected population data for Kane County. It is estimated that between 1980 and 1987, population increased to about 4,890. Population projections indicate that the number of people living in Kane County in the year 2010 will be about 6,950 for about a 72-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

• Employment

Table 5 shows the baseline and projected total employment for Kane County to the year 2010.

Table 5
Baseline and Projected Population and Employment Growth
Kane County

| | 1980 | 1990 | 2000 | 2010 |
|------------|-------|-------|-------|-------|
| Population | 4,050 | 5,250 | 5,750 | 6,950 |
| Employment | 1,403 | 1,900 | 2,300 | 2,900 |

Source: Utah Office of Planning and Budget, 1987.

Kane County is part of the Southwest Multi-County District (MCD). Table 6 shows the baseline (1980) and projected employment by source for the MCD to the year 2010. In 1980 the leading employment sectors for the Southwest MCD were government (23 percent), trade (20 percent), and nonfarm proprietors (12 percent). Mining provided approximately 2 percent of the direct employment in the MCD.

Table 6
Southwest Multi-County District
Employment ^a

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|--------------|--------------|--------------|--------------|
| Agriculture | 1,810 | 1,700 | 1,800 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,600 | 3,300 |
| Transportation, Utilities | 1,006 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 6,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 8,900 | 8,900 |
| Government | 4,818 | 5,800 | 8,500 | 8,100 |
| Nonfarm Proprietors | <u>2,386</u> | <u>3,100</u> | <u>3,500</u> | <u>4,700</u> |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

^aIncludes Beaver, Garfield, Iron, Kane, and Washington Counties.

It is projected that by the year 2010, employment in the MCD will more than double. Services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 5 percent, government to 18 percent, and mining to less than 1 percent of the total MCD employment.

• Sales and Revenues

Economic-related activities in the WSA include mineral leasing, livestock production, and recreation. Table 7 summarizes the local sales and Federal revenues from the WSA. Appendix 9 in Volume I identifies the multipliers used to estimate the sales and revenues.

The WSA has 32 mining claims. Regulations require a \$100 annual expenditure per claim for labor and improvements, an undetermined part of which is spent in the local economy.

No oil and gas wells have been drilled in the WSA in the past years. No oil and gas or minerals have been produced from the WSA. Therefore, mineral and energy resource production from the WSA has not contributed to local employment or income.

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Table 7
Sales and Revenues

| Source | Estimated Annual Local Sales ^a | Estimated Annual Federal Revenues |
|-------------------------|---|-----------------------------------|
| Oil and Gas Leases | 0 | \$2,450 |
| Coal Leases | 0 | \$52,884 |
| Mining Claim Assessment | \$3,200 | 0 |
| Livestock Grazing | \$61,680 | \$4,750 |
| Recreational Use | \$ 410 | 0 |
| Total | \$65,290 | \$60,084 |

Sources: BLM File Data; Appendix 9 In Volume I.

^aLocal sales represent money potentially spent. They do not account for the total income that would be generated by these expenditures.

Forty-two livestock operators have a total estimated grazing privilege of 3,084 AUMs within the WSA. If all this forage were utilized, it would account for approximately \$61,680 of the livestock sales and \$15,120 of the ranchers' returns to labor and investment.

Some woodland products have been harvested from the WSA, however, the harvests were small and are insignificant to the local economy and only of minor significance to those involved in the harvest.

The WSA's nonmotorized and motorized recreational use is low. The actual amount of income generated locally from recreational use in the WSA is unknown. However, an approximate range of expenditures can be deduced (Dalton, 1982). This study indicates that the Statewide average local expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for Wahweap WSA is estimated at about 100 visitor days per year. Only a portion of the expenditures for recreational use of the WSA contribute to the local economy of Kane County.

Oil and gas leases in the WSA cover approximately 1,225 acres. At up to \$2 per acre, lease rental fees generate up to \$2,450 of Federal revenues annually. The 12 coal leases covering 17,628 acres at \$3 per acre lease rental fee generate \$52,884 in sales. Half of these monies are allocated to the State, which then reallocates these revenues to various funds, the majority of which are related to energy development and mitigation of local impacts of energy and mineral development.

Average actual livestock use and, therefore, revenues generated from grazing in the WSA are unknown. However, the permittees in the WSA can use up to

3,084 AUMs per year. Based on a \$1.54 per AUM grazing fee, the WSA can potentially generate \$4,750 of grazing fee revenues annually, 50 percent (\$2,375) of which would be allocated back to the local BLM District for the construction of rangeland improvements.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This section describes the environmental consequences of implementing the alternatives. The analysis is based on the BLM management actions and anticipated activities presented in the Introduction to Volume III-B and the Description of the Alternatives for the Wahweap WSA.

A major long term consideration in impact analysis for this WSA is development of the Kaiparowits coal field. For a detailed analysis of potential impacts of coal development in southern Utah, the reader is referred to the Final EIS for "Development of Coal Resources in Southern Utah" (USDI, USGS, 1979).

No Action/No Wilderness Alternative (Proposed Action)

• Impacts on Wilderness Values

Because the WSA would not be designated wilderness, the identified wilderness values would not receive the degree of protection afforded by application of the Wilderness Management Policy (BLM Manual 8560). Wilderness values in the WSA would be somewhat protected by limitations placed on potential surface-disturbing activities (i.e., VRM Class II management on 6,000 acres, management under oil and gas leasing Category 4 [closed to leasing] on 700 acres and oil and gas leasing Category 3 [no surface occupancy] on 6,480 acres, and ORV limitations on 11,700 acres).

In the foreseeable future, 7,191 acres of the WSA would be disturbed. Short term disturbance of approximately 7,151 acres from vegetation treatments, rangeland projects, wildlife water facilities, and development of access roads to State in-holdings would result in a direct loss of naturalness and opportunities for solitude and primitive, unconfined recreation in the disturbed areas. Twenty four of the acres of disturbance would be for access to State in-holdings. Special features, including Class A scenery and other scenic features, geologic features, special status species, special vegetation areas, and wildlife associated with wilderness, would not be significantly affected

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because the direct disturbance would involve only 5.3 percent of the WSA and would generally not be located where the special features are located. Proposed water developments and vegetation treatments would benefit wildlife special features because of increased water and forage areas. In addition, appropriate measures would be taken to protect special status species prior to any surface-disturbing activity, and no significant negative impact would occur to these species. Refer to the Vegetation and Wildlife Including Special Status Species sections for more information.

During the period of activity, the visual and audible disturbance from vegetation treatments, rangeland developments, and development of access to State in-holdings would reduce the quality of opportunities for solitude and primitive recreation not only on directly disturbed areas, but also indirectly on adjacent portions of the WSA. As much as 25 percent (33,600 acres) of the WSA could be so affected in the foreseeable future. The areas that would be affected are generally considered by BLM to not have outstanding opportunities for solitude or primitive recreation.

Because future vehicular use would generally be limited by terrain to existing vehicular ways, no additional disturbance from ORV activity is anticipated in the future. The continued and increased vehicular use of 40 miles of existing ways and future access roads to State in-holdings would detract from opportunities for solitude and primitive recreation.

The gradual increase in visitor use that would occur would not be expected to significantly reduce the quality of wilderness values because the additional use is expected to be small, and largely primitive in nature, and the WSA is large enough to incorporate the additional use adequately.

In the long term, development of coal would result in a direct loss of wilderness values on about 40 acres and an indirect reduction in the quality of opportunities for solitude and primitive recreation and scenic values on up to an additional 10 percent (13,440 acres) of the WSA for a period of 30 to 40 years.

Conclusion: Wilderness values would not be protected by wilderness designation, and loss would occur as intrusions increase. In the short term, naturalness and opportunities for solitude and primitive recreation would be directly lost on 7,151 acres of the WSA, and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to an additional 25 percent (33,600 acres). Special fea-

tures would not be significantly affected. In the long term, coal development would directly eliminate wilderness qualities on 40 acres would indirectly reduce qualities on up to 10 percent (13,440 acres).

• Impacts on Vegetation Including Special Status Species

Overall, 7,191 acres of vegetation would be disturbed in the foreseeable future. In the short term, 7,151 acres of surface disturbance projected for the No Action/No Wilderness Alternative would mainly occur in the pinyon-juniper woodland. A small amount of sagebrush vegetation would also be affected. On the 7,100 acres of vegetation treatments, vegetation composition would change from woodland or sagebrush to grass-shrub. It is projected that the grass-shrub vegetation would be maintained over the long term. However, once active maintenance ceased, the area would eventually revert back to pinyon-juniper woodland or sagebrush. The chaining and seeding would be designed to provide additional livestock forage, wildlife habitat, and improve watershed. There would also be a loss of naturalness in the disturbed area. However, due to the small size of the disturbance (about 5.3 percent, or approximately 7,151 acres, of the WSA), the overall impact would not be significant. In the long term, anticipated coal development could disturb up to 40 acres as a result of surface facility and access road construction. While no significant impacts to any vegetation type is anticipated, this disturbance would remain for the 30 to 40 year life of the operations.

Four of the Category 2 candidate species that may occur in the WSA are located in the pinyon-juniper woodlands. Surface-disturbing activities could result in the loss of some individual plants of these species. However, before authorizing any surface-disturbing activities, BLM would conduct site-specific clearances of the potentially disturbed areas. If any threatened or endangered species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when necessary (see Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Because necessary measures would be taken to protect these species, the viability of populations of threatened, endangered, or other special status plant species would be preserved with the No Action/No Wilderness Alternative.

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Possible additional leasable mineral and energy resource exploration and development could occur over the long term. However, the projected 40 acres of disturbance and its possible impact on the vegetation resource in the WSA would not be significant because coal would be mined by underground methods rather than by surface-mining methods.

Conclusion: Special status plant species would not be significantly affected. Approximately 7.3 percent of the pinyon-juniper woodland vegetation in the WSA would be altered.

- Impacts on Mineral and Energy Exploration and Production

The WSA would remain open to exploration and development of mineral and energy resources without consideration of wilderness values. Therefore, mineral and energy resources would not be affected by the No Action/No Wilderness Alternative.

Conclusion: Implementation of the No Action/No Wilderness Alternative would not adversely affect mineral exploration or production.

- Impacts on Wildlife Habitat and Populations Including Special Status Species

Wildlife would benefit from the increase in the availability of water through the construction of three water catchments, four reservoirs, 6 miles of pipelines with troughs, the development and maintenance of three springs, and 13 other water facilities. Big game habitat would be improved by 7,100 acres of pinyon-juniper woodland/sagebrush vegetation treatments.

In short term, disturbance of an estimated 7,151 acres (5.3 percent of the WSA) would temporarily disrupt wildlife. Deer, pronghorn antelope, and mobile nongame animals would be dispersed from the disturbed area during the construction stage of the activities. Less mobile wildlife would either perish or co-exist with these disturbances at smaller and less viable population levels. The extent and use of the WSA by the bald eagle, peregrine falcon, or the eight Category 2 candidate species that may occur there is unknown. Vegetation treatment proposals would not affect most of these species because activities would be in the flat pinyon-juniper woodland and sagebrush areas, and if present, these species would inhabit the riparian and cliff face areas in the canyons. The 40 acres of surface disturbance projected for long-term

coal development would not significantly affect wildlife habitat or populations in the WSA because disturbance would be localized to the portal areas.

The proposed vegetation treatment projects would create ecotones and edges which would improve ferruginous hawk habitat. Also, Swainson's hawk habitat would improve since it inhabits open plains, grasslands, and prairies.

BLM would conduct site-specific clearances of the potentially disturbed areas. If any threatened, endangered, or candidate species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (refer to Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Because necessary measures would be taken to protect these species, populations of threatened, endangered, or other special status animal species would be preserved with the No Action/No Wilderness Alternative.

Conclusion: Wildlife habitat and populations including special status species would not be significantly affected as a result of implementing the No Action/No Wilderness Alternative.

- Impacts on Livestock Management

Domestic livestock grazing would continue as authorized in the Paria MFP. The estimated 3,084 AUMs currently allocated in the WSA are controlled by 42 livestock permittees. The proposed developments and 7,100 acres of vegetation treatments could be developed and would result in improved livestock distribution and an increased carrying capacity of 1,160 AUMs annually. Approximately 40 miles of way would continue to be used by livestock permittees to facilitate livestock management, including the placement of salt and management of range developments.

Conclusion: Implementation of the No Action/No Wilderness Alternative would not adversely affect current livestock management practices in the WSA.

- Impacts on Economic Conditions

There would not be a loss of local employment or income as a result of this alternative. The opportunity to explore and develop mineral resources would remain as at present. A portion of the \$100 per year assessment fee required for each of the 32 existing

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mining claims and any future claims would reach the local economy. However, no development of the existing mining claims is projected in the foreseeable future. No exploration or development of existing oil and gas leases is projected, therefore, no economic benefits would be realized.

No coal exploration or development is expected in the short term. However, due to the extensive coal resource known to underlie the WSA, it is projected that in the long term coal would eventually be developed. Exact lease boundaries cannot be determined; therefore, it is not possible to project if one or more mines would actually be located within WSA boundaries. However, a typical Utah mine would be an underground operation, employ 20 to 300 people, and be in operation 30 to 40 years. The employment of 300 people would represent an increase of only about 0.7 percent of the projected Southwest MCD employment for the year of 2010. However, 300 jobs would represent 10 percent of the projected Kane County employment in the year 2010 and nearby local communities would be significantly affected. There would be both beneficial and adverse impacts. Beneficial impacts would include increases in employment and income while adverse effects would include increased demands for housing and infrastructures such as schools, law enforcement, etc. An unknown portion of the jobs would be obtained by local residents.

There would be no livestock-related economic losses because the existing grazing use (approximately 3,084 AUMs) and ability to maintain, replace, and build new range developments would remain as at present. The forage use in the allotment would continue to produce an estimated \$61,680 annually in livestock sales and \$15,420 of ranchers' return to labor and investment. The proposed vegetation treatments that would produce about 1,160 AUMs annually of new allocated forage could lead to \$23,200 of livestock sales and \$5,800 of ranchers' returns to labor and investment.

Recreational use and, therefore, recreation-related local expenditures could increase at a rate of 2 to 7 percent per year over the next 20 years. Because at the end of 20 years, recreational use in the area is estimated to increase only 50 to 285 visitor days per year more than is occurring now, and because overall recreation-related expenditures average only \$4.10 per visitor day, recreation-related expenditures attributable to the WSA would likely not be significant to the local economy.

Federal and State revenues would not be reduced by implementation of this alternative. There are 133,175 acres available for oil and gas and 116,772 acres available for coal in the WSA not currently leased but open for future leasing consideration. Not all of these lands are considered valuable for leasable minerals. However, if leased, they would bring up to \$616,666 additional Federal lease fee revenues per year in addition to new royalties from lease production and bonus bids from new coal leases. Half of these monies would be allocated to the State, a portion of which could reach the local economy. Collection of livestock grazing fees (\$4,750 per year) would continue. The additional 1,160 AUMs that would be produced by proposed vegetation treatments would increase Federal revenues by \$1,786 annually. About 50 percent of the increased revenues would be returned to the local BLM office for use in rangeland projects.

Conclusion: No loss of local employment or income would occur. Federal and State revenues would not be reduced. Economic opportunities could be realized through exploration and eventual development of the coal resource in the long term in which case local communities would be significantly affected.

All Wilderness Alternative (134,400 Acres)

• Impacts on Wilderness Values

Designation and management of all 134,400 acres as wilderness would contribute to the preservation of the wilderness values in the Wahweap WSA. The potential for surface-disturbing activities would be reduced through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I which allows for only natural ecological change. Naturalness would be protected on all 134,400 acres. Solitude would be protected on approximately 13,440 acres that meet and 120,000 acres that do not meet the standards for outstanding opportunities. Primitive and unconfined recreation would be protected on 134,400 acres that do not meet the standards for outstanding opportunities. Resources that could be considered as special features in the WSA, including Class A scenery, would be preserved.

With this alternative, wilderness values would generally be preserved in the foreseeable future. Disturbance of up to 46 acres is anticipated from development of rangeland projects, wildlife watering facilities, and road access to State in-holdings. Mitigation

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to protect wilderness values would be applied, but direct loss of wilderness values would be allowed on 24 acres if development of access to State in-holdings could not be otherwise achieved. Rangeland projects and wildlife watering facilities on the other hand, would be designed to meet wilderness management criteria and upon completion would not be substantially noticeable in the area as a whole. All in all, the disturbance would probably not be substantially noticeable in the area as a whole. No loss of special features is anticipated and naturalness and opportunities for solitude and primitive recreation would be directly lost or indirectly reduced in quality on only 0.03 (46 acres) percent of the WSA. Wildlife special features would benefit from wildlife watering facilities. Vehicular use of existing ways would cease with ORV closure, improving opportunities for solitude and primitive recreation.

Over the long term, there would be no potential for loss of wilderness values due to development of new leases and mining claims. No coal development would occur that would result in loss of wilderness values.

Visitation is low and the gradual increase in visitor use that would occur would be primitive in nature and would be managed so as to not result in loss of wilderness values.

Conclusion: Wilderness designation would preserve overall the wilderness values in the WSA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost or reduced in quality on 46 acres of the WSA. Special features would be preserved.

• Impacts on Vegetation Including Special Status Species

Implementation of the All Wilderness Alternative would not significantly affect any vegetation type in the WSA. The projected 7,100 acres of vegetation treatments would not be allowed. No surface disturbance from mineral and energy resource exploration or development is projected. Wilderness designation would reduce disturbance to about 46 acres and provide additional protection for threatened, endangered, or other special status plant species.

Conclusion: Implementation of the All Wilderness Alternative would not significantly affect the vegetation resource in the WSA.

• Impacts on Mineral and Energy Exploration and Production

• Leasable Minerals

Approximately 1,225 acres are under oil and gas lease. No exploration or development of oil and gas is presently occurring within the WSA. Existing leases could be developed subject to the stipulations issued at the time of leasing. It is unlikely that existing leases will be developed or a showing of commercial quantities made prior to their expiration dates, and expired leases will not be reissued. Due to the low likelihood of oil and gas exploration and development activities, it is concluded that implementation of this alternative would not result in a significant loss of potential oil and gas recovery.

The WSA has an estimated in-place coal resource of 1 billion tons of which up to 500 million tons are considered recoverable. Approximately 17,628 acres are presently under lease. It is projected that current leases will expire before diligent development occurs and that new leasing will not occur. It is, therefore, concluded that approximately 500 million tons of recoverable coal would be foregone resulting in a significant resource loss.

• Locatable Minerals

Approximately 74 acres are under mining claim within the WSA, probably for uranium. Development work, extraction, and patenting would be allowed to continue on valid claims after wilderness designation under unnecessary or undue degradation guidelines. Because production of these metals is not currently occurring and because economic considerations (e.g., transportation, low potential, market price, etc.) are unfavorable, it is unlikely that exploration or development would occur. Therefore, implementation of this alternative would not result in a significant loss of uranium resources.

• Salable Minerals

No exploration or development is anticipated. Because of low potential of the deposits and the availability of better sources of material outside of the WSA, any loss of salable mineral products would be insignificant.

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Conclusion: Exploration and development of a significant coal resource would be foregone. Loss of exploration and development opportunities for other mineral and energy resources would not be significant.

• Impacts on Wildlife Habitat and Populations Including Special Status Species

Some wildlife would benefit due to the preservation of solitude. However, water is a limiting factor for wildlife in this WSA. If future water developments were curtailed and the four proposed livestock reservoirs not constructed, potential habitat for deer, antelope, and nongame species would be reduced. The 7,100 acres of vegetation treatments proposed would be foregone. Precluding these treatments would reduce the likelihood of expanding and improving the deer herd and nongame species within the WSA.

Other species including the special status animal species that may occur in the WSA would be provided additional protection with wilderness designation.

Conclusion: The 7,100 acres of vegetation treatments and resulting habitat improvement would be foregone. All species, including special status species, would be provided with additional opportunities for solitude.

• Impacts on Livestock Management

Present domestic livestock grazing would continue as authorized in the Paria MFP. The estimated 3,084 AUMs currently allocated in the WSA are controlled by 42 livestock permittees. The proposed 7,100 acres of vegetation treatments and four reservoirs would not be allowed. Therefore, an additional 1,160 AUMs of livestock forage and better livestock distribution would be foregone. The use of approximately 40 miles of way would be strictly regulated by BLM causing inconvenience and increased management costs for livestock operators.

Existing rangeland developments would be maintained as in the past, based on practical necessity and reasonableness. The proposed new rangeland developments would be allowed (with the exception of the four reservoirs) subject to wilderness protection standards.

Conclusion: Current livestock management practices would not be significantly affected. There could be some increase in management costs and inconvenience for permittees. The opportunity for an increase of

1,160 AUMs and better livestock distribution through vegetation treatments and construction of four reservoirs would be foregone.

• Impacts on Economic Conditions

Overall, there would not be immediate changes in current trends of population, employment, and local income distribution. Because of restrictions placed on the use of resources with wilderness designation, there would be losses in potential increases in sales and Federal revenues that could occur under the No Action/No Wilderness Alternative.

Existing oil, gas, and coal leases could be developed but designation would preclude new leasing in the WSA. No exploration or development of existing leases is projected. Precluding exploration and development of leasable minerals would not alter existing economic conditions, but would reduce future economic opportunities from what they would be with mineral development under the No Action/No Wilderness Alternative. Up to 300 jobs and related major beneficial and adverse effects in Kane County would occur.

Livestock use and ranchers' sales income would continue as at present with an estimated \$61,680 of livestock sales and \$15,420 of ranchers' return to labor and investment during the years the forage is grazed. Proposed vegetation treatments would be foregone along with any resulting increase in ranchers' income. About 7,100 acres of vegetation treatments have been proposed. If these projects were to be implemented and 1,160 additional AUMs used, ranchers' returns to labor and investment would increase by approximately \$5,800.

Recreation-related local expenditures would be the same as described for the No Action/No Wilderness alternative.

The loss of 18,853 acres now leased (oil, gas, and coal) would cause an eventual loss of up to \$55,334 per year of lease fees to the Federal Treasury. There would also be a potential loss of \$616,666 annually in Federal revenues from lands that could be leased for coal and oil and gas without designation although not all lands in the WSA are considered valuable for leasable minerals. In addition to these rental fees, any potential royalties from lease production could also be foregone.

If the proposed vegetation treatments are not implemented, an estimated annual \$1,787 of Federal

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grazing revenues from 1,160 increased AUMs would be foregone.

Conclusion: There would be no significant affect on present local or regional economic conditions. However, new leasing in the WSA would not be allowed. Therefore, potential future sales and revenues from leasable minerals (coal) would be foregone. Beneficial and adverse economic effects from long term development of coal would not occur.

Partial Wilderness Alternative (70,380 Acres)

The major activities that would occur in the designated portion of the WSA for this alternative are the same as described for the All Wilderness Alternative. For the nondesignated portion, management would be as described for the No Action/No Wilderness Alternative. The specific actions that would take place within the 70,380-acre area designated as wilderness and the 64,020-acre nondesignated area are discussed in the Description of the Alternatives section.

• Impacts on Wilderness Values

Wilderness designation of 70,380 acres would contribute to preservation of the area's wilderness values. This Partial Wilderness Alternative would cut in half the potential for surface-disturbing activities that could impair wilderness values in the WSA. Wilderness values would be preserved over the long term in the designated area. Protection in the designated area would include management under VRM Class I (which generally allows for only natural ecological change), ORV closure including closure of 10 miles of ways, and closure to future mineral leasing and location. Naturalness, outstanding opportunities for solitude (including 13,440 acres that meet and 56,940 acres that do not meet the standards for outstanding), primitive recreation (including 70,380 acres that do not meet the standards of outstanding), and special features (including 75 percent of the scenic and geologic features, special status species, and wildlife associated with wilderness) would be protected.

Although 25 percent of the scenic values and the old pinyon-juniper woodland stand on Four Mile Bench are in the nondesignated area, no disturbance of these areas is anticipated.

In the foreseeable future, direct loss of naturalness and opportunities for solitude and primitive recreation due to allowable surface disturbance from provid-

ing access to State in-holdings and from rangeland projects, and wildlife watering facilities, and vegetation treatments would occur on up to 32 acres within the designated portion and on up to 3,017 acres within the nondesignated portion. Special features would be largely preserved because disturbance would involve only 2.3 percent (3,049 acres) of the WSA and development is generally not expected in areas where special features are located. In addition, appropriate measures would be taken to protect special status species prior to any surface-disturbing activity.

Sights and sounds from foreseeable development would indirectly reduce opportunities for solitude and primitive recreation on areas adjacent to the disturbed areas, including up to 12 percent (16,128 acres) of the WSA. Most of this type of impact would be in the nondesignated area and would be in areas not considered to have outstanding opportunities for solitude and primitive recreation.

Elimination of ORV use in the designated area would improve opportunities for solitude and primitive recreation in that portion of the WSA, although vehicular use of 30 miles of ways and dry stream beds in the nondesignated area would continue to occasionally detract from these opportunities during the period of activity.

The extent that disturbance would occur over the long term and, therefore, the long-term loss of wilderness values that would occur is not accurately known but would be less than with the No Action/No Wilderness Alternative due to application of mitigation in the designated area that would limit development subject to valid existing rights. Coal development could occur in the long term in the nondesignated area. Coal development would result in a direct loss of wilderness values on 40 acres and an indirect reduction in the quality of wilderness values on up to 10 percent (13,440 acres) of the WSA for a period of 30 to 40 years.

Conclusion: Wilderness values would be preserved overall in the designated portion which is approximately 52 percent of the WSA. Naturalness and opportunities for solitude and primitive recreation would be directly lost on 3,049 acres, and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to 12 percent (16,128 acres) of the WSA. Most of the impact would be in the nondesignated area. Special features would be preserved overall.

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Coal development over the long term would result in a direct loss of wilderness values on 40 acres, and an indirect reduction in the quality of wilderness values on up to 10 percent (13,440 acres) of the WSA.

- Impacts on Vegetation Including Special Status Species

Implementation of this alternative would preserve existing pinyon-juniper woodland vegetation on 4,100 acres that could otherwise be removed with the No Action/No Wilderness Alternative. Approximately 3,000 acres of pinyon-juniper woodland and sagebrush vegetation would be altered in the area not designated as wilderness. Before authorizing any surface-disturbing activities, BLM would conduct site-specific clearances of the potentially disturbed areas, as described for the No Action/No Wilderness Alternative. If any threatened or endangered species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (see Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Because necessary measures would be taken to protect these species, the viability of populations of special status plant species would be preserved with the Partial Wilderness Alternative.

Conclusion: Special status plant species would not be significantly affected. The 3,089 acres of projected surface disturbance would affect less than 3 percent of the WSA, therefore, significant impacts to vegetation types in the WSA are not projected.

- Impacts on Mineral and Energy Exploration and Production

- Leasable Minerals

The nondesignated portion of the WSA would remain open to exploration and development of mineral and energy resources without consideration of wilderness values. Therefore, mineral and energy resources would not be affected in this portion of the WSA.

The area that would be designated wilderness would be placed in leasing Category 4 (no leasing). It is projected that the 40-acre existing oil and gas lease in the area would not be explored or developed and would not be reissued upon expiration. No new leasing would be allowed.

It is concluded that, due to the small size of the potential deposits, the low certainty that these exist, and the low likelihood for exploration and development activities, implementation of this alternative is not expected to result in a significant loss in recovery of the oil and gas resource.

The majority of coal most likely to be developed is located in the nondesignated portion of the WSA. This coal would be developed in the long term as discussed in the No Action/No Wilderness Alternative. However, an undetermined amount of coal is located in the designated portion of the WSA and would be foregone with implementation of this alternative.

- Locatable Minerals

Approximately 480 acres of the 640 acres of existing mining claims are within the area that would be designated wilderness. Development work, extraction, and patenting could continue on valid claims after wilderness designation under unnecessary or undue degradation guidelines. After designation, all other lands (including claims not determined valid) would be closed to mineral location (USDI, BLM, 1981a).

Because locatable minerals are not being recovered at present within the WSA and because economic considerations (e.g., transportation, low potential, etc.) are unfavorable, it is unlikely that exploration and development would occur even without wilderness designation. Therefore, this alternative would not prevent recovery of significant amounts of uranium.

- Salable Minerals

No exploration or development is anticipated. Because of low potential of the deposits and the availability of better sources of material outside of the WSA, any loss of salable mineral products would be insignificant.

Conclusion: Implementation of the Partial Wilderness Alternative would not prevent the recovery of significant amounts of leasable, locatable, or salable minerals. The majority of the significant coal resource would be located in the nondesignated portion of the WSA and could eventually be developed.

WAHWEAP WSA

- Impacts on Wildlife Habitat and Populations Including Special Status Species

Some wildlife could benefit due to the preservation of solitude within the 70,380 acres that would be designated wilderness. Proposed vegetation treatments on 4,100 acres would be foregone. Precluding these treatments would reduce the likelihood of expanding and improving the deer herd and nongame species within the area designated wilderness (70,380 acres). In the nondesignated area, wildlife watering facilities and 3,000 acres of vegetation treatment would be allowed.

The special status animal species that may occur in the 70,380 acres of the designated portion would be provided additional protection and solitude.

Conclusion: The 4,100 acres of vegetation treatments and resulting wildlife habitat improvement would be foregone. All species would be provided with additional protection and solitude on 52 percent of the WSA.

- Impacts on Livestock Management

The effect of designation of 70,380 acres of the WSA as wilderness on domestic livestock grazing would be essentially the same as with the All Wilderness Alternative. Of the estimated 3,084 AUMs allocated, 1,574 would be within the designated portion of the WSA and 1,510 within the nondesignated portion. The proposed rangeland facilities for use with 1,574 AUMs in the designated portion would be allowed subject to wilderness protection standards. These developments would include two spring developments, 4 miles of fence, 5 miles of pipeline, and three water catchments. The use of approximately 10 miles of way located in the designated portion would be regulated by BLM. Wilderness designation would preclude vegetation treatments on approximately 4,100 acres of land within the WSA. This would amount to a loss of approximately 670 AUMs. In the nondesignated area 3,000 acres of vegetation treatments, 1 mile of pipeline, four reservoirs, one spring development, and 3 miles of stock trail could be constructed. Approximately 490 additional AUMs would be produced. The 30 miles of way would remain open to use by livestock permittees.

Conclusion: There would not be a change in the level of livestock use, but restrictions on access would be an inconvenience for permittees and would increase

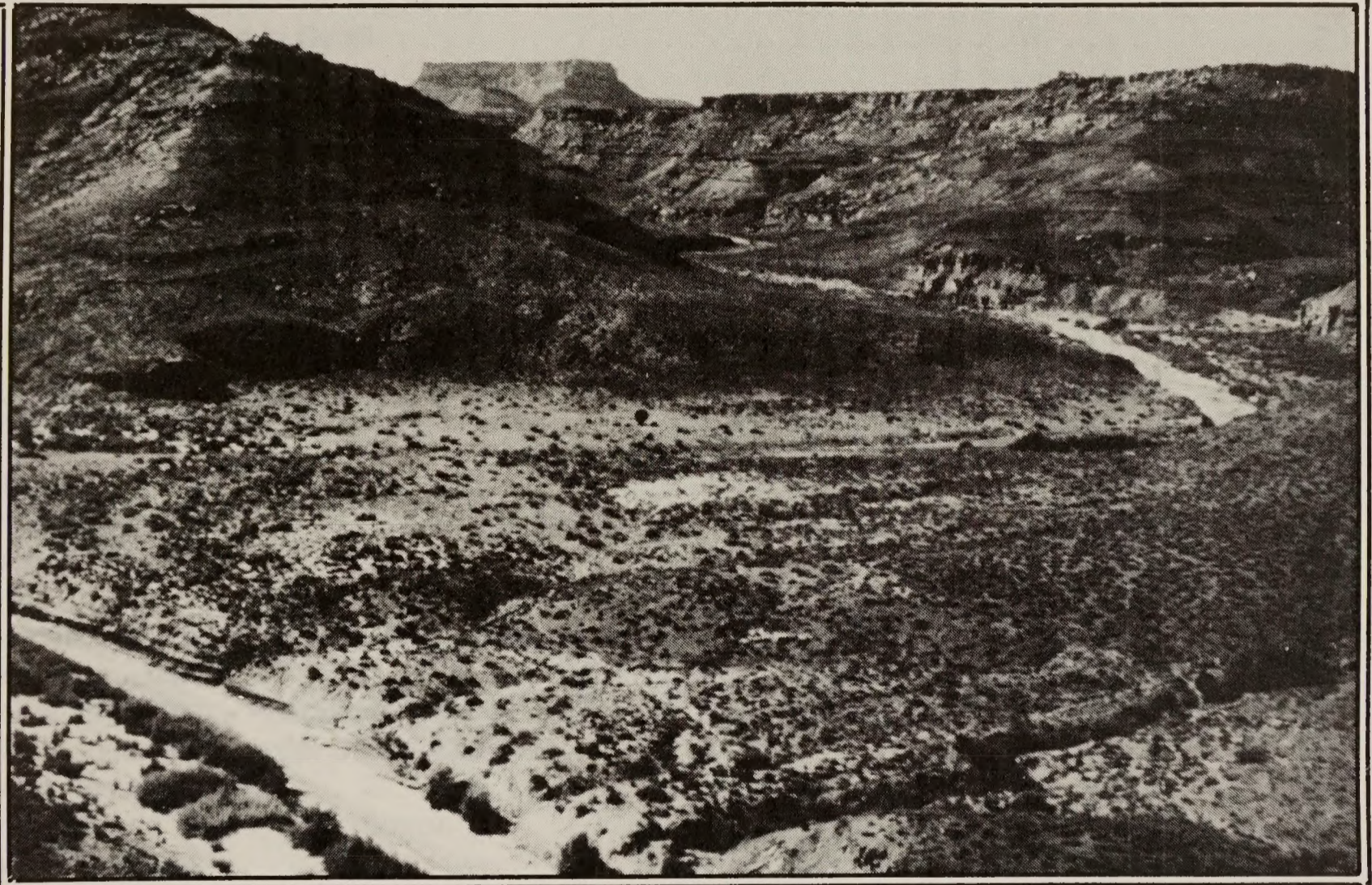
management costs. The opportunity for an increase of 670 AUMs and better livestock distribution through vegetation treatments would be foregone.

- Impacts on Economic Conditions

Partial designation of this WSA would not result in any changes in existing patterns and trends of population, employment, and local income distributions in the short term. In the long term, coal development could take place on future leases in the nondesignated portion. This could lead to future increased income and revenue and demands for housing and infrastructure in Kane County, as described in the No Action/No Wilderness Alternative. The estimated 3,084 AUMs would remain available to cattle. Revenue, sales, and ranchers' returns would be the same as with the No Action/No Wilderness Alternative. Recreation-related local expenditures would be the same as described for the No Action/No Wilderness Alternative. There would be a potential for gain in Federal revenue from future coal leases issued in the nondesignated portion.

Conclusion: Over the short term, there would not be an effect on local economic conditions. Impacts could occur in the long term as a result of projected coal development in the nondesignated portion of the WSA. There would be major beneficial and adverse effects in Kane County.

Burning Hills WSA



BURNING HILLS WSA

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BURNING HILLS WSA

(UT-040-079)

INTRODUCTION

General Description of the Area

The Burning Hills WSA is located on the Kaiparowits Plateau in southeastern Kane County and contains 61,550 acres. It is managed by the BLM Cedar City District, Kanab Resource Area Office.

The WSA encompasses a portion of the Last Chance drainage and is bounded by the Smoky Mountain, Collet Top, and Croton Canyon roads. It is approximately 15 air miles northeast of Big Water City. The WSA is characterized by an undulating plateau surface cut by canyons. Vegetation consists of desert shrub and pinyon-juniper woodland.

Average annual precipitation in the Burning Hills WSA varies from 10 to 14 inches due to the unit's large size and variations in altitude. Highest monthly precipitation occurs from July through December, during which time two-thirds of the yearly total falls. Intensive thunderstorms are common during the summer months.

Temperatures vary greatly with aspect and altitude. July and January are the warmest and coldest months, respectively. July temperatures range from 50 to over 100 degrees Fahrenheit (F) while the January range is from below 0 degrees to 60 degrees F.

Changes for the Final EIS

In addition to the changes noted in the Introduction to Volume III-B, the following changes specific to the Burning Hills WSA have been made since publication of the Draft EIS.

1. Small portions of the boundary of the WSA (T. 38 S., R. 4 E., sec. 32; T. 42 S., R. 5 E., sec. 16) have been redrawn to correct errors in the Draft EIS maps. These changes did not require acreage adjustments because acreage calculations were based on the boundaries as shown in the inventory document and Final EIS.

2. The anticipated surface disturbance presented in the Draft EIS (7,132 acres) was based on the assumption that all mineral and other resources potentially within the WSA would be developed sometime in the future without consideration of technical or economic

feasibility. In response to public comments relative to the feasibility of developments, the disturbance estimates have been revised to focus on activities projected to be feasible within the foreseeable future (see Appendix 6 in Volume I). This resulted in a reduction of surface disturbance estimates from the 7,132 acres reported in the Draft EIS to 700 acres for the Final EIS. Coal exploration and development is projected for the long term. As part of the projected surface disturbance, up to 40 acres could be occupied by surface facilities and access roads. Additional surface disturbance would result from exploratory drilling activities. The Final EIS also projects 4 acres of surface disturbance resulting from the construction of access roads to in-held State lands for the purpose of mineral exploration.

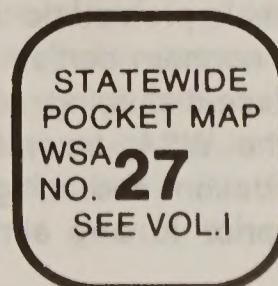
3. The Draft EIS identified a 3,872-acre vegetation treatment (chaining and seeding) within the WSA to improve wildlife habitat and to increase livestock forage production. However, BLM does not anticipate sufficient funding in the foreseeable future to complete this project. As a result, the vegetation treatment estimates have been revised downward to 650 acres in the Final EIS to reflect more realistic funding projections. Estimates of potential increases in wildlife populations and livestock forage have been revised accordingly.

4. The Final EIS projects up to 6 acres of surface disturbance resulting from the construction of several rangeland projects including 3 miles of fences, five cattle guards, three wells, one spring development, one catchment, and 1 mile of trail. This was not analyzed in the Draft EIS.

Specific Issues Identified Through Scoping and Public Comment

- Issues Considered But Not Analyzed in Detail

In addition to the issues discussed and eliminated from further consideration in the Introduction to Volume III-B (i.e., impacts on air quality, water rights,



BURNING HILLS WSA

geology and topography, and land use plans), the following issues or impacts specific to the Burning Hills WSA were considered but are not analyzed in detail in the Final EIS for the reasons described below.

1. Soils: Soil disturbance estimates have been revised downward from 7,132 acres analyzed in the Draft EIS to 700 acres in the Final EIS. About 650 acres of projected disturbance would result from vegetation treatments which would be reclaimed and existing soil conditions would likely be improved. Further, this disturbance would take place in those portions of the WSA where reclamation potential is the highest. At any rate, given this new scenario, the impacts of direct disturbance of soil would affect only about 1.1 percent of the WSA. Therefore, impacts on soils are not significant issues for analysis in the Final EIS.

2. Water Resources: There are no perennial waters in the WSA or proposed water developments that would be precluded by wilderness designation in the Burning Hills WSA. Existing water developments could be maintained as in the past and would not be affected. Therefore, the impacts of wilderness designation on water quality or uses are not discussed in detail.

3. Forest Resources: The forest resources in the WSA consist of approximately 24,620 acres of scattered pinyon-juniper woodland. Due to the remote location of the WSA, limited access, and the presence of more favorable areas elsewhere, no forest resource harvest is projected in the WSA in the foreseeable future. Therefore, impacts on forest resources are not significant issues for analysis in the Final EIS.

4. Visual Resources: As already discussed, estimates of surface disturbance have been substantially reduced for the Final EIS. The 700 acres of surface disturbance projected to occur in the foreseeable future would affect only about 1.2 percent of the WSA. Disturbance would most likely occur in Scenic Class B and C areas and in VRM Class III and IV areas. The impacts on visual resources are considered in the Final EIS as a part of the discussion of naturalness in the Wilderness Values section.

5. Cultural Resources: Only six archaeological or historical sites are known to occur in the WSA. Most of these sites are small prehistoric lithic scatters on sandy ridges in the northern portion of the WSA. However, because surface-disturbing activities could potentially occur in the WSA, inventories for the purpose of site recordation and mitigation of impacts would take place prior to any surface disturbance.

Given these conditions, impacts on cultural resources are not significant issues for the Burning Hills WSA.

6. Recreation: Recreational use of the Burning Hills WSA is light, probably about 100 visitor use days per year. Most (about 90 percent) of this is motorized use by hunters and livestock operators. The remaining 10 percent is primitive use by backpackers and sightseers. Recreational changes due to designation or nondesignation would not be significant due to limited use now occurring and projected to occur in the future in the WSA.

7. Kaiparowits Coal Transportation Corridor: A potential coal transportation and railroad corridor passes through the WSA (ERT, 1980). Commentors on the Draft EIS expressed concern that designated wilderness areas, including the Burning Hills WSA, could block the use of these corridors. If the wilderness designation were to occur, development of the coal transportation systems would not be allowed within the WSA. However, the systems could be sited outside the WSA and still be within the designated corridors. No specific transportation routes have been identified within the WSA. Development of major rights-of-way in the long term are projected to occur only along portions of the western edge of the WSA due to topography and the presence of more favorable routes elsewhere.

• Issues Analyzed in Detail

The significant issues for the Burning Hills WSA are:

1. Impacts on the wilderness values of naturalness, opportunities for solitude and primitive recreation, and special features.

2. Impacts on vegetation including special status species.

3. Impacts on leasable mineral exploration and production.

4. Impacts on wildlife habitat and populations including special status species.

5. Impacts on livestock management.

6. Impacts on local economic conditions.

Comments made during the public comment period for the Draft EIS centered mainly on the need for, and adequacy of, the rationale for the BLM proposed action;

BURNING HILLS WSA

the need for further inventories of resource values; and BLM's assessments of wilderness values, visual resources, and mineral values.

See Volume VII-B for responses to general comments applicable to all WSAs and/or the Statewide analysis and Volume VII-C, Section 27, for responses to specific comments about the Burning Hills WSA.

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated from Detailed Study

An alternative that would add Federal and State lands along portions of the west and east-central portions of the WSA and delete lands along the southeast and west-central portions of the WSA was suggested in the public comments. This alternative is not analyzed because the inclusion of State lands is not consistent with BLM's wilderness review guidelines (refer to Volume VII-B, General Comment Response 6.4) and because other Federal lands were dropped from study during the inventory phase (refer to Volume VII-B, General Comment Response 3.1). Other citizen-proposed alternatives are comparable to the All Wilderness Alternative of 61,550 acres.

Alternatives Analyzed

Two alternatives are analyzed for this WSA: (1) No Action/No Wilderness (Proposed Action); and (2) All Wilderness (61,550 acres). A description of BLM's management practices with each alternative follows. Where management intentions have not been clearly identified, assumptions are made based on management projections under each alternative. These assumptions are indicated in each case. The assumed management actions presented in the Introduction to Volume III-B are also applicable.

- No Action/No Wilderness Alternative (Proposed Action)

With this alternative, none of the 61,550-acre Burning Hills WSA would be designated by Congress as part of the NWPS. Although BLM's land use plans are regularly updated, it is assumed that the area would continue to be managed in accordance with the Paria MFP (USDI, BLM, 1981c). The 3,839.7 acres of State land within the WSA (refer to Map 1) have not been identified in the MFP for special Federal acquisition through exchange or purchase. No private or split-

estate lands are located in the WSA. The figures and acreages given are for Federal lands only.

- Management Conditions and Constraints

All 61,550 acres would remain open to mineral location and sale. Development work, extraction, and patenting would be allowed on 65 existing mining claims (1,300 acres) and potential future mining claims. Development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809), without consideration for wilderness values. An existing post-FLPMA oil and gas lease (40 acres) could be developed under Category 1 (standard stipulations). The balance of the WSA (61,510 acres) could be offered for new oil and gas leases under Category 1. Existing coal leases (20 leases covering 12,650 acres) and future new coal leases on 48,900 acres not currently leased could also be developed.

Although mineral resources would be managed as described above, no locatable mineral exploration or development is projected in the WSA because the level of known resources and the probability of their development are too low to support that assumption. Appendix 6 in Volume 1 explains the mineral exploration and development projections. No leasable mineral exploration or development is projected in the short term, however, BLM believes that the coal resource in the WSA will eventually be explored and developed in the long term. Development would be by underground methods and access would likely be in the northern portion of the WSA where the more favorable deposits are located. The size of individual coal operations, typical of the intermountain area, differ. Each surface facility, including access roads, would occupy up to 20 acres. Additional surface disturbance would result from exploration drilling activities. Employees, including supervisory personnel, would number from 20 to 300. Operations would last from 30 to 40 years. All disturbed areas would be reclaimed upon abandonment.

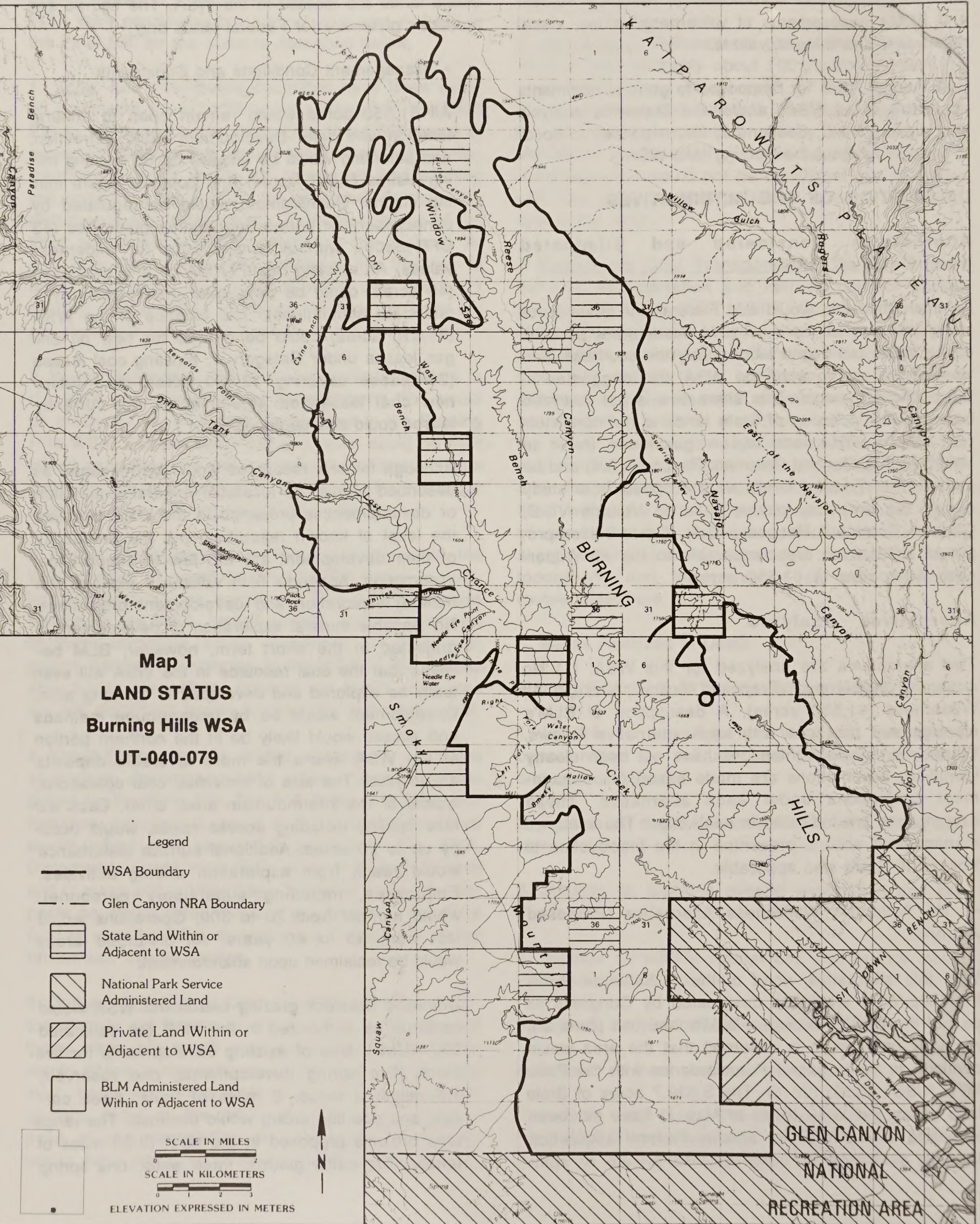
Domestic livestock grazing use in the WSA would continue as authorized in the MFP (an estimated 962 AUMs). Use of existing developments for livestock (five spring developments, one reservoir, 1.5 miles of fence, 6 miles of trails, three corrals, and one line cabin) would continue. The rangeland projects proposed in the MFP (3.25 miles of fence, five cattle guards, three wells, one spring

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R. 3 E.

R. 4 E.

R. 5 E.



T. 39 S.

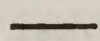
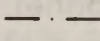




T. 40 S.

T. 41 S.

T. 42 S.

Map 1
LAND STATUS
Burning Hills WSA
UT-040-079

Legend

-  WSA Boundary
-  Glen Canyon NRA Boundary
-  State Land Within or Adjacent to WSA
-  National Park Service Administered Land
-  Private Land Within or Adjacent to WSA
-  BLM Administered Land Within or Adjacent to WSA

SCALE IN MILES

SCALE IN KILOMETERS

ELEVATION EXPRESSED IN METERS

BURNING HILLS WSA

and trough, one catchment, 1 mile of trail, and 650 acres of seeding) would be allowed. The 11 miles of ways and 10 miles of cherry-stemmed roads would remain open for livestock management purposes.

Use, maintenance, and development of facilities and developments for wildlife, water resources, etc., could be allowed if in conformance with the MFP. The 650 acres of vegetation treatment previously discussed would be designed to benefit wildlife. One guzzler would be constructed for wildlife purposes.

The WSA would continue to be open to ORV use, except for about 10,000 acres in the Last Chance drainage, where use is limited to existing roads and trails.

A 150-acre public water reserve withdrawal would continue to remain in effect. The withdrawn land is segregated against public land laws and nonmetalliferous mining.

The WSA would be open to woodland product harvest. However, due to the remote location of the WSA, limited access, and the presence of more favorable harvest areas elsewhere, use would continue to be minimal for the foreseeable future.

- Action Scenario

It is projected that implementation of the No Action/No Wilderness Alternative would result in about 700 acres of surface disturbance in the foreseeable future. In the short term, about 650 acres of the expected disturbance would result from a vegetation treatment to improve wildlife habitat and livestock forage. The vegetation treatment would be a pinyon-juniper woodland chaining and seeding project. Other planned wildlife and rangeland projects would disturb about 6 acres and include over 3 miles of fence, five cattle guards, three wells, 1 spring development, 1 catchment, and 1 mile of trail. About 1 month of actual on-the-ground work would be necessary to complete these projects. It is recognized, however, that the projects would be installed over a period of several years. Four acres of surface disturbance would result from the 2 miles of access road construction to in-held State lands in the northern portion of the WSA for mineral exploration purposes.

No leasable or locatable mineral resources exploration or development is expected in the short term. However, in the long term, it is anticipated that exploration and development of the extensive coal resource in the WSA would occur. Development would be by underground methods and access would begin in the northern portion of the WSA where the more favorable deposits are located.

Each surface facility site, including up to 5 miles of access roads, would occupy up to 20 acres. Two separate mine facilities could be located in the WSA, therefore, up to 40 acres could be occupied by surface facilities and access roads. Additional surface disturbance would result from exploratory drilling activities. Employees, including supervisory personnel, would number from 20 to 300 for each operation. Operations would last from 30 to 40 years. All disturbed areas would be reclaimed upon abandonment.

No disturbance from ORV use is projected because all traffic would continue to be restricted to the existing 11 miles of ways due to rugged terrain. Use is low due to remoteness of the area. Recreational use is expected to increase over the current estimated use of 100 visitor days per year at a rate of 2 to 7 percent annually. As much as 90 percent of all recreational use would continue to be related to the use of vehicles on the existing ways and on projected future access roads.

- All Wilderness Alternative

With this alternative, all 61,550 acres of the Burning Hills WSA would be designated by an act of Congress as part of the NWPS (refer to Map 2). It would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) to preserve its wilderness character. There are six State sections (3,839.7 acres) within the WSA which would remain in State ownership (refer to map 1 and Appendix 3 in Volume I). The figures and acreages given for this alternative are for Federal lands only. No private or split-estate lands are located in the WSA.

- Management Conditions and Constraints

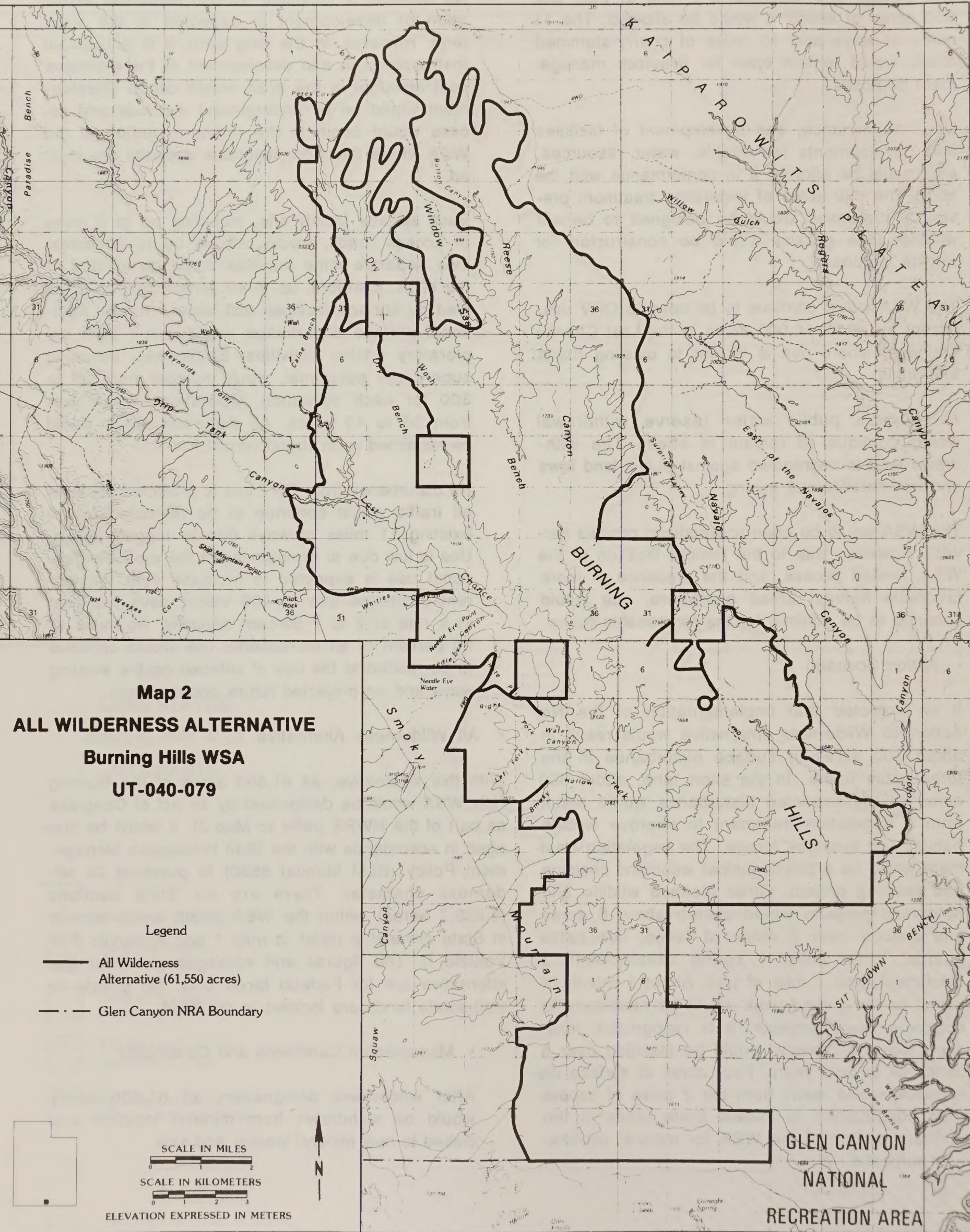
After wilderness designation, all 61,550 acres would be withdrawn from mineral location and closed to new mineral leasing and sale.

BURNING HILLS WSA

R. 3 E.



R. 4 E.

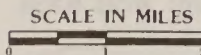
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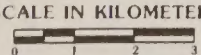


Map 2
ALL WILDERNESS ALTERNATIVE
Burning Hills WSA
UT-040-079

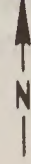
Legend

-  All Wilderness Alternative (61,550 acres)
-  Glen Canyon NRA Boundary

SCALE IN MILES


SCALE IN KILOMETERS


ELEVATION EXPRESSED IN METERS



BURNING HILLS WSA

Development work, extraction, and patenting of 65 existing mining claims on 1,300 acres, as well as any new claims located prior to wilderness designation, would be allowed if they are determined to be valid. Development of any such valid claims would be regulated by unnecessary or undue degradation guidelines (43 CFR 3800), with consideration for wilderness values. However, BLM does not anticipate location or development of mining claims with this alternative. The existing post-FLPMA oil and gas lease (40 acres) would not be reissued upon expiration unless a find of oil or gas in commercial quantities is shown. No new oil and gas leases would be issued. BLM does not anticipate any oil or gas development in the WSA. It is assumed that existing coal leases (20 pre-FLPMA leases on 12,650 acres) would be terminated if diligent development criteria are not met, and they would not be extended or reissued. Those leases meeting the diligence criteria would be allowed to continue production. No new coal leases would be issued on the 48,900 acres not currently leased. BLM does not anticipate development of the coal resource with this alternative.

Present domestic livestock grazing would continue as authorized in the Paria MFP. The estimated 962 AUMs in the WSA would remain available to livestock as presently allotted. The use and maintenance of range developments existing at the time of designation (as listed in the No Action/No Wilderness Alternative) could continue in the same manner as in the past based on necessity and reasonableness. New rangeland developments would be allowed on a case-by-case basis if necessary for resource protection (rangeland and/or wilderness) and the effective management of these resources, provided that wilderness protection criteria are met (refer to Appendix 1 in Volume I). It is assumed that all the proposed livestock developments listed in the No Action/No Wilderness Alternative would be allowed. The proposed wildlife guzzler would be designed and installed consistent with wilderness protection standards. The 650 acres of vegetation treatment which likely would not be allowed.

The entire 61,550-acre WSA would be closed to ORV use except for: (1) users with valid existing rights if approved by BLM in accordance with 43 CFR 8560 provisions; or (2) for occasional and short-term vehicular access approved by BLM for maintenance of approved livestock develop-

ments and management of livestock. The 11 miles of existing vehicular ways would not be available for vehicular use, except as indicated above. The 10 miles of cherry-stemmed roads and about 21 additional miles of dirt roads that border the WSA would remain open to vehicular use.

A 150-acre public water reserve withdrawal would continue to remain in effect. The withdrawn land is segregated against public land laws and non-metalliferous mining.

• Action Scenario

A total of 9 acres of surface disturbance would occur in the foreseeable future in the WSA following wilderness designation. Five acres of disturbance would result from the construction of the rangeland and wildlife projects described in the No Action/No Wilderness Alternative. These projects would be designed and installed consistent with wilderness protection standards. The planned vegetation treatment would not be allowed. No other rangeland, wildlife habitat, watershed projects or other developments are planned following wilderness designation. Four acres of surface disturbance would result from access road construction to in-held State lands for mineral exploration purposes. No mineral resource exploration or development is expected in the WSA.

No disturbance from ORV use is projected because of wilderness management restrictions, topographic constraints, and remoteness of the area. Primitive recreational use is expected to increase over the current estimated use of 10 visitor days per year at a rate of 2 to 7 percent annually. Motorized recreational use including potential increases would not be allowed.

Summary of Environmental Consequences

Table 1 presents the environmental consequences of the alternatives analyzed in detail.

AFFECTED ENVIRONMENT

This section describes the overall environmental setting. This information allows for independent assessment by the public as required by the CEQ guidelines and provides a data base for the cumulative State-wide analysis found in Volume I, as well as the Environmental Consequences of Alternatives in this WSA analysis.

BURNING HILLS WSA

Table 1
Summary of Environmental Consequences

| Alternatives | |
|---|---|
| Resource | All Wilderness (61,550 Acres) |
| Impacts on Wilderness Values | <p>Wilderness designation would preserve overall the wilderness values in the WSA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost or reduced in quality on 9 acres because of development of access roads to State in-holdings for mineral exploration and because of rangeland improvements. The quality of wilderness values would be indirectly reduced on up to 1,231 acres of the WSA. Special features would be preserved.</p> |
| Impacts on Vegetation | <p>Wilderness designation would preclude or severely constrain potential development of about 464 million tons of recoverable coal. Loss of exploration and development opportunities for other mineral and energy resources would not be significant because the probability of development is low even if the area is not designated as wilderness.</p> |
| Impacts on Mineral and Energy Exploration and Development | <p>Implementation of the All Wilderness Alternative would not significantly affect the vegetation resource in the WSA. Vegetation types and special status plant species would be protected because potential disturbance would be reduced to 9 acres.</p> |
| Impacts on Wilderness Values | <p>Wilderness values would not be protected and loss would occur as intrusions increase. In the short-term future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 660 acres of the WSA because of development of range-land projects, vegetation treatments, and access to State lands for mineral exploration. Opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to 3,077 acres. Special features including Class A scenery, special status species, and wildlife associated with wilderness would not be significantly affected. Vehicular use of 11 miles of ways would continue to detract from opportunities for solitude and primitive recreation. Over the long term, coal development would result in a direct loss of wilderness values on 40 acres and an indirect reduction of wilderness values in the northern 33 percent (20,311 acres) of the WSA.</p> |
| Impacts on Vegetation | <p>Special status plant species would not be significantly affected. Only about 1.1 percent (700 acres) of the pinyon-juniper woodland and desert shrub vegetation types in the WSA would be altered as a result of rangeland and wildlife projects and long term coal development. Therefore, there would not be significant changes in the vegetation types in the WSA.</p> |
| Impacts on Mineral and Energy Exploration and Development | <p>Implementation of the No Action/No Wilderness Alternative would not adversely affect mineral exploration or production because minerals could be leased, claimed and developed as at present.</p> |

BURNING HILLS WSA

Table 1 (Continued)
Summary of Environmental Consequences

| | Alternatives | |
|---|--|--|
| Resource | No Action/No Wilderness (Proposed Action) | All Wilderness (61,550 Acres) |
| Impacts on Wildlife Habitat and Populations | Wildlife habitat and populations including special status animal species would not be significantly affected. Implementation of the projected wildlife and rangeland projects would benefit by providing additional water, forage, and ecotones. Less than 1.1 percent (700 acres) of wildlife habitat in the WSA would be affected. | Wilderness designation would preclude 650 acres of vegetation treatments designed to improve wildlife habitat and livestock forage, but would provide all species with additional opportunities for solitude. Only 9 acres of wildlife habitat would be disturbed in the WSA. |
| Impacts on Livestock Management | Livestock management and grazing lands would not be adversely affected because access and management practices would continue as at present. Approximately 650 acres of seeding that would produce 100 AUMs of forage could be done. | Wilderness designation would not significantly affect current livestock management practices. Restricting motorized use of the 11 miles of ways could slightly increase management costs and inconvenience the 23 permittees. The opportunity for an increase of 100 AUMs through vegetation treatments would be foregone. |
| Impacts on Economic Conditions | No loss of local employment or income would occur. Federal and State revenues would not be reduced. Economic opportunities could be realized through mineral and energy resource exploration and eventual development in the long term. There would be major beneficial and adverse effects in Kane County. | Wilderness designation would not significantly affect present local or regional economic conditions. However, new leasing in the WSA would not be allowed; therefore, potential sales and revenues from the coal would be foregone. Over the long term, coal development and associated beneficial and adverse economic impacts would not occur. This would significantly change future economic conditions in Kane County from what they would be without wilderness designation. |

BURNING HILLS WSA

Unless otherwise indicated, information for this section was taken from BLM staff specialists, technical reports, and file documents.

Wilderness Values

- Size

The WSA contains 61,550 acres and is approximately 22 miles long (north to south) and up to 9 miles wide (east to west).

- Naturalness

Although the WSA is essentially in a natural condition, some human imprints can be found in the unit. These imprints include: drill pads and access ways on Dry Bench and in the upper Reese Canyon drainage, a cabin in Drip Tank Canyon, ways in Reese Canyon below Surprise Valley, an abandoned stock tank and other equipment in Reese Canyon, a trailer and old corral in Last Chance Creek at the mouth of Reese Canyon, and ways in the Burning Hills west of Navajo Canyon. These imprints are considered substantially unnoticeable in the area as a whole and when combined, involve less than 610 acres of the WSA. Lack of access has preserved the WSA's naturalness.

In the Burning Hills WSA, the high quality of naturalness has not changed since the BLM Intensive Wilderness Inventory (USDI, BLM, 1980b) decision. No additional imprints have occurred in the WSA as a result of impairing uses or activities allowed under the BLM Interim Management Policy (USDI, BLM, 1979c).

- Solitude

The size and configuration of the WSA, in combination with topographic and vegetation screening, provide outstanding opportunities for solitude.

In Dry Wash Canyon, Last Chance Creek Canyon, and the extreme upper portion of Reese Canyon, outstanding opportunities for solitude are present because of a combination of topographic and riparian vegetation screening.

Located between the canyons noted above are two benches, Window Sash Bench and Dry Bench. Outstanding opportunities for solitude can also be found in these areas due to the size of the bench areas and the extensive pinyon-juniper woodland forest which provides vegetation screening.

A system of canyons with no intervening benches is present in the area south of Smoke Hollow. Although the individual canyons retain their identity, the entire canyon system assumes the shape of an escarpment. This configuration concentrates and enhances the topographic screening factor, in a manner sufficient to make the opportunity outstanding in this area.

Areas within the WSA that lack both vegetation and topographic screening are not considered to have outstanding opportunities for solitude. Such areas are commonly found on outward-facing slopes that have a desert shrub vegetation cover.

Over all, about 45 percent (27,700 acres) of the WSA meets the solitude criterion for areas under wilderness review.

- Primitive and Unconfined Recreation

There are no outstanding opportunities for primitive or unconfined recreation within the WSA.

- Special Features

The Burning Hills portion of the WSA is an educational area depicting the geological changes that have resulted over the ages from naturally occurring coal fires. Approximately 13,000 acres of the Burning Hills are within the unit.

The Burning Hills portion of the WSA is a scenic area. The red colorations in the landscape are the result of geological changes attributed to the naturally occurring coal fires. Scenic values are also present in the lower Last Chance Creek Canyon area below Smoky Mountain. The escarpment at the tip of Smoky Mountain exhibits the same colorations as the Burning Hills. This landscape includes the badlands areas at the foot of the cliffs on the Glen Canyon National Recreation Area (NRA) boundary. Approximately 27,500 acres possess interesting scenic features. Approximately 15,690 acres (25 percent of the WSA) are rated Class A for scenic quality.

The WSA has resource values that, although not identified as such during the wilderness inventory, could be considered special features. There are two animal species, the peregrine falcon and bald eagle, listed as endangered that can be expected to migrate through the WSA. There are nine animal species and seven plant species that are considered sensitive which occur, or may occur, in the WSA. The WSA also has a small, resident cougar population. Desert bighorn

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sheep may migrate into the area. These are species commonly associated with wilderness. Refer to the Vegetation and Wildlife Including Special Status Species sections for additional information.

• Diversity

This WSA is in the Colorado Plateau Province Ecoregion and has the PNV type juniper-pinyon woodland. Refer to the Vegetation Including Special Status Species section for more discussion of ecoregions and PNV types. The ecoregion and PNV types represented by this WSA are compared with existing and other potential National Wilderness Preservation units in the Wilderness Values section of Volume I.

This WSA is not within a 5-hour drive from any standard metropolitan statistical area.

Air Quality

The Burning Hills WSA and surrounding area have been designated Class II under the PSD classification under the Clean Air Act Amendments of 1977. The BLM will not consider or recommend any change in air quality classification as part of the wilderness study or wilderness recommendations. Any further air quality reclassification is the prerogative of the Utah State government or Congress, not BLM (USDI, BLM, 1982b). The nearest PSD Class I area is Capitol Reef National Park approximately 30 miles to the northwest.

No measurements of air pollution or visibility levels have been made in the WSA; however, data collected from various nearby sites (Page, Arizona; and Four Mile Bench, Garfield County, Utah) indicate the air is generally free of pollutants and within National Ambient Air Quality Standards and State regulations. Visibility within the WSA is excellent.

Geology and Topography

The Burning Hills WSA lies within the Kaiparowits Plateau-Escalante Benches section of the Colorado Plateau Physiographic Province. In general, the WSA consists of undulating plateau surfaces into which the major drainages have cut deep canyons.

Jurassic to Cretaceous strata are exposed in the WSA. Jurassic strata, consisting of the Morrison Formation, are exposed in only a limited area in the extreme southern part of the WSA. Cretaceous strata include the Dakota, Tropic, and Straight Cliffs Forma-

tions. The Straight Cliffs Formation forms the most extensive exposures and is also the only coal-bearing unit in the WSA.

Three structural axes, all trending northwest to southeast, cut across the WSA. South of the Reese anticline, dips are southwest 6 degrees into the Last Chance syncline. Dips between the syncline and the Smoky Mountain anticline are locally to 10 degrees, but usually are somewhat less. To the southwest of the anticline, dips are mostly less than 5 degrees.

In the eastern portion of the WSA only a few flat plateau remnants remain. Above these cliffs are rounded knolls reddened by burned coal. Along the base of the cliffs are large areas of landslide debris made of huge blocks of former upland strata. The principal drainage is the Last Chance Creek, an intermittent stream that drains to the south.

Soils

Three general soil categories are found within the WSA. They can be described as (1) rock outcrops, (2) plateaus and benches, and (3) terraces and valleys.

Rock outcrops occupy roughly 51 percent (31,390 acres) of the WSA. They occur as exposed bedrock of shale or siltstone on steep slopes of terraces or on canyon walls. Rock outcrops also occur as badlands on barren hills of exposed bedrock. These areas have the highest sediment yields and erosion hazard in the WSA. Plateaus and benches have very shallow to moderately deep fine sands and sandy loams on level to gently sloping surfaces. Plateaus and benches occur on 28 percent (17,231 acres) of the WSA. Terrace and valley soils are deep fine sands where they occur as dunes and hummocks or elsewhere have loams and fine sands. Occasionally, desert pavement occurs as a gravel surface on these valley and terrace soils that make up 21 percent (12,929 acres) of the WSA. Table 2 indicates the erosion condition for the WSA.

According to an unpublished Kane County soil survey conducted by BLM, 85 percent of the soils within the WSA are classified as highly saline. The remaining 15 percent are classified as slightly saline. The estimated annual salt yield from undisturbed soils within the WSA is 105 lb per acre.

Reclamation potential is low on the majority of the area which contains rock outcrops and sandy soils. Potentials for seeding establishment is considered

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fair on loamy soil sites scattered throughout the WSA.

Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | Acres | Percent of WSA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|--------|----------------|--------------------------------------|
| Severe | 5.4 | 0 | 0 | 0 |
| Critical | 2.7 | 0 | 0 | 0 |
| Moderate | 1.3 | 56,050 | 91 | 72,865 |
| Slight | 0.6 | 5,500 | 9 | 3,300 |
| Stable | 0.3 | 0 | 0 | 0 |
| Total | | 61,550 | 100 | 76,165 |

Sources: USDI, BLM, 1978c and 1979c; Lelfeste, 1978.

Vegetation, Including Special Status Species

The major vegetation types currently existing within the WSA are desert shrub and pinyon-juniper woodland. Desert shrub vegetation includes shadscale, blackbrush, and snakeweed and occupies 33,853 acres or 55 percent of the WSA. The pinyon-juniper woodland occupies 24,620 acres or 40 percent of the WSA. The balance of the unit is classified as steep and rocky or as barren (3,077 acres or 5 percent). Small areas of riparian vegetation in wash bottoms make up less than 1 percent of the vegetation in the WSA.

No threatened or endangered plant species are known to occur in the WSA. However, six Category 2 candidate species and one Category 1 candidate species are known or thought to occur in the WSA. These are Cymopterus higginsii, Penstemon atwoodii, Heterotheca jonesii, Coryphantha missouriensis var. marstonii, Lepidium montanum var. neeseae, Psoralea pariensis, and Lepidium montanum var. stellae (see Appendix 4 in Volume I). Cymopterus higginsii has been found in the Smoky Mountains in the southwest portion of the WSA, and Penstemon atwoodii has been found in the northwest portion of the WSA near Pete's Cove at the northern end of Dry Wash. Four of the species discussed above are located in the pinyon-juniper woodland where the majority of surface disturbance would occur. The other species are located in more restricted habitats such as riparian and blow sand type ecosystems. The habitats of all of these species extend beyond the WSA boundaries.

The Burning Hills WSA is in the Colorado Plateau Province Ecoregion as shown on the Bailey-Kuchler ecosystems map (USDI, USGS, 1978a). The PNV type of the WSA is juniper-pinyon woodland.

Water Resources

The Burning Hills WSA is within the Last Chance Creek subbasin of the Upper Colorado River Hydrologic subregion. There are no perennial streams in the WSA. The major drainages are Last Chance Creek, Dry Wash, and Warm Creek. They flow as a result of thundershower activity common in the July to September period. Last Chance Creek and its tributaries drain most of the WSA. Warm Creek drains about four sections in the southwest corner of the WSA.

The Burning Hills WSA lies within Paria River Adjudication Area 89. The waters in this area are considered to be fully appropriated on the surface and any directly connected underground aquifer. The State Engineer will consider applications to appropriate water for 0.015 cfs based on the proposed location outside of any existing municipal, town, or subdivision system, and on the individual merits of the applications (UDNRE, DWR, 1988).

The water quality standards for Last Chance Creek, a tributary of Lake Powell, are as follows: Class 2B (protected for boating, waterskiing and similar uses), 3B (protected for warm water species of game fish and other warm aquatic life), and 4 (protected for agriculture uses).

Utah's 1986 305(b) Water Quality Assessment Report notes that streams and tributaries entering Lake Powell in the southern portions of the Upper Colorado River drainage have impairments to their beneficial uses from high levels of TDS, arsenic, and sodium. These impairments result mainly from natural sources and low flows. Concentrations of these contaminants render the surface water of Last Chance Creek unsuitable for potable and livestock use.

Groundwater quality is considered marginal for livestock consumption. However, one reservoir and five spring developments are located in the WSA.

Mineral and Energy Resources

The mineral and energy resource rating summary for the Burning Hills is given in Table 3. Appendix 5 in Volume I explains the mineral and energy resource rating system.

The WSA could contain deposits of titanium, which is currently listed as a strategic and critical material (USDoD, 1988).

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Table 3
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|-------------|---------------------------|------------------------|---|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f2 | c1 | Less than 10 million barrels of oil; less than 60 billion cubic-feet of gas |
| Uranium | f2 | c1 | Less than 500 metric-tons of uranium oxide |
| Coal | f4 | c4 | 928 million metric-tons |
| Titanium | f2 | c2 | Less than 1 million metric-tons of titanium oxide |

Source: SAI, 1982; USDI, BLM 1987.

^aFavorability of the WSA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

• Leasable Minerals

Currently, there are no active drilling, mining, or exploration activities for leasable minerals.

• Oil and Gas

Numerous oil shows (including oil-impregnated rock deposits) have been reported from Cambrian, Devonian, Mississippian, Pennsylvanian, Permian, and Triassic rocks in south-central Utah (Heylmun, et al., 1965; Veal, 1976; and Campbell and Ritzma, 1979). The older rocks generally are only stained; whereas, free oil has been recovered from Mississippian rocks at Upper Valley (Doelling, 1975). Because the most obvious structures in the area have already been explored, many investigators considered subtle stratigraphic traps in Permian and Triassic rocks to offer the best potential for future petroleum discoveries.

The only oil and gas production in the vicinity of the WSA comes from the Upper Valley Field located approximately 12 miles to the north. This field was discovered on the Upper Valley anticline in 1964 and stimulated drilling activity on similar anticlinal structures in south-central Utah. To date, however, no commercial oil and gas potential has been identified in the WSA.

The oil reservoir is located along the prominent Upper Valley anticline, but the producing area is offset from the crest of the anticline to the west flank and the southern plunging nose. This offset

is attributed to a regional, southwest directed hydrodynamic drive in the Kaibab Formation (Sharp, 1976). Oil accumulation in other anticlines within the region may be displaced to the south. Total production from this field is expected to approach 50 million barrels. Production is from four distinct zones in the Timpoweap Formation (Triassic age) and the Kaibab Formation (Permian age). Shows of oil were also reported in the Permian Cedar Mesa and Mississippian Redwall Formation (Sharp, 1976).

Few exploration wells have been drilled in the vicinity of the Burning Hills WSA. Those that have been drilled were located along structural highs such as the Reese Canyon anticline near the east side of the tract. Three wells tested the Reese Canyon Anticline approximately 6 to 10 miles southeast of the WSA. One of these wells (#1 Byrd, drilled in 1954) penetrated Devonian rocks and bottomed at a total depth of 10,045 feet. BLM well file data indicates that no oil shows were reported. The other two wells (#2 Unit, drilled in 1955; and #1-16 State, drilled in 1968) penetrated Mississippian and Permian Formations, respectively, and no oil shows were reported from either well. Subtle stratigraphic traps have generally not been an exploration target in this area.

Because Permian and Triassic rocks have produced commercial quantities of petroleum at Upper Valley and because of the widespread occurrences of oil in Permian rocks in this region, the entire tract is assigned a favorability rating of (f2) (SAI, 1982). The size of the hydrocarbon accumulation in such an environment is anticipated to be less than 10 million barrels of oil or less than 60 billion cubic-feet of gas. Based on the available information, the certainty of occurrence for oil and gas is rated very low (c1).

Under the current land use plan, all 61,550 acres of the WSA are in Category 1 (standard stipulations). There is presently one post-FLPMA oil and gas lease covering 40 acres in the WSA.

• Coal

The WSA lies in the southern part of the Kaiparowits Plateau coal field, and the entire tract is underlain by the coal-bearing Cretaceous Straight Cliffs Formation (Doelling and Graham, 1972).

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Estimated coal reserves within the entire Kaiparowits Plateau coal field total 15.2 billion tons (Doelling and Graham, 1972). An estimated 928 million tons of minable coal, based on coal seams greater than 4 feet thick, occurs within the WSA. An estimated 905 million tons occur at depths less than 1,000 feet, and 23 million tons occur between 1,000 feet and 2,000 feet. Approximately one-third to one-half of the coal is recoverable (Doelling and Graham, 1972).

The coal-bearing Straight Cliffs Formation is exposed throughout the WSA, except where it has been eroded away along the southern end of the tract, exposing the Dakota Sandstone (Hackman and Wyant, 1973). The Christensen coal zone is the most valuable in the WSA, and some coal beds are almost 20 feet thick (Doelling and Graham, 1972). The Reese coal zone also contains significant coal beds, some up to 7 feet thick.

Results from 67 coal analyses in the western portion of the WSA indicate an average content of 8.5 percent ash, 0.63 percent sulfur, and a heat value of 12,668 British thermal units (Btus) per lb. Results from eight coal analyses in the eastern portion of the WSA indicate an average content of 9.8 percent ash, 0.89 percent sulfur, and a heat value of 10,421 Btu per lb (Doelling and Graham, 1972).

The WSA is within the Kaiparowits Plateau KRCRA. In accordance with the underground mining exemption from the unsuitability criteria (43 CFR 3401), none of the areas in the KRCRA within the WSA were determined to be unsuitable for mining as a result of the application of the unsuitability criteria (USDI, BLM, 1981c).

Based on the above discussion, the coal in the WSA is assigned a favorability rating of (f4) (potential for large tonnages of coal) with a high (c4) certainty of occurrence. There are presently 20 coal leases, covering 12,650 acres, in the WSA.

• Locatable Minerals

There are no known deposits of locatable minerals in the WSA. Currently, there are 65 mining claims covering 1,300 acres in the WSA.

• Uranium

The following rock units are considered favorable for uranium in south-central Utah (USDOE, 1979): the Basal Members and Petrified Forest Member of the Triassic Chinle Formation, and the Salt Wash Member of the Jurassic Morrison Formation. The Morrison Formation is perhaps 100 feet to 200 feet thick in the vicinity of the WSA and it thickens rapidly to the east. The Morrison has been removed by pre-Dakota erosion a short distance west of the WSA (SAI, 1982). Throughout most of the tract, the Morrison lies at depth of about 1,500 feet. The Chinle Formation lies at depths generally exceeding 4,000 feet (Hintze, 1973).

The Morrison Formation is, therefore, the only formation considered to be favorable for "significant" uranium deposits in the vicinity of the WSA. The term significant is defined as an economically-extractable uranium deposit that contains a total of at least 100 metric-tons of uranium oxide at a grade of at least 0.01 percent (Peterson, et al., 1982). The criteria used to judge the favorability of the Morrison Formation for significant uranium deposits included: (1) low fluvial energy regimes during Morrison time, (2) active folding at the time of sedimentation, (3) orientation of fold axes at large angles to the direction of transport of paleo-streams, and (4) presence of gray mudstone beds. On the basis of these criteria, however, it is concluded that the Morrison Formation underlying the WSA was not favorable for significant uranium deposits (Peterson, et al., 1982). They did not consider the Chinle Formation to be favorable for uranium in the vicinity of the WSA.

On the basis of the discussion above, the WSA is assigned a uranium favorability of (f2) (containing less than 500 metric tons of uranium oxide). The certainty that uranium deposits occur in the Morrison Formation within the tract is very low (c1).

• Titanium

Large deposits of primary titanium ore have been reported in Utah, but sedimentary deposits of titanium-bearing black sandstones, similar to those found in other western states, occur in several places (Adams, 1964). The known titaniferous black sandstone deposits in Utah are contained in

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the Straight Cliffs Formation and the Mancos Shale, both of Late Cretaceous age.

The deposits represent fossil beach placers that contain very fine-grained ilmenite, zircon, and monazite. The heavy metals were eroded from older rocks to the west and then transported by streams into eastward-retreating Late Cretaceous seas where they were winnowed and concentrated by waves and winds into large sandstone lenses along northwest-trending beaches (Adams, 1964). Because these deposits are slightly radioactive, many were discovered during the uranium exploration boom on the Colorado Plateau in the 1950s.

Although titaniferous black sandstones are known to occur in south-central Utah (Adams, 1964; and Doelling, 1975), all the deposits discovered to date contain only small tonnages of titanium. Three titaniferous placer deposits occur in the upper part of the John Henry Member of the Straight Cliffs Formation in this area; two are located a few miles north of the WSA and one lies within the tract (Adams, 1964; and Zeller, 1973a). The deposits occur as parts of channels and massive white sandstones between the Alvey and Christensen coal zones (Doelling, 1975). One of these ore bodies is about 12 feet thick, 600 feet long, and 200 feet wide; although Doelling (1975) states that part of the deposit has undoubtedly been removed by erosion. The upper 6 feet of this deposit contains 13.4 percent titanium oxide, 6.5 percent zirconium oxide, 11.7 percent iron, and 0.9 percent equivalent thorium oxide. The lower 6 feet contains 24.1 percent titanium oxide, 18.1 percent zirconium oxide, 17.8 percent iron, and 0.15 percent equivalent thorium oxide (Dow and Batty, 1961).

It seems likely that similar, although covered, titaniferous sandstone deposits occur sporadically in Late Cretaceous rocks throughout this region. Because of the apparent widespread distribution of these deposits and because of the small amount of titanium contained in deposits already discovered, profitable mining of these deposits, especially those covered by younger strata, seems unlikely. Partly on this basis, and in view of the preceding discussion, the WSA has been assigned a titanium favorability rating of (f2) (favorable for less than one million metric-tons). The certainty of occurrence of titanium deposits within the tract is (c2).

• Salable Minerals

Stream gravel and other loose rock material that could be used for construction occur within the WSA. These deposits are not unique or economically significant due to the presence of ample similar materials nearby.

Wildlife Including Special Status Species

The Burning Hills WSA contains two major habitat types: pinyon-juniper woodland and desert shrub. Each of these habitat types support a unique complement of animal species. Theoretically, maximum species composition in the WSA varies from a high of 118 birds, 18 mammals, and 18 reptiles, to a low of 15 birds, 11 mammals, and 15 reptiles. Thirteen species of raptors are known to, or suspected of, nesting in the WSA. No fish habitat exists in the WSA. About 6,400 acres of land were identified in the Kanab-Escalante Grazing Management EIS (USDI, BLM, 1980a) as crucial deer winter range.

Approximately 650 acres of vegetation treatment (also considered for livestock purposes) and one guzler are proposed for the WSA.

Game species in the WSA are mule deer, cougar, cottontail rabbits, mourning doves, blue grouse, band-tailed pigeons, and chuckar. Mule deer are primarily winter residents as a result of migrations from the higher bench areas.

Small numbers of cougar are yearlong residents of the WSA. Cottontails occur throughout the WSA, and mourning doves are fairly common from May to September. Blue grouse and bandtailed pigeons are found in the higher elevations of Dry Wash and Reese Canyons. Chuckar are found near Croton Bench and Collet Canyon.

Approximately 32 desert bighorn sheep were transplanted into the Rock Creek area of Glen Canyon NRA in 1981 and 1982 by the Utah Division of Wildlife Resources (UDWR). As the herd size increases, it is likely that a few sheep will move into the WSA. About 60 percent of the WSA is potential bighorn sheep habitat.

Two endangered species, the peregrine falcon and bald eagle, are present along Lake Powell and can be expected to migrate through the WSA. The UDWR list of sensitive species includes two species that occur in the WSA: Lewis woodpecker and western bluebird. In addition, the golden eagle (a BLM sensitive species)

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and the following six Category 2 candidate species could inhabit the WSA: Great Basin Silver-spot butterfly, ferruginous hawk, long-billed curlew, southern spotted owl, Swainson's hawk, and white-faced ibis (see Appendix 4 in Volume I). If present, most of these species would be associated with riparian areas or cliff faces and canyons. An exception would be the ferruginous hawk which inhabits the pinyon-juniper woodland. It is most frequently found along edges or in ecotone areas.

Forest Resources

The pinyon-juniper woodland is the only forest resource found in the WSA (24,620 acres). The WSA is open to fuelwood collecting but, due to limited access and the remoteness of the area, use is minimal and undoubtedly will continue to be so for the foreseeable future.

Livestock and Wild Horses/Burros

The WSA contains portions of three livestock grazing (cattle) allotments. Table 4 summarizes the livestock grazing use data in the WSA. There are an estimated 962 AUMs within the WSA. About 24,847 acres are suitable for grazing with approximately 36,703 acres being unsuitable. At the present time, five spring developments, 1.5 miles of fence, one reservoir, 6 miles of trail, three corrals, and one cabin are located within the WSA. Six hundred and fifty acres of vegetation treatment, 3.25 miles of fence, five cattle guards, three wells, one spring development, one catchment, and 1 mile of trail are proposed for development in the WSA under the present Allotment Management Plan (AMP). Although primarily for the deer, the land treatment (650 acres of seeding)

would provide in excess of 100 AUMs of forage annually. The projects were identified to better distribute livestock grazing in the allotments. Vehicles are occasionally used on the 11 miles of ways and 10 miles of roads to haul horses and salt in connection with livestock management in this WSA.

Predator control was not conducted during the 1986 to 1987 period in the grazing allotments that comprise the Burning Hills WSA (USDA, APHIS, 1988).

There are no wild horses or burros within the WSA.

Visual Resources

The WSA has a variety of landscape characters. Approximately 15,690 acres are classified as Class A, 43,550 acres as Class B, and 2,310 acres as Class C quality scenery according to the BLM VRM rating system.

The WSA will be managed as VRM Class II on about 6,000 acres (10 percent), Class III on 15,000 acres (24 percent), and Class IV on 40,550 acres (66 percent) Class IV. Refer to Appendix 7 in Volume I for more information on the BLM VRM system.

Cultural Resources

A total of six sites have been recorded in the WSA (USDI, BLM, 1988). Most of these sites are small pre-historic lithic scatters on sandy ridge tops in the unit's northern portion. One site is attributed to Pueblo II Anasazi occupation, but the cultural affiliation of the remainder is unknown. None of the recorded sites in the WSA are eligible for nomination to the National Register of Historic Places.

Table 4
Livestock Grazing Use Data

| Allotments | Total Acres | Acres in WSA | Total AUMs | Number of AUMs in WSA | Number and Kind of Livestock | Season of Use | Number of Operators |
|------------------|-------------|--------------|------------|-----------------------|------------------------------|---------------|---------------------|
| Headwaters | 239,122 | 1,360 | 5,930 | 13 | 781 Cattle | yearlong | 20 |
| Last Chance | 223,224 | 57,895 | 3,719 | 625 | 309 Cattle | yearlong | 1 |
| Upper Warm Creek | 47,638 | 2,295 | 1,076 | 324 | 246 Cattle | 11/01-04/30 | 2 |
| Total | 509,984 | 61,550 | 10,725 | 962 | | | 23 |

Sources: BLM File Data

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The Southern Utah Coal Project Archaeological Survey (USDI, BLM, 1978a) has provided a Class I inventory for the Paria planning unit that includes the Burning Hills WSA. Estimates of site density cannot be reliably computed with available data.

Recreation

The Burning Hills WSA offers limited recreational opportunities. Sightseeing associated with backcountry vehicle travel is the major recreational use. Some dayhiking associated with exploration occurs in the unit. It is estimated that the unit receives less than 100 visitor days per year. Ninety percent is associated with vehicle use on 11 miles of existing ways.

ORV use is confined to existing roads and trails on approximately 10,000 acres in the Last Chance drainage. The remainder of the unit is open to ORV use. Due to the topography and the remote location of the WSA, vehicular use of existing ways is practically nonexistent.

Land Use Plans

The current BLM planning document for the Burning Hills WSA is the Paria MFP (USDI, BLM, 1981c). Wilderness is not addressed in the Paria MFP.

Wilderness designation is part of the BLM multiple-use concept. The BLM land use plan is linked to the Statewide Wilderness EIS through analysis of the present plan as the No Action/No Wilderness Alternative.

The WSA is BLM-administered public land except for six State sections (3,839.7 acres). The current policy of the State is to maximize economic returns from State lands and to reserve its position regarding the exchange of in-held lands (see Chapter 1 in Volume I). In 1986, the Utah State Legislature passed S.C.R. No. 1 opposing any additional wilderness designation in Utah and urging that State lands not be exchanged out of wilderness areas. Of the 3,839.7 acres of in-held State land, 1,280 are under lease for oil and gas, 639.7 acres are under lease for coal, and 2,560 acres are under lease for grazing. There is no current activity on these lands.

The Kaiparowits Coal Development and Transportation Study (ERT, 1980) identified a transportation corridor system which includes a portion of the WSA. The objective of the study was to identify areas where it would be possible to construct and operate future coal

transportation systems within the restrictions of general environmental and engineering constraints. Corridor segments were required to contain at least one potential route for a railroad or coal slurry pipeline. Specific routes, however, were not identified. By selecting corridors between 2 and 15 miles in width, maximum flexibility for future location of specific routes was maintained. Corridor C17 extends into the western and northwestern portion of the WSA. However, the majority of the corridor is located outside of the WSA.

The Kane County Master Plan states, "Kane County supports the total concept of multiple use of lands. We reject exclusionary recreational forms that cannot be used by the average recreation visitor. Wilderness, as conceived by the Federal land agencies, is rejected because of the limited visitor utilization possibilities and rejection of the multiple use concept." (Kane County Board of Commissioners, 1982). In addition, the Consolidated Local Government Response to Wilderness (Utah Counties, 1986) indicates that Kane County opposes wilderness designation of BLM lands in Utah.

The Glen Canyon NRA forms the southeastern boundary of the unit. In the Glen Canyon management plan (USDI, NPS, 1979), the area adjacent to the Burning Hills WSA was not recommended for wilderness designation.

Socioeconomics

• Demographics

The Burning Hills WSA is located in Kane County, Utah. From 1970 to 1980, the population of Kane County grew from 2,421 to 4,050, an overall increase of about 67 percent. Table 5 presents the baseline and projected population data for Kane County. It is estimated that between 1980 and 1987, the population increased to about 4,890.

Table 5
Baseline and Projected Population and Employment Growth
Kane County

| | 1980 | 1990 | 2000 | 2010 |
|------------|-------|-------|-------|-------|
| Population | 4,050 | 5,250 | 5,750 | 6,950 |
| Employment | 1,403 | 1,900 | 2,300 | 2,900 |

Source: Utah Office of Planning and Budget, 1987.

Population projections indicate that the number of people living in Kane County in the year 2010 will be

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about 6,950, for about a 72-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

Kane County residents live in small communities. The average population density is approximately one person per square mile. This density is very low when compared to the Statewide average of 17 persons per square mile (USDC, Bureau of the Census, 1981).

• Employment

Table 5 shows the baseline and projected total employment for Kane County to the year 2010.

Kane County is part of the Southwest MCD. Table 6 shows the baseline (1980) and projected employment by source for the MCD to the year 2010. In 1980 the leading employment sectors for the Southwest MCD were government (23 percent), trade (20 percent), and nonfarm proprietors (12 percent). Mining provided approximately 2 percent of the direct employment in the MCD.

Table 6
Southwest Multi-County District
Employment^a

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|---------------|---------------|---------------|---------------|
| Agriculture | 1,810 | 1,700 | 1,600 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,600 | 3,300 |
| Transportation, Utilities | 1,006 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 6,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 6,900 | 8,900 |
| Government | 4,616 | 5,800 | 6,500 | 8,100 |
| Nonfarm Proprietors | <u>2,386</u> | <u>3,100</u> | <u>3,500</u> | <u>4,700</u> |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

^aIncludes Beaver, Garfield, Iron, Kane, and Washington Counties.

It is projected that by the year 2010, employment will more than double. Services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 5 percent, government to 18 percent and mining to less than 1 percent of the total MCD employment.

• Sales and Revenues

Economic-related activities in the WSA include mineral exploration, mineral leasing, livestock production, and recreation. Table 7 summarizes the local sales

and Federal revenues from the WSA. Appendix 9 in Volume I identifies the multipliers used to estimate sales and revenues.

Table 7
Sales and Revenues

| Source | Estimated Annual Local Sales ^a | Estimated Annual Federal Revenues |
|-------------------------|--|--------------------------------------|
| Oil and Gas Leases | 0 | \$80 |
| Coal Leases | 0 | \$37,950 |
| Mining Claim Assessment | \$6,500 | 0 |
| Livestock Grazing | \$19,240 | \$1,482 |
| Recreational Use | <u>\$ 410</u> | <u>0</u> |
| Total | \$26,150 | \$39,512 |

Sources: BLM File Data; Appendix 9 in Volume I.

^aLocal sales represent money potentially spent. They do not account for the total income that would be generated by these expenditures.

The WSA has 65 mining claims; regulations require a \$100 annual expenditure per claim for labor and improvements, an undetermined part of which is spent in the local economy. The geophysical exploration which has been conducted in the WSA has generated minor temporary local employment and income. No oil and gas or mineral production has occurred in the WSA. Therefore, mineral and energy resource production from the WSA has not contributed to the local employment or income.

Twenty-three livestock operators have an estimated grazing privilege of 962 AUMs within the WSA. If all this forage were utilized, it would account for \$19,240 of the livestock sales and \$4,810 of the ranchers' returns to labor and investment.

Some woodland products have been harvested from the WSA; however, the harvests were small and were insignificant to the local economy and only of minor significance to those involved in the harvest.

The WSA's nonmotorized recreational use and related local expenditures are low. The WSA's motorized recreational use and related local expenditures are also low. The actual amount of income generated locally from recreational use in the WSA is unknown. However, an approximate range of expenditures can be deduced (Dalton, 1982). This study indicates that the Statewide average local expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for the Burning Hills WSA is estimated to be about 100 visitor days per year.

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The WSA generates Federal revenues from mineral leases and livestock grazing fees (refer to Table 6). One oil and gas lease is located in the WSA and covers 40 acres. Lease rental fees generate up to \$80 of Federal revenues annually. There are also 20 coal leases covering 12,650 acres in the WSA and they generate up to \$37,950 annually in revenue. Half of these monies are allocated to the State, which then reallocates these revenues to various funds, the majority of which are related to energy development and mitigation of local impacts of energy and mineral development.

Average actual livestock use and revenues generated from grazing in the WSA are unknown; however, the permittees in the WSA can use up to 962 AUMs per year. Based on a \$1.54 per AUM grazing fee, the WSA can potentially generate \$1,482 of grazing fee revenues annually, 50 percent (\$741) of which would be allocated back to the local BLM District for the construction of rangeland projects.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

Analysis assumptions and guidelines for all alternatives are described in the Introduction to Volume III-B. The following analysis is based on implementation of the Action Scenarios presented in the Description of the Alternatives.

A major long-term consideration in impact analysis for this WSA is development of the Kaiparowits coal field. For a detailed analysis of potential impacts of coal development in southern Utah, the reader is referred to the Final EIS for "Development of Coal Resources in Southern Utah" (USDI, USGS, 1979).

No Action/No Wilderness Alternative (Proposed Action)

• Impacts on Wilderness Values

Because the WSA would not be designated wilderness with this alternative, the identified wilderness values would not receive the degree of protection afforded by application of the BLM Wilderness Management Policy (BLM Manual 8560). Wilderness values in the WSA would be somewhat protected by limitations placed on potential surface-disturbing activities (i.e., VRM Class II management on 15,000 acres).

In the foreseeable future, disturbance of approximately 660 acres from development of rangeland projects, vegetation treatments and access to State sections in the northern portion of the WSA for mineral exploration, would result in a direct loss of naturalness and opportunities for solitude and primitive, unconfined recreation in the disturbed areas. Special features including scenic values, special status species, and wildlife associated with wilderness would not be significantly affected because the disturbance would significantly involve only 1.1 percent (660 acres) of the WSA, and the disturbance would generally not be located where the special features are located. In addition, appropriate measures would be taken to protect special status species prior to any surface-disturbing activity. Proposed water developments and the vegetation treatments would benefit wildlife special features associated with wilderness because of additional sources of water and forage.

During the period of activity, the visual and audible disturbance from vegetation treatments and other rangeland developments and from access development to State sections would reduce opportunities for solitude and primitive recreation not only on directly disturbed areas but also indirectly on adjacent portions of the WSA. As much as 5 percent (3,077 acres) of the WSA could be so affected in the foreseeable future.

Because future vehicular use would generally be limited by terrain to 11 miles of existing vehicular ways, no additional disturbance from ORV activity is anticipated. The continued use of existing ways would continue to occasionally detract from opportunities for solitude and primitive recreation.

The gradual increase in visitor use that would occur would not be expected to significantly reduce the quality of wilderness values because the additional use is expected to be small, the additional use would be largely primitive in nature, and the WSA is large enough to incorporate the additional use adequately.

The extent that disturbance would occur on Federal lands and State in-holdings over the long term and, therefore, the long-term loss of wilderness values that would occur, is not accurately known. Loss would occur, however, as intrusions increase. Coal development over the long term would result in at least 40 acres (0.06 percent of the WSA) of disturbance on Federal lands in the northern portion of the WSA. Wilderness values would be directly lost on the disturbed acres. Indirect reduction in the quality of

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the opportunities for solitude and primitive recreation would occur in the northern 33 percent (20,311 acres) of the WSA during the period of development.

Conclusion: Wilderness values would not be protected by wilderness designation, and loss would occur as intrusions increase. In the short term, naturalness and opportunities for solitude and primitive recreation would be directly lost on approximately 660 acres of the WSA and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to 5 percent (3,077 acres). Special features would not be affected. Over the long term, coal development could result in the direct loss of wilderness values on 40 acres and an indirect reduction in the quality of wilderness values in the northern 33 percent (20,311 acres) of the WSA during the period of development.

- Impacts on Vegetation Including Special Status Species

The 660 acres of surface disturbance projected in the short term for the No Action/No Wilderness Alternative would mainly occur in the pinyon-juniper woodland. On the 650-acre vegetation treatment (chaining and seeding), vegetation composition would change from woodland to grass-shrub. It is projected that the grass-shrub vegetation type would be maintained over the long term. Once active maintenance ceased, the area would eventually revert back to pinyon-juniper woodland. The chaining and seeding would be designed to provide browse for wildlife and forage for livestock. There would also be a loss of naturalness in the disturbed area. The six acres of surface disturbance due to the construction of rangeland projects would be reclaimed within a 3 to 5 year period. The four acres of surface disturbance associated with access road construction to in-held State land would remain over the long term. Surface disturbance in the long term would be approximately 40 acres (associated with coal development) and would occur in both the pinyon-juniper woodland and desert shrub vegetation types. Due to the small size of the disturbance (about 1.1 percent of the WSA), the overall change in vegetation types would not be significant.

Four of the seven Category 1 and 2 candidate species that may occur in the WSA are located in the pinyon-juniper woodland. The habitats for all of these species extend beyond the WSA boundaries. Surface-disturbing activities could result in the inadvertent loss of some individual plants of these species. However, the continued existence of any of the species would not be

threatened, because before authorizing any surface-disturbing activities BLM would conduct site-specific clearances of the potentially disturbed areas. If any special status species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (refer to Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Because necessary measures would be taken to protect these species, the viability of populations of threatened, endangered, or other special status plant species would be preserved with the No Action/No Wilderness Alternative.

Conclusion: Special status plant species would not be significantly affected. About 1.1 percent (700 acres) of the pinyon-juniper woodland and desert shrub vegetation types in the WSA disturbed as a result of rangeland and wildlife projects and long term coal development.

- Impacts on Mineral and Energy Exploration and Production

The WSA would remain open to the exploration and development of mineral and energy resources without consideration of wilderness values. Therefore, mineral and energy resources would not be affected by the No Action/No Wilderness Alternative.

Conclusion: Implementation of the No Action/No Wilderness Alternative would not adversely affect mineral exploration or production.

- Impacts on Wildlife Habitat and Population Including Special Status Species

With this alternative, wildlife habitat could be improved by an increase in the availability of water through the construction of two water catchments, development of a spring, and construction of three wells. Wildlife habitat would also be improved by chaining and seeding 650 acres of pinyon-juniper woodland. The vegetation treatment would provide habitat and forage for wildlife species. Desert bighorn sheep may migrate into the area and become established near isolated water sources.

Disturbance of an estimated 660 acres in the short term and up to 40 acres in the long term would disrupt wildlife. Deer and mobile nongame animals would be dispersed from the area of disturbance for the lifetime of these activities. Desert bighorn sheep would

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avoid disturbed areas. Less mobile wildlife would either perish or co-exist with these disturbances at smaller and less viable population levels. However, this is not expected to be a significant impact as only about 1 percent of the WSA would be affected in the short term and less than 1 percent would be affected in the long-term future.

The extend and use of the WSA by the peregrine falcon and bald eagle (both endangered species) or the nine Category 1 and Category 2 candidate species that may occur there, is unknown. The vegetation treatment would not affect most of these species because activities would be in flat pinyon-juniper woodland and, if present, the majority of these species would inhabit the riparian and cliff face areas in the canyons. The ferruginous hawk could inhabit the pinyon-juniper woodland. However, chaining would create ecotones or edges and improved ferruginous hawk habitat.

BLM would conduct site-specific clearances of the potentially disturbed areas. If any special status species are located, BLM would initiate informal consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (refer to Appendix 4 in Volume I). Appropriate mitigation measures such as avoidance of sensitive areas would be implemented. Because necessary measures would be taken to protect these species, it can be reasonably concluded that potential populations of special status animal species would be preserved with the No Action/No Wilderness Alternative.

Conclusion: There would be no significant adverse impacts to habitat and populations including special status animal species. Approximately, 1.1 percent (700 acres) of the wildlife habitat in the WSA would be disturbed.

• Impacts on Livestock Management

Domestic livestock grazing would continue as authorized in the Paria MFP. The estimated 962 AUMs currently allocated in the WSA are controlled by 23 livestock permittees. Motorized vehicles could continue to be used to manage livestock. The 650 acres of vegetation treatment, five cattleguards, three wells, one spring development, one catchment, 3.25 miles of fence, and 1 mile of trail proposed could be developed and would result in improved livestock distribution and an estimated increased carrying capacity of 100 AUMs annually.

Conclusion: Livestock management and grazing levels would not be adversely affected by implementation of the No Action/No Wilderness Alternative.

• Impacts on Economic Conditions

There would not be a loss of local employment or income resulting from implementation of this alternative. The opportunity to explore and develop mineral and energy resources would remain as at present.

No coal exploration or development is assumed in the short term. However, due to the extensive coal resource known to underlie the WSA, it is projected that in the long term coal would eventually be developed. Exact lease boundaries cannot be determined; therefore, it is not possible to project if one or more mines would actually be located within WSA boundaries. However, a typical Utah mine would be an underground operation, employ 20 to 300 people, and be in operation 30 to 40 years. The employment of 600 people (two mines) would represent only 1.3 percent of the projected Southwest MCD for the year 2010. However, it would be about 21 percent of the Kane County projected employment in the year 2010 and nearby local communities would be significantly affected. There would be both beneficial and adverse impact. Beneficial impacts would include increases in employment and income while adverse impacts would include increased demands for housing and infrastructure such as schools, law enforcement, etc. An unknown portion of the jobs would be obtained by locals.

There would be no livestock-related economic losses because the existing grazing use (962 AUMs) and ability to maintain, replace and build new range developments would remain as at present.

Recreation related local expenditures could increase at a rate of 2 to 7 percent per year over the next 20 years. Because recreational use at the end of 20 years is estimated to increase only 50 to 285 visitor days per year more than the current 100 visitor days per year and because recreation-related expenditures only average about \$4.10 per visitor day, total recreation-related expenditures attributable to the WSA would likely not be significant to the local economy.

Federal and State revenues would not be reduced by implementation of this alternative. There are 61,510 acres in the WSA open to oil and gas leases that are currently not leased and 48,900 acres open to coal leasing that are not currently leased. If leased, they

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would bring over \$330,000 additional Federal lease fee revenues per year in addition to royalties from lease production (and bonus bids from new coal leases). Half of these monies would be allocated to the State, a portion of which could reach the local economy. Collection of livestock grazing fees (\$1,482 each year the forage is grazed) would continue. About 50 percent of the increased revenues would be returned to the local BLM District for use in range development projects.

Conclusion: No loss of local employment or income would occur. Federal and State revenues would not be reduced. Economic opportunities could be realized through mineral and energy resource exploration and eventual development in the long term. There would be major beneficial and adverse effects in Kane County.

All Wilderness Alternative (61,550 Acres)

• Impacts on Wilderness Values

Designation and management of all 61,550 acres as wilderness would contribute to the preservation of the wilderness values in the Burning Hills WSA. The potential for surface-disturbing activities would be reduced through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I which allows for only natural ecological change. Naturalness would be protected on all 61,550 acres. Solitude would be protected on approximately 27,700 acres that meet and 33,850 acres that do not meet the standards for outstanding opportunities. Primitive and unconfined recreation would be protected on 61,550 acres that do not meet the standards for outstanding opportunities. Resources that could be considered as special features in the WSA including geologic and scenic values, special status species, and wildlife associated with wilderness would also be protected.

Although protected, complete preservation of wilderness values would not be assured because of valid existing rights. In the foreseeable future, disturbance of 4 acres is anticipated from providing access to State sections in the northern portion of the WSA for mineral exploration purposes. In addition, disturbance of up to 5 acres is anticipated for rangeland developments. Wilderness values of naturalness and opportunities for solitude and primitive recreation would be directly lost or reduced in quality on the disturbed areas at least until activities and noise cease and reclamation

is complete. Opportunities for solitude and primitive recreation would also be indirectly reduced in quality on adjacent portions of the WSA. As much as 2 percent (1,231 acres) of the WSA could be so affected. Special features would not be affected because the disturbance would be minor, involving less than 1 percent (9 acres) of the WSA, and the disturbance would generally not be located where the special features are located. Also, appropriate measures would be taken to protect special status species prior to any surface-disturbing activity. Water developments would benefit wildlife special features associated with wilderness because of increased water sources. Refer to the Wildlife and Vegetation Including Special Status Species sections for more information. Mitigation to protect wilderness values would be applied when developing access to State lands, but loss of wilderness values would be allowed if development involving valid existing rights could not be otherwise achieved. Rangeland projects on the other hand would be designed to meet wilderness management criteria and upon completion would not be substantially noticeable in the area as a whole. Overall, the disturbance would not be substantially noticeable in the area as a whole.

Vehicular use of existing ways would cease with ORV closure, improving opportunities for solitude and primitive recreation.

Over the long term, there would be no potential for loss of wilderness values due to the development of new leases and mining claims. The potential for loss of wilderness values over the long term because of development is not accurately known, but would be less with this alternative than with the No Action/No Wilderness Alternative due to application of mitigation that would protect wilderness values subject to valid existing rights. Coal exploration and development would not occur.

The gradual increase in visitor use that would occur would be primitive in nature and would be managed so as to not result in the loss of wilderness values. It is likely that visitor use in this WSA would actually decrease initially as a result of wilderness designation which would aid in preservation of naturalness and would improve opportunities for solitude and primitive recreation.

Conclusion: Wilderness designation would preserve the overall wilderness values in the WSA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost

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or reduced in quality on about 9 acres, and opportunities for solitude and primitive recreation would be indirectly reduced in quality 1,231 acres. Special features would be preserved.

- Impacts on Vegetation Including Special Status Species

Implementation of the All Wilderness Alternative would not directly affect any vegetation type in the WSA. The projected 650 acres of vegetation treatment would not be allowed. No surface disturbance from mineral and energy resource exploration or development is projected. Wilderness designation would provide additional protection for special status plant species, because the potential for surface disturbance would be reduced to about 9 acres.

Conclusion: Implementation of the All Wilderness Alternative would provide additional protection to the vegetation resource in the WSA.

- Impacts on Mineral and Energy Resources

- Leasable Minerals

Approximately 40 acres in the WSA are under oil and gas lease. However, no exploration or development of the resource is presently occurring. It is unlikely that the existing lease will be developed or a showing of commercial quantities made prior to its expiration date. Once expired, the lease will not be reissued.

Exploration for and development of a potential resource of less than 10 million barrels of in-place oil and less than 60 billion cubic-feet of natural gas could be foregone under this alternative. However, due to the small size of the potential deposits, the low certainty that these exist, and the low likelihood of exploration and development activities, implementation of this alternative would not result in a significant loss of potential oil and gas recovery.

The WSA has an estimated in-place coal resource of 928 million tons of which 464 million tons are recoverable. Approximately 12,650 acres are presently under lease (approximately 21 percent of the WSA). Therefore, wilderness designation would preclude development of about 79 percent of the WSA's coal resource. However, due to the economic and water problems associated with development, it is unlikely that the diligent require-

ments of these leases would be met before they expire. Therefore, recovery of approximately 464 million tons of recoverable coal would be foregone.

- Locatable Minerals

Approximately 1,300 acres are under mining claim within the WSA, principally for uranium. Less than 500 metric-tons of uranium oxide in-place is predicted to occur within the WSA. However, because of the low potential of the deposit and unfavorable economic conditions (high transportation costs, poor marketing conditions, etc.), no exploration or development is anticipated in the foreseeable future with or without wilderness designation. Therefore, significant locatable mineral production would not be foregone.

- Salable Minerals

No exploration or development is anticipated. Because of low potential of the deposit and the availability of better sources of material outside of the WSA, any loss of salable mineral products would be insignificant.

Conclusion: Exploration and development of up to 464 million tons of recoverable coal would be foregone. Loss of exploration and development opportunities for other mineral and energy resources would not be significant.

- Impacts on Wildlife Habitat and Populations Including Special Status Species

Implementation of the All Wilderness Alternative would not directly affect any species of wildlife in the WSA. The assumed 650 acres of vegetation treatments would not be allowed. Therefore, projected habitat improvements would not be realized. No surface disturbance from mineral and energy resource exploration or development is projected. Wilderness designation would provide additional protection for threatened, endangered, or other special status species.

Conclusion: About 650 acres of vegetation treatments designed to improve wildlife habitat and livestock forage would be foregone. Additional opportunities for solitude would be provided. Only 9 acres of wildlife habitat would be disturbed.

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• Impacts on Livestock Management

Present domestic livestock grazing would continue as authorized in the Paria MFP. The estimated 962 AUMs currently allocated in the WSA are controlled by 23 livestock permittees. Since motorized vehicles are not commonly used to manage livestock, wilderness designation and restrictions on access to 11 miles of ways would not have a significant adverse effect on the management of livestock grazing. This would be an inconvenience to the permittees and could slightly increase the costs of management. The proposed 650 acres of vegetation and an additional 100 AUMs annually would not be realized. It is assumed that other proposed developments would be allowed consistent with wilderness protection criteria. Existing rangeland developments would be maintained as in the past, based on practical necessity and reasonableness.

Conclusion: There would not be a significant affect on current livestock management practices. There could be a slight increase in management costs and inconvenience to permittees. The opportunity for an increase of 100 AUMs through vegetation treatments would be foregone.

• Impacts on Economic Conditions

Overall, there would be no immediate significant changes in current trends of population, employment, and local income distribution.

Because of restrictions placed on the use of resource under wilderness designation, there would be losses of potential increases in sales and Federal revenues that could occur under the No Action/No Wilderness Alternative.

The potential for coal development in the WSA is high in the long term (refer to the Mineral and Energy Resources section for a discussion of the WSA's mineral character). Valid existing oil and gas and coal leases and mining claims could be developed, but designation would preclude new leases and claims from being established in the WSA. Precluding exploration and development of minerals would not alter existing economic conditions, but could alter future economic conditions from what they would be with mineral development under the No Action/No Wilderness Alternative. Because the potential for coal development is high in the long term. The amount of potential economic loss resulting from the loss of 600 potential jobs would be significant to Kane County.

Livestock use and ranchers' income would continue as at present with \$19,240 of livestock sales and \$4,810 of ranchers' return to labor and investment. However, the proposed vegetation treatment and an increase of approximately 100 AUMs annually would be foregone along with any resulting increase in ranchers' income.

Nonmotorized recreational use (currently 10 visitor days per year) could increase, but related local expenditures would be small (average of \$4.10 per visitor day) and would not be significant. Motorized recreational use of the WSA is light (90 visitor days per year), hence, the decrease in related local expenditures would be small and insignificant to both the local economy and individual businesses.

The loss of 40 acres now leased for oil and gas and 12,650 acres for coal would cause an eventual loss of over \$38,000 per year of lease fees to the Federal Treasury. There would also be a potential loss of \$269,720 annually in Federal revenues from the 61,510 acres for oil and gas and 48,900 acres for coal that could be leased without designation. In addition to these rental fees, any potential royalties from lease production and bonus bid revenues from new coal leases could also be foregone.

If the proposed vegetation treatment is not developed and used, an estimated annual \$154 of Federal grazing revenues from an annual increase of 100 AUMs would be foregone.

Conclusion: There would not be a significant affect on present local or regional economic conditions. However, new leasing in the WSA would not be allowed, therefore, potential sales and revenues from the leasable coal resource would be foregone. Major beneficial and adverse impacts on Kane County would not occur.

INTRODUCTION

General Description of the Area
Changes to the Final EIS

Death Ridge WSA



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AREA

Cultural Resources
Recreation
Landscape
Vegetation

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

No Action Alternative
Alternative 1

DEATH RIDGE WSA

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DEATH RIDGE WSA

(UT-040-078)

INTRODUCTION

General Description of the Area

The Death Ridge WSA is located on the Kaiparowits Plateau, about 10 miles south of Escalante, Utah. The unit is situated between the Horse Mountain and Collet Top roads. The WSA contains 62,870 acres of public land, 3,841.2 acres of State land, and 797 acres of split-estate lands. Approximately 22,500 acres of the public lands are within Garfield County and 40,370 acres are within Kane County. The WSA is managed by the Escalante and the BLM Cedar City District Kanab Resource Area office.

The WSA is characterized by benches cut by canyons and narrow ridges. The major drainages within the unit are the Escalante, Paradise, and Right Hand Collet Canyons. The vegetation type is predominantly pinyon-juniper woodland. Scattered areas of sagebrush and isolated communities of oak and Ponderosa pine also occur within the WSA.

In general, the climate is temperate and arid with annual precipitation averaging about 10 to 15 inches. The highest monthly precipitation occurs from November through March. Intensive thunderstorms are common during the summer months. The frost-free period is approximately 100 days.

Summer temperatures in Escalante, Utah, range approximately 30 degrees Fahrenheit (F) with highs in the mid 90s and lows in the mid 60s. Winters in Escalante, Utah, have a temperature range of about 27 degrees F with highs in the low 40s and lows of about 15 degrees F. Snowfall in Escalante, Utah, averages 28 inches and begins in October or November and ends in March or April.

Changes for the Final EIS

In addition to the changes noted in the Introduction to Volume III-B, the following changes specific to the Death Ridge WSA have been made since publication of the Draft EIS.

1. Small portions of the boundary of the WSA (T. 37 S., R. 1 E., secs. 24, and 25; T. 37 S., R. 2 E., sec. 35; T. 39 S., R. 2 E., secs. 15, and 22) have been redrawn to correct errors in the Draft EIS maps. These changes did not require acreage adjustments

because acreage calculations were based on the boundaries as shown in the inventory document and Final EIS.

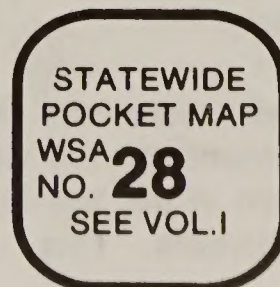
2. The anticipated surface disturbance presented in the Draft EIS (4,594 acres) was based on the assumption that all mineral and other resources potentially within the WSA would be developed sometime in the future without consideration of technical or economic feasibility. In response to public comments relative to the feasibility of developments, the disturbance estimates have been revised to focus on activities projected to be feasible within the foreseeable future (see Appendix 6 in Volume I). This resulted in a reduction of surface disturbance estimates from the 4,594 acres reported in the Draft EIS to 345 acres for the Final EIS. The possibility of coal development in the long term and access to in-held State lands for mineral exploration are discussed.

3. The Draft EIS identified 1,100 acres of chaining and seeding within the WSA to improve wildlife habitat and to increase livestock forage production. However, BLM does not anticipate sufficient funding in the foreseeable future to complete this project. As a result, the vegetation treatment estimates have been revised downward to 300 acres in the Final EIS to reflect more realistic funding projections. Estimates of potential increases in wildlife populations and livestock forage have been revised accordingly.

Specific Issues Identified Through Scoping and Public Comment

• Issues Considered But Not Analyzed in Detail

In addition to the issues discussed and eliminated from further consideration in the Introduction to Volume III-B (i.e., impacts on air quality, water rights, geology and topography, and land use plans and policies) the following issues or impacts specific to the Death Ridge WSA were considered but are not analyzed in detail in the Final EIS for the reasons described below.



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1. Soils: Soil disturbance estimates have been revised downward from 4,594 acres analyzed in the Draft EIS to 345 acres in the Final EIS. About 300 acres of the projected disturbance would result from a vegetation treatment which would be reclaimed, and existing soil conditions would likely be improved over the long term. Further, this disturbance would take place in those portions of the WSA where reclamation potential is the highest. At any rate, given this new scenario, the impacts of direct disturbance of soil would affect less than 1 percent of the WSA. Therefore, impacts on soils are not significant issues for analysis in the Final EIS.

2. Water Resources: There are no perennial streams in the Death Ridge WSA. Existing water developments could be maintained as in the past and would not be affected. All waters are presently fully appropriated within the Area 97 basin (UDNRE, DWR 1988). Therefore, impacts on water quality and uses are not discussed in detail.

3. Forest Resources: The forest resources in the WSA consist of approximately 57,435 acres of pinyon-juniper woodland and some small, isolated stands of Ponderosa pine and oak. There is limited access and ample supplies of wood outside the WSA. Therefore, impacts on forest resources are not significant issues for analysis in the Final EIS.

4. Visual Resources: As already discussed, estimates of surface disturbance have been substantially reduced for the Final EIS. The 345 acres of surface disturbance projected to occur in the foreseeable future would affect less than 1 percent of the WSA. Disturbance would occur in Scenic Class B and C areas and in VRM Class IV areas. Impacts on visual resources are considered in the Final EIS as part of the discussion in the Wilderness Values section.

5. Cultural Resources: Archaeological sites are known to occur in the WSA. Surface-disturbing activities would disturb less than 1 percent of the WSA and recreation use is projected to continue to be low. Inventories for the purpose of site recordation and mitigations of impacts would take place prior to any surface disturbance. Given these conditions, impacts on cultural resources are not significant issues for the Death Ridge WSA.

6. Recreation: Recreational use of the Death Ridge WSA is light, approximately 100 visitor use days per year. About one-third of this use is motorized use by hunters and sightseers. This use is generally

restricted to the 18 miles of ways and dry stream beds in canyon bottoms and 30 miles of cherry-stemmed roads located in the WSA. BLM believes recreational changes resulting from designation or nondesignation would not be significant due to limited use now occurring and projected to occur in the foreseeable future in the WSA.

7. Kaiparowits Coal Transportation Corridor: A potential coal transportation and railroad corridor passes through the WSA (ERT, 1980). Commentors on the Draft EIS expressed concern that designated wilderness areas, including the Death Ridge WSA, could block the use of these corridors. If wilderness designation were to occur, development of the coal transportation systems would not be allowed within the WSA. However, the transportation corridors described in the ERT study extend beyond the WSA boundary. Therefore coal transportation systems could be sited outside the WSA and still be within the designated corridors. No specific transportation routes have been identified within the WSA. Development of major rights-of way in the long term are projected to occur only along the western portion of the WSA due to topography and the presence of more favorable routes elsewhere. Therefore, impacts related to potential coal transportation systems are not analyzed further for the Death Ridge WSA.

• Issues Analyzed in Detail

The significant issues for the Death Ridge WSA are:

1. Impacts of wilderness designation or nondesignation on the wilderness values of naturalness, opportunities for solitude and primitive recreation, and special features.
2. Impacts on leasable mineral (coal) exploration and production.
3. Impacts on vegetation including special status species.
4. Impacts on wildlife habitat and populations including special status species.
5. Impacts on livestock management.
6. Impacts on local economic conditions.

Comments made during the public comment period for the Draft EIS centered mainly on the need for, and adequacy of, the rationale for the BLM proposed action;

DEATH RIDGE WSA

the need for further inventories of resource values; and BLM's assessments of wilderness values, visual resources, and mineral values.

See Volume VII-B for responses to general comments applicable to all WSAs and/or the Statewide analysis and Volume VII-C, Section 28, for responses to specific comments about the Death Ridge WSA.

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated From Detailed Study

Alternatives that would add acreage, mainly in the west-central portion and along the eastern border of the WSA, while deleting an area along the southwestern border (net deletion of about 6,870 acres), were suggested by the public during the public comment period for the Draft EIS.

Public lands outside the WSA boundary were considered and dropped during the inventory phase of the wilderness review and are not analyzed in the Final EIS (refer to Volume VII-B, General Comment Response 3.1). The proposed deletions would not result in impacts appreciably different from the All Wilderness Alternative.

Alternatives Analyzed

Two alternatives are analyzed for this WSA: (1) No Action/No Wilderness (Proposed Action); and (2) All Wilderness (62,870 acres). A description of BLM's management practices with each alternative follows. Where management intentions have not been clearly identified, assumptions are made based on management projections with each alternative. These assumptions are indicated in each case. The assumed management actions presented in the Introduction to Volume III-B are also applicable.

• No Action/No Wilderness Alternative (Proposed Action)

With this alternative, none of the 62,870-acre Death Ridge WSA would be designated by Congress as part of the NWPS. Although BLM's land use plans are regularly updated, it is assumed that the area would continue to be managed in accordance with the Escalante and Paria MFPs (USDI, BLM, 1981d and 1981c). The 3,841.2 acres of State land within the WSA (refer to Map 1) have not been identified in the MFPs for special Federal acquisition through exchange or purchase.

The figures and acreages given are for Federal lands only.

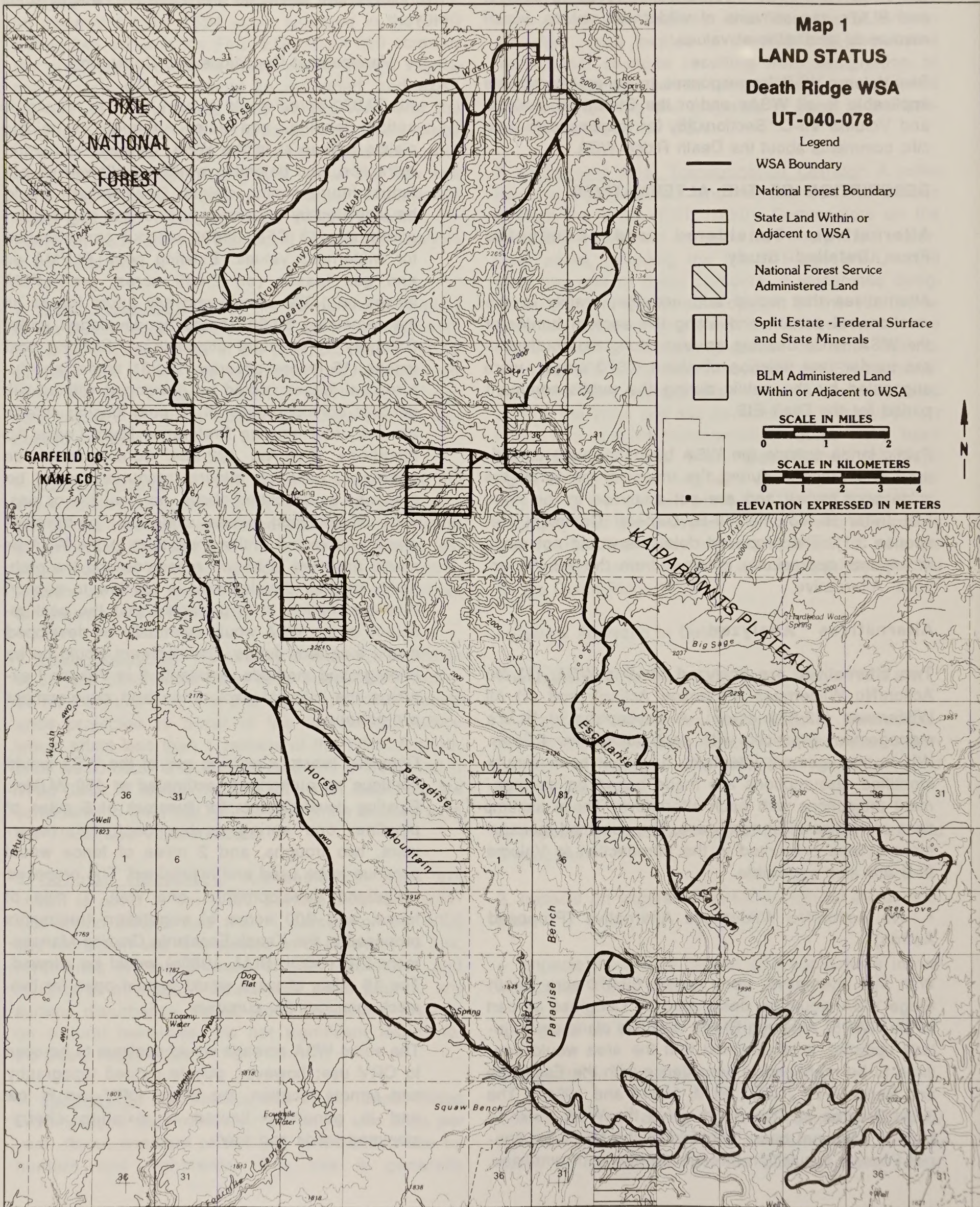
• Management Conditions and Constraints

All 62,870 acres would remain open to mineral location, leasing, and sale. Although no mining claims now exist in the WSA, development work, extraction, and patenting would be allowed on potential future mining claims. Development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809), without consideration for wilderness values. Existing post- FLPMA oil and gas leases (on 2,485 acres, pre-FLPMA leases on 1,378 acres,) and any future leases on the remaining 59,007 could be developed under Category 1 (standard stipulations). Existing coal leases (15 leases covering 19,381 acres) and future coal leases could be developed without wilderness considerations. If all coal leasing criteria are met, four existing Preference Right Lease Applications (PRLAs) (22,964 acres) could be approved. Although mineral resources would be managed as described above, no locatable or leasable (oil and gas) mineral exploration or development is projected in the short term in the WSA because the level of known resources and the probability of their development is too low to support that assumption. It is projected that the coal resource in the WSA would eventually be developed in the long-term future. Development would be by underground methods. Appendix 6 in Volume I explains the mineral exploration and development projections.

Domestic livestock grazing use of the WSA would continue as authorized (estimated at 450 AUMs). Existing developments for livestock of 6 miles of pipeline, one spring development, two reservoirs, two troughs, and 2 miles of fence would continue to be used and maintained. The proposed rangeland developments, one well, 1 mile of fence, and 300 acres of vegetation treatments proposed in the Kanab-Escalante Grazing Management EIS (USDI, BLM, 1980a) would be allowed. The 18 miles of ways would remain open for livestock management purposes.

The entire WSA acreage would continue to be open to ORV use; however, due to rugged topography and remote location, the actual ORV use is low and is generally limited to existing cherry-stemmed roads and ways.

DEATH RIDGE WSA









Map 1

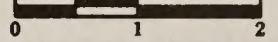
LAND STATUS Death Ridge WSA

UT-040-078

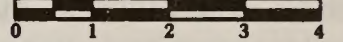
Legend

-  WSA Boundary
-  National Forest Boundary
-  State Land Within or Adjacent to WSA
-  National Forest Service Administered Land
-  Split Estate - Federal Surface and State Minerals
-  BLM Administered Land Within or Adjacent to WSA

SCALE IN MILES



SCALE IN KILOMETERS



ELEVATION EXPRESSED IN METERS

DEATH RIDGE WSA

A 135-acre public water reserve withdrawal would continue to remain in effect. The withdrawn land is segregated from public land laws and nonmetalliferous mining.

The entire 62,870-acre area would be open to woodland product harvest. However, due to the limited access and presence of more favorable harvest areas elsewhere, use would continue to be minimal for the foreseeable future.

The entire WSA would continue to be managed under VRM Class IV.

- Action Scenario

It is projected that implementation of the No Action/No Wilderness Alternative would result in 345 acres of surface disturbance in the foreseeable future. In the short term, about 300 acres of the expected disturbance would result from a vegetation treatment designed primarily to improve livestock forage. One additional acre would be disturbed due to the construction of 1 mile of livestock fence and one well. Less than 1 month of actual on-the-ground work would be required to complete these projects. Four acres would be disturbed due to the projected construction of 2 miles of access road to in-held State lands for mineral exploration purposes.

In the long term, it is anticipated that the coal in the WSA would be eventually developed. The PRLA located in the WSA could be approved. Development would be by underground methods and access would be from the eastern portion of the WSA where coal seams are nearest the surface and most easily accessible. The size of individual coal operations, typical of the intermountain area, differ. Each surface facility site, including access roads, would occupy up to 20 acres. Two separate facilities are projected for the WSA, therefore, up to 40 acres could be occupied by surface facilities including 10 miles of access roads. Additional surface disturbance would result from exploratory drilling activities. Employees, including supervisory personnel, would number from 20 to 300 for each operation. Operations would last from 30 to 40 years. All disturbed areas would be reclaimed upon abandonment.

No disturbance from ORV use is projected because all traffic would continue to be restricted to the

existing 18 miles of ways and to future roads due to the rugged terrain and remoteness of the area.

Recreational use is expected to increase over the current estimated use of 100 visitor days per year at a rate of 2 to 7 percent annually. As much as 33 percent of all recreational use would be motorized.

- All Wilderness Alternative

With this alternative, all 62,870 acres of the Death Ridge WSA would be designated by an act of Congress as part of the NWPS (refer to Map 2). It would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) to preserve its wilderness character.

The policy of the State is to reserve its position regarding the exchange of in-held lands within any particular WSA (see Volume 1, Chapter 1). Based on its policy regarding exchange of State lands, it is assumed that State and split-estate lands would remain under existing ownership. There are six State sections (3,841.2 acres) and two tracts of split-estate land (Federal surface/State mineral) which cover 797 acres within the WSA (refer to Map 1 and Appendix 3 in Volume I). The figures and acreages given with this Alternative are for Federal lands only.

- Management Conditions and Constraints

After wilderness designation, all 62,870 acres would be withdrawn from mineral location and closed to new mineral leasing and sale. Development work, extraction, and patenting of mining claims would be allowed on any valid claims located prior to wilderness designation. No mining claims are projected to be located prior to designation and none currently exist in the WSA. Existing post-FLPMA oil and gas leases on 2,485 acres would not be reissued upon expiration unless a find of oil or gas in commercial quantities is shown. Three existing post-FLPMA leases (1,378 acres) could be developed per the stipulations attached at the time of lease issuance. No new oil and gas leases would be issued. Existing coal leases (15 leases on 19,381 acres) would be terminated if diligent development criteria are not met, and they would not be extended or reissued. Four existing PRLAs on 22,964 acres would not be approved. No new coal leases would be issued. No locatable or leasable mineral exploration or development are expected with this alternative.

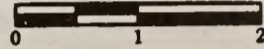
DEATH RIDGE WSA

Map 2 ALL WILDERNESS ALTERNATIVE Death Ridge WSA UT-040-078

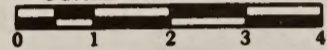
Legend

- All Wilderness Alternative (62,870 acres)
- - - National Forest Boundary

SCALE IN MILES



SCALE IN KILOMETERS



ELEVATION EXPRESSED IN METERS

T. 37 S.

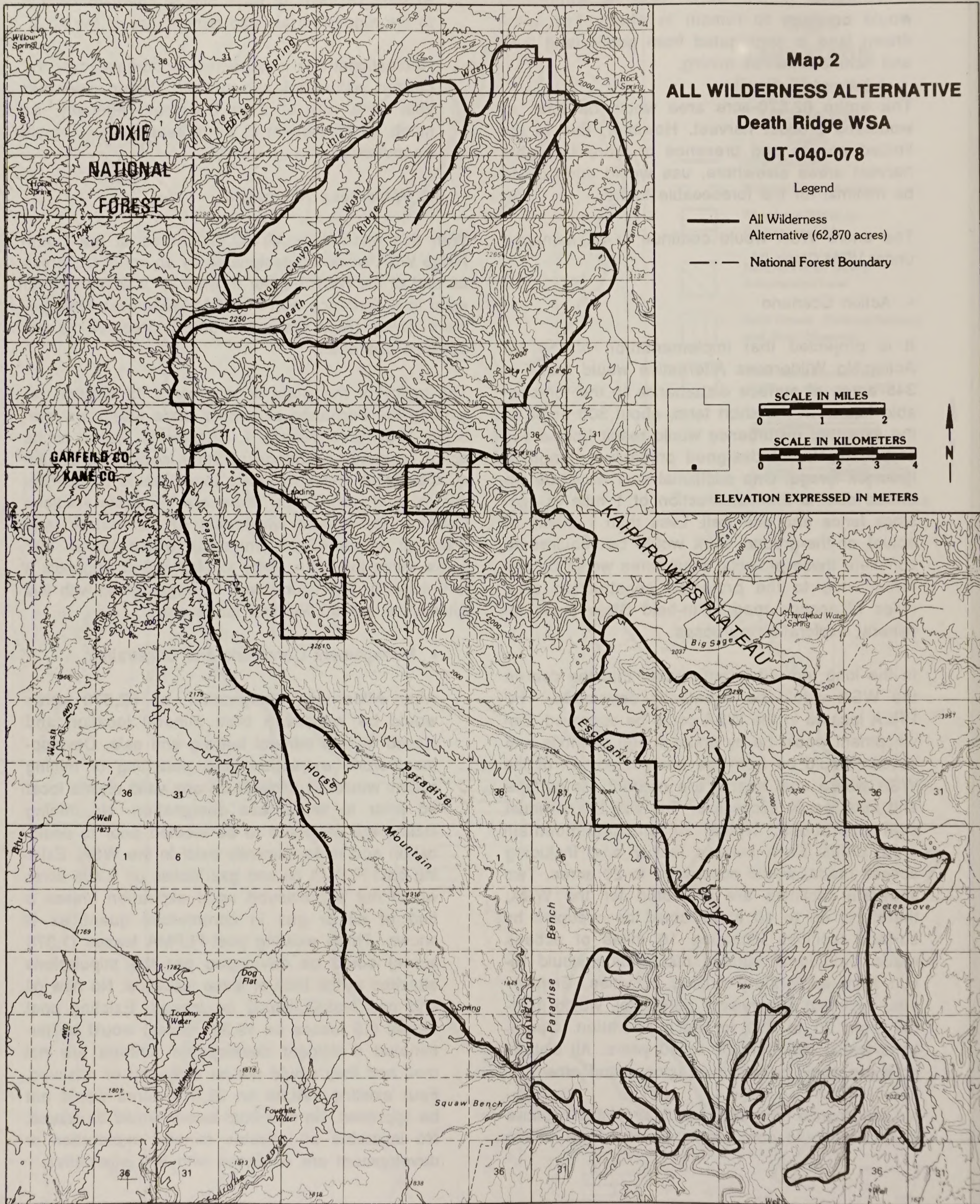
T. 38 S.

T. 39 S.

R. 2 E.

6

R. 3 E.



DEATH RIDGE WSA

Access to the in-held State lands would be allowed and is projected for purposes of mineral exploration.

Present domestic livestock grazing would continue as authorized. The estimated 450 AUMs in the WSA would remain available to livestock as presently allotted. After designation, existing range facilities (as listed in the No Action/No Wilderness Alternative) could be maintained in a manner least degrading to wilderness values. New rangeland developments would be allowed on a case-by-case basis if necessary for resource protection (rangeland and/or wilderness) and the effective management of these resources, provided that wilderness protection criteria are met. It is assumed that the 1 mile of proposed fence and well would be allowed, but the proposed 300-acre seeding would not be allowed.

The entire 62,870-acre area would be closed to ORV use except for: (1) users with valid existing rights if approved by BLM in accordance with 43 CFR 8560 provisions; or (2) for occasional and short term vehicular access approved by BLM for maintenance of approved livestock developments. About 18 miles of existing ways would be closed. Existing roads, totaling 30 miles, would be cherry-stemmed in the following eight locations: Trap Canyon (1 mile); Death Ridge, north end (1.5 miles); Alvey Wash, north end (3 miles); Alvey Wash, west end (5 miles); Right Hand Collet Canyon (1.5 miles); Escalante Canyon, northwest end (6 miles); Escalante Canyon, south of Big Sage (10 miles); and Paradise Bench (2 miles). The last three cherry-stemmed roads listed above would create nonwilderness islands within the designated wilderness area. Mineral development and other activities could occur in these islands without wilderness limitations, as discussed under the No Action/No Wilderness Alternative. The 30 miles of cherry-stemmed roads or ways and about 22 additional miles of dirt roads that border the WSA would remain open to vehicular use.

A 135-acre public water reserve withdrawal would continue to remain in effect. The withdrawn land is segregated against public land laws and nonmetalliferous mining.

Visual resources in the WSA would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change. The three nonwilderness islands that

would be cherry-stemmed within the WSA would be managed as VRM Class IV.

- Action Scenario

A total of 5 acres of surface disturbance would occur in the WSA following wilderness designation. One acre of disturbance would result from the construction of 1 mile of livestock fence and one well. These developments would be designed and installed consistent according to wilderness protection standards. The 300-acre vegetation treatment would not be allowed. No other rangeland, wildlife habitat, watershed projects, or other developments are planned following wilderness designation. Four acres of surface disturbance would result from construction of access roads to in-held State lands for mineral exploration purposes.

No mineral resource exploration or development is anticipated from existing oil and gas leases in the WSA. It is also expected that the PRLAs in the WSA would not be approved. Implementation of the All Wilderness Alternative would preclude new mineral location and mineral leasing. Therefore, no exploration or development of locatable or leasable minerals, including coal, is anticipated following wilderness designation.

No disturbance from ORV use is projected because of wilderness management restrictions, terrain, and remoteness of the area.

Primitive recreational use is expected to increase over the current estimated use of 66 visitor days per year at a rate of 2 to 7 percent annually. No motorized recreational use would occur.

Summary of Environmental Consequences

Table 1 presents the environmental consequences of the alternatives analyzed in detail.

AFFECTED ENVIRONMENT

This section describes the overall environmental setting. This information allows for independent assessment by the public as required by the CEQ guidelines and provide a data base for the cumulative Statewide analysis found in Volume 1, as well as the Environmental Consequences of Alternatives in this WSA analysis.

DEATH RIDGE WSA

Table 1
Summary of Environmental Consequences

| Resource | No Action/No Wilderness (Proposed Action) | Alternatives | All Wilderness (62,870 Acres) |
|--|--|---|-------------------------------|
| Impacts on Wilderness Values | Wilderness values would not be protected by wilderness designation and loss would occur as intrusions increase. In the short term, naturalness and opportunities for solitude and primitive recreation would be directly lost on 305 acres because of vegetation treatments, rangeland projects, and construction of access roads to State lands and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to 1,886 acres. Special features, including scenic values, special status species, educational values, and wildlife associated with wilderness would not be significantly affected. In the long term, coal development would result in direct loss of wilderness values on 40 acres and an indirect reduction on up to an additional 20,800 acres in the eastern portion of the WSA. | Wilderness designation would preserve wilderness values overall in the WSA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 4 acres because of construction of access roads to in-held State lands. Wilderness values would be indirectly reduced in quality on up to 1,257 acres. Wilderness values would be temporarily affected on 1 acre by rangeland projects but the wilderness management criteria would be met. Special features would be preserved. | |
| Impacts on Vegetation | Special status plant species would not be significantly affected. Less than 1 percent (345 acres) of the pinyon-juniper woodland and sagebrush type in the WSA would be altered as a result of rangeland projects, construction of access roads and long term coal development. Therefore, there would not be significant changes in the vegetation types in the WSA. | Implementation of the All Wilderness Alternative would not significantly affect the vegetation resource in the WSA. Vegetation types and special status plant species would be protected because potential disturbance would be reduced to 5 acres. | |
| Impacts on Mineral and Energy Exploration and Production | Implementation of the No Action/No Wilderness Alternative would not adversely affect mineral exploration or production because minerals could be leased, claimed, and developed as at present. | Wilderness designation would preclude potential development of about 800 million tons of recoverable coal. Loss of exploration and development opportunities for other mineral and energy resources would not be significant because the probability of development is low even if the area is not designated as wilderness. | |

DEATH RIDGE WSA

**Table 1 (Continued)
Summary of Environmental Consequences**

| | No Action/No Wilderness (Proposed Action) | Alternatives | All Wilderness (62,870 Acres) |
|---|---|--------------|---|
| Resource | | | |
| Impacts on Wildlife Habitat and Populations | Wildlife habitat and populations including special status animal species would not be significantly affected. Implementation of the vegetation treatment project would benefit wildlife by providing additional forage and ecotones. Less than 1 percent (345 acres) of the wildlife habitat in the WSA would be disturbed. | | Wilderness designation would preclude 300 acres of vegetation treatment which would improve wildlife habitat, but designation would provide all species with additional opportunities for solitude. Only 5 acres of wildlife habitat would be disturbed in the WSA. |
| Impacts on Livestock Management | Livestock management and grazing levels would not be adversely affected because access and management practices would continue as at present. Approximately 300 acres of seeding that would provide 46 AUMs of forage could be done. | | Wilderness designation would not significantly affect current live-stock management practices. Restricting motorized use of the 18 miles of way could increase management costs and inconvenience 20 permittees. The opportunity for an increase of 46 AUMs through vegetation treatments would be foregone. |
| Impacts on Economic Conditions | No loss of employment or income would occur. Federal and State revenues would not be reduced. Economic opportunities could be realized through mineral and energy exploration and eventual development in the long term. There would be major beneficial and adverse effects in Garfield and Kane Counties. | | Wilderness designation would not significantly affect present local or regional economic conditions. However, new leasing in the WSA would not be allowed; therefore, potentially significant sales and revenues from coal would be foregone. Over the long term, coal development and associated beneficial and adverse economic impacts would not occur. This would significantly change future economic conditions in Kane and Garfield Counties from what they would be without wilderness designation. |

DEATH RIDGE WSA

Unless otherwise indicated, information for this section was taken from BLM staff specialists, technical reports, and file documents.

Wilderness Values

- Size

The WSA contains 62,870 acres and is approximately 17 miles long (north to south) and 9 miles wide (east to west).

- Naturalness

Man has imprinted less than 1 percent of the WSA. There are 628 acres with imprints that are substantially unnoticeable. The portions of the WSA where naturalness has been affected have resulted mainly from coal exploration drilling. A helicopter was used to conduct geophysical exploration during 1984, but there was no surface disturbance or impairment done to the WSA's naturalness. Also, during 1987, a spring development (Horse Spring) was authorized. It consisted of developing a seep area, laying 200 feet of plastic pipeline, and the placing of two water troughs. Approximately one-third acre was disturbed. All work was completed with hand tools and was nonimpairing to naturalness. No additional imprints have occurred in the WSA as the result of impairing uses or activities allowed under the BLM Interim Management Policy (USDI, BLM, 1979c). All 62,870 acres meet the Wilderness Act criteria for naturalness.

- Solitude

The size and configuration of the WSA, in combination with topography and vegetation, support opportunities for solitude. The incised canyon drainages and broken topography between some canyons offer topographic screening. For example, the peninsula between the Right Hand Collet and Escalante Canyons exhibits an elevated and isolated plateau configuration. Vegetation screening consists of a dense pinyon-juniper woodland cover in rough areas and small Ponderosa pine forest elsewhere. Topographic screening occurs where rock formations outcrop above the plateau. A visitor can find seclusion in the canyons and in the areas of broken topography between canyons.

Vegetation complements topography in providing for solitude in most of the WSA. However, the lower portion of the unit lacks sufficient vegetation or topogra-

phy to provide screening and consequently lacks outstanding opportunities for solitude.

Off-site intrusions and influences are not present within the WSA.

Overall, about 50 percent (31,435 acres) of the WSA meets the solitude criterion for areas under wilderness review. These areas are found in canyons and on peninsulas between drainages.

- Primitive and Unconfined Recreation

There is no outstanding opportunity for primitive and unconfined recreation present in the WSA. Hiking is the only activity of any importance. It is rated as moderate in quality and is not superior to other hiking opportunities in the region.

- Special Features

The BLM Intensive Wilderness Inventory concluded that the diversity of plant life ranging from low desert shrub to Ponderosa pine enhances the study and observation of ecology. Three small stands of Ponderosa pine are present in the Alvey Wash drainage in the northeastern portion of the WSA. The Ponderosa pine is adjacent to desert shrub in Alvey Wash and in a tributary to Little Valley Wash. Elevations range from 7,505 feet to 6,500 feet, and pine and desert shrub types can be found in locations less than 1 mile apart. Educational values are present on approximately 2,000 acres.

At least two stands of Ponderosa pine are present above the Right Hand Collet Canyon and Relish Seep areas. Elevations range from 7,526 feet to 6,240 feet, and the distance between the desert shrub and pine types is often less than 1 mile.

Approximately 1,500 acres of scenic values are present in the WSA. In the upper portion of Paradise Canyon, sandstones in the Wahweap Formation outcrop as walls and cliffs. The sandstone exposures in this area are the most colorful in the WSA. The Ponderosa pines growing in the sandstone enhance the scenic value of the area. In the northwestern portion of the WSA, the canyon in upper Trap Canyon Wash possesses scenic values. Two unnamed sandstone monoliths or fins above Alvey Wash are prominent landmarks in the northeastern portion of the WSA that possess scenic value. South of Right Hand Collet Canyon, a 7,526-foot sandstone outcropping, an unnamed box canyon immediately below the outcropping, and

DEATH RIDGE WSA

an adjacent stand of Ponderosa pine all combine to provide an area of scenic value.

The WSA has resource values that, although not identified as such during the wilderness inventory, could be considered special features. There are two animal species (peregrine falcon and bald eagle) listed as endangered that have been reported in the WSA. Nine animal species and seven plant species that are considered sensitive occur or may occur in the WSA. The WSA has a limited population of cougar, which is a wildlife species commonly associated with wilderness. The WSA has no known National Register sites, but there is a high potential that such sites exist. Refer to the Vegetation and Wildlife Including Special Status Species and Cultural Resource sections for additional information.

• Diversity

The Death Ridge WSA is in the Colorado Plateau Province Ecoregion and has the PNV type of juniper-pinyon woodland (refer to the Vegetation Including Special Status Species section for more discussion on ecoregions and PNV types). The ecoregion and PNV types represented by this WSA are compared with existing and other potential National Wilderness Preservation units in the Wilderness Values section of Volume I.

This WSA is not within a 5-hour drive from any standard metropolitan statistical area.

Air Quality

The Death Ridge WSA and surrounding area have a Class II PSD classification under the Clean Air Act Amendments of 1977. The BLM will not consider or recommend any change in air quality classification as part of the wilderness study or wilderness recommendations. Any further air quality reclassification is the prerogative of the State government (USDI, BLM, 1982b). The nearest PSD Class I area is Bryce Canyon National Park approximately 22 miles to the west.

No measurements of air pollution or visibility levels have been made in the Escalante planning unit. Data collected from nearby sites (Page, Arizona, and Four Mile Bench, Garfield County, Utah) indicate the air is generally free of pollutants and within National Ambient Air Quality Standards and State regulations. Visibility within the WSA is excellent.

Geology and Topography

The Death Ridge WSA is located in the Kaiparowits Plateau-Escalante Benches section of the Colorado Plateau Physiographic Province. In general, the southern portion of the WSA consists of benches cut by canyons, while the northern part consists of narrow ridges divided by deep canyons.

Cretaceous bedrock and Quaternary surficial deposits are the only units exposed in the WSA. The Cretaceous exposures consist of the coal-bearing Straight Cliffs, Wahweap, and Kaiparowits Formations. The Wahweap Formation contains fossiliferous beds, especially in the upper half, containing gastropods, pelecypods, petrified wood, and dinosaur bones.

The Death Ridge WSA contains three structural axes. Two of these, the Upper Valley anticline and the Alvey syncline, originate in the middle of the unit and become more pronounced to the north. The Upper Valley anticline trends north to northwest and shares its eastern flank with the Alvey syncline. The west flank achieves monoclinical proportions when strata dip to 23 degrees. The third structural axis is the Rees anticline in the southeastern part of the WSA with dips to 3 degrees. No important faulting has been mapped anywhere within the WSA.

Elevations range from 5,240 feet above sea level in the south to nearly 8,000 feet above sea level on Death Ridge.

Soils

The soils are predominantly aridisols (light-colored) with inclusions of badland-rockland and alluvial (sand, silt, clay) soils.

The aridisols occur on rolling to steep slopes, upland mesas, and plateaus. The soils are shallow to moderately deep, light-colored loams or silts, and are underlain at 10 to 20 inches by fractured bedrock. The soils are well drained with moderate to slow permeability and are moderately to highly erodible.

The badland-rockland occurs on the benches, mesas, and along steep canyon walls. The soil material is shallow to very shallow, light-colored loam and overlies sandstone or shale. Runoff is rapid and very rapid with high sediment yield.

The alluvial soils occur on the floodplains, primarily Alvey and Collet Washes and their tributaries. These

DEATH RIDGE WSA

soils are deep brown, or reddish-brown loams, moderately to mildly alkaline. They are well drained with slow to moderately rapid permeability.

Most erosion is due to runoff from thunderstorms, but wind and snowmelt also cause some minor erosion. Sparse vegetation cover on much of the WSA also contributes to erosion. Table 2 indicates the erosion classes and soil loss data.

Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | Acres | Percent of WSA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|--------|----------------|--------------------------------------|
| Severe | 5.4 | 0 | 0 | 0 |
| Critical | 2.7 | 8,173 | 13 | 22,067 |
| Moderate | 1.3 | 49,039 | 78 | 63,751 |
| Slight | 0.6 | 5,658 | 9 | 3,395 |
| Stable | 0.3 | 0 | 0 | 0 |
| Total | | 62,870 | 100 | 89,213 |

Sources: USDI, BLM, 1978c and 1979c; Leifeste, 1978.

According to an unpublished Kane County soil survey conducted by BLM, 90 percent of the soils within the WSA are classified as slightly saline. The remaining 10 percent are classified as nonsaline. The estimated annual salt yield from undisturbed soils within the WSA is 24 lb per acre.

Reclamation potential is low on the majority of the area which contains rock outcrops and sandy soils. Potentials for seeding establishment is considered fair on deeper and darker soil sites scattered throughout the WSA.

Vegetation Including Special Status Species

The major existing vegetation type in the WSA is pinyon-juniper woodland, which covers approximately 57,435 acres. Areas of sagebrush type totaling approximately 3,060 acres are also scattered throughout the WSA. The WSA also contains small isolated communities of oak and Ponderosa pine covering a total of 2,375 acres. No significant riparian vegetation is found in the WSA.

No threatened or endangered plant species are known to occur in the WSA. However, the WSA may contain one Category 1 candidate species and six Category 2 candidate species. These are Lepidium montanum var. stellae (the Category 1 species), Psoralea pariensis, Lepidium montanum var. neeseae, Coryphantha missouriensis var. marstonii, Heterotheca jonesii, Pen-

stemon atwoodii, and Xylorhiza cronquistii (see Appendix 4 in Volume I). Penstemon atwoodii is known to exist on Death Ridge and in Right Hand Collet Canyon. Xylorhiza cronquistii is found on the benches below the cliffs in the southeastern part of the WSA. Five of the species discussed above are located in the WSA's pinyon-juniper woodland where the majority of surface disturbance would occur. The remaining species are located in more restricted habitats such as riparian and blow sand type ecosystems.

The Death Ridge WSA is in the Colorado Plateau Province Ecoregion as shown on the Bailey-Kuchler ecosystems map (USDI, USGS, 1978a). The PNV type of the WSA is juniper-pinyon woodland.

Water Resources

The Death Ridge WSA is within the Escalante River subbasin of the Upper Colorado River Hydrologic subregion. The WSA does not contain any perennial streams. Major drainages include Escalante, Paradise, Right Hand Collet, Alvey Wash, and Trap Canyons. These washes may flow in response to thunderstorms and periods of snowmelt. Water does occur in Right Hand Collet Canyon throughout much of the year. One developed spring, two reservoirs, two troughs, and approximately 6 miles of water pipeline are located in the WSA. There are seeps in Right Hand Collet, Escalante, and Paradise Canyons.

The Death Ridge WSA is within Escalante River Adjudication Area 97. The Escalante River and all tributaries are considered to be fully appropriated. The underground water directly connected to the surface is closed to appropriation, with the exception of some limited applications for 0.015 cfs which have been approved on an individual basis. The State Engineer will accept applications to appropriate water from the underground aquifer located in bedrock and consider them on the individual merits of the applications (UDNRE, DWR 1988).

The water quality standards for Escalante River, a tributary of Lake Powell, are as follows: Class 2B (protected for boating, waterskiing, and similar uses), and Class 3C (protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain).

Utah's 1986 305(b) Water Quality Assessment Report states that streams and tributaries entering Lake Powell in the southern portions of the Upper Colorado River drainage have impairments to their

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beneficial uses from high levels of TDS and sodium. These impairments result mainly from natural sources and low flows.

Regional fresh water aquifers occur in sandstones of the Entrada and Navajo Formations. Less extensive aquifers occur near the surface in the alluvium of Alvey Wash. Perched aquifers occur in sandstone of the Wahweap and Straight Cliffs Formations.

Mineral and Energy Resources

The energy and mineral resource rating summary for the Death Ridge WSA is given in Table 3. Appendix 5 in Volume I explains the mineral and energy resource rating system.

Table 3
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|-------------|---------------------------|------------------------|--|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f3 | c1 | Between 10 and 50 million barrels of oil; between 60 and 300 billion cubic-feet of gas |
| Uranium | f3 | c1 | Between 500 and 1,000 metric-tons of uranium oxide |
| Coal | f4 | c4 | 1.6 billion metric-tons |
| Titanium | f2 | c2 | Less than 1 million metric-tons of titanium oxide |

Source: SAI, 1982; USDI, BLM, 1987.

^aFavorability of the WSA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

The WSA could contain deposits of titanium, which is currently listed as a strategic and critical material (USDoD, 1988).

• Leasable Minerals

Coal is the only leasable mineral known to occur in the WSA. Currently, there are no active drilling, mining, or exploration activities for leasable minerals.

• Oil and Gas

Numerous oil shows (including oil-impregnated rock deposits) have been reported from Cambrian, Devonian, Mississippian, Pennsylvanian, Permian, and Triassic rocks in south-central Utah (Heyl-mun, et al., 1965; Veal, 1976; and Campbell and Ritzma, 1979). The older rocks generally are only stained, whereas free oil has been recovered

from Mississippian rocks at Upper Valley (Doelling, 1975). Because the most obvious structures in the area have already been explored, many investigators considered subtle stratigraphic traps in Permian and Triassic rocks to offer the best potential for future petroleum discoveries.

The only oil and gas production in south-central Utah in the vicinity of the WSA comes from the Upper Valley Field located immediately to the northwest. This field was discovered on the Upper Valley anticline in 1964 and stimulated drilling activity on similar anticlinal structures in south-central Utah. To date, however, no commercial oil and gas potential has been identified in the WSA. Because of the proximity of the Upper Valley Field to the WSA, a discussion of this field related directly to the oil and gas favorability of the WSA.

The oil reservoir is located along the prominent Upper Valley anticline, but the producing area is offset from the crest of the anticline to the west flank and the southern plunging nose. This offset is attributed to a regional, southwest directed hydrodynamic drive in the Kaibab Formation (Sharp 1976). If correct, oil accumulation in other anticlines within the region may be displaced to the south. Total production from this field is expected to approach 50 million barrels. Production is from four distinct zones in the Timpoweap Formation (Triassic age) and the Kaibab Formation (Permian age). Shows of oil were also reported in the Permian Cedar Mesa and Mississippian Redwall Formation (Sharp, 1976).

The axis of the Upper Valley anticline plunges south through the northwestern part of the WSA. Although no oil and gas wells have been drilled within the WSA, producing wells occur less than 1,000 feet to the north. Tenneco has apparently defined the limits of the field, and it is doubtful that the structure contains any oil in the WSA. However, until conclusive proof is obtained through drilling or other geologic evidence, the potential in the WSA is uncertain.

The other favorable structure in the WSA is the Rees Canyon anticline. Three exploratory wells have tested the Rees Canyon anticline immediately east of the WSA. One of the wells (#11-9 Federal) was drilled in 1977 and penetrated Cambrian rocks at a total depth of 10,285, with shows reported from the Cedar Mesa Formation

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of Permian age. The other two wells (#44-30 Federal and; #1 Lyons Federal) penetrated Permian strata, with shows in the Cedar Mesa Formation from the #44-30 well.

Three other wells tested the Rees Canyon anticline approximately 6 to 10 miles southeast of the WSA. One of these wells (#1 Byrd, drilled in 1954) penetrated Devonian rocks and bottomed at a total depth of 10,045 feet. BLM well file data indicates that no oil shows were reported. The other two wells (#2 Unit, drilled in 1955 and #1-16 State, drilled in 1968) penetrated Mississippian and Permian Formations respectively, and no oil shows were reported from either well.

Based on the proximity of the WSA to the Upper Valley Field, the WSA is assigned a favorability rating of (f3) (SAI, 1982). The size of the hydrocarbon accumulation in such an environment is anticipated to be between 10 and 50 million barrels of oil or between 60 and 300 billion cubic-feet of gas. Based on the available information, the certainty of occurrence for oil and gas is rated very low (c1).

Under the current land use plan, all 62,870 acres of the WSA are in Category 1 (standard stipulations). There are presently three pre-FLPMA leases (1,378 acres) and five post-FLPMA leases (2,485 acres), covering a total of 3,863 acres in the WSA.

- Coal

The WSA is in the central portion of the Kaiparowits Plateau Coal Field, and the entire tract is underlain by the coal-bearing Cretaceous Straight Cliffs Formation (Doelling and Graham, 1972).

Estimated coal reserves within the entire Kaiparowits Plateau coal field total 15.2 billion tons (Doelling and Graham, 1972). An estimated 1,587 billion tons of minable coal, based on coal seams greater than 4 feet thick, occurs within the WSA. An estimated 128 million tons occur at depths less than 1,000 feet, 1,374 million tons occur between 1,000 feet and 2,000 feet, and 85 million tons occur at depths between 2,000 feet and 3,000 feet. Approximately one-third to one-half of the coal is recoverable (Doelling and Graham, 1972).

The coal-bearing Straight Cliffs Formation is overlain throughout the WSA by the Wahweap Formation, therefore, few (if any) coalbeds are exposed on the tract (Doelling and Graham, 1972). Coalbeds crop out extensively, however, in the deeply incised canyons that are cut into the Straight Cliffs Formation near the eastern and northwestern sides of the WSA. In the canyons bordering the tract to the northwest, most of the coalbeds belong to the Alvey coal zone (Zeller, 1973a). The Alvey zone is persistent in this area and coalbeds range in thickness from 4 feet to more than 18 feet. The total thickness of coal in all zones in this area is nearly 100 feet; this area is considered to contain the thickest coal in the entire region (Zeller, 1973a). Based on oil and gas exploration wells, these thick coalbeds extend to the southeast into the WSA. East of the tract coalbeds in the Alvey and Christensen zones are widely exposed and seams more than 4 feet thick are widespread (Doelling and Graham, 1972).

Although no sample analyses are available from within the WSA, analyses of samples taken from near the northwestern boundary of the WSA indicate an average content of 5.45 percent ash, and a heat value of 10,800 Btus per lb. No analyses were available for sulfur (Doelling and Graham, 1972).

The WSA is within the Kaiparowits Plateau KRCRA, which includes the minable coal area. In accordance with the underground mining exemption from the unsuitability criteria (43 CFR 3401.2[a]), none of the areas in the KRCRA within the WSA were determined to be unsuitable for mining as a result of the application of the unsuitability criteria (USDI, BLM, 1981b and 1981c).

Based on the above discussion, the coal in the WSA is assigned a favorability rating of (f4) (potential for large tonnages of coal) with a high (c4) certainty of occurrence. There are presently 15 coal leases covering 19,381 acres and four PRLAs covering 22,964 acres located in the WSA.

- Locatable Minerals

There are no known deposits of locatable minerals in the WSA, and there are presently no mining claims.

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• Uranium

The following rock units are considered favorable for uranium in south-central Utah (USDOE, 1979): the Basal Members and Petrified Forest Member of the Triassic Chinle Formation, and the Salt Wash Member of the Jurassic Morrison Formation. The Morrison Formation is perhaps 100 to 200 feet thick in the vicinity of the WSA and it thickens rapidly to the east. The Morrison Formation has been removed by pre-Dakota erosion a short distance west of the WSA (SAI, 1982).

Throughout most of the tract, the Morrison Formation lies at a depth of about 2,000 feet. The Chinle Formation lies at depths generally exceeding 4,500 feet (Hintze, 1973).

The Morrison Formation crops out along the base of the Kaiparowits Plateau (the Straight Cliffs) a few miles northeast of the WSA. There are no reported uranium occurrences in the Morrison Formation in this area (Peterson, et al., 1980). The few uranium occurrences that have been discovered in this region are within sandstones, carbonaceous shales, and lignites of the Dakota Sandstone. One occurs about 10 miles to the east of the tract and another occurs about 6 miles to the west (Peterson, et al., 1980). Bendix (1978) reports that the low uranium values in these scattered deposits in the Dakota indicate that they are very low grade and are not considered further in this assessment. Deposits in the Chinle Formation are also not considered further because they generally exceed 5,000 feet in depth.

The Morrison Formation is, therefore, the only formation considered to be favorable for "significant" uranium deposits in the vicinity of the WSA. The term significant is defined as an economically-extractable uranium deposit that contains a total of at least 100 metric-tons of uranium oxide at a grade of at least 0.01 percent (Peterson, et al., 1982). The criteria used to judge the favorability of the Morrison Formation for significant uranium deposits included: (1) low fluvial energy regimes during Morrison time, (2) active folding at the time of sedimentation, (3) orientation of fold axes at large angles to the direction of transport of paleostreams, and (4) the presence of gray mudstone beds. On the basis of these criteria, they consider the Morrison Formation underlying the northern half of the WSA to be favorable for one or more significant uranium deposits in the Salt

Wash Member. This area contains favorable gray mudstone beds, folds that were probably active during Morrison times, and paleostreams that were nearly at right angles to the ancestral Upper Valley anticline that trends through the northwestern half of the tract.

On the basis of the discussion above, the WSA is assigned a uranium favorability of (f3) (containing between 500 and 1,000 metric-tons of uranium oxide). The certainty that uranium deposits occur in the Morrison Formation within the tract is very low (c1).

• Titanium

Large deposits of primary titanium ore have not been reported in Utah, but sedimentary deposits of titanium-bearing black sandstones, similar to those found in other western States, occur in several places (Adams, 1964). The known titanium-bearing black sandstone deposits in Utah are contained in the Straight Cliffs Formation and the Mancos Shale, both of Late Cretaceous age. The deposits represent fossil beach placers that contain very fine-grained ilmenite, zircon, and monazite. The heavy metals were eroded from older rocks to the west and then transported by streams into eastward-retreating Late Cretaceous seams where they were winnowed and concentrated by waves and winds into large sandstone lenses along northwest-trending beaches (Adams, 1964). Because these deposits are slightly radioactive, many were discovered during the uranium exploration boom on the Colorado Plateau in the 1950s.

Although titaniferous black sandstones are known to occur in south-central Utah (Adams, 1964; and Doelling, 1975), all the deposits discovered to date contain only small tonnages of titanium. Two titaniferous placer deposits occur in the upper part of the John Henry member of the Straight Cliffs Formation a few miles north of the WSA, in T. 36 S., R. 3 E., secs. 7 and 17, (Zeller, 1973a). The deposit in Section 17 occurs as part of a channel in a massive white sandstone between the Alvey and Christensen coal zones (Doelling, 1975). The ore body is about 12 feet thick, 600 feet long, and 200 feet wide, although Doelling (1975) states that part of the deposit has undoubtedly been removed by erosion. The upper 6 feet of this deposit contains 13.4 percent titanium oxide, 6.5 percent zirconium oxide, 11.7 percent

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iron, and 0.09 percent equivalent thorium oxide. The lower 6 feet contains 24.1 percent titanium oxide, 18.1 percent zirconium oxide, 17.8 percent iron, and 0.15 percent equivalent thorium oxide (Dow and Batty, 1961).

It seems likely that similar, although covered, titaniferous sandstone deposits occur sporadically in late Cretaceous rocks throughout this region. Because of the apparent widespread distribution of these deposits and because of the small amount of titanium contained deposits already discovered, profitable mining of these deposits (especially those covered by younger strata) seems unlikely. Partly on this basis and in view of the preceding discussion, the WSA has been assigned a titanium favorability rating of (f2) (favorable for less than 1 million metric tons). The certainty of occurrence of titanium deposits within the tract is low (c2).

- **Salable Minerals**

Stream gravel and other loose rock material that could be used for construction occur within the WSA. These deposits are not unique or economically significant due to the presence of ample similar materials nearby.

Wildlife Including Special Status Species

The Death Ridge WSA has habitat (pinyon-juniper woodland and sagebrush) that could support approximately 59 species of mammals, 141 species of birds, 41 species of reptiles, and five species of amphibians. Approximately eight to 13 species of raptors are known to or are suspected of nesting in the WSA.

Game species in the WSA are mule deer, cougar, cottontail rabbits, chukar, and mourning doves. Mule deer, although not common, are yearlong residents in the WSA. Cougar occur in the area in limited numbers, their population being limited by the low deer population.

Bald eagles and peregrine falcons are two endangered species recorded to have been sighted in the WSA.

The UDWR list of sensitive species includes two species that could occur in the WSA (Lewis woodpecker and western bluebird). In addition, the golden eagle (a BLM sensitive species) and the following six Category 2 candidate species could inhabit the WSA: Great Basin Silverspot butterfly, ferruginous hawk,

long-billed curlew, southern spotted owl, Swainson's hawk, and white-faced ibis (see Appendix 4 in Volume I). If present, most of these endangered and sensitive species would be associated with riparian and wet meadow areas or cliff faces and deep canyons. The ferruginous hawk inhabits pinyon-juniper areas where there are ecotones or edges that provide opportunities for nesting, cover, and hunting activities. The Swainson's hawk habitat normally includes the open plains, grasslands, and prairies.

No critical habitat has been identified in the WSA. No wildlife habitat plans or wildlife projects have been developed within the WSA and none have been proposed.

Forest Resources

Forest resources in the WSA is pinyon-juniper woodland. The potential exists for the harvest of pinyon pine and juniper trees for both personal use and commercial resale of fuelwood and fenceposts (57,435 acres, cords per acre are unknown). Noncommercial harvesting potential of Christmas trees and pine nuts also exists in the WSA. Due to the limited and scattered occurrence of other tree species, no other forest resources exist. Noncommercial harvest of forest resources has occurred in the past on a limited but unquantified basis. The WSA is located only 10 miles from Escalante, Utah, and incidental, noncommercial harvest is expected to continue and likely increase in the foreseeable future.

Livestock and Wild Horses/Burros

The WSA contains portions of three livestock grazing allotments and approximately 450 AUMs. Table 4 summarizes the livestock use in the WSA. About 4,379 acres are suitable for grazing with 58,491 being unsuitable. At present, there are 6 miles of pipeline, two reservoirs, two troughs, 2 miles of fence, and one spring development within the WSA. Three hundred acres of vegetation treatment, 1 mile of fence and one well are proposed for the WSA. The vegetation treatment would provide approximately 46 AUMs of livestock forage. Vehicles are used for management and distribution of livestock in this WSA. Use is generally restricted to existing ways and cherry-stemmed roads.

Predator control was not conducted during the 1986 to 1987 period in the grazing allotments that comprise the Death Ridge WSA (USDA, APHIS, 1988).

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Table 4
Livestock Grazing Use Data

| Allotments | Total Acres | Acres in WSA | Total AUMs | Number of AUMs in WSA | Number and Kind of Livestock | Season of Use | Number of Operators |
|-------------------|----------------|---------------|---------------|-----------------------|------------------------------|---------------|---------------------|
| Alvey Wash | 48,606 | 13,422 | 1,206 | 131 | 280 Cattle | 05/15-09/13 | 1 |
| Last Chance | 223,229 | 19,589 | 3,708 | 53 | 309 Cattle | yearlong | 1 |
| Headwater (Kanab) | 239,122 | 29,859 | 5,930 | 266 | 781 Cattle | yearlong | 18 |
| Total | 510,957 | 62,870 | 10,844 | 450 | | | 20 |

Sources: BLM File Data

There are no wild horses or burros in the WSA.

Visual Resources

The WSA possesses a variety of landscape characters and features. Approximately 45,000 acres are Class B and 17,870 acres are Class C scenery; the entire WSA is a VRM Class IV Management Area. Refer to Appendix 7 for a description of the BLM VRM rating system.

Cultural Resources

Two systematic sampling (Class II) cultural resource inventories have been carried out that, at least partially, encompass the Death Ridge WSA. They are the Cultural Resource Evaluation of South-Central Utah, 1977-1978 (Hauck, 1979) covering 1 percent of the entire Escalante planning unit and a 10-percent random sample of coal tracts (Kemrer, et al., 1982). This latter inventory largely coincides with the Death Ridge WSA and is, therefore, an appropriate inventory from which to extrapolate archaeological data.

Some 7,300 acres were inventoried resulting in the identification of 134 sites. These sites were evenly distributed over the landscape resulting in a site density on the order of 12 sites per square mile. This figure should hold for the WSA and is an average not uncommon over large portions of the BLM Cedar City District. There are no known National Register sites in the WSA, but there is a high potential that eligible sites exist.

The sites represent virtually all the known prehistoric cultures in southern Utah (i.e., Archaic, Fremont, and/or Anasazi, and Southern Paiute) encompassing perhaps 8,000 years of prehistory. Nearly all the sites identified relate to specific activities and tem-

porary habitation, primarily by mobile hunting and gathering populations of the Archaic and Paiute periods and some peripheral use by the more sedentary Fremont and Anasazi agriculturalists.

The authors of the Escalante Project (Kemrer, et al., 1982) commented on the undisturbed nature of the sites.

Recreation

The Death Ridge WSA offers opportunities for back-country recreation activities such as hiking, backpacking, and sightseeing. Reliable data on visitor use are not available. It is estimated that visitor use would be less than 100 visitor days (33 for dayhikers, 33 for backpackers, and 33 for sightseers) per year. The Kanab and Escalante Resource Areas receive few inquiries concerning recreation potential for this WSA.

Vehicular use is generally limited to cherry-stemmed roads and 18 miles of ways established for mineral exploration. Many of these roads and ways have become impassable due to erosion and no maintenance. Due to the topography and remote location of the WSA actual ORV use is practically nonexistent.

Overnight backpacking trips into the WSA are restricted due to lack of water sources in the WSA. The quality of the hiking opportunity is only moderate and would not be rated superior to other hiking opportunities in the region.

Land Use Plans

The WSA is within the BLM Escalante and Paria planning units, which are being managed by the land use decisions of the Paria and Escalante MFPs (USDI, BLM, 1981c and 1981d). The present principal use

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within the WSA is livestock grazing and leasing for coal. Wilderness is not addressed in either of the MFPs. Wilderness designation is part of the BLM multiple-use concept and the BLM land use plans are linked to the Statewide Wilderness EIS through analysis of the present plans as the No Action/No Wilderness Alternative.

The Kaiparowits Coal Development and Transportation Study for (ERT, 1980) identified a transportation corridor system partially located within the WSA. The objective of the study was to identify areas where it would be possible to construct and operate future coal transportation systems within the restrictions of general environmental and engineering constraints. Corridor segments were required to contain at least one potential route for a railroad or coal slurry pipeline. Specific routes, however, were not identified. By selecting corridors between 2 and 15 miles in width, maximum flexibility for future location of specific routes was maintained. A portion of corridor C13 extends into the southern and western portions of the WSA. However, the majority of the corridor is located outside of the WSA.

The WSA is BLM-administered public land except for six State sections (3,841.2 acres) and two tracts of split-estate land (797 acres). The split-estate lands are Federal surface and State minerals. The current policy of the State is to maximize economic returns from State lands and to reserve its position regarding the exchange of in-held lands (see Chapter 1 in Volume I). In 1986, the Utah State Legislature passed S.C.R. No. 1 opposing any additional wilderness designation in Utah and urging that State lands not be exchanged out of wilderness areas. Of the 3,841.2 acres in in-held State land, 1,921.1 acres are under lease for oil, gas, and hydrocarbons, 1,280.2 acres are under lease for coal and 2,561.1 acres are under lease for grazing. The only current activity on these lands is grazing (UDNRE, DSLF 1988).

The Kane County Master Plan states, "Kane County supports the total concept of the multiple use of lands. We reject exclusionary recreational forms that cannot be used by the average recreation visitor. Wilderness, as conceived by the Federal land agencies, is rejected because of the limited visitor utilization possibilities and rejection of the multiple use concept." (Kane County Board of Commissioners, 1982).

In addition, the Consolidated Local Government Response to Wilderness (Utah Counties, 1986) indicates

that Kane County opposes wilderness designation of BLM lands in Utah.

The Garfield County Master Plan stresses economic development and the need for maintaining access to areas having development potential. The plan covers portions of this WSA. The master plan recognized that the county possesses "... some of the most spectacular scenery in the United States ... The county is sparsely populated and most of it is in its original pristine condition." (Five County Association of Governments, 1984). Garfield County proposed that 111,053 acres of BLM land in three WSAs and 31,600 acres in one Forest Service (FS) unit be recommended for wilderness. The county plan recommends that the remaining land within the county, including the Death Ridge WSA, be retained for multiple use. The plan's concept of multiple use includes forestry, livestock grazing, mining, wildlife, and recreation.

The Garfield County Commission has endorsed the Consolidated Local Government Response to Wilderness (Utah Counties, 1986) that opposes wilderness designation of BLM lands in Utah.

Socioeconomics

• Demographics

The Death Ridge WSA is located in both Garfield and Kane Counties, Utah. Garfield and Kane are rural counties having average population densities of less than one person per square mile. This density is very low compared to the Statewide average of 17 persons per square mile (USDC, Bureau of the Census, 1981). Much of the population is concentrated in small communities rather than being evenly distributed throughout the area.

From 1970 to 1980, the population of Kane County grew from 2,421 to 4,050, an overall increase of about 67 percent. Table 5 presents the baseline and projected population data for Kane County. It is estimated that between 1980 and 1987, population increased to about 4,890. Population projections indicate that the number of people living in Kane County in the year 2010 will be about 6,950 for about a 72-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

From 1970 to 1980, the population of Garfield County grew from 3,157 to 3700, an overall increase of about 17 percent. Table 5 presents the baseline and

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projected population data for Garfield County. It is estimated that between 1980 and 1987 population increased to about 4,085. Population projections indicate that the number of people living in Garfield County in the year 2010 will be about 4,850 for about a 19-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

Table 5
Baseline and Projected Population and Employment Growth
Garfield and Kane Counties

| | 1980 | 1990 | 2000 | 2010 |
|-----------------|-------|-------|-------|-------|
| Garfield | | | | |
| Population | 3,700 | 4,250 | 4,350 | 4,850 |
| Employment | 2,156 | 2,000 | 2,200 | 3,200 |
| Kane | | | | |
| Population | 4,050 | 5,250 | 5,750 | 6,950 |
| Employment | 1,403 | 1,900 | 2,300 | 2,900 |

Source: Utah Office of Planning and Budget, 1987.

The community of Escalante is located on a major access route to the Death Ridge WSA, Utah Highway 12. Escalante is one of the larger communities in the area having a 1980 population of 652 persons (USDC, Bureau of the Census, 1981). Escalante is a gateway and service area for visitors to the WSA.

• Employment

Table 5 shows the baseline and projected total employment for Kane and Garfield Counties to the year 2010.

Kane and Garfield Counties are part of the Southwest MCD. Table 6 shows the base-line 1980 and projected employment by source for the MCD to the year 2010. In (1980) the leading employment sectors for the Southwest MCD were government (23 percent), trade (20 percent), and nonfarm proprietors (12 percent). Mining provided approximately 2 percent of the direct employment in the MCD.

It is projected that by the year 2010, employment in the MCD will more than double; services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 5 percent, government to 18 percent, and mining to less than 1 percent of the total MCD employment.

Table 6
Southwest Multi-County District
Employment^a

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|--------------|--------------|--------------|--------------|
| Agriculture | 1,810 | 1,700 | 1,600 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,600 | 3,300 |
| Transportation, Utilities | 1,006 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 6,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 6,900 | 8,900 |
| Government | 4,616 | 5,800 | 6,500 | 8,100 |
| Nonfarm Proprietors | <u>2,386</u> | <u>3,100</u> | <u>3,500</u> | <u>4,700</u> |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

^aIncludes Beaver, Garfield, Iron, Kane, and Washington Counties.

• Sales and Revenues

Economic-related activities in the WSA include mineral exploration and leasing, livestock production, and recreation. Table 7 summarizes the local sales and Federal revenues from the WSA. Appendix 9 identifies the multipliers used to estimate sales and revenues.

Table 7
Sales and Revenues

| Source | Estimated Annual Local Sales ^a | Estimated Annual Federal Revenues |
|--------------------|--|--------------------------------------|
| Oil and Gas Leases | 0 | \$65,869 |
| Livestock Grazing | \$9,000 | \$693 |
| Recreational Use | <u>\$ 410</u> | <u>0</u> |
| Total | \$9,410 | \$66,562 |

Sources: BLM File Data; Appendix 9 in Volume 1.

^aLocal sales represent money potentially spent. They do not account for the total income that would be generated by these expenditures.

The geophysical exploration that has been conducted in the WSA has generated some temporary local employment and income.

Ten livestock operators have an estimated use of 450 AUMs within the WSA. If all this forage were utilized, it would account for \$9,000 of livestock sales and \$2,250 of ranchers' returns to labor and investment.

Some woodland products have been harvested from the WSA; however, the harvests were small and insignificant to the local economy and only of minor significance to those involved in the harvest.

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The WSA's nonmotorized recreational use is low and related local expenditures are also low. The actual amount of income generated locally from recreational use in the WSA is unknown. However, an approximate range of expenditures can be deduced (Dalton 1982). This study indicates that, the Statewide average local expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for the Death Ridge WSA is estimated to be about 100 visitor days per year.

The WSA generates Federal revenues from mineral leases and livestock grazing fees (refer to Table 7).

Eight oil and gas and 15 coal leases cover a total of 23,244 acres in the WSA. At \$3 per acre for coal and \$2 per acre for oil and gas, lease rental fees generate up to \$65,869 of Federal revenues annually. Half of these monies are allocated to the State, which then reallocates these revenues to various funds, the majority of which are related to energy development and mitigation of local impacts of energy and mineral development.

Average actual livestock use and subsequent revenues generated from grazing in the WSA are unknown; however, the permittees in the WSA can use an estimated 450 AUMs per year. Based on a \$1.54 per AUM grazing fee, the WSA can potentially generate \$693 of grazing fee revenues annually, 50 percent of which would be allocated back to the local BLM District for the construction of rangeland improvements.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This section describes the environmental consequences of implementing the alternatives. The analysis is based on the BLM management actions and anticipated activities presented in the Introduction to Volume III-B and the Description of Alternatives for the Death Ridge WSA.

A major long term consideration in impact analysis for this WSA is development of the Kaiparowits coal field. For a detailed analysis of potential impacts of coal development in southern Utah, the reader is referred to the Final EIS for "Development of Coal Resources in Southern Utah" USDI, USGS, 1979).

No Action/No Wilderness Alternative (Proposed Action)

• Impacts on Wilderness Values

Because the WSA would not be designated wilderness, the identified wilderness values would not receive the protection afforded by application of the BLM Wilderness Management Policy (BLM Manual 8560).

In the short term, disturbance of approximately 305 acres from the development of rangeland projects and from the development of access to State sections for mineral exploration would result in a direct loss of naturalness and opportunities for solitude and primitive, unconfined recreation in the disturbed areas. Special features including scenic values, mostly associated with geologic features, cultural values, special status species, and wildlife associated with wilderness, would not be affected significantly. This is because the disturbance would be minor (involving only 0.5 percent of the WSA) and generally would not be located where the special features are located. In addition, appropriate measures would be taken to protect special status species prior to any surface-disturbing activity.

During the period of activity, the visual and audible disturbance from construction of rangeland developments and access roads would reduce the quality of opportunities for solitude and primitive recreation not only on directly disturbed areas, but also indirectly on adjacent portions of the WSA. As much as 3 percent (1,886 acres) of the WSA could be so affected in the short term.

Because future vehicular use would generally be limited by terrain to the 18 miles of existing vehicular ways and to future roads, no additional disturbance from ORV activity is anticipated in the future. The continued and increased use of existing ways and new access roads would occasionally detract from opportunities for solitude and primitive recreation.

The gradual increase in visitor use that would occur would not be expected to significantly reduce wilderness values because the additional use is expected to be small and the WSA is large enough to incorporate the additional use adequately.

The extent that disturbance would occur over the long term and, therefore, the long-term loss of wilderness values that would occur, is not accurately known. Loss would occur, however, as intrusions

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increase. Over the long-term, coal development would result in a direct loss of wilderness values on 0.06 percent (40 acres) of the WSA and an indirect reduction in the quality of wilderness values on up to about 33 percent (20,800 acres) more in the eastern portion of the WSA.

Conclusion: Wilderness values would not be protected by wilderness designation and loss would occur as intrusions increase. In the short term, naturalness and opportunities for solitude and primitive recreation would be directly lost on 305 acres, and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to 1,886 acres. Special features would not be affected. Over the long term, coal development would result in a direct loss of wilderness values on 40 acres, and an indirect reduction in wilderness quality on 20,780 acres more.

• Impacts on Vegetation Including Special Status Species

The 305 acres of surface disturbance projected in the short term for the No Action/No Wilderness Alternative would occur mainly in the pinyon-juniper woodland and sagebrush vegetation types. On the 300-acre vegetation treatment, vegetation composition would change from woodland to grass-shrub. It is projected that the grass-shrub vegetation would be maintained over the long term. However, once active maintenance ceased, the area would eventually revert back to pinyon-juniper woodland and sagebrush. The vegetation treatment would be designed primarily to provide livestock forage. There would also be a loss of naturalness in the disturbed area. However, due to the small size of the disturbance (less than 1 percent [300 acres] of the WSA), the overall impact would not be significant. In the long term, anticipated coal development could disturb up to 40 acres as a result of surface facility and access road construction. While no significant impacts to vegetation types or special status species are anticipated, this disturbance would remain for the 30 to 40 year life of the operations.

No threatened or endangered plant species are known to occur in the WSA. Five of the Category 1 and Category 2 candidate species that may occur in the WSA are located in the pinyon-juniper woodland. The habitats for all of these species extend beyond the WSA boundaries. Surface-disturbing activities could result in the inadvertent loss of some individual plants of these species. The continued existence of any of the species would not be threatened. Before authorizing

any surface-disturbing activities, BLM would conduct site-specific clearances of the potentially disturbed area. If any threatened or endangered species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (refer to Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Because necessary measures would be taken to protect these species, the viability of populations of special status plant species would be preserved with the No Action/No Wilderness Alternative.

Conclusion: Populations of special status plant species would not be significantly impacted. Less than 1 percent (345 acres) of the pinyon-juniper woodland and sagebrush type in the WSA would be altered.

• Impacts on Mineral and Energy Exploration and Production

The WSA would remain open to exploration and development of mineral and energy resources without consideration of wilderness values. Therefore, mineral and energy resources would not be affected by the No Action/No Wilderness Alternative.

Conclusion: Implementation of the No Action/No Wilderness Alternative would not adversely affect mineral exploration or production.

• Impacts on Wildlife Habitat and Populations Including Special Status Species

With this alternative, wildlife habitat would be improved by 300 acres of pinyon-juniper woodland and sagebrush vegetation treatment. Deer, cougar, and mobile nongame species would be dispersed from the area during the construction stage of this project. Less mobile wildlife would either perish or co-exist with this disturbance at smaller and/or less viable population levels. Coal development in the long term could remove an additional 40 acres of wildlife habitat for the life of the mines.

The extent and use of the WSA by the bald eagle, peregrine falcon, or the six Category 2 candidate species that may occur there is unknown. The vegetation treatment would not affect most of these species because activities would be in the flat pinyon-juniper woodland and sagebrush areas and, if present, these species would mostly inhabit the riparian and cliff-face areas in the canyons.

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The proposed vegetation treatment project would create ecotones and edges which would improve ferruginous hawk habitat. Also, Swainson's hawk habitat would improve since its habitats include open plains, grasslands, and prairies.

BLM would conduct site-specific clearances of the potentially disturbed areas. If any threatened or endangered species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (refer to Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Because measures would be taken to protect these species, potential populations of special status animal species would be preserved with the No Action/No Wilderness Alternative.

Conclusion: Wildlife habitat and populations including special status animal species would not be significantly affected. There would be some benefit to wildlife by providing additional forage and ecotones.

• Impacts on Livestock Management

Domestic livestock grazing would continue as authorized with an estimated 450 AUMs currently allocated in the WSA. Additional roads or other facilities for livestock handling could be proposed and developed in the future without regard for wilderness values. Motorized vehicles are generally used to manage livestock and few changes in livestock management techniques are expected in the future. The 1 mile of fence, one well, and 300 acres of vegetation treatment would be developed and would result in improved livestock distribution and an increased carrying capacity of 46 AUMs. Disturbance of 40 acres by coal development in the long term would not adversely affect livestock or livestock management in the WSA.

Conclusion: Livestock management and grazing levels would not be adversely affected by implementation of the No Action/No Wilderness Alternative.

• Impacts on Economic Conditions

No changes are expected in existing patterns and trends of population, employment, and local income distributions. Potential economic development of resources in the WSA would not be affected.

There would not be a loss of local employment or income as a result of this alternative. The existing ability to explore and develop mineral resources would remain as at present. The employment of 600 people (two mines) would represent only 1.3 percent of the projected Southwest MCD for the year 2010. However, it would be about 19 percent of the Garfield County or 21 percent of the Kane County projected employment in the year 2010 and nearby local communities would be significantly affected. There would be both beneficial and adverse impacts. Beneficial impacts would include increases in employment and income while adverse impacts would include increased demands for housing and infrastructure such as schools, law enforcement, etc. An unknown portion of the jobs would be obtained by local residents. The probability of economic development of coal within the WSA in the long term is high (refer to the Mineral and Energy Resources section for a description of mineral and development potentials).

There would be no livestock-related economic losses because the existing grazing use (an estimated 450 AUMs) and ability to maintain, replace, and build new range developments would remain as at present. The proposed vegetation treatments that would produce 46 AUMs of new allocated forage could lead to \$920 of livestock sales and \$230 of ranchers' returns to labor and investment.

Recreation-related expenditures average only \$4.10 per visitor day (only a portion of which contributes to the local economy), thus, recreation-related expenditures attributable to the WSA would likely not be significant to the local economy.

Federal and State revenues would not be reduced by this alternative. There are 59,007 acres in the WSA open to oil and gas leasing and 43,489 acres open to coal leasing that are currently not leased. If leased they would bring up to \$248,481 additional Federal lease fee revenues per year, in addition to new royalties from lease production and bonus bids from new coal leases. Half of these monies would be allocated to the State, a portion of which could reach the local economy. Collection of livestock grazing fees (\$693 per year) would continue. The additional 46 AUMs produced by the proposed land treatment and allocated to livestock under this alternative would increase Federal revenues by \$71 annually. About 50 percent of the increased revenues would be returned to the local BLM office for use in range development projects.

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Conclusion: No loss of employment or income would occur. Federal and State revenues would not be reduced. Economic opportunities could be realized through mineral and energy exploration and eventual development in the long term. There would be major beneficial and adverse economic impacts in Garfield and Kane Counties.

All Wilderness Alternative (62,870 Acres)

• Impacts on Wilderness Values

Designation and management of all 62,870 acres as wilderness would contribute to the preservation of the wilderness values in the Death Ridge WSA. The potential for surface-disturbing activities would be reduced through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I which allows for only natural ecological change. Naturalness would be protected on all 62,870 acres. Solitude would be protected on approximately 31,435 acres that meet and 31,435 acres that do not meet the standards for outstanding opportunities. Primitive and unconfined recreation would be protected on approximately 62,870 acres that do not meet the standards for outstanding opportunities. Resources that could be considered as special features in the WSA, including scenic values, educational values, special status species, and wildlife associated with wilderness would also be protected.

Although protected, complete preservation of wilderness values would not be assured because of valid existing rights. In the short term, disturbance of up to 5 acres is anticipated from rangeland projects and access to State sections. Wilderness values of naturalness and opportunities for solitude and primitive recreation would be directly lost or reduced in quality on the disturbed areas at least until activities and noise cease and reclamation is complete. Opportunities for solitude and primitive recreation would also be indirectly reduced in quality on adjacent portions of the WSA. As much as 2 percent (1,257 acres) of the WSA could be so affected. Special features, including scenic values, mostly associated with geologic features, cultural values, special status species, and wildlife associated with wilderness, would not be affected because the disturbance would be minor (involving only 0.008 percent of the WSA) and the disturbance would generally not be located where the special features are located. In addition, appropriate measures would be taken to protect endangered and

sensitive species prior to any surface-disturbing activity.

Mitigation to protect wilderness values would be applied, but loss of wilderness values would be allowed if development involving valid existing rights could not be otherwise achieved. Rangeland projects on the other hand would be designed to meet wilderness management criteria, and, upon completion would not be substantially noticeable in the area as a whole. All in all, the disturbance would not be substantially noticeable in the area as a whole.

Vehicular use of existing ways would cease with ORV closure, improving opportunities for solitude and primitive recreation.

Over the long term, there would be no potential for loss of wilderness values due to development of new leases and mining claims. Coal resources would not be developed.

The gradual increase in visitor use that would occur would be primitive in nature and would be managed so as to not result in the loss of wilderness values.

Conclusion: Wilderness designation would preserve wilderness values overall in the WSA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost or reduced in quality on 5 acres and indirectly reduced in quality on up to 1,257 acres. Special features would be preserved.

• Impacts on Vegetation Including Special Status Species

The vegetation types, including special status plant species, would be provided with additional protection. Only 5 acres of surface disturbance are projected for the foreseeable future and no significant impacts are projected.

Conclusion: The vegetation types and special status plant species would be protected by the All Wilderness Alternative because potential disturbance would be reduced to 5 acres.

• Impacts on Mineral and Energy Exploration and Production

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- Leasable Minerals

Approximately 3,863 acres (1,378 acres pre-FLPMA and 2,485 acres post-FLPMA) are under oil and gas lease. However, no exploration or development of oil and gas is presently occurring within the WSA. Existing pre- and post-FLPMA leases could be developed subject to the stipulations issued at the time of leasing. It is unlikely that existing leases will be developed or a showing of commercial quantities made prior to lease expiration dates, and expired leases will not be reissued. No new leasing would be allowed. However, because no oil and gas exploration or development is projected in the WSA even with the No Action/No Wilderness Alternative, BLM does not anticipate that a significant resource would be foregone with this alternative.

There are 15 coal leases (19,381 acres) and four pending PRLAs (22,964 acres) within the WSA. The entire WSA is underlain by coal with an estimated reserve of 1.6 billion tons of which 800 million tons are recoverable. It is assumed that the existing leases will expire under the diligent development regulations before production occurs and the PRLAs will not be issued. Therefore, with the All Wilderness Alternative 800 million tons of recoverable coal would be foregone.

- Locatable Minerals

There are no mining claims within the WSA. Because no exploration or development of locatable minerals is currently occurring, it is unlikely that exploration or development will occur prior to wilderness designation. Therefore, implementation of this alternative would not result in any significant loss of locatable mineral resources.

- Salable Minerals

No exploration or development is anticipated. Because of low potential for salable minerals and the availability of better sources of material outside the WSA, any loss of salable mineral products would be insignificant.

Conclusion: Potential exploration and development of significant deposits of coal would be foregone. Loss of exploration and development opportunities for other mineral and energy resources would not be significant.

- Impacts on Wildlife Habitat and Populations Including Special Status Species

Implementation of the All Wilderness Alternative would not significantly affect any species of wildlife in the WSA. The 300-acre vegetation treatment would be foregone. Therefore, projected habitat improvements would not be realized and the likelihood of expanding and improving the deer herd and nongame species within the WSA would be reduced.

The special status animal species that may occur in the WSA would be provided additional protection and solitude with wilderness designation.

Conclusion: The 300 acres of vegetation treatment which would improve wildlife habitat would be foregone. Designation would provide all species with additional protection and solitude.

- Impacts on Livestock Management

Present domestic livestock grazing would continue as authorized. The estimated 450 AUMs currently allocated in the WSA are controlled by 20 livestock permittees. Since use of motorized vehicles on the 18 miles of ways is currently taking place to manage livestock, some impact on the management of livestock could be expected. The proposed 300 acres of vegetation treatment would not be allowed. Therefore, an additional 46 AUMs of livestock forage would be foregone.

Rangeland developments would be maintained as in the past, based on practical necessity and reasonableness. New rangeland developments would be allowed if determined necessary for the purposes of rangeland and/or wilderness protection and the effective management of these resources. However, future roads or other livestock management facilities could be restricted to preserve wilderness values. The 1 mile of fence and one well would be allowed.

Conclusion: Livestock management practices would not be significantly affected. There could be an increase in management costs and inconvenience to 20 permittees. The opportunity for an increase of 46 AUMs through vegetation treatments would be foregone.

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• Impacts on Economic Conditions

Overall there would be no significant changes in current trends of population, employment, and local income distribution.

Because of restrictions placed on the use of resources under wilderness designation, there could be losses in local income and Federal revenues currently provided by resource uses in the WSA (refer to Table 7), as well as loss of potential increases in income and Federal revenues that could occur under the No Action/No Wilderness Alternative.

Valid existing oil and gas and coal leases could be developed, but designation would preclude new leases and claims from being established in the WSA. Precluding exploration and development of minerals would not alter existing economic conditions, but could alter future economic conditions from what they would be with mineral development under the No Action/No Wilderness Alternative. Because the potential for coal development is high, it is estimated that potential mineral-related local employment and income would be significantly reduced by wilderness designation in the long term. Major beneficial and adverse economic impacts in Garfield and Kane Counties from coal development in the WSA would not occur.

Livestock use and ranchers' income would continue as at present with approximately \$9,000 of livestock sales and \$2,250 of ranchers' return to labor and investment. The proposed vegetation treatment for livestock would be foregone along with approximately \$230 per year in ranchers' return to labor and investment.

Nonmotorized recreational use could increase, but related local expenditures would be small (average of \$4.10 per visitor day Statewide) and would not be significant.

The loss of 3,863 acres now leased for oil and gas would cause an eventual loss of up to \$7,726 per year of lease fees to the Federal Treasury. There would also be a potential loss of \$118,014 annually in Federal revenues from the 59,007 acres that could be leased for oil and gas or coal without designation. The loss of 19,381 acres currently leased for coal would cause an eventual loss of up to \$58,143 per year of fees to the Federal Treasury. There would also be a potential loss of \$130,467 annually in Federal revenues from the 43,489 acres that could be leased for coal without designation. Development of

the four PRLAs in the WSA is not projected with the All Wilderness Alternative. In addition to these rental fees, any potential royalties from lease production and bonus bid revenues from new coal leases could also be foregone.

If the proposed vegetation treatment is not developed and used, an estimated annual \$71 of Federal grazing revenues from 46 increased AUMs would be foregone.

Conclusion: Local or regional economic conditions would not be significantly affected. However, new leasing in the WSA would not be allowed; therefore, potentially significant sales and revenues from coal development would be foregone.

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Specific Issues Identified Through Scoping and

Phipps Death-Hollow ISA

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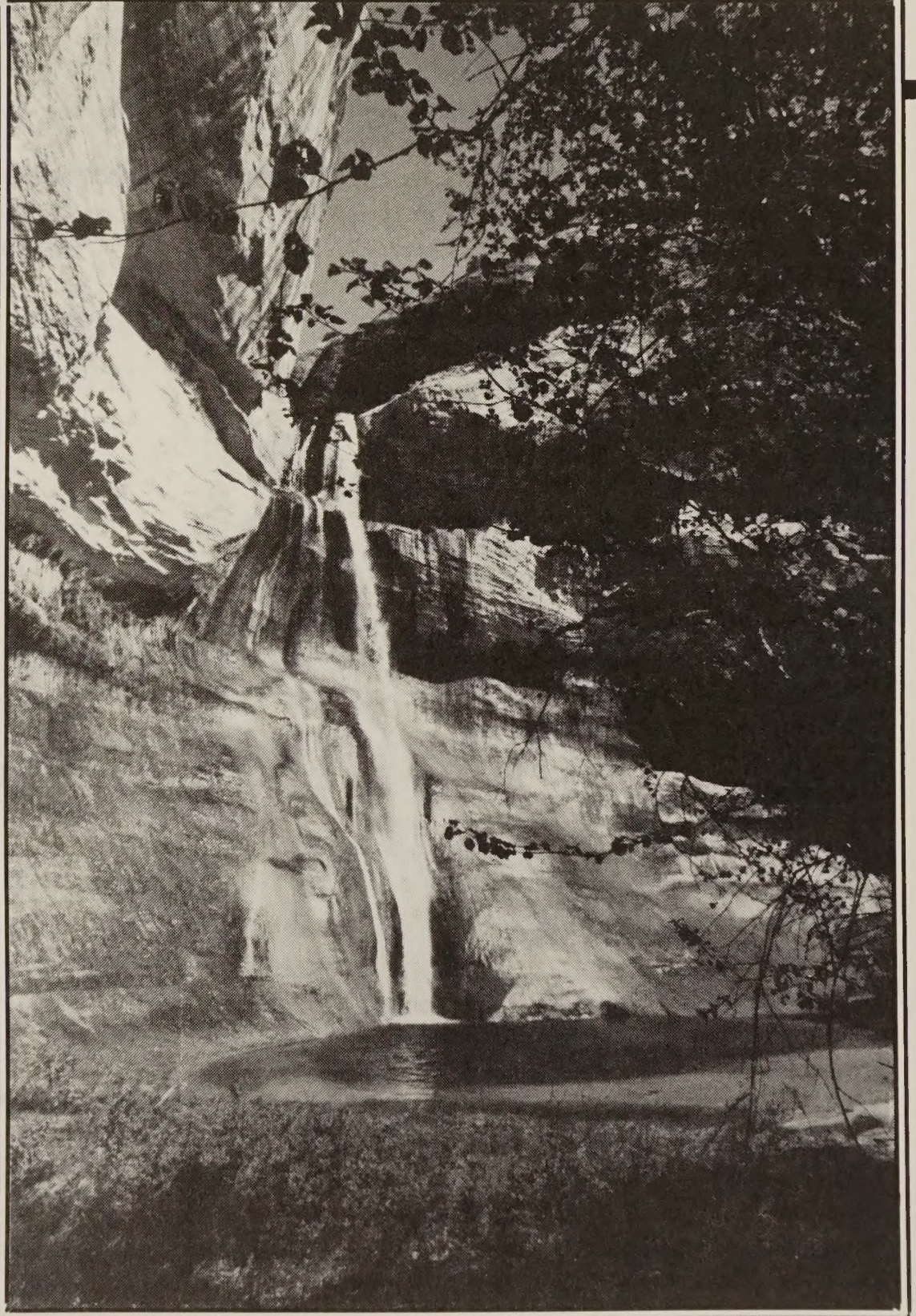
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PHIPPS-DEATH HOLLOW ISA

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PHIPPS-DEATH HOLLOW ISA

INTRODUCTION

General Description of the Area

The Phipps-Death Hollow ISA is located in Garfield County, Utah, approximately 1 mile east of the Town of Escalante, Utah. The ISA contains 42,731 acres of BLM-administered land, which includes 34,276 acres of the Phipps-Death Hollow Outstanding Natural Area (ONA) and approximately 4,497 acres of the Calf Creek Recreation Area and 3,958 acres of contiguous BLM lands. The ISA encloses approximately 2,559 acres (four sections) of State land. The ISA is managed by the BLM Cedar City District Escalante Resource Area office.

The north boundary of the ISA is contiguous to the Box-Death Hollow wilderness area administered by the FS. Part of the Phipps-Death Hollow ISA is separated from the adjacent North Escalante Canyon/The Gulch ISA by State Highway 12.

The ISA is characterized by steep-walled canyons, mesas, plateaus, natural bridges, and arches, most of which are carved in colorful Navajo Sandstone. The Escalante River and its Death Hollow tributary have formed entrenched canyons in colorful red and white sandstone.

The dominant vegetation is pinyon-juniper woodland, but there is some ponderosa pine and riparian vegetation also.

In general, the climate is temperate and arid with annual precipitation averaging about 10 inches. From June through early September convection-type thunderstorms advance from the Pacific Ocean off the coast of Mexico and southern California. Frontal-type cyclonic storms out of the northwest move over the area from October through June. The highest precipitation rates occur primarily from November through March.

Summer temperatures in Escalante, Utah, have a temperature of range approximately 30 degrees Fahrenheit (F), with highs in the mid 90s and lows in the mid 60s. Winters in Escalante, Utah, have a temperature range of about 27 degrees F, with highs in the low 40s and lows about 15 degrees F. Snowfall in Escalante, Utah, generally averages 28 inches and begins in October or November and ends in March or April.

Changes for the Final EIS

In addition to the changes noted in the Introduction to Volume III-B, the following change specific to the ISA has been made since publication of the Draft EIS.

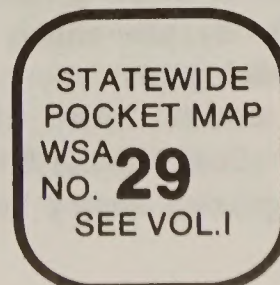
The anticipated surface disturbance due to mineral exploration and development presented in the Draft EIS, 180 acres (160 acres for oil, gas, and carbon dioxide, and 20 acres for uranium), was based on the assumption that all mineral and other resources potentially within the WSA would be developed sometime in the future without consideration of technical or economic feasibility. In response to public comments relative to the feasibility of developments, the disturbance estimates have been revised to focus on activities projected to be feasible within the foreseeable future (see appendix 6 in Volume I). This resulted in a reduction of surface disturbance estimates for uranium from the 20 acres to no acres and an increase for leasable minerals (oil, gas, and carbon dioxide) from 160 acres to 310 acres of surface disturbance for the Final EIS. In addition, it is anticipated that 10 acres would be disturbed due to development of access to State lands within the ISA and 2 acres would be disturbed due to fence construction. Overall, 322 acres of surface disturbance are projected for the No Action/No Wilderness Alternative in the Final EIS.

Specific Issues Identified Through Scoping and Public Comment

- Issues Considered But Not Analyzed in Detail

In addition to the issues discussed and eliminated from further consideration in the Introduction to Volume III-B (i.e., impacts on air quality, water rights, geology and topography, and land use plans and policies), the following issues or impacts specific to the Phipps-Death Hollow ISA were considered but are not analyzed in detail in the Final EIS for the reasons described below.

1. Soils: The public is concerned that without wilderness designation, mineral development, land treatment, or ORV use would occur on soils that are not



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easily reclaimed, leading to unacceptable increases in soil erosion. Within the foreseeable future, the anticipated surface disturbance from mineral developments (oil and gas and carbon dioxide) in the Phipps-Death Hollow ISA without wilderness designation would be 310 acres and mitigation would be required through the requirements of 43 CFR 3101. In addition, 38,773 acres (91 percent) in the ISA is closed to ORVs and terrain and surface features generally restrict vehicles to existing ways and cherry-stemmed roads. Therefore, impacts on soil erosion are not significant issues for the Phipps-Death Hollow ISA.

2. Vegetation and Wildlife Including Special Status Species: Estimates of total surface disturbance without wilderness designation have been increased from 180 acres to 322 acres. However, 310 acres of disturbance would result from oil and gas and carbon dioxide exploration and development. These activities would be regulated by regulations found in 43 CFR 3101. Prior to authorization, any surface disturbance from leasable minerals, access to State land, or fence construction, BLM would conduct site-specific clearances of potentially disturbed areas and consult with the FWS concerning impacts on threatened or endangered plant and animal species which may occur in the ISA. No significant impacts on special status plant or animal species are projected. In addition, 91 percent (38,773 acres) are closed to ORV use and use in the remaining area (3,958 acres) is generally restricted to existing ways and cherry-stemmed roads, and significant impacts to plants and wildlife would not be expected. Therefore, impacts on vegetation and wildlife populations and habitat are not analyzed in detail for the Final EIS.

3. Forest Resources: The ISA contains no significant forest resources. Approximately 4,497 acres are closed to woodcutting. The remainder of the ISA is open to woodcutting. However, due to the remoteness of the area, lack of access, and sparse vegetation, current and projected use is minimal. For these reasons, impacts on forest resources are not significant issues for the Final EIS.

4. Livestock Management: The public is concerned that wilderness designation would interfere with livestock management by placing restrictions on access for the maintenance of existing range improvements, moving of livestock, by preventing future range improvements; and placing restrictions on predator control. However, under the BLM Wilderness Management Policy (BLM Manual 8560) there shall be no curtailments in grazing simply because an area is

wilderness. Grazing reductions have already been imposed as a result of a grazing EIS.

There are no proposed rangeland developments which would be precluded by wilderness designation. It is assumed that 2.25 miles of fence could be constructed to meet wilderness protection criteria. Ten miles of way would be closed should the area be designated as wilderness. Because motorized vehicles are used very little in livestock management, little effect on management of livestock grazing is expected. Even though spring-loaded cyanide guns (M-44s) would be prohibited, several methods of predator control would be allowed in the designated wilderness area. Predator control has not been conducted on the allotments that comprise the ISA for several years. For these reasons, impacts on livestock management are not significant issues for the Phipps-Death Hollow ISA.

5. Cultural Resources: An estimated 322 acres of disturbance would occur in the western half of the ISA in the foreseeable future. Six sites, five rock art sites and one Paiute camp site, are located in this portion of the unit. The Friendship Cove pictograph site (a National Register Site) is in the eastern portion of the ISA and the Boulder Mail Trail (nomination to the National Register) is in the eastern and western portions of the ISA. None of the rock art sites are considered to be eligible for nomination to the National Register of Historic Places and the camp site has not been evaluated for significance. In the long term, the ISA would remain open to mineral location, but no locatable mineral activity is expected. Much of the unit would be closed to mineral leasing. Most of the recorded and unrecorded sites in the ISA probably would not be impacted by surface development. All sites in the unit would continue to receive protection under existing Federal and State antiquities laws. Any surface disturbance would be preceded by standard inventory and mitigation procedures.

Most of the ISA would remain closed to ORV use and the remaining 3,931 acres currently receive little ORV activity. Vehicular traffic would probably have little impact on cultural resources in the ISA. Given these conditions, impacts on cultural resources are not significant issues for the Phipps-Death Hollow ISA.

• Issues Analyzed in Detail

The significant issues for the Phipps-Death Hollow ISA are:

PHIPPS-DEATH HOLLOW ISA

1. Impacts on the wilderness values of naturalness, opportunities for solitude and primitive recreation, and special features.
2. Impacts on water resources.
3. Impacts on mineral and energy exploration and production.
4. Impacts on visual resources.
5. Impacts on recreational use of the ISA.
6. Impacts on future expansion of the Boulder Airfield.
7. Impacts on local economic conditions.

Comments made during the public comment period for the Draft EIS centered mainly on the need for, and adequacy of, the rationale for the BLM proposed action; the need for further inventories of resource values; and BLM's assessments of wilderness values, water rights and uses, and mineral values including carbon dioxide. See Volume VII-B for responses to general comments applicable to all WSAs and/or the State-wide analysis and Volume VII-C, Section 29, for responses to specific comments about the Phipps-Death Hollow ISA.

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated from Detailed Study

Alternatives that would add approximately 560 acres of Federal land and 1,178 acres of State land, mainly along the southern and western borders of the ISA, while deleting approximately 435 acres in the northeastern corner of the ISA were suggested by the public during the public comment period for the Draft EIS. These alternatives are not analyzed because the inclusion of State lands is not consistent with BLM's Wilderness Review Guidelines (refer to Volume VII-B, General Comment Response 6.4). Public lands outside the ISA boundary were considered and dropped during the inventory phase of the wilderness review and are not analyzed in the Final EIS (refer to Volume VII-B, General Comment Response 3.1). The proposed deletions would not result in impacts appreciably different from the Partial Wilderness Alternative.

Alternatives Analyzed

Three alternatives are analyzed for this ISA: (1) No Action/No Wilderness (2) All Wilderness (42,731 acres); and (3) Partial Wilderness (Proposed Action) (39,256 acres). A description of each alternative follows. Where management intentions have not been clearly identified, assumptions are made based on management projections under each alternative. These assumptions are indicated in each case. The assumed management actions presented in the Introduction to Volume III-B are also applicable.

- No Action/No Wilderness Alternative

With this alternative, none of the 42,731-acre Phipps-Death Hollow ISA would be designated by Congress as part of the NWPS. Although BLM's land use plans are regularly updated, it is assumed that the area would continue to be managed in accordance with the Escalante MFP (USDI, BLM, 1981d). The four sections (2,559 acres) of State land within the ISA (refer to Map 1 and Appendix 3 in Volume I) has not been identified in the MFP for special Federal acquisition through exchange or purchase. No private or split-estate lands are located in the ISA. The figures and acreages given are for Federal lands only.

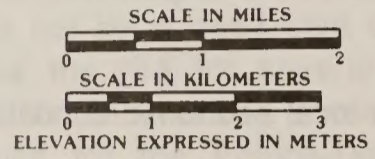
- Management Conditions and Constraints

All 42,731 acres would remain open to mineral location. Although no mining claims exist in the ISA, development work, extraction, and patenting would be allowed on future mining claims. Development would be regulated by unnecessary or undue degradation regulations (43 CFR 3809), without concern for wilderness values. Although locatable mineral resources would be managed as described, no locatable mineral exploration or developments are projected for the ISA because the level of known resources and the probability of their development are too low to support a development assumption. Appendix 6 in Volume I explains the mineral and energy resource development projections. The five existing pre-FLPMA oil and gas leases (3,225 acres) could be developed under stipulations issued at the time of leasing. Future leases could be developed under leasing Category 1 (standard stipulations) on 2,700 acres and Category 3 (no surface occupancy) on 7,700 acres. The majority of the Phipps-Death Hollow ONA, (32,331) acres, would be closed to oil and gas leasing. The 3,225 acres under oil and gas lease are pre-FLPMA leases located in the Category 4

PHIPPS-DEATH HOLLOW ISA

Map 1
LAND STATUS
Phipps-Death Hollow
Instant Study Area
 Legend

- ISA Boundary (49,941 acres)
- - - Phipps-Death Hollow Outstanding Natural Area Boundary
- · - · Dixie National Forest Boundary
- · · - · Box-Death Hollow Wilderness Boundary
- ▨ State Land Within or Adjacent to WSA
- ▧ National Forest Service Administered Land
- ▩ Private Land Within or Adjacent to WSA
- BLM Administered Land Within or Adjacent to WSA



T. 33 S.

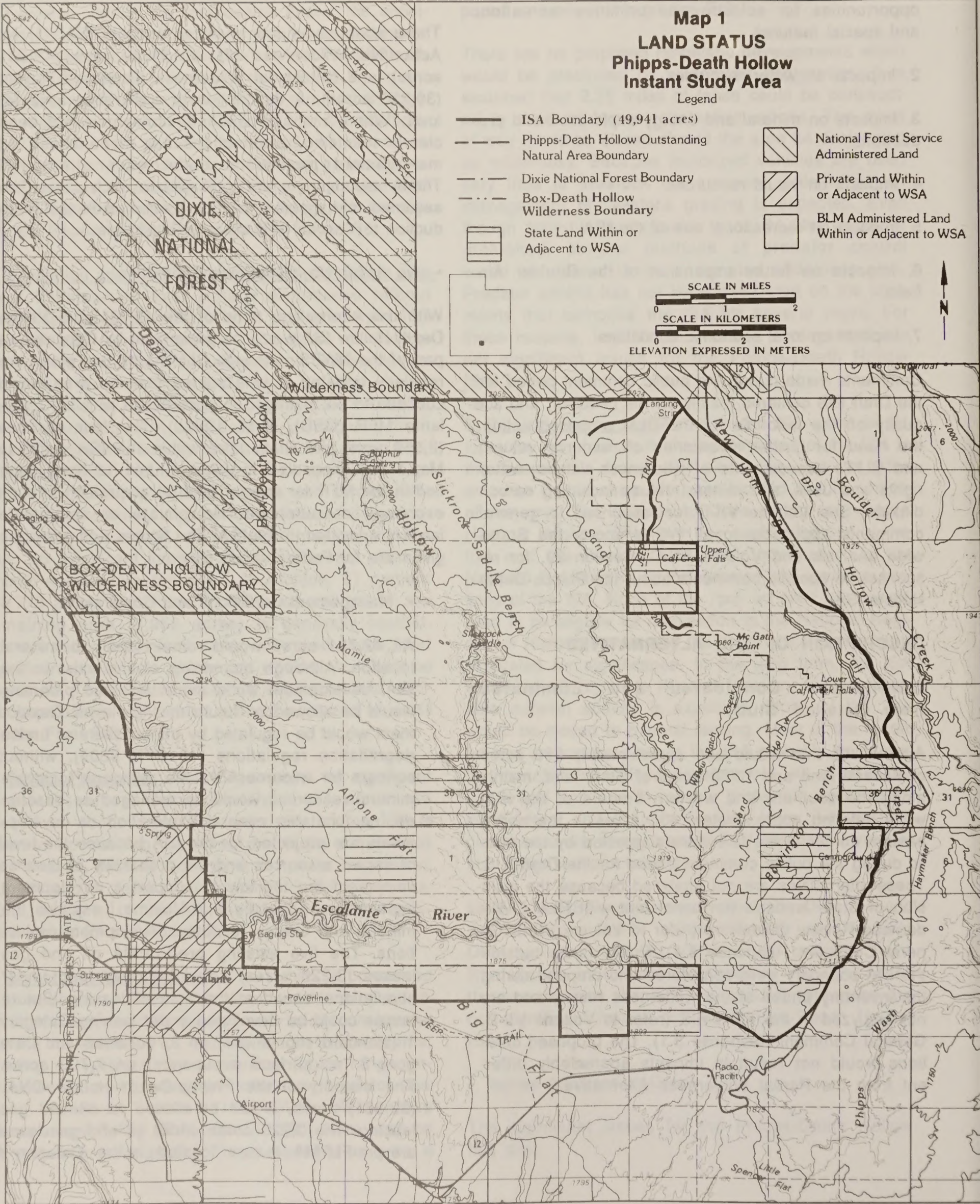
T. 34 S.

T. 35 S.

R. 3 E.

4

R. 4 E.



PHIPPS-DEATH HOLLOW ISA

area and would be phased out unless a find of oil, gas, or carbon dioxide is found. These leases are under a lease suspension dated March 1, 1978.

The present domestic livestock grazing use in the ISA would continue as authorized in the MFP (currently estimated 884 AUMs). Existing developments (about 1 mile of fence) could be used and maintained, and planned new range developments (approximately 2 miles of fence) would be allowed without wilderness considerations.

Public water reserve withdrawals on 130 acres would continue in effect. These withdrawals segregate the reserve from all public land laws and nonmetalliferous mineral location.

ORV use would remain closed on 38,800 acres of the ISA. The remaining 3,931 acres in the ISA would be open to ORV use.

Approximately 38,234 acres would be open to woodland product harvest. The remaining 4,497 acres would remain closed to the harvest of woodland products. There is minimal harvest of forest products at the present time and increases are not expected because of lack of access and sparseness of the resource.

The area would continue to be managed under VRM Class I (42,731 acres) as directed by the MFP.

The No Action/No Wilderness Alternative would include continued management of the Phipps-Death Hollow as an ONA until such time as an Area of Critical Environmental Concern (ACEC) determination is made for this area. Future management options for the ONA are separate actions that are not dependent on the wilderness review process and are, therefore, not analyzed in this document except as current management is integrated into the No Action/No Wilderness Alternative.

- Action Scenario

Given the management actions described above and the resources described in the Affected Environment section, BLM projects that implementation of the No Action/No Wilderness Alternative would result in 322 acres of surface disturbance in the foreseeable future. About 310 acres of the disturbance would result from exploration and development of the oil, gas, and carbon dioxide resources locate on existing pre-FLPMA and future

leases in the ISA. Currently, there are five existing pre-FLPMA leases covering 3,225 acres and 2,700 acres would be open to future oil and gas leasing under Category 1 (standard) stipulations. The area most likely to be developed would be lands in the Escalante KGS, which covers the western half of the ISA. Geophysical data would likely determine the location of initial exploratory wells. It is projected that no more than two exploratory wells would be drilled at any one time. These operations would require up to 10 employees and would take up to 6 months to complete. Full field development would involve the drilling of holes on 640-acre or 160-acre centers. Surface facilities associated with oil, gas, and carbon dioxide development would include drill pads, tank batteries, gathering lines, a central facility, and lines to move products out of the area. Although actual surface disturbance would be an estimated 310 acres, the area affected by this development would be much larger. Development would be under guidelines of the 43 CFR 3100 regulations and the stipulations in effect at the time of leasing. Once the wells were drilled, construction of gathering systems, pipelines, etc., would require up to 200 employees and take up to 3 years to complete. Maintenance and operation of producing wells would require 10 employees. It is also projected that the developed leases would be in production and that the associated disturbance would remain over the long term. Exploration and access roads extending up to 15 miles would likely remain in place over the long term.

About 10 acres would be disturbed as a result of up to 5 miles of road construction to State sections in the ISA (T. 34 S., R. 3 E., sec. 36; T. 34 S., R. 4 E.; sec. 32; and T. 35 S., R. 3 E., sec. 2). The purpose of this access would be to explore and develop leasable minerals on the State land in the ISA.

Two acres would be disturbed due to the construction of a 2-mile long livestock fence in the ISA. No other rangeland, wildlife habitat, watershed projects, or other developments are planned.

No disturbance from ORV use is projected because all traffic would continue to be restricted to 10 miles of existing ways and future roads due to management restriction and rugged terrain.

Recreational use is expected to increase over the current estimated use of 23,000 visitor days per

PHIPPS-DEATH HOLLOW ISA

year at a rate of 2 to 7 percent annually. Approximately 2 percent of all recreation currently is and would continue to be motorized.

- All Wilderness Alternative

With this alternative, all 42,731 acres of the Phipps-Death Hollow ISA would be designated by an act of Congress as part of the NWPS (refer to Map 2). It would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) to preserve its wilderness character.

The policy of the State is to reserve its position regarding the exchange of in-held lands within any particular ISA (see Chapter 1 in Volume I). Based on this policy regarding exchange of State lands, it is assumed that State lands would remain under existing ownership. There are four State sections (2,560 acres) within the ISA (refer to Map 1 and Appendix 3 in Volume I). The figures and acreages given with this alternative are for Federal lands only. No private or split-estate lands are located in the ISA.

- Management Conditions and Constraints

After wilderness designation, all 42,731 acres would be withdrawn from mineral location and closed to new mineral leasing and sale. Currently, no mining claims are located in the ISA. Should any be located prior to wilderness designation, development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809) with consideration given to wilderness values. BLM does not anticipate location or development of mining claims with this alternative. Five existing pre-FLPMA oil and gas leases, involving 3,225 acres, would be developed per the stipulations attached at the time of lease issuance.

Present domestic livestock grazing would continue as authorized in the Escalante MFP. The 884 AUMs in the ISA would remain available to livestock as presently allotted. The use and maintenance of range developments (1 mile of fence) existing at the time of designation would continue in the same manner as in the past based on practical necessity and reasonableness. After designation, new range developments (2.25 miles of fence are now planned) would be allowed if necessary for the protection or effective management of the range and/or wilderness resource and if it can be carried out consistent with wilderness pro-

tection standards (refer to Appendix 1 in Volume I).

Public water reserve withdrawals on 130 acres would remain in effect. These withdrawals segregate the reserve from all public land laws and non-metalliferous mineral location.

The entire 42,731-acre area would be closed to ORV use except for: (1) users with valid existing rights if approved by BLM in accordance with 43 CFR 8560 provisions; or (2) for occasional and short-term vehicular access approved by BLM for maintenance of approved rangeland developments. About 10 miles of existing vehicular ways would not be available for vehicular use except as indicated above. The approximately 10 miles of paved and dirt and gravel roads that border the ISA and approximately 3 miles of cherry-stemmed roads would remain open to vehicular use.

Harvest of forest products would not be allowed except for the harvest of pinyon nuts or noncommercial gathering of dead-and-down wood for use in the wilderness if accomplished by other than mechanical means. There is minimal harvest of forest products at the present time.

Visual resources would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change.

- Action Scenario

BLM projects that a total of 32 acres of surface disturbance would occur in the ISA following wilderness designation. About 20 acres of disturbance would result from development of the oil, gas, and carbon dioxide resources in the ISA as discussed in the No Action/No Wilderness Alternative but on a much smaller scale because not all lease areas would be explored prior to lease expiration. Development would be under guidelines of 43 CFR 3100. No new mineral leasing or location of mining claims would be allowed. Therefore, it is projected that no locatable mineral exploration or development would occur in the designated area and that leasable mineral development would be restricted to existing, valid leases at the time of wilderness designation. It is anticipated that no more than one exploratory well would be drilled at any one time. Up to 3 miles of access road would be constructed. This operation would require up to 10 employees and would take up to 6


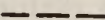


PHIPPS-DEATH HOLLOW ISA

Map 2

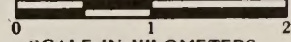
ALL WILDERNESS ALTERNATIVE

Phipps-Death Hollow Instant Study Area

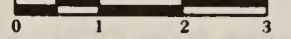
Legend

-  All Wilderness Alternative (42,731 acres)
-  Phipps-Death Hollow Outstanding Natural Area Boundary
-  Dixie National Forest Boundary
-  Box-Death Hollow Wilderness Boundary

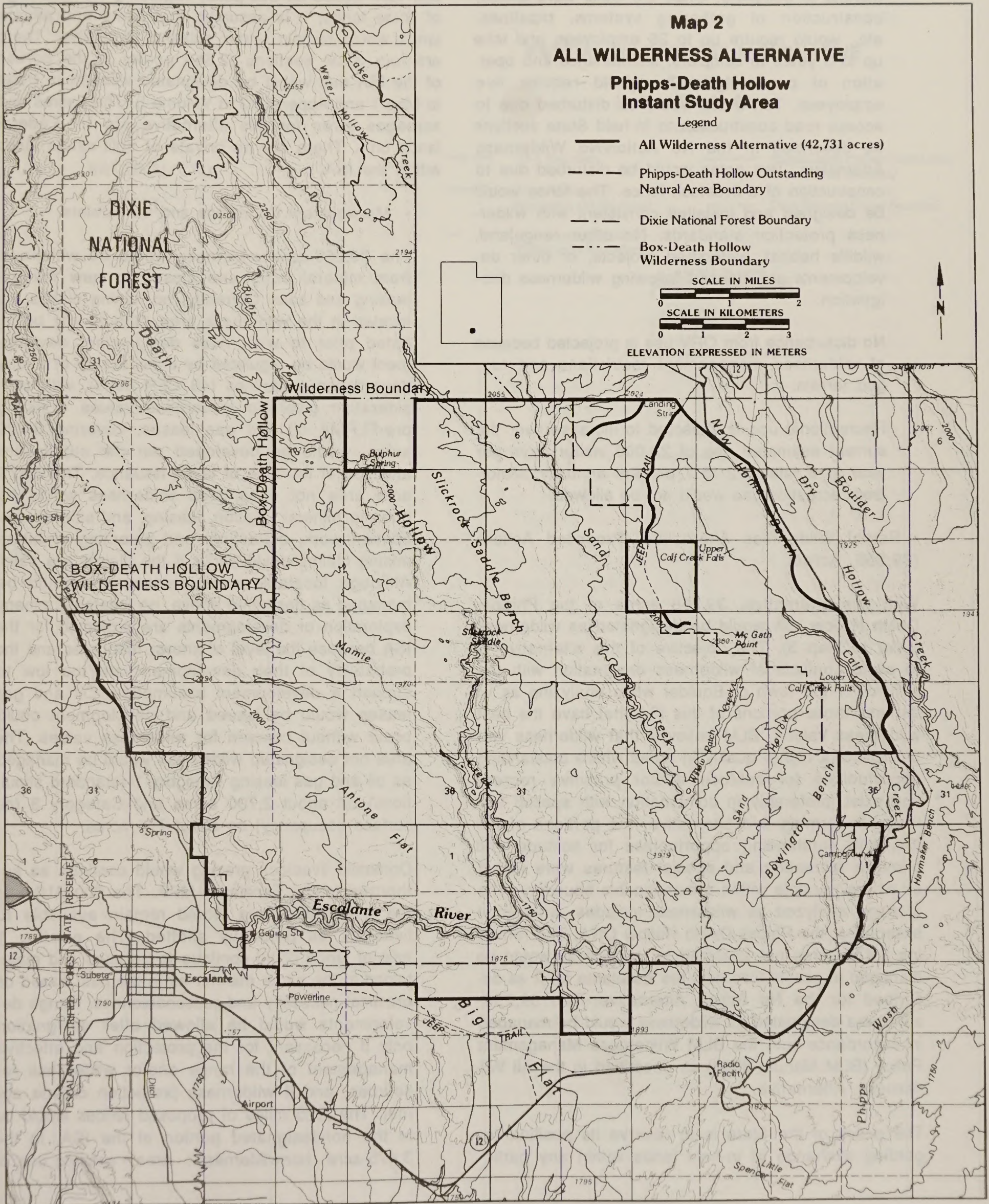
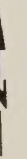
SCALE IN MILES



SCALE IN KILOMETERS



ELEVATION EXPRESSED IN METERS



T. 33 S.

T. 34 S.

T. 35 S.

R. 3 E.

R. 4 E.

PHIPPS-DEATH HOLLOW ISA

months to complete. Once the wells were drilled, construction of gathering systems, pipelines, etc., would require up to 25 employees and take up to 3 years to complete. Maintenance and operation of producing wells would require five employees. Ten acres would be disturbed due to access road construction to in-held State sections as described in the No Action/No Wilderness Alternative. Two acres would be disturbed due to construction of a livestock fence. The fence would be designed and installed consistent with wilderness protection standards. No other rangeland, wildlife habitat, watershed projects, or other developments are planned following wilderness designation.

No disturbance from ORV use is projected because of wilderness management restrictions and rugged terrain.

Recreational use is expected to increase over the current estimated use of 23,000 visitor days per year at a rate of 2 to 7 percent annually. Motorized recreation use would not be allowed.

- Partial Wilderness Alternative (Proposed Action) (39,256 Acres)

With this alternative, 39,256 acres of the Phipps-Death Hollow ISA would be designated as wilderness (refer to Map 3). The objective of this alternative is to avoid conflicts of wilderness designation with the airfield for the town of Boulder while analyzing as wilderness those portions of this ISA that have the best wilderness values. BLM believes that wilderness values are of a higher quality in areas where outstanding opportunities for solitude and/or primitive recreation exist, preferably in combination with special features. In forming this alternative, the portions of the ISA with outstanding opportunities for solitude and primitive recreation and special features were included where possible within a manageable boundary. The acreage analyzed as wilderness includes, with small exceptions, the Phipps-Death Hollow ONA. The remaining 3,475 acres not analyzed as wilderness would be managed in accordance with the Escalante MFP as described for the No Action Alternative. The 39,256-acre area designated as wilderness would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) as described in the All Wilderness Alternative.

The policy of the State is to reserve its position regarding exchange of in-held lands within any partic-

ular ISA. Based on this policy regarding the exchange of State lands, it is assumed that State and private lands would remain under existing ownership. There are four State sections (2,559 acres) in the portion of the ISA that would be designated wilderness (refer to Map 1 and Appendix 3 in Volume I). The figures and acreages given for this alternative are for Federal lands only. There are no private or split-estate lands within the ISA.

- Management Conditions and Constraints

The 39,256-acre wilderness would be withdrawn from mineral entry and closed to new mineral leasing and sale. Currently, no mining claims are located in the wilderness area. Should any be located prior to wilderness designation, development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809), with consideration given to wilderness values. Existing pre-FLPMA oil and gas leases, covering 3,225 acres, would be developed per the stipulations attached at the time of lease issuance. The 3,475-acre area not designated wilderness would be open to mineral location, leasing, and sale. Development work, extraction, and patenting of future mining claims could occur if the claims are valid. Although locatable mineral resources would be managed as described above, no locatable mineral exploration or developments are projected for the ISA because the level of known resources and the probability of their development are too low to support a development assumption. Oil and gas leases would be issued and development could occur without concern for wilderness values. The area not designated wilderness would be managed as oil and gas leasing Category 1 (standard stipulations) on about 2,700 acres and Category 3 (no surface occupancy) on about 775 acres.

Domestic livestock grazing would continue as authorized in the Escalante MFP. The 800 AUMs in the wilderness area would remain available to livestock as presently allotted. The existing 1 mile of fence could continue to be used and maintained in the same manner as in the past based on practical necessity and reasonableness. Range developments would be allowed after designation only if necessary for the protection and effective management of the range and/or wilderness resources, and if wilderness protection criteria are met. The 2.25 miles of proposed fences would be in the nondesignated portion of the ISA. In the 3,475-acre nonwilderness area, grazing use of


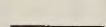
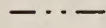
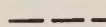

PHIPPS-DEATH HOLLOW ISA

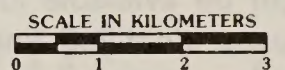
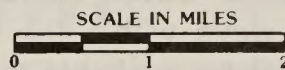
Map 3

PARTIAL WILDERNESS ALTERNATIVE

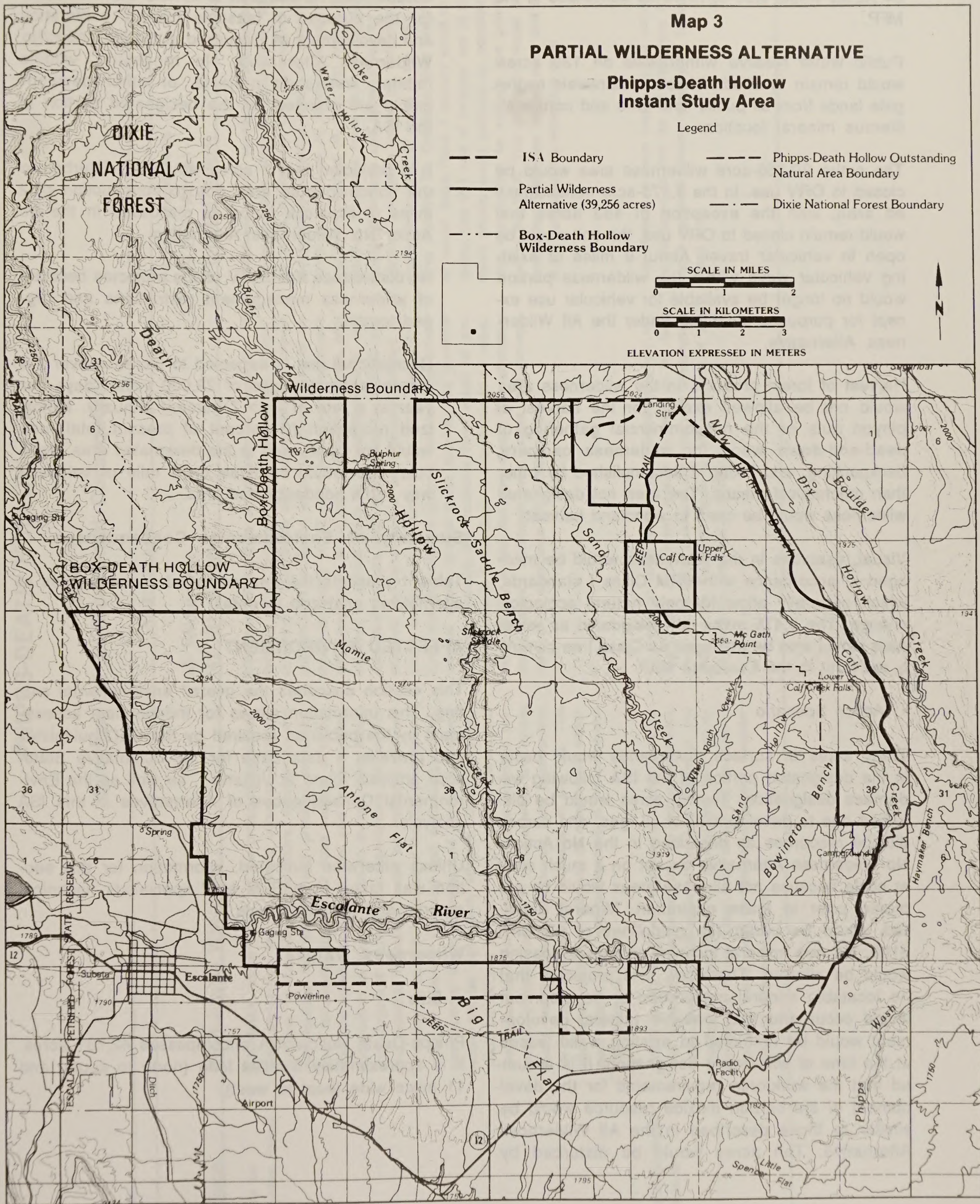
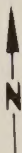
Phipps-Death Hollow Instant Study Area

Legend

-  ISA Boundary
-  Partial Wilderness Alternative (39,256 acres)
-  Box-Death Hollow Wilderness Boundary
-  Phipps-Death Hollow Outstanding Natural Area Boundary
-  Dixie National Forest Boundary



ELEVATION EXPRESSED IN METERS



T. 33 S.

T. 34 S.

T. 35 S.

PHIPPS-DEATH HOLLOW ISA

84 AUMs would also continue as authorized in the MFP.

Public water reserve withdrawals on 130 acres would remain in effect. These withdrawals segregate lands from all public land laws and nonmetaliferous mineral location.

The entire 39,256-acre wilderness area would be closed to ORV use. In the 3,475-acre nondesignated area, with the exception of 483 acres that would remain closed to ORV use, the unit would be open to vehicular travel. About 9 miles of existing vehicular ways within the wilderness portion would no longer be available for vehicular use except for purposes identified under the All Wilderness Alternative.

Harvest of forest products in the wilderness area would not be allowed except for the harvest of pinyon nuts or the noncommercial gathering of dead-and-down wood for wilderness campers, backpacking, and hiking if accomplished by other than mechanical means. The area not designated wilderness would be open to woodland harvest.

Visual resources in the wilderness would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change. The 3,475 acres not designated as wilderness would also be managed as Class I as currently set forth in the Escalante MFP.

- Action Scenario

Thirty acres of surface disturbance would occur in the designated portion of the ISA following wilderness designation. Twenty acres would be disturbed due to development of oil, gas, and carbon dioxide resources as described in the No Action/No Wilderness Alternative except on a much smaller scale because not all lease areas would be explored prior to lease expiration. Mineral activities would be under the guidelines of 43 CFR 3100. No new mineral location or mineral leasing would be allowed. Therefore, it is projected that no locatable mineral exploration or development would occur and that leasable mineral development would be restricted to existing, valid leases at the time of wilderness designation. It is assumed that the workforce requirements for the development of the carbon dioxide resource would be similar to those described in the All Wilderness Alternative. Ten acres would be disturbed by

access road construction to in-held State sections for the purpose of leasable mineral exploration and development as discussed in the No Action/No Wilderness Alternative. No rangeland, wildlife habitat, watershed projects, or other developments are planned for the designated portion of the ISA.

It is projected that 2 acres would be disturbed in the nondesignated area due to construction of 2 miles of livestock fence as discussed in the No Action/No Wilderness Alternative.

No disturbance from ORV use is projected because of wilderness management restrictions and rugged terrain.

Recreational use is expected to increase over the current estimated use of 23,000 visitor days per year at a rate of 2 to 7 percent annually. Motorized recreation (2 percent of present total) use would not be allowed in the designated area. Vehicular use would continue on 1 mile of vehicular way in the nondesignated area.

Summary of Environmental Consequences

Table 1 presents the environmental consequences of alternatives analyzed in detail.

AFFECTED ENVIRONMENT

This section describes the overall environmental setting. This information allows for independent assessment by the public as required by the CEQ guidelines and provides a data base for the cumulative State-wide analysis found in Volume I, as well as the Environmental Consequences of Alternatives in this ISA analysis.

Unless otherwise indicated, information for this section was taken from BLM staff specialists, technical reports, and file documents.

Wilderness Values

- Size

Phipps-Death Hollow ISA encompasses 42,731 acres. It is approximately 9 miles long (north to south) and 11 miles wide (east to west).

PHIPPS-DEATH HOLLOW ISA

Table 1
Summary of Environmental Consequences

| Alternatives | |
|------------------------------|--|
| Resource | Alternatives |
| | <p>No Action/No Wilderness</p> <p>Wilderness values would not be protected by wilderness designation and loss would occur as intrusions increase. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 322 acres because of exploration and development of oil, gas, and carbon dioxide, construction of access roads to in-held State lands, and rangeland projects and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to 6,410 acres of the ISA. Most special features including historical and archaeological values, special status species, and perennial streams would not be significantly affected. Class A scenery would be reduced in quality in the disturbed areas and the Escalante River would not receive additional protection. Vehicular use of 11 miles of ways and mining roads would occasionally detract from opportunities for solitude and primitive recreation in the ISA. This alternative would not enhance or complement wilderness values, uses, and management of the contiguous FS wilderness area.</p> |
| Impacts on Wilderness Values | <p>All Wilderness (42,731 Acres)</p> <p>Wilderness designation would preserve overall the wilderness values throughout the WSA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost or reduced in quality on 32 acres because of exploration and development of oil, gas, and carbon dioxide, construction of access roads to in-held State lands, and rangeland projects and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to 2,139 acres of the WSA. Special features, including Class A scenery, historical and archaeological values, special status species, and perennial streams including the Escalante River would be reduced overall. Some Class A scenery would be reduced in quality in the disturbed areas. This alternative would enhance wilderness uses, values, and management of the contiguous FS wilderness area.</p> |
| | <p>Partial Wilderness (39,256 Acres) (Proposed Action)</p> <p>Wilderness values would be preserved overall in the designated area which is approximately 92 percent of the WSA. Naturalness and opportunities for solitude and primitive recreation would be directly lost or reduced in quality on 32 acres because of exploration and development of oil, gas, and carbon dioxide, construction of access roads to in-held State lands, and rangeland projects and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to 2,137 acres of the WSA. Special features including the Escalante River would be preserved overall. Some Class A scenery would be reduced in quality. Use of 1 mile of vehicular way in the non-designated portion would continue to occasionally detract from opportunities for solitude and primitive recreation in the WSA. This alternative would enhance and complement wilderness values, uses, and management of the contiguous FS wilderness area.</p> |
| Impacts on Water Resources | <p>All Wilderness (42,731 Acres)</p> <p>In the short term, wilderness designation would not significantly alter water quality or uses. In the long term, future water diversion and new and consumptive uses in the Escalante River system upstream of the ISA may be restricted or precluded.</p> |
| | <p>Partial Wilderness (39,256 Acres) (Proposed Action)</p> <p>The impacts on water resources and conclusions would be the same as with the All Wilderness Alternative because perennial streams would pass through the designated area.</p> |

PHIPPS-DEATH HOLLOW ISA

Table 1 (Continued)
Summary of Environmental Consequences

| | | Alternatives | |
|--|--|--|---|
| Resource | No Action/No Wilderness | All Wilderness (42,731 Acres) | Partial Wilderness (39,256 Acres) (Proposed Action) |
| Impacts on Mineral and Energy Exploration and Production | Implementation of the No Action/No Wilderness Alternative would not adversely affect mineral and energy beyond the limitations which are already in effect. Mineral leasing, location of mining claims, and mineral development would continue as at present. | Wilderness designation would limit potential exploration and development of carbon dioxide resources with more restrictive conditions being placed on the methods and manner in which the existing leases are explored and developed. No significant locatable mineral production would be foregone because the probability of development is low even without wilderness designation. | Implementation of the Partial Wilderness Alternative would limit potential exploration and development of carbon dioxide resources with more restrictive conditions being placed on the methods and manner in which the existing leases are explored and developed no significant locatable mineral resource would be foregone because the probability of development is low even without wilderness designation. |
| Impacts on Visual Resources | With the implementation of the No Action/No Wilderness Alternative, visual resources would be preserved overall. However, visual quality could be impaired on up to 15 percent (6,410 acres) of the ISA. | With implementation of the All Wilderness Alternative visual resources would be preserved overall. However, visual quality could be impaired on up to 5 percent (2,137 acres) of the ISA. | Because total surface disturbance in the ISA would be about the same in the All Wilderness Alternative, the impacts and conclusions would be the same. |
| Impacts on Recreation | The quality of the primitive recreation opportunity would be reduced on the western half of the ISA. Recreational vehicles would continue to be precluded on 38,800 acres. About 14.9 miles of a wild and scenic river inventory stream segment would not receive additional protection. | The All Wilderness Alternative would benefit primitive recreation by reducing the likelihood and extent of surface-disturbing activities and increasing management attention and recognition or recreational values. Wilderness designation would provide additional protection for 14.9 miles of the Escalante River, a segment of the National Wild and Scenic River Inventory. | Implementation of this alternative would benefit primitive recreational opportunities by reducing the likelihood and extent of surface disturbing activities and increasing management attention and recognition of recreational values. The partial wilderness designation would provide additional protection for 14.9 miles of the Escalante River, a segment of the National Wild and Scenic River Inventory. |

PHIPPS-DEATH HOLLOW ISA

Table 1 (Continued)
Summary of Environmental Consequences

| Alternatives | |
|--------------------------------------|--|
| Resource | Alternatives |
| | <p>All Wilderness (42,731 Acres)</p> <p>No Action/No Wilderness</p> <p>Partial Wilderness (39,256 Acres) (Proposed Action)</p> |
| Impacts on the Boulder Air Field | <p>Expansion of physical facilities and use of the Boulder Air Field could be precluded or reduced with wilderness designation.</p> <p>Implementation of this alternative would not affect the potential expansion and use of the Boulder Air Field.</p> |
| Impacts on Local Economic Conditions | <p>Expansion and use of the Boulder Air Field would not be affected with implementation of the No Action/No Wilderness Alternative.</p> <p>Wilderness designation of the entire ISA would result in a temporary (2 to 3 year) increase of 25 jobs due to development of the carbon dioxide resource. However, this would be 175 jobs less than the increase which could occur from implementation of the No Action/No Wilderness Alternative. Increased recreational use could provide up to \$822,000 to the local economy. Other local economic conditions would not be affected.</p> <p>Partial designation would result in a temporary (2 to 3 year) increase of 25 jobs due to development of the carbon dioxide resource. This would be 175 jobs less than the increase which could occur from implementation of the No Action/No Wilderness Alternative. Other local economic conditions would not be affected. Increases in recreational use could provide up to \$822,000 to the local economy.</p> |

PHIPPS-DEATH HOLLOW ISA

- Naturalness

Naturalness is defined as an area where the evidences of man are substantially unnoticeable to the average visitor and where individual minor imprints of man exhibit no cumulative impact that is substantially noticeable. The entire ISA meets the Wilderness Act criteria for naturalness. Imprints of man that are in the ISA are the gauging station on the Escalante River about 1 mile east of Escalante and 10 miles of way. These imprints involve less than 1 percent of the ISA and are substantially unnoticeable. In the Phipps-Death Hollow ISA, the high quality of naturalness has not changed since the BLM Intensive Wilderness Inventory (USDI, BLM, 1980b) decision. No additional imprints have occurred in the ISA as a result of impairing uses or activities allowed under the BLM Interim Management Policy (USDI, BLM, 1979c).

- Solitude

Outstanding opportunities for solitude are present in the ISA due to the deep winding canyons of five major drainages that provide excellent topographic screening. The Escalante River, Calf Creek, Sand Creek and three tributaries (Mamie Creek, Death Hollow, and Right Fork of Death Hollow) have all created entrenched and winding canyons. Although each of the canyon drainages is characterized by an extremely high proportion of slickrock, there remains a tremendous variety of canyon landscapes. Some canyons such as Calf Creek have cut inner gorges in slickrock bowls or basins. The Escalante River Canyon is a very deep and large canyon. The Mamie Creek-Death Hollow drainage exhibits inner gorges and narrows, perched canyons, and numerous slot and ridge features. The North Fork-Death Hollow area is very similar to the Mamie Creek area but the inner gorge exhibits more narrows and greater entrenchment. Regardless of the type of canyon, the canyon areas in the ISA all offer excellent topographic screening and outstanding opportunities for solitude. Outstanding opportunities for solitude derivative of canyons are present on approximately 19,900 acres of the ISA.

The opportunity for solitude on the benches within the ISA is outstanding where the geographic isolation is the greatest. The Antone Flat Bench includes the entire Mamie Creek-Pine Creek divide from Antone Flat to the Dixie National Forest boundary. This bench exhibits extreme geographical isolation. Slickrock Saddle Bench below Slickrock Saddle exhibits a similar degree of isolation. The opportunity for solitude on Slickrock Saddle Bench above Slickrock Saddle diminishes

toward the Dixie National Forest boundary. Below the confluence of Sweetwater and Sand Creeks, isolation provided by canyon cliffs is sufficient to provide an outstanding opportunity. Bowington Bench is completely isolated by the Calf Creek and Sand Creek Canyon cliffs and the McGrath Point Bench cliffline. Bowington Bench, in its entirety, possesses outstanding opportunities for solitude. Outstanding opportunities for solitude exist on 16,100 acres of the benches.

A visitor to the ISA can easily find seclusion in many parts of the ISA. Outside sights and sounds are an insignificant influence on solitude.

In summary, approximately 36,000 acres or 84 percent of the ISA presents opportunities that meet the outstanding opportunity criterion for lands under wilderness review. The remaining 6,731 acres do not meet the criterion.

- Primitive and Unconfined Recreation

The ISA offers outstanding opportunities for camping, backpacking, hiking, horseback riding, and sightseeing for cultural and geological features. It is the quality of these individual recreational activities that contributes to this outstanding opportunity.

The foot and horse travel activities are of high quality throughout most of the ISA. The overall scenic geology of the ISA is of extremely high quality. In this sense, most of the ISA represents a sightseeing destination. There are also site-specific sightseeing destinations derivative of this scenic geology. The Upper and Lower Calf Creek Falls, Death Hollow Canyon, Escalante Natural Bridge, and the Escalante River Canyon are examples.

Sightseeing for historical and archaeological features can occur over much of the ISA because of the number, wide distribution, and linear configuration of many of these features. Historic routes include the Boulder mail trail, first Boulder-Escalante telephone line, Old Boulder Road, and the Boynton Road. Archaeological sites have been identified in Calf Creek, Death Hollow, Sand Creek, and the Escalante River.

Although the sightseeing opportunity is one element contributing to the quality of hiking, horseback riding, and backpacking activities, other factors are also influential. The availability of a variety of easy to challenging experiences enhances the hiking activity. The backpacking activity is also enhanced by the varied degrees of difficulty of travel within the ISA. Fishing

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opportunities in Calf Creek and Death Hollow also contribute to the hiking, backpacking, and horse travel activities.

The availability of a large number of route alternatives is the most important factor contributing to the outstanding quality of hiking, backpacking, and horse travel activities. The ISA offers an array of canyon route options for day use hiking and horseback riding. Because it is not limited by time or by riding terrain, the backpacking activity possesses even more route options. These options include all of the canyon systems and the Pine Creek-Death Hollow divide, Slickrock Saddle Bench, Bowington Bench, upper Calf Creek Basin, and a portion of Big Flat. Certain portions of these bench areas are also within the range of the dayhiker. The backpacking activity in the ISA is enhanced by the continuation of the Death Hollow Canyon and the Pine Creek-Death Hollow hiking routes into the Box-Death Hollow wilderness area.

Primitive recreation opportunities on 36,800 acres or 86 percent of the ISA meet the outstanding criterion for lands under wilderness review, while 5,931 acres do not meet the criterion.

• Special Features

The Phipps-Death Hollow ISA possesses educational, scenic, and historical values.

An interpretive brochure has been developed in conjunction with the Lower Calf Creek Falls trail in Calf Creek Canyon. The trail includes that area of the Calf Creek Canyon between the Lower Falls and the campground. This portion of Calf Creek Canyon possesses significant educational values because of the trail and brochure use that are by campers at the campground. Approximately 200 acres exhibit educational values.

Although the Phipps-Death Hollow ISA is located on the upper reaches of the Escalante River, the ISA possesses certain landscape features not found in the middle and lower portions of this drainage. There is a greater preponderance of white-and-yellow Navajo Sandstone here. The deepest canyons in the drainage are also present in the ISA. The ISA possesses three distinct landscape components. All possess significant scenic features. Approximately 38,931 acres exhibit Class A scenery.

The Escalante River Canyon in the ISA reaches depths of 1,100 feet between the mouth of Mamie Creek and the community of Escalante. In this area, the canyon

walls are rough and broken. The canyon is narrow and exhibits many meanders. The remainder of the Escalante River Canyon is a wider canyon exhibiting the more typical red sandstone walls and an abundance of riparian vegetation creating a green ribbon effect. The canyon possesses impressive scenic features throughout its length. Escalante Natural Bridge, a 130-foot-high bridge with a span of 100 feet, is located on the south wall of the canyon. Four other natural bridges and arches are found in the ISA's drainages.

Scenic values are present in the bench and canyon areas between Slickrock Saddle Bench and Calf Creek Canyon. Included in this area are Bowington and Slickrock Saddle benches, McGrath Point, Sand Creek and its Willow Patch, Sand Hollow and Sweetwater Creek tributaries, and the Calf Creek Basin. Where sandstone outcroppings and points are present on the benches, the scenic values are high. However, the highest quality features occur in the Calf Creek Canyon area where red arched walls, two waterfalls, and extensive expanses of white slickrock are present. Lower Calf Creek Falls is 126 feet high and Upper Calf Creek Falls is 86 feet high.

The Death Hollow area of this ISA exhibits some of the highest quality scenic values found anywhere in the Escalante River drainage. Death Hollow is the name given the area carved by Mamie Creek and the Right Fork of Mamie Creek. Although the area is complex topographically, it can be divided into four general landscapes. The Death Hollow Canyon is deep and meandered. Narrows at depths of 1,000 feet occur in certain sections of the canyon. Above the canyon, Mamie Creek has created an extensive upper basin of exposed sandstone. This is an extremely dissected area of canyons, tanks, and other formations. Ponderosa pine is present in suitable locations. Antone Flat, a sagebrush park in the southern portion of this area, is one of the few places where soil cover remains. The Escalante monocline forms the divide between Mamie Creek and Pine Creek. The Pine Creek side is a scenic, dissected, 1,000-foot rock face. The top of the monocline is a narrow ridge covered with ponderosa pine.

Historical values include the Boulder Mail Trail, Boynton Road, Old Boulder Road, Washington Phipps Grave, and the Escalante-Boulder telephone line.

The Boulder Mail Trail was used to carry mail and goods between the Towns of Escalante and Boulder. Much of the trail is still visible, especially where it was necessary to construct the trail through slick-

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rock. The trail has been nominated to the National Register of Historic Places and is becoming a popular backpacking route in the ISA. Approximately 13 miles of the trail are present in the ISA.

The Boynton Road was constructed in 1909 as a short-cut between Escalante and Salt Gulch. The road was abandoned after 2 years when water washed away portions of the road. The road is visible over approximately 90 percent of its 10-mile route. The Old Boulder Road was the main route between Escalante and Boulder until the Civilian Conservation Corps built the Hell's Backbone Road and Highway 12 in the 1930s. Approximately 1.5 miles of the road are within the ISA. In 1911 the FS constructed the first telephone line between Escalante and Boulder. This line provided the first telephone service to the area and was used until 1955 when it was replaced by a microwave system. Most of the line between Antone Flat and Sand Creek is still visible. The wire is missing between Sand Creek and Boulder. Approximately 7.5 miles of the route are within in the ISA but are only partially evident.

The Friendship Cove Pictograph is an archaeological site that has been nominated to the National Register of Historic Places.

The ISA has resource values that, although not identified as such during the wilderness inventory, could be considered special features. There are two animal species (bald eagle and peregrine falcon) listed as endangered or threatened which could occur in the ISA. In addition, there are seven animal species and eight plant species that are considered sensitive which may also occur in the ISA. Refer to the Vegetation and Wildlife Including Special Status Species sections for additional information. The WSA has 40 miles of perennial streams which add appreciably extensively to its scenic value.

The Escalante River through the ISA is part of a Wild and Scenic River Inventory Segment (refer to the Recreation section).

- Diversity

This ISA is in the Colorado Plateau Province Ecoregion and has the PNV type of juniper-pinyon woodland. Refer to the Vegetation Including Special Status Species section for more discussion on ecoregions and PNV types. The ecoregion and PNV types represented by this ISA are compared with existing and other

potential National Wilderness Preservation units in the Wilderness Values section of Volume I.

This ISA is within a 5-hour drive from one standard metropolitan statistical area, Provo-Orem, Utah.

Air Quality

The Phipps-Death Hollow ISA and surrounding area have been designated Class II under the PSD regulations. BLM will not consider or recommend any change in air quality classification as part of the wilderness study or wilderness recommendations. Any further air quality reclassification is the prerogative of the State government, not of the BLM (USDI, BLM, 1982b). The nearest Class I air quality area is Capitol Reef National Park, approximately 18 miles to the east of the ISA.

No measurements of air pollution or visibility levels have been made in the Escalante planning unit; however, data collected from various sites (Page, Arizona, and Four Mile Bench approximately 50 miles south of the ISA) indicate the air is generally free of pollutants and within National Ambient Air Quality Standards and State regulations. Visibility is excellent.

Geology and Topography

The Phipps-Death Hollow ISA is located within the western part of the Canyonlands section of the Colorado Plateau Physiographic Province (Thornbury, 1965).

Rocks of Triassic and Jurassic ages, totalling about 2,000 feet in thickness, and thin deposits of Quaternary age outcrop in the ISA. The underlying Mesozoic and Paleozoic rocks in the region are more than 4,000 feet thick (USDI, USGS, 1981a). Grayish-orange, cross-bedded Navajo Sandstone forms the most extensive outcrops. Younger units are exposed along the northern, western, and southern fingers of the area. The base of the Navajo and the upper part of the underlying Kayenta Formation are exposed only in canyons near the east edge of the ISA.

The dominant structure underlying the ISA is the south end of the large north to south trending Escalante anticline, located in the western portion of the ISA. The other major fold, the Boulder-Collet anticline, occurs along the eastern side of the ISA. The intervening structural low, located approximately in

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the central portion of the ISA, is known as the Sand Creek syncline.

Elevations in the ISA range from approximately 7,600 feet along the Escalante monocline on the western side of the ISA to approximately 5,400 feet in the Escalante River Canyon. The major drainages, which include Death Hollow/Mamie Creek, Sand Creek, Pine Creek, and Calf Creek, bisect the ISA in a north to south axis. Five natural bridges and arches occur along these drainages. The Escalante River runs from west to east and borders the southern boundary of the ISA. Steep-walled canyons cutting into sedimentary rocks are the major landforms in this area.

Soils

The major part of the ISA is rockland. Rockland consists of exposed bedrock, mostly sandstone and limestone, with gentle to steep slopes. These areas have very little vegetation with native vegetation growing only in crevices and pockets of soil material (Wilson, et al., 1975). Runoff is rapid and sediment production is low.

Sandy soils occur in the northeast corner of the upper Calf Creek drainage. Runoff and sediment production from these soils are low and they are subject to soil blowing. Erosion condition was determined by using soil surface factors as summarized in Table 2 (terms are defined in the Glossary).

Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | Acres | Percent of ISA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|--------|----------------|--------------------------------------|
| Severe | 5.4 | 0 | 0 | 0 |
| Critical | 2.7 | 0 | 0 | 0 |
| Moderate | 1.3 | 12,393 | 29 | 16,110 |
| Slight | 0.6 | 14,528 | 34 | 8,720 |
| Stable | 0.3 | 15,810 | 37 | 4,740 |
| Total | | 42,731 | 100 | 29,570 |

Sources: USDI, BLM, 1978c and 1979c; Leifeste, 1978.

Soils and rockland within the ISA are considered as nonsaline. The annual salt production from undisturbed soils is estimated to be 33 lb per acre. Rehabilitation potentials throughout much of the ISA are poor because of steep slopes and shallow soils.

Vegetation Including Special Status Species

The existing vegetation in the ISA consists mainly of pinyon-juniper woodland although some Ponderosa pine also occurs in the area. These have been grouped into a single vegetation type covering 42,666 acres. Approximately 65 acres of riparian vegetation can be found along the Escalante River, Pine Creek, Sand Creek, Sweetwater Creek, Calf Creek, Mamie Creek, Death Hollow, and Willow Patch Creek. A relict plant community with lush vegetation and hanging gardens occurs in Death Hollow. Calf Creek also contains hanging gardens.

No threatened or endangered plant species are known to occur in the ISA. However, the ISA could contain one Category 1 candidate species and seven Category 2 candidate species. These are Lepidium montanum var. stellae, (the Category 1 species), Psoralea pariensis, Lepidium montanum var. neeseae, Coryphantha missouriensis var. marstonii, Heterotheca jonesii, Penstemon atwoodii, Xylorhiza cronquistii, and Spiranthes diluvialis (see Appendix 4 in Volume I).

The Phipps-Death Hollow ISA is in the Colorado Plateau Province Ecoregion as shown on the Bailey-Kuchler ecosystems map (USDI, USGS, 1978a). The PNV type of the ISA is juniper-pinyon woodland.

Water Resources

The Phipps-Death Hollow ISA is within the Escalante River subbasin of the Upper Colorado River hydrologic subregion.

The Phipps-Death Hollow ISA contains approximately 40 miles of perennial streams, all of which are in the Escalante River drainage. These streams include the Escalante River, Calf Creek, Pine Creek, Sand Creek, Sweetwater Creek, Willow Patch Creek, Mamie Creek, and Death Hollow. Flash floods are common on these streams from July to mid-September during the thunderstorm season. The water quality standards for Escalante River and tributaries, from confluence with Boulder Creek to headwaters are as follows: Class 2B (protected for boating, waterskiing, and similar uses), Class 3A (protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain), and Class 4 (protected for agricultural uses including irrigation of crops and stock-watering).

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Utah's 1986 305(b) water quality assessment report states that streams and tributaries entering Lake Powell in the southern portions of the Upper Colorado River drainage have impairments to their beneficial uses from high levels of TDS and sodium. These impairments result mainly from natural sources and low flows. Water quality samples indicate that organic enrichment and sedimentation resulting from flooding are the prevalent water quality problems. All water quality indicators measured are within State water quality standards for cold-water fisheries. Bacteria levels are generally low.

Six undeveloped springs exist in the ISA. Primary uses are livestock and wildlife watering.

The Phipps-Death Hollow ISA is within the Escalante River Adjudication Area 97. The Escalante River and all tributaries are considered to be fully appropriated, and the underground water directly connected to the surface is closed to appropriation, with the exception of some limited applications for 0.015 cfs which have been approved on an individual basis. The State Engineer will accept applications to appropriate water from the underground aquifer located in bedrock and consider them on the individual merits of the application (UDNRE, DWR, 1988).

Water rights within or adjacent to the ISA boundary total 126.48 acre-feet annually. The Pine Creek Irrigation Company has the water rights to 37.20 acre-feet from Pine Creek to irrigate 390.50 acres of cropland adjacent to the western boundary of the ISA (UDNRE, DWR, 1969). Private individuals have the water rights to 5.15 acre-feet of water from Pine Creek for livestock water. BLM has the rights to 69.43 acre-feet for livestock watering. The State of Utah has the water rights to 14.7 acre-feet of water on State sections enclosed within the boundaries of the ISA (UDNRE, DWR, 1969).

Utah Power and Light has applications on file with the State Water Engineer for over 200,000-acre feet of water in the Escalante River Basin. According to information on file, this water would be used for coal-fired steam generation, mining, domestic, and irrigation purposes. Current information suggests that such power generation projects would not occur in the foreseeable future.

Mineral and Energy Resources

The energy and mineral resource rating summary for the Phipps-Death Hollow ISA is given in Table 3.

Appendix 5 in Volume I describes the energy and mineral resource rating system.

Table 3
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|----------------|---------------------------|------------------------|--|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f3 | c1 | Between 10 and 50 million barrels of oil; between 60 and 300 billion cubic-feet of gas |
| Uranium | f2 | c1 | Less than 500 metric-tons of uranium oxide |
| Hydroelectric | f2 | c4 | 0.05 to 15 megawatts |
| Carbon Dioxide | f4 | c4 | Unknown (large deposit) |

Source: SAI, 1982; USDI, BLM, 1987.

^aFavorability of the ISA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

There are no strategic or critical minerals known to occur within the ISA (USDoD, 1988).

• Leasable Minerals

There are no known deposits of any leasable minerals in the ISA. Currently, there are no active drilling, mining, or exploration activities for leasable minerals.

• Oil and Gas

Numerous oil shows (including oil-impregnated rock deposits) have been reported from Cambrian, Devonian, Mississippian, Pennsylvanian, Permian, and Triassic rocks in south-central Utah (Heylmun, et al., 1965; Veal, 1976; and Campbell and Ritzma, 1979). The older rocks generally are only stained, whereas free oil has been recovered from Mississippian rocks at Upper Valley (Doelling, 1975). Because the most obvious structures in the area have already been explored, many investigators consider subtle stratigraphic traps in Permian and Triassic rocks to offer the best potential for future petroleum discoveries.

The only oil and gas production in south-central Utah in the vicinity of the ISA comes from the Upper Valley field located about 12 miles to the southwest. This field was discovered on the Upper Valley anticline in 1964 and stimulated drilling activity on similar anticlinal structures in south-

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central Utah. To date, however, no commercial oil and gas potential has been identified in the ISA.

The oil reservoir in the Upper Valley field is located along the prominent Upper Valley anticline, but the producing area is offset from the crest of the anticline to the west flank and the southern plunging nose. This offset is attributed to a regional, southwest directed hydrodynamic drive in the Kaibab Formation (Sharp, 1976). Oil accumulation in other anticlines within the region may be displaced to the south. Total production from this field is expected to approach 50 million barrels. Production is from four distinct zones in the Timpoweap Formation (Triassic age) and the Kaibab Formation (Permian age) (Sharp, 1976). Shows of oil were also reported in the Cedar Mesa (Permian) and the Redwall Formation (Mississippian).

The Escalante anticline was tested in the ISA in 1972. This well bottomed in the Cedar Mesa at a depth of about 4,400 feet with no recorded shows of oil or gas. Six wells have been drilled 4 to 10 miles north of the ISA on the Escalante anticline. Two of these wells encountered oil shows in the Timpoweap Member and two wells had shows in the Kaibab Formation. The Boulder-Collet anticline was tested in 1969 near the northeast edge of the ISA. The well, which was dry, bottomed in the White Rim Member of the Permian Cutler Formation at a depth of 3,225 feet. Six other tests on the anticline southeast of the ISA were also unsuccessful, though one well had a show of oil in Permian strata (USDI, USGS, 1981a).

Based on a comparison with the Upper Valley field, the Escalante anticline could contain hydrocarbons downdip and to the west of the anticlinal crest. However, the structure and nature of the subsurface is very poorly known in this portion of the Escalante anticline. Both structural, stratigraphic, and combination traps should be considered likely because of the anticlinal feature, and the presence of rocks which may exhibit porosity and permeability sufficiently variable to produce stratigraphic traps.

Based on the above, the ISA is assigned a favorability rating of (f3) (SAI, 1982). The size of the hydrocarbon accumulation in such an environment is anticipated to be between 10 and 50 million barrels of oil or between 60 and 300 billion cubic feet of gas. Based on the available information,

the certainty of occurrence for oil and gas is rated very low (c1).

Under the current land use plan, 2,700 acres of the ISA are in Category 1 (standard stipulations); 7,700 acres are in Category 3 (no surface occupancy); and 32,331 acres are in Category 4 (closed to leasing). There are presently five pre-FLPMA leases, covering 3,225 acres in the ISA. Pre-FLPMA leases are governed by stipulations attached at the time of leasing. Before wilderness studies were mandated these stipulations may allow for the impairment of wilderness values, as a prior and existing right associated with lease development. The five pre-FLPMA leases are still in effect because they were placed in suspension on March 1, 1978 because of drilling moratoriums on the FS and BLM WSAs.

- Carbon Dioxide

A large carbon dioxide deposit (with current estimates ranging up to 4 trillion cubic-feet) was discovered on the crest of the Escalante anticline in a well drilled in 1960, about 7 miles north of the ISA. A total of six wells have been drilled on FS land on the anticline and all have encountered carbon dioxide. Two of the wells drilled on the anticline are about 4 and 5 miles north of the ISA respectively. A geologic structure, formerly designated as the Escalante KGS contains 80,010.39 acres, of which 13,720 acres in the southern most portion are located in the ISA. It extends down structure on the Escalante anticline to within 1 mile of a dry hole in T. 35 S., R. 3 E., sec. 10.

The Escalante anticline appears to be one large continuous north to south trending structure. The Phipps-Death Hollow ISA overlies the southern part of the structure and exploration to date has been concentrated in the northern part. Carbon dioxide has been encountered in several formations on the structure including the Shinarump, Kaibab, Coconino (or White Rim) and Cedar Mesa. Therefore, the field could be described as several reservoirs vertically stacked across one large structure.

The wells drilled to date have been described as high volume-low pressure wells. Pressure behavior can only be determined by continued development and sustained production of carbon dioxide. Pressures would have to be considered in well

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completion and pipeline design and, therefore, could have some effect on economics.

The effects, if any, of the regional hydrodynamic drive can only be determined by more drilling to delineate the resource. The nearby Upper Valley oil field has been displaced toward the west by a strong hydrodynamic drive and it would not be unreasonable to expect some effects at Escalante.

Based on available information, the ISA has been assigned a favorability rating of f4 (potential for large deposits). The certainty that carbon dioxide occurs in the ISA is high (c4). Based on this potential, it is projected that exploration and development would occur on the existing pre-FLPMA oil and gas leases in the foreseeable future.

• Locatable Minerals

There are no known deposits of locatable minerals in the ISA, and there are presently no mining claims.

• Uranium

The Chinle Formation is the only rock unit underlying the ISA known to have potential for uranium in the area. The Chinle occurs at depths across the ISA ranging from 1,500 feet to 2,500 feet below the surface.

The area encompassed by the ISA is not favorable for significant deposits of uranium (Peterson, et al., 1982). A significant deposit is defined as one which contains economically extractable uranium oxide deposit that contains a total of at least 100 metric-tons of uranium oxide at a grade of at least 0.01 percent. The USGS and USBM (USDI, USGS, 1981a) also concluded that the ISA has a very low potential for the occurrence of uranium.

Based on the above discussion, the ISA is assigned a uranium favorability rating of (f2) (containing less than 500 metric-tons of uranium oxide). The certainty that uranium deposits occur in the Chinle Formation within the tract is very low (c1).

• Gypsum

A small portion of a gypsum deposit on the southwestern side of the ISA extends into the tract. The deposit is not considered significant due to the presence of better deposits outside the ISA.

• Salable Minerals

Stream gravel and other loose rock material that could be used for construction occur within the ISA. These deposits are not unique or economically significant due to the presence of ample similar materials nearby. Under the current land use plan, sale of sand and gravel is not allowed in the Calf Creek recreation area.

• Hydroelectric Power

The Escalante River has a potential to produce 0.04 megawatts of hydroelectric power 95 percent of the time (Clyde, et al., 1979). This estimate was made for a segment of the Escalante River near the eastern edge of the ISA. Development of this potential is not projected in the foreseeable future.

Wildlife Including Special Status Species

The Phipps-Death Hollow ISA has habitat that could support approximately 50 species of mammals, 170 species of birds, 17 species of reptiles, five species of amphibians, and six species of fish. The birds are mainly seasonal residents or migrants while the other species are primarily residents. The ISA provides yearlong, winter, and important winter range for mule deer; however, deer numbers are low. The important winter range (approximately 21,200 acres) supports a wintering deer population that spends the remainder of the year on the Dixie National Forest. The riparian areas are the most important use areas for the resident populations. The Antone Flat area (13,879 acres) was designated for mule deer use in the late 1960s and is not utilized by livestock.

The ISA provides approximately 3,000 acres of important winter range for elk. The UDWR transplanted 159 elk into the Boulder Mountain elk herd unit in 1976 to 1977. During years of heavy snowfall on the higher elevations of the Dixie National Forest, 50 to 80 elk may migrate onto winter range, which includes part of the ISA.

Cougars are present throughout the ISA in small numbers (probably less than 10). A few may be resident, but the majority are winter visitors. Cougars occur in the pinyon-juniper and riparian habitats as well as rocky and cliff areas. Cougars are usually found in close proximity to areas occupied by mule deer.

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Two endangered species, peregrine falcon (*Falco peregrinus*) and bald eagle (*Haliaeetus leucocephalus*), are rare migrants and possibly winter visitors to the ISA. Peregrine falcons have been seen along the Escalante River above Harris Wash in the Glen Canyon NRA. Bald eagles commonly winter on Lake Powell at the mouth of the Escalante River and may occasionally move up the river into the ISA.

In addition, seven FWS Category 2 candidate species may occur in the ISA. These include the Great Basin Silverspot butterfly, ferruginous hawk, long-billed curlew, Salt Gulch pocket gopher, southern spotted owl, Swainson's hawk, and the white-faced ibis (see Appendix 4 in Volume I).

At least four other raptors are known to nest in the ISA, including the golden eagle, but only the American kestrel could be considered common. The UDWR list of sensitive species includes two species that occur in the ISA: Lewis woodpecker and western bluebird.

The most important game fish occurring in the ISA are brown and rainbow trout. Death Hollow, Mamie Creek, Sand Creek, Pine Creek, and Calf Creek support trout populations. Rainbow and brown trout are not native to this area but have been introduced at various times by UDWR; however, they do not stock these waters on a regular basis. The ISA contains approximately 25 miles of stream fish habitat.

The Colorado River cutthroat trout was native to this area but has probably been extirpated. The upper falls

area of Calf Creek has been identified by BLM as suitable habitat for this species. During 1978, UDWR stocked the area between the upper and lower falls of Calf Creek with the Strawberry Lake strain of cutthroat trout.

There are no management facilities or proposed treatment areas for wildlife in the ISA.

Forest Resources

No significant forest resources occur in the ISA. Approximately 4,497 acres (Calf Creek recreation area) are closed to wood cutting. About 38,234 acres of the ISA are open to the collection of fuelwood; however, due to the remoteness of the area, lack of access, and sparse vegetation, current use is minimal and is not expected to substantially increase in the future. Some juniper post and fuelwood cutting by local residents occurs in the northeast corner of the ISA (New Home Bench) adjacent to cherry-stemmed roads. The New Home Bench contains the best woodland stands for fuelwood and fence posts in the ISA.

Livestock and Wild Horses/Burros

The ISA encompasses three livestock grazing (cattle) allotments (McGrath Point, Salt Water Creek, and Willow Gulch) and small portions of two others (Escalante River and Big Horn). Table 4 summarizes the livestock use in the ISA.

Table 4
Livestock Grazing Use Data

| Allotments | Total Acres | Acres in ISA | Total AUMs | Number of AUMs in ISA | Number and Kind of Livestock | Season of Use | Number of Operators |
|------------------|----------------|---------------|--------------|-----------------------|------------------------------|---------------|---------------------|
| McGrath Point | 3,340 | 3,440 | 119 | 75 | 24 Cattle | 10/01-02/28 | 1 |
| Salt Water Creek | 10,210 | 10,210 | 119 | 119 | 24 Cattle | 10/16-03/15 | 1 |
| Willow gulch | 10,215 | 9,357 | 651 | 582 | 93 Cattle | 11/01-03/31 | 2 |
| Escalante River | 67,891 | 2,748 | 2,956 | 24 | 364 Cattle | 09/01-03/31 | 1 |
| Big Horn | 18,247 | 3,097 | 2,994 | 84 | 399 Cattle | 09/01-03/31 | 3 |
| Antone Flat | Closed | 13,879 | Closed | | | | |
| Total | 109,903 | 42,731 | 6,839 | 884 | | | 8 |

Sources: BLM File Data.

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A sixth allotment (Antone Flat) has been closed to grazing by livestock since the late 1960s. Table 5 identifies existing and proposed range improvements in the ISA.

Table 5
Existing and Proposed Range Improvements

| Allotment | Existing Range Improvement | Proposed Improvement |
|------------------|----------------------------|----------------------|
| McGrath Point | None | None |
| Salt Water Creek | None | 0.25 mile of fence |
| Willow Gulch | 0.75 mile of fence | 2 miles of fence |
| Escalante River | 0.25 mile of fence | None |
| Big Horn | None | None |
| Antone Flat | None | None |

Source: USDI, BLM, 1980a.

Predator control was not conducted during the 1986 to 1987 period in the grazing allotments that comprise the Phipps-Death Hollow ISA (USDA, APHIS, 1988). There are no wild horses or burros within the ISA.

Visual Resources

The BLM visual resource inventory classified approximately 38,931 acres as Class A and 3,800 acres as Class B scenery (refer to Appendix 7 for a description of the BLM VRM system). The ONA portion of the ISA was designated in recognition of its scenic values, and most of the ISA possesses a visual resource of unquestionable high quality. This landscape contains the extremely rugged, red and white sandstone canyonlands and canyons of the Escalante River and its Death Hollow tributary. The ISA also includes two waterfalls and five natural bridges and arches. The ISA is a VRM Class I management area.

Cultural Resources

A total of 44 sites representing diverse site types have been recorded in the ISA (USDI, BLM, 1988a). The majority of these sites are prehistoric surface lithic scatters of unknown age or cultural affiliation. Some of these may represent campsites. Two of the lithic scatters are attributed to the Anasazi and two are attributed to protohistoric Paiute occupation. Six prehistoric-rockshelter sites have been recorded in the ISA. Most of these contain only a few lithic artifacts, however, one of the alcoves contains a prehistoric masonry structure and another contains a prehistoric burial. Fourteen rock-art sites (petroglyphs and pictographs) have been recorded in the ISA and two of these are attributed to the Fremont culture. A site which may represent a pit-house village has been

recorded in the ISA, but has not been completely recorded or evaluated for National Register eligibility. One historic site of unknown age has been recorded in the ISA. Other areas of historical significance include the Boulder Mail Trail, Boynton Road, Old Boulder Road, Washington Phipps grave, and the route of the Escalante-Boulder telephone line.

Many of the sites in the ISA have not been formally evaluated for eligibility to the National Register of Historic Places; however, three of the lithic scatter and/or rockshelter sites are considered to be significant. The Friendship Cove Pictograph site is included in the National Register of Historic Places. This site consists of a set of large Fremont style pictographs painted on the face of a large sandstone cliff located in the eastern portion of the ISA. The Boulder Mail Trail has been nominated to the National Register of Historic Places and all three remaining segments of it are located in the unit. This historic road was used to carry mail from Escalante, Utah, to Boulder, Utah, in the early 1900s. The route of the Escalante-Boulder telephone essentially parallels the Boulder Mail Trail.

Intensive survey for four inventory projects has been conducted within the boundaries of the unit. Based on inventory for the Southern Utah Coal project (USDI, BLM, 1978a), archaeological site densities on approximately 25,450 acres of the ISA are moderate (11 to 49 sites per 23,000 acres). Site densities on approximately 17,280 acres are not known. Most of the recorded sites are located in the eastern half of the ISA. The remaining projects consist of a seismic line survey and two transmission line surveys. None of these inventories was specifically designed for the ISA; hence, statistics based on them may be unreliable. However, the potential for finding additional sites in the unit is probably good. Based on available data most of these sites would probably be surface lithic scatters; however, Anasazi structural sites and additional rock-art sites may also be found.

Recreation

The Phipps-Death Hollow ISA offers important opportunities for primitive recreation use. Nonprimitive recreation opportunities are limited. The ISA contains the Phipps-Death Hollow ONA and the undeveloped portion of the Calf Creek recreation area, both of which offer opportunities such as hiking, backpacking, camping, sightseeing, and fishing. The ISA received approximately 23,000 visitor days of total recreation use in 1987. The primary recreation use period is from

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March to November. Approximately 19,890 visitor days are associated with primitive recreation use such as hiking, backpacking, photography, etc. The remaining recreation use (3,110 visitor days) is mainly day hikers to Calf Creek Falls.

Phipps-Death Hollow was designated an ONA on December 23, 1970. It contains 34,288 acres and is managed to preserve its scenic values and natural wonders. All but 12 acres of the ONA are located inside the ISA. Phipps-Death Hollow ONA is segregated from sale under Section 2455 of the Revised Statutes (Federal Register, December 23, 1970). Calf Creek was designated as a recreation area on December 23, 1970. The intensive use area contains a developed campground that is not included in the ISA.

The ISA is occasionally used by commercial outfitters as an outdoor classroom. The same outfitters also use the Steep Creek WSA and North Escalante Canyons/The Gulch ISA.

No more than 2 percent of the total visitor use involves vehicles.

ORV use is closed on those 38,773 acres of the ISA that correspond to the ONA and recreation area. ORV use on the remaining 3,958 ISA acres is minimal. A major recreation use of the ISA is sightseeing attributed to approximately 121,000 motor vehicle tourists traveling State Highway 12 between the communities of Boulder and Escalante. This use is particularly heavy on the Hogsback portion of the route where there are overviews of Calf Creek Canyon and much of the ISA.

The Escalante River including 14.9 miles through the ISA is an Inventory River Segment identified for study under Section 5(d) of the Wild and Scenic Rivers Act by the Secretary of Interior on September 11, 1970. The natural values of the Escalante River have been identified through the existing ONA designations. BLM must, as part of its environmental protection process, avoid or mitigate adverse impacts to the river and consult with the NPS before taking any actions which could foreclose wild, scenic, or recreational river status (CEQ, 1980).

Approximately 43 miles of hiking routes are available to recreationists in the major drainages of the ISA. These routes include the Escalante River, Death Hollow, Sand Creek, and Calf Creek. Trailheads for these hiking routes are located at the State Highway 12 crossing of the Escalante River, Calf Creek Camp-

ground, the Town of Escalante, and on the Dixie National Forest at the head of Death Hollow. Other hiking opportunities are available throughout the ISA. Although several drainages (including Death Hollow, Mamie Creek, Sand Creek, Pine Creek, and Calf Creek) offer sport-fishing opportunities for brown and rainbow trout, none of these streams receive substantial fishing pressure.

Land Use Plans

The ISA is within the BLM Escalante planning unit and is being managed according to the land use decisions of the Escalante MFP (USDI, BLM, 1981d). Principle uses are recreation and grazing. Wilderness is not addressed in the Escalante MFP. However, wilderness designation is part of the BLM multiple-use concept. BLM land use planning is linked to the Statewide Wilderness EIS through analysis of the present plan as the No Action/No Wilderness Alternative.

The ISA is BLM-administered public land except for four State sections (2,559 acres). The current policy of the State is to maximize economic returns from State lands and to reserve its position regarding the exchange of in-held lands (see Chapter 1 in Volume I). In 1986, the Utah State Legislature passed S.C.R. No. 1 opposing any additional wilderness designation in Utah and urging that State lands not be exchanged out of wilderness areas. Of the 2,559 acres of in-held State land, 641 acres are under lease for grazing and 640 acres are under lease for oil, gas, and hydrocarbons.

On September 11, 1970 the Secretary of the Interior identified the Escalante River from Lake Powell to its source as a candidate Wild and Scenic River under Section 5(d) of the Wild and Scenic River Act. The Escalante River possesses one or more values that may be of national significance. The ISA contains 14.9 miles of the Escalante River.

The Garfield County Master Plan covers portions of this ISA. The master plan recognizes that the county possesses ". . . Some of the most spectacular scenery in the United States . . . The County is sparsely populated and most of it is in its original pristine condition (Five County Association of Governments, 1984)." Garfield County proposed that 111,053 acres of BLM lands in three WSAs/ISAs and 31,600 acres in one FS unit be recommended for wilderness. Included in the acres for wilderness designation are 39,256 acres in the Phipps-Death Hollow ISA. The county plan recommends that the remaining lands

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within the county be retained for multiple uses. The plan's concept of multiple use includes forestry, live-stock grazing, mining, wildlife, and recreation. The County's position is that the southern boundary should be adjusted to conform to the boundary of the ONA. The northeast portion of the ISA (New Home Bench) should also be deleted from further study to alleviate potential management problems adjacent to the Boulder Airfield and to allow for capital facilities expansion.

In spite of the County Master Plan, Garfield County Commission has endorsed the Consolidated Local Government Response to Wilderness (Utah Counties, 1986) that opposes wilderness designation of BLM lands in Utah.

The Phipps-Death Hollow ISA is contiguous to the Box-Death Hollow wilderness area administered by the FS.

Socioeconomics

• Demographics

The Phipps-Death Hollow ISA is located in Garfield County, Utah.

From 1970 to 1980, the population of Garfield County grew from 3,157 to 3,700, an overall increase of about 17 percent. Table 6 presents the baseline and projected population data for Garfield County. It is estimated that between 1980 and 1987 population increased to about 4,085. Population projections indicate that the number of people living in Garfield County in the year 2010 will be about 4,850 for about a 19-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

Table 6
Baseline and Projected Population and Employment Growth
Garfield County

| | 1980 | 1990 | 2000 | 2010 |
|------------|-------|-------|-------|-------|
| Population | 3,700 | 4,250 | 4,350 | 4,850 |
| Employment | 2,156 | 2,000 | 2,200 | 3,200 |

Source: Utah Office of Planning and Budget, 1987.

The community of Escalante lies along a major access route to the Phipps-Death Hollow ISA, State Highway 12. Escalante is one of the larger communities in the area having a 1980 population of 652 persons (USDC, Bureau of the Census, 1981). Escalante is a gateway and service area for visitors to this ISA.

• Employment

Table 6 shows the baseline and projected total employment for Garfield County to the year 2010.

Garfield County is part of the Southwest MCD. Table 7 shows the baseline (1980) and projected employment by source for the MCD to the year 2010. In 1980 the leading employment sectors for the Southwest MCD were government and trade. Mining provided approximately 2 percent of the direct employment in the MCD.

It is projected that by the year 2010, employment in the MCD will more than double. Services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 3 percent, government to 18 percent, and mining to less than 1 percent of the total MCD employment.

Table 7
Southwest Multi-County District
Employment ^a

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|--------------|--------------|--------------|--------------|
| Agriculture | 1,810 | 1,700 | 1,600 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,600 | 3,300 |
| Transportation, Utilities | 1,006 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 6,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 6,900 | 8,900 |
| Government | 4,616 | 5,800 | 6,500 | 8,100 |
| Nonfarm Proprietors | <u>2,386</u> | <u>3,100</u> | <u>3,500</u> | <u>4,700</u> |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

^aIncludes Beaver, Garfield, Iron, Kane, and Washington Counties.

• Sales and Revenues

Economic-related activities in the ISA include mineral exploration, mineral leasing, livestock production, and recreation. Table 8 summarizes the local sales and Federal revenues from the ISA. Appendix 9 identifies the multipliers used to estimate sales and revenues.

No oil and gas or mineral production has occurred in the ISA. Therefore, mineral and energy resource production from the ISA has not contributed to local employment or income.

Eight livestock operators have a total grazing privilege of 884 AUMs within the ISA. If all this forage

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were utilized, it would account for \$17,680 of livestock sales and \$4,420 of ranchers' returns to labor and investment.

Table 8
Sales and Revenues

| Source | Estimated Annual Local Sales ^a | Estimated Annual Federal Revenues |
|--------------------|---|-----------------------------------|
| Oil and Gas Leases | 0 | \$6,450 |
| Livestock Grazing | \$17,680 | \$1,361 |
| Recreational Use | <u>\$94,300</u> | <u>\$ 450^b</u> |
| Total | \$111,980 | \$8,261 |

Sources: BLM File Data; Appendix 9 in Volume I.

^aLocal sales represent money potentially spent. They do not account for the total income that would be generated by these expenditures.

^bPart of a total of \$1,350 in revenue received from commercial organizations also using the North Escalante Canyons/The Gulch ISA and Steep Creek ISA.

The actual amount of income generated locally from recreational use in the ISA is unknown. However, an approximate range of expenditures can be deduced (Dalton, 1982). This study indicates that the State-wide average expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for Phipps-Death Hollow ISA is estimated to be about 23,000 visitor days per year.

The ISA generates Federal revenues from mineral leases, livestock, and recreation sources (refer to Table 8).

Five leases in the ISA cover approximately 3,225 acres. At \$2 per acre, lease rental fees generate up to \$6,450 of Federal revenues annually. Half of these monies are allocated to the State, which then reallocates these revenues to various funds, the majority of which are related to energy development and mitigation of local impacts of energy and mineral development.

Average actual livestock use and, therefore, revenues generated from grazing in the ISA are unknown; however, the permittees in the ISA can use up to 884 AUMs per year. Based on a \$1.54 per AUM grazing fee, the ISA can potentially generate \$1,361 of grazing fee revenues annually, 50 percent of which would be allocated back to the local BLM District for the construction of rangeland improvements.

Recreation use permits are issued to commercial organizations who use Phipps-Death Hollow ISA plus the

North Escalante Canyons/The Gulch ISA and Steep Creek WSA. Approximately \$1,350 in revenue is collected for all three areas. It is assumed that each area accounts for \$450 in annual Federal revenue.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

Analysis assumptions and guidelines for all alternatives are described in the Introduction to Volume III-B. The following analysis is based on implementation of the Action Scenarios presented in the Description of the Alternatives.

No Action/No Wilderness Alternative

• Impacts on Wilderness Values

Because the ISA would not be designated wilderness with this alternative, the identified wilderness values would not receive the degree of protection afforded by application of the BLM Wilderness Management Policy (BLM Manual 8560). Wilderness values in the ISA would be somewhat protected by limitations placed on potential surface-disturbing activities (i.e., VRM Class I management on all 42,731 acres, management under oil and gas leasing Category 4 [closed to leasing] on 32,331 acres and oil and gas leasing Category 3 [no surface occupancy] on 7,700 acres, and ORV closure on 38,800 acres).

In the foreseeable future, disturbance of approximately 322 acres from exploration or development of oil, gas, and carbon dioxide resources and rangeland projects, mainly in the western half of the ISA, would result in a direct loss of naturalness and opportunities for solitude and primitive, unconfined recreation in the disturbed areas. Most special features including historical and archaeological values, special status species, and perennial streams would not be affected because the disturbance would involve only 0.75 percent (322 acres) of the ISA and would generally not be located where the special features are located. In addition, appropriate measures would be taken to protect special status species and cultural values prior to any surface-disturbing activity. Class A scenery would be reduced in quality in the disturbed areas.

During the period of activity, the visual and audible disturbance from mineral exploration and development and access development would reduce the quality of opportunities for solitude and primitive recreation not only on directly disturbed areas but also indi-

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rectly on adjacent portions of the ISA. As much as 15 percent (6,410 acres) of the ISA could be so affected in the foreseeable future.

Because future vehicular use would generally be limited by terrain to 10 miles of existing vehicular ways and to new roads for mineral exploration and development, no additional disturbance from ORV activity is anticipated in the future. The continued and increased use of existing ways and new roads would occasionally detract from opportunities for solitude and primitive recreation.

The gradual increase in visitor use that would occur would not be expected to significantly reduce wilderness values because the additional use would be largely primitive in nature.

This alternative would not enhance or complement wilderness values, uses, and management of the contiguous FS wilderness area.

Conclusion: Naturalness and opportunities for solitude and primitive recreation would be directly lost on 322 acres and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to an additional 6,410 acres. Most special features would not be significantly affected. Class A scenery would be reduced in quality in the disturbed areas and the Escalante River would not receive additional protection.

• Impacts on Water Resources

Since water quality of existing streams is greatly influenced by flash floods in the ISA, no significant sedimentation or change in TDS, including salt production, is expected to occur from the 322 acres of surface disturbance. Required mitigation and existing restrictions on development imposed by public water reserves (130 acres), closure to mineral leasing (32,331 acres), closure to surface occupancy (7,700 acres), and closure to ORVs (38,800 acres) would prevent significant impacts on water quality. Present use of water in and upstream of the ISA would not be affected.

Conclusion: Water quality and uses would not significantly change as a result of implementation of the No Action/No Wilderness Alternative.

• Impacts on Mineral and Energy Exploration and Production

The ISA would remain open to exploration and development of mineral and energy resources without consideration of wilderness values. Therefore, mineral and energy resources would not be affected by the No Action/No Wilderness Alternative.

Conclusion: Implementation of the No Action/No Wilderness Alternative would not adversely affect mineral exploration or production.

• Impacts on Visual Resources

With this alternative, visual quality in the ISA would be protected by limitations placed on potential surface-disturbing activities (i.e., 38,800 acres would remain closed to ORV use, 32,331 acres would be closed to oil and gas leasing, and the entire area would be managed under VRM Class I objectives requiring that activities not be apparent).

However, with this alternative, 310 acres of mineral-related exploration and development are possible. Even though mitigative measures would be applied to minimize visual contrast created by intrusions, visual quality would be degraded in localized areas during the period of activity. VRM objectives would probably not be met. Even after rehabilitation, some permanent localized degradation would be expected. If roads, vehicular ways, and drill pads are located throughout the western half of the area, visual quality could be significantly reduced in that portion (approximately 15 percent or 6,410 acres) of the ISA.

Development is not expected in the eastern portion of the ISA because the area is either closed to further leasing or is outside the KGS which is favorable for carbon dioxide development.

Conclusion: Visual quality could be reduced in quality on up to 15 percent (6,410 acres) of the ISA.

• Impacts on Recreation

Up to 310 acres could be disturbed by mineral and energy activities. Primitive recreational opportunities could be diminished on the affected areas and on adjacent areas involving up to 15 percent (6,410 acres) of the ISA.

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The future trends in recreational use of the ISA are unknown. However, based on a review of several projections (UDNRE, ORA, 1980; UDNRE, DPR, 1985; Cordell and Hendee, 1982; Utah Office of Planning and Budget, 1984; Jungst, 1978; and Hof and Kaiser, 1981) it is estimated that outdoor recreation in Utah will increase at about 2 to 7 percent per year over the next 30 years. At this rate overall recreational use is expected to increase from 23,000 current visitor days per year to between 43,340 and 200,450 visitor days by the year 2020. However, visitor use may have to be controlled to protect recreation and other resource values and projected levels may not be obtained. Ninety-eight percent of the use would continue to be primitive in nature. Vehicular use on 10 miles of ways could continue.

The Escalante River, which is a Nationwide Wild and Scenic River Inventory Segment, would not receive additional protection from wilderness designation.

Conclusion: Wilderness values would not be protected by wilderness designation and loss would occur as intrusions increase. In the foreseeable future, the quality of primitive recreation would be reduced on up to 15 percent of the ISA. Recreational use would increase but use of vehicles would continue to be precluded on 38,800 acres. About 14.9 miles of a Wild and Scenic River Inventory Segment would not receive additional protection from wilderness designation.

• Impacts on Boulder Airfield

Expansion and use of the Boulder Air/Field would not be affected by implementation of the No Action/No Wilderness Alternative.

Conclusion: The Boulder Airfield would not be affected.

• Impacts on Local Economic Conditions

There would not be a loss of local employment or income as a result of this alternative. The existing ability to explore and develop mineral resources would remain as at present. If the carbon dioxide in the ISA were developed, it could lead to a significant increase in employment and income for Garfield County.

During exploration, 10 temporary jobs would be added which would be insignificant when compared to the county work force as a whole. However, development could lead to an increase of up to 200 jobs for a 3-

year period. This would amount to a 10-percent increase from the current employment levels. Maintenance and operation of the carbon dioxide field would result in about 10 permanent positions over the long term. Construction activity would result in both beneficial and adverse impacts on local economic conditions. Increases in local employment and income would be beneficial to individuals but there would be heavy demands on the local infrastructure including schools, law enforcement, housing, etc.

There would be no livestock-related economic losses because the existing grazing use (884 AUMs) and ability to maintain, replace, and build new range improvements would remain as at present.

As discussed in the Recreation section, recreational use and, therefore, recreation-related local expenditures, would increase at a rate of 2 to 7 percent per year over the next 30 years. Because recreational use in the area is estimated to increase from 23,000 to between 43,340 and 200,450 visitor days per year over the next 30 years, and because overall recreation-related expenditures average \$4.10 per visitor day, recreation-related expenditures attributable to the ISA would be significant to the local economy.

Surface-disturbance activities that would be allowed without designation could reduce the demand for commercial outfitter services now offered in the area. Decreased demand would be significant to the commercial outfitters who use the ISA but would be insignificant in terms of the local economy and other individual businesses.

Conclusion: Mineral activity would create both beneficial and adverse impacts on local communities. Local employment would increase by about 10 percent over a 3-year period. Long term employment in Garfield County would increase less than 1 percent. Recreation-related expenditures could contribute up to \$822,000 annually to the local economy.

All Wilderness Alternative (42,731 Acres)

• Impacts on Wilderness Values

Designation and management of all 42,731 acres as wilderness would preserve overall the wilderness values in the Phipps-Death Hollow ISA. The potential for surface-disturbing activities would be reduced through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I which allows for

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only natural ecological change. Naturalness would be protected on all 42,731 acres. Solitude would be protected on approximately 36,000 acres that meet and 6,731 acres that do not meet the standards for outstanding opportunities. Primitive and unconfined recreation would be protected on approximately 36,800 acres that meet and 5,931 acres that do not meet the standards for outstanding opportunities. Resources that could be considered as special features in the WSA, including Class A scenery, historical and archaeological values, special status species, and perennial streams, including the Escalante River, would also be given additional protection.

Although protected, complete preservation of wilderness values would not be assured because of valid existing rights. In the foreseeable future, disturbance of up to 32 acres is anticipated from exploration and development of pre-FLPMA leases, rangeland projects, and from providing access to State sections for mineral exploration and development. Wilderness values of naturalness and opportunities for solitude and primitive recreation would be directly lost or reduced in quality on the disturbed areas. Opportunities for solitude and primitive recreation would also be indirectly reduced in quality on adjacent portions of the ISA. As much as 5 percent (2,137 acres) of the ISA could be so affected. Special features, including Class A scenery, historical and archaeological values, special status species, and perennial streams, would not be significantly affected because the disturbance would be minor involving only 0.07 percent (32 acres) of the ISA and the would not generally be located where the special features are located. In addition, appropriate measures would be taken to protect special status species and cultural values prior to any surface-disturbing activity. Some Class A scenery would be reduced in quality in disturbed areas.

Mitigation to protect wilderness values would be applied, but loss of wilderness values would be allowed if development involving valid existing rights could not be otherwise achieved. Rangeland projects on the other hand would be designed to meet wilderness management criteria. All in all the disturbance would not be substantially noticeable in the area as a whole.

Vehicular use of 10 miles of existing ways would generally cease with ORV closure, improving opportunities for solitude and primitive recreation.

Over the long term, there would be no potential for loss of wilderness values due to development of new leases and mining claims.

The gradual increase in visitor use that would occur would be primitive in nature and would be managed so as to not result in loss of wilderness values.

Designation of this ISA as wilderness would benefit the values and uses of the contiguous National Forest wilderness area. These two areas share a common watershed, canyon system, extended recreation travel trails (hiking and horseback riding), and archaeological values.

Conclusion: Wilderness designation would preserve overall the wilderness values throughout the ISA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 32 acres and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to 2,137 acres. Special features would be preserved.

• Impacts on Water Resources

Since precipitation is low and the amount of projected disturbance is low (32 acres), no significant sedimentation or change in TDS, including salt production, is expected to occur.

Approximately 40 miles of perennial streams, including about 15 miles of the Escalante River, flow through the ISA. All surface water is fully appropriated. However, projects that would consumptively use water upstream of the ISA would be hampered or precluded because changes in use, changes in points of diversion, or transfers of water rights could be protested by the Federal government to maintain flow through the ISA. Potential upstream water uses include steam power generation, mining, domestic, and irrigation purposes.

Conclusion: In the short term, wilderness designation would not significantly alter water quality or uses. In the long term, future water diversion and new consumptive uses in the Escalante River system upstream of the ISA may be restricted or precluded.

• Impacts on Mineral and Energy Exploration and Development

• Leasable Minerals

Approximately 3,225 acres are under pre-FLPMA oil and gas leases. No exploration or development of oil and gas is presently occurring within the ISA.

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However, these pre-FLPMA leases could be developed subject to the stipulations issued at the time of leasing. Some of the leases would be explored and developed in conjunction with leases which extend into the adjoining FS lands to the north of the ISA. Development would be on a much smaller scale than that described in the No Action/No Wilderness Alternative with 20 acres disturbed. This recovery would occur from additional reasonable stipulations to protect wilderness values while allowing development of the leases.

No new leases would be issued in the ISA and that portion of the potential resource of up to 50 million barrels of oil in-place and less than 300 billion cubic-feet of natural gas and an unknown amount of carbon dioxide could be foregone under this alternative. However, due to the small size of the potential oil and natural gas deposits, the low certainty that these exist, and the low likelihood of exploration and development activities, it is concluded that this alternative would not result in any significant loss of potential oil and natural gas recovery. The amount of recoverable carbon dioxide that would be foregone is unknown.

FS lands are being explored for carbon dioxide near the adjacent Box-Death Hollow wilderness area. It is estimated from current exploration work that approximately 4 trillion cubic-feet of carbon dioxide exist in the area. How much, if any, is found within the ISA is unknown.

- Locatable Minerals

There are presently no mining claims in the ISA; however, claims can be located up to the time of designation. Up to 500 metric-tons of recoverable uranium oxide could occur within the ISA. Development work, extraction, and patenting would be allowed to continue on valid claims after wilderness designation under unnecessary or undue degradation guidelines. If the potentially recoverable minerals are not within valid mining claims filed before designation, the potential for recovery of the uranium oxide would be foregone.

However, because the potential for such deposits in the ISA is very low and because economic considerations (e.g., transportation, low potential, etc.) are unfavorable, it is unlikely that exploration or development will occur. Therefore, this alternative would not result in any significant loss of recoverable uranium resources.

Conclusion: Potential exploration and development of carbon dioxide resources would be limited, with more restrictive conditions being placed on the methods and manner in which the existing leases are explored and developed. No significant locatable mineral production would be foregone.

- Impacts on Visual Resources

Wilderness designation would contribute to the preservation of the area's visual resources. With this alternative, the potential for surface-disturbing activities that could impair visual quality would be less because the entire area would be closed to ORV use, and the ISA would continue to be managed according to VRM Class I guidelines.

With this alternative, the possible mineral-related surface disturbance would be reduced from 310 acres to 20 acres, associated with development of existing oil and gas leases. Although mitigating measures would be applied to reduce visual contrast created by mineral-related surface disturbance, visual quality would be degraded and VRM Class I management objectives would not be met on disturbed areas. Even after rehabilitation, some permanent localized degradation could be expected. In addition, 10 acres would be disturbed for the development of access to State lands and livestock fence construction. It is estimated that visual quality would be reduced on up to 5 percent (2,137 acres) of the ISA. This percentage would include the general view area.

Conclusion: Visual resources would be protected on the majority of the ISA. However, visual quality could be reduced in quality on up to 5 percent (2,137 acres) of the ISA.

- Impacts on Recreation

As discussed for the No Action/No Wilderness Alternative, recreational use of the ISA is estimated to increase about 2 to 7 percent per year over the next 30 years in relation to population increases and current trends of recreational use. Publicity and use of the adjacent Box-Death Hollow wilderness area will lead to an undetermined increase in primitive recreational use above the baseline rate even if it is not designated. With designation, management provided through a wilderness management plan would control destructive increases in future recreation use, and the quality of the primitive recreation experience probably would not be negatively affected by the increased use. The few visitor days of vehicular use in

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the ISA that could occur without designation would be eliminated from the ISA. Because there are more suitable ORV play areas in the vicinity of the ISA, ORV use would not experience an overall decline in the vicinity of the ISA. However, approximately 10 miles of way would be closed to ORV use. The recreational use associated with sightseeing from the adjacent highway and campground would be enhanced by this alternative. Designation would enhance the marketability of the resources, and commercial organizations using the ISA would benefit. As recreation use increases, other commercial operations based on primitive recreational activities could apply for use of the ISA.

Leasable mineral-related surface disturbance on up to 20 acres and associated activities could cause some impairment of primitive recreational values. Disturbance from access roads, drill pads, and pipelines would be smaller than with the No Action/No Wilderness Alternative, but the quality of primitive recreational opportunities would be reduced. Because the potential for locatable mineral exploration and production is low and wilderness designation would reduce the potential for such surface disturbance, locatable mineral exploration and development would not reduce the quality of the primitive recreational experience throughout the ISA.

Wilderness designation would provide additional protection for 14.9 miles of the Escalante River.

Conclusion: Recreation would benefit by reducing the likelihood of and the extent of surface-disturbing activities and increasing management attention and recognition of recreational values. Wilderness designation would provide additional protection for 14.9 miles of the Escalante River, a river segment in the National Wild and Scenic River Inventory.

• Impacts on the Boulder Airfield

Expansion of physical facilities and use of the Boulder Airfield could be precluded or reduced with wilderness designation.

Conclusion: The use of the Boulder Airfield, including future expansion, could be foregone.

• Impacts on Local Economic Conditions

Wilderness designation could result in a temporary (2 to 3 year) change in economic conditions from those described in the No Action/No Wilderness Alterna-

tive. Employment increases during the construction phase of the carbon dioxide project would be 25 jobs rather than 200 jobs as reported in the No Action/No Wilderness Alternative. The 25 new jobs would represent a 1.25-percent increase over current employment estimates.

Because of restrictions placed on the use of resources under wilderness designation, there could be slight losses in local income and Federal revenues currently provided by resource uses in the ISA (refer to Table 7), as well as loss of potential increases in income and Federal revenues that could occur under the No Action/No Wilderness Alternative.

With the exception of carbon dioxide, the potential for mineral development in the ISA is low (refer to the Mineral and Energy Resources section for a discussion of the ISA's mineral character). Valid mining claims could be developed but designation would preclude new mineral leases and claims from being established in the ISA. Precluding exploration and development of locatable minerals would not alter existing or future economic conditions from what they would be with mineral development under the No Action/No Wilderness Alternative. Because the potential for locatable mineral development is low, it is estimated that potential mineral-related local income would not be significantly reduced by wilderness designation.

Livestock use and ranchers' income would continue as at present with \$17,680 of livestock sales and \$4,420 of ranchers' return to labor and investment. Proposed improvements for livestock would be foregone along with any resulting increase in ranchers' income. No such potential range improvements have been proposed.

Increased public awareness of the area resulting from designation could increase nonmotorized recreational use (refer to the Recreation section). Related local expenditures would be similar to the No Action/No Wilderness Alternative.

Motorized recreational use within the ISA is light. The decrease in related local expenditures would be small and insignificant to both the local economy and individual businesses.

Conclusion: There would be a temporary (2 to 3 year) increase of 25 jobs due to limited development of the carbon dioxide resource. However, this would be 175 jobs less than the increase which could occur from implementation of the No Action/No Wilderness

PHIPPS-DEATH HOLLOW ISA

Alternative. Increased recreational use could provide up to \$822,000 to the local economy. Other local economic conditions would not be affected.

Partial Wilderness Alternative (Proposed Action) (39,256 Acres)

• Impacts on Wilderness Values

Wilderness designation of 39,256 acres would preserve overall the area's wilderness values. Impacts would be about the same as identified for the All Wilderness Alternative. Wilderness values would be protected over the long term in the designated area. Protection would include management under VRM Class I which generally allows for only natural ecological change, ORV closure including closure of 9 miles of ways, and closure to future mineral leasing and location. Naturalness, outstanding opportunities for solitude (including 36,000 acres that meet and 3,256 acres that do not meet the standards for outstanding), and primitive recreation (including 36,800 acres that meet and 2,456 acres that do not meet the standards for outstanding), special features (including Class A scenery, historical and archaeological values, special status species), and perennial streams (including the Escalante River) would be protected.

In the foreseeable future, direct loss of naturalness and opportunities for solitude and primitive recreation due to allowable surface disturbance from mineral exploration and development and from rangeland projects would occur on up to 30 acres within the designated portion and on up to 2 acres within the nondesignated portion. Special features would be largely preserved because disturbance would involve only 0.07 percent of the WSA, and except for areas of Class A scenery, development is not expected in areas where special features are located. In addition, appropriate measures would be taken to protect special status species and cultural values prior to any surface-disturbing activity.

Sights and sounds from foreseeable development would indirectly reduce opportunities for solitude and primitive recreation on areas adjacent to the disturbed areas, including up to 5 percent (2,137 acres) of the ISA.

Elimination of ORV use in the designated area would improve opportunities for solitude and primitive recreation overall in the ISA although vehicular use of 1 mile of way in the nondesignated area would continue

to occasionally detract from these opportunities during the period of activity.

The gradual increase in visitor use that would occur would be largely primitive in nature and most use would be managed so as not to result in a loss of wilderness values.

This alternative would enhance and complement wilderness values, uses, and management of the contiguous FS wilderness area.

Conclusion: Wilderness values would be preserved overall in the designated area which is approximately 92 percent (39,256 acres) of the ISA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 32 acres and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to 2,137 acres. Special features would be preserved overall, although Class A scenery would be reduced in quality in disturbed areas. The Escalante River would receive additional protection.

• Impacts on Water Resources

The impacts on water resources and conclusions would be the same as with the All Wilderness Alternative because perennial streams would flow through the designated area.

Conclusion: In the short term, wilderness designation would not significantly alter water quality or uses. In the long term, future water diversion and new consumptive uses in the Escalante River system upstream of the ISA may be restricted or precluded.

• Impacts on Mineral and Energy Exploration and Production

• Leasable Minerals

The area that would be designated wilderness would be placed in Category 4 status with no new leasing. There are approximately 3,225 acres of pre-FLPMA oil and gas leases in the area that would be designated wilderness. Activities on these leases would occur subject to the stipulations issued at the time of leasing.

It cannot be determined how much of the existing potential resource of 50 million barrels of in-place oil and less than 300 billion cubic-feet of natural gas or the carbon dioxide resource is

PHIPPS-DEATH HOLLOW ISA

within the area that would be designated as wilderness under this alternative. It is not known how much carbon dioxide is within the ISA. Current estimates range up to 4 trillion cubic-feet in the Escalante field.

However, it is concluded that, due to the small size of the potential oil and gas deposits, the low certainty that they exist, and the low likelihood for exploration and development activities, this alternative is not expected to result in any significant loss in recovery of the oil and natural gas resource.

Development of the carbon dioxide resource from existing oil and gas leases would be at the same level as with the All Wilderness Alternative. Development would cause 20 acres of surface disturbance and the peak construction work force would be 25 employees.

- Locatable Minerals

There are presently no mining claims within the ISA. If claims are located before wilderness designation, development work, extraction, and patenting could occur on valid claims after wilderness designation under unnecessary or undue degradation guidelines. After designation, all other lands (including claims not determined valid) would be closed to prospecting and development (USDI, BLM, 1981a).

Because the potential for existence of uranium deposits is very low within the ISA and because economic considerations (e.g., transportation, low potential, etc.) are unfavorable, it is unlikely that exploration or development will occur. Therefore, this alternative would not prevent recovery of significant amounts of uranium resources.

Conclusion: Potential exploration and development of carbon dioxide resources would be limited, with more restrictive conditions being placed on the methods and manner in which the existing leases are explored and developed. No significant locatable mineral resource would be foregone.

- Impacts on Visual Resources

Because total surface disturbance in the ISA would be about the same as with the All Wilderness Alternative, the impacts and conclusions would be the same.

Conclusion: Visual resources would be protected on the majority of the ISA. However, visual quality could be reduced in quality on up to 5 percent (2,137 acres) of the ISA.

- Impacts on Recreation

Impacts on recreational values and opportunities for the 39,256-acre area that would be designated as wilderness would be about the same as described in the All Wilderness Alternative. Little impact on ORV recreational use would be expected due to the lack of such activity in the area; however, approximately 9 miles of ways within the ISA would be closed to ORV use.

In the area that would not be designated (3,475 acres), little change in recreational use is expected.

Conclusion: Primitive recreational opportunities would benefit by reducing the likelihood of and the extent of surface-disturbing activities and increasing management attention and recognition of recreational values. The partial wilderness designation would provide additional protection to 14.9 miles of the Escalante River, a segment of the National Wild and Scenic River Inventory.

- Impacts on the Boulder Airfield

Implementation of the Partial Wilderness Alternative would not affect the potential expansion and use of the Boulder Airfield.

Conclusion: The Boulder Airfield would not be affected.

- Impacts on Local Economic Conditions

Partial designation of this ISA is not expected to have impacts similar to those described in the All Wilderness Alternative. Development of the carbon dioxide resource would result in a 2 to 3 year increase of 25 jobs in Garfield County. However, this would be 175 jobs less than the employment levels described in the No Action/No Wilderness Alternative. The 884 AUMs would remain available to cattle in the six allotments and would generate \$1,361 in grazing fees, \$17,680 in livestock sales, and \$1,238 in ranchers' returns to income.

Conclusion: There would be a temporary (2 to 3 year) increase of 25 jobs due to development of the carbon dioxide resource. This would be 175 jobs less than

PHIPPS-DEATH HOLLOW ISA

the increase which could occur from implementation of the No Action/No Wilderness Alternative. Other local economic conditions would not be significantly affected. Increases in recreational use could provide up to \$822,000 to the local economy.



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STEEP CREEK WSA

(UT-040-061)

INTRODUCTION

General Description of the Area

The Steep Creek WSA is located in Garfield County approximately 3 miles east of the Town of Boulder, Utah. The WSA borders the Dixie National Forest on the north and the Burr Trail Road on the south. The WSA contains 21,896 acres of full-estate Federal land and encloses 1,907.2 acres of State land and 160 acres of split-estate land (Federal surface, State minerals). The southern boundary of the WSA is separated from the North Escalante Canyon/The Gulch ISA by the Boulder to Bullfrog Road (Burr Trail). It is administered by the BLM Cedar City District, Escalante Resource Area Office.

The WSA is characterized by a series of long, deep canyons separated by benches. There are numerous winding canyon drainages with riparian vegetation and steep cliffs which isolate benchlands between canyons. The major vegetation type is pinyon-juniper woodland.

In general, the climate is temperate and arid with annual precipitation averaging about 10 inches. From June through early September convection-type thunderstorms advance from the Pacific Ocean off the coast of Mexico and southern California. Frontal-type storms out of the northwest move over the area from October through June. The highest precipitation rates occur primarily from November through March.

Summer temperatures in Escalante, Utah, range approximately 30 degrees Fahrenheit (F) with highs in the mid-90s and lows in the mid-60s. Winters in Escalante have a temperature range of about 27 degrees F, with highs in the low 40s and lows about 15 degrees F. Snowfall in Escalante averages 28 inches and begins in October or November and ends in March or April.

Changes for the Final EIS

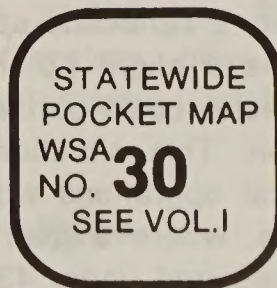
In addition to the changes noted in the Introduction to Volume III-B, the following changes specific to the WSA have been made since publication of the Draft EIS.

1. The Draft EIS identified an 18,350-acre Partial Wilderness Alternative. The objective of this alternative, which was BLM's proposed action, was to analyze as wilderness that portion of the WSA with the most outstanding wilderness characteristics and to minimize conflicts with areas of greatest mineral potential and future transportation and utility needs along the Burr Trail Road.

As a result of public comment and a reassessment of mineral values, a second alternative has been added for the Final EIS. This alternative includes 20,806 acres, 2,456 acres more than the original alternative. The added acres include the Deer Creek area near the southern boundary of the WSA and the northeastern corner of the WSA. This new alternative is BLM's new proposed action.

2. The anticipated surface disturbance presented in the Draft EIS (250 acres) was based on the assumption that all mineral and other resources potentially within the WSA would be developed sometime in the future without consideration of technical or economic feasibility. In response to public comments relative to the feasibility of developments, the disturbance estimates have been revised to focus on activities projected to be feasible within the foreseeable future (see Appendix 6 in Volume I). This resulted in a reduction of surface disturbance estimates from the 250 acres reported in the Draft EIS to 32 acres of surface disturbance for the Final EIS.

3. Of the 250 acres of anticipated surface disturbance projected in the Draft EIS 50 acres were due to realignment and paving of the Burr Trail. This protection has been revised to 25 acres for the Final EIS. The reduction is based on more specific feasibility and engineering studies.



STEEP CREEK WSA

Specific Issues Identified Through Scoping and Public Comment

• Issues Considered But Not Analyzed in Detail

In addition to the issues discussed and eliminated from further consideration in the Introduction to Volume III-B, (i.e. impacts on air quality, water rights, geology and topography, and land use plans and policies), the following issues or impacts specific to the Steep Creek WSA were considered but are not analyzed in detail in the Final EIS for the reasons described below.

1. Soils: The public is concerned that without wilderness designation, mineral development, land treatment, or ORV use would occur on soils that are not easily reclaimed, leading to unacceptable increases in soil erosion. Within the foreseeable future, the anticipated surface disturbance from mineral exploration in the Steep Creek WSA without wilderness designation would be 32 acres and mitigation would be required. Approximately 25 of the 32 acres would be disturbed due to realignment of the Burr Trail. This disturbance would be temporary and would likely occur with each alternative. This is also the situation with 1 acre of disturbance anticipated due to development of access to a State section. Terrain and surface features generally restrict vehicles to existing ways and cherry-stemmed roads. Therefore, impacts on soil erosion are not significant issues for the Steep Creek WSA.

2. Vegetation Including Special Status Species: As discussed above for soils, estimates of total surface disturbance without wilderness designation have been revised downward from the 250 acres reported in the Draft EIS to 32 acres for the Final EIS. Given this new scenario, the impacts of direct disturbance of vegetation would be reduced and would not be significant with any of the alternatives (about 0.15 percent of the WSA).

No threatened or endangered plant species are known to occur within the WSA. However, one Category 1 and seven Category 2 candidate species may occur in the WSA. There is a slight potential that individual plants of these species could be disturbed by locatable mineral exploration. This situation would only exist where such mineral operations would occur on sites of 5 acres or less, where a plan of operations and approval are not required under 43 CFR 3809 regulations. The Endangered Species Act and subsequent regulations apply to these operations and any loss would be inadvertent. It is not anticipated that

mineral-related actions in the WSA would threaten the continued existence of any of the special status plant species. Before authorizing any surface-disturbing activities, including the realignment of the Burr Trail and access to State land, BLM would require site-specific clearances of the potentially disturbed areas. If any threatened or endangered species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (see Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Because necessary measures would be taken to protect these species, the viability of populations of special status plant species would be preserved with any alternative. Therefore, impacts on vegetation are not analyzed in detail for the Final EIS.

3. Forest Resources: The only forest resources in the WSA are 19,147 acres of pinyon pine and juniper trees. Demand is low and there is limited access. For these reasons impacts on forest resources are not significant issues for analysis in the Final EIS.

4. Livestock Management: The public is concerned that wilderness designation would interfere with livestock management by placing restrictions on access for maintenance of existing range improvements, moving of livestock, by preventing future range improvements, and by placing restrictions on predator control. However, under the BLM Wilderness Management Policy (BLM Manual 8560) there shall be no curtailments in grazing simply because an area is wilderness. Grazing reductions have already been imposed as a result of a grazing EIS.

There are no proposed rangeland developments which would be precluded by wilderness designation. About 2.5 miles of way would be closed should the area be designated as wilderness. However, since motorized vehicles are used very little in livestock management, little effect on the management of livestock grazing is expected. Although spring loaded cyanide guns (M-44s) would be prohibited, several methods of predator control would be allowed in designated wilderness. No predator control has been done in the WSA for several years. For these reasons, the impacts on livestock management are not significant issues for the Steep Creek WSA.

5. Visual Resources: As discussed above for soils and vegetation, the estimates of surface disturbance have been reduced for the Final EIS. Therefore, the impacts

STEEP CREEK WSA

on visual resources would be less than described in the Draft EIS. Impacts on visual resources would occur from realignment of the Burr Trail and developing access to a State section with any alternative. In the Final EIS, impacts on visual resources are not addressed under the heading of Visual Resources, but are addressed as part of the discussion of naturalness and special features in the Wilderness Values section.

6. Cultural Resources: As discussed in the Draft EIS cultural resources could be disturbed or destroyed by surface-disturbing activities. There are 15 recorded sites in the Steep Creek WSA and the potential for finding additional sites is good. None of the recorded sites are of National Register quality. Surface disturbance estimates for the No Action/No Wilderness Alternative have been reduced from 250 acres to 32 acres for the Final EIS. Dispersed disturbance from ORVs is prevented by the steep terrain in the WSA. In addition, inventories for the purpose of site recordation and mitigation of impacts would take place prior to any surface disturbance. Given these conditions, impacts on cultural resources are not significant issues for the Steep Creek WSA.

7. Recreation: The public has expressed concern that wilderness designation would change recreational use from motorized to primitive or conversely, that without wilderness designation motorized recreation will eliminate or reduce opportunities for primitive recreation. Recreational use of the Steep Creek WSA is estimated to be 10,050 visitor days per year (10,000 primitive and 50 associated with vehicles). Since most of the motor access ways are closed to ORVs and terrain limits the use of vehicles, recreational use of the Steep Creek WSA would remain primitive with or without wilderness designation. Therefore, impacts on recreation are not analyzed in detail for the Final EIS.

8. Economic Conditions: The public, including the State and local government, is concerned that wilderness designation would preclude mineral or other economic developments and adversely affect local economic conditions. Others believe that primitive recreation use would increase following wilderness designation and would contribute to the local economy.

There are no existing or anticipated mineral or other developments for the Steep Creek WSA. There would be mineral exploration activities employing up to six people for no more than a few weeks at a time and an increase of recreational visitors of 2 to 7 percent a

year could be expected. However, this increased level of employment would not result in significant impacts to the local economy and visitation would increase with any of the alternatives. Therefore, impacts on economic conditions are not significant issues for analysis in the Final EIS.

• Issues Analyzed in Detail

The significant issues for the Steep Creek WSA are:

1. Impacts on the wilderness values of naturalness, opportunities for solitude and primitive recreation, and special features.
2. Impacts on water resources.
3. Impacts on mineral and energy exploration and production.
4. Impacts on wildlife habitat and populations including special status species.

Comments made during the public comment period for the Draft EIS centered mainly on the need for, and adequacy of, the rationale for the BLM proposed action, the need for further inventories of resource values, and BLM's assessments of wilderness values, mineral values, and the Burr Trail setback. See Volume VII-B for responses to general comments applicable to all WSAs and/or the Statewide analysis and Volume VII-C, Section 30, for responses to specific comments about the Steep Creek WSA.

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated From Detailed Study

Two alternatives were suggested in the public comments. One proposed a wilderness area of 21,900 acres and the other suggested a 20,000-acre wilderness area. These alternatives are not analyzed because they are not appreciably different from the All Wilderness or the 20,806-acre Partial Wilderness Alternatives and, therefore, offer no major distinctions beyond the alternatives analyzed in the Final EIS.

Alternatives Analyzed

Four alternatives are analyzed for this WSA: (1) No Action/No Wilderness; (2) All Wilderness (21,896 acres); (3) Large Partial Wilderness (Proposed

STEEP CREEK WSA

Action) (20,806 acres); and (4) Small Partial Wilderness (18,350 acres). A description of each alternative follows. Where management intentions have not been clearly identified, assumptions are made based on management projections under each alternative. These assumptions are indicated in each case. The assumed management actions presented in the Introduction to Volume III-B are also applicable.

- No Action/No Wilderness Alternative

With this alternative, none of the 21,896-acre Steep Creek WSA would be designated by Congress as part of the NWPS. Although BLM's land use plans are regularly updated, it is assumed that the area would continue to be managed in accordance with the Escalante MFP (USDI, BLM, 1981d). Neither the 1,907.2 acres of State land or the 160 acres of split-estate land within or adjacent to the WSA (refer to Map 1) has been identified for special Federal acquisition through exchange or purchase; therefore, the surface and/or minerals of these lands are analyzed as under State ownership. Adjacent private lands are expected to remain in private ownership.

- Management Conditions and Constraints

All 21,896 acres would remain open to mineral location, leasing (with standard and special lease stipulations), and sale. Development work, extraction, and patenting would be allowed on 22 existing mining claims (about 440 acres) and future mining claims. Development would be regulated by unnecessary or undue degradation regulations (43 CFR 3809). The existing post-FLPMA oil and gas lease (2,532 acres) and future leases could be developed under leasing Category 1 (standard stipulations) on the entire 21,896-acre WSA. Although leasable minerals would be managed as described above, no leasable mineral exploration or development are projected in the WSA because the level of known resources and the probability of their development are too low to support that assumption (see Appendix 6 in Volume I for details on exploration and development projections).

The present domestic livestock grazing use of the 21,896-acre WSA would continue as authorized in the MFP (1,129 AUMs). The existing rangeland facilities (2.7 miles of fence, one developed spring, one reservoir, 3 miles of stock trail, and 2.5 miles of ways which are used for hauling salt and working cattle) could be maintained in a routine manner, with motorized equipment if needed.

About 11 miles of boundary road, also known as the Burr Trail (or Boulder to Bullfrog road), that have been proposed for realignment and paving, could be constructed without wilderness considerations.

Public water reserve withdrawals on 120 acres would remain in effect. These withdrawals segregate the lands from all public land laws and non-metalliferous mineral location.

About 18,356 acres, including about 2.5 miles of ways, would remain open for vehicular use. Use would be limited to designated trails on 320 acres. To protect riparian vegetation, 3,220 acres would remain closed to ORV use.

The entire 21,896-acre area would continue to be potentially open to woodland product harvest. There is minimal harvest of forest products at the present time, and no increase is expected due to lack of access and rough terrain.

The area would continue to be managed under VRM Class II on 21,186 acres and Class IV on 710 acres.

- Action Scenario

Given the management plans described above and the resources described in the Affected Environment, BLM projects that implementation of the No Action/No Wilderness Alternative would result in about 32 acres of surface disturbance in the foreseeable future. Six acres of disturbance would result from uranium and copper exploration activities including less than 2 miles of access roads on and adjacent to existing mining claims along the eastern boundary of the WSA. Existing workings adjacent to but outside the WSA would continue to be developed. Additional road building and exploration drilling along existing roads would also occur. Based on exploration activities typical of the area, it is projected that six employees would be used for 15 days. Exploration activities would be under the unnecessary and undue degradation guidelines of the 43 CFR 3809 regulations. It is assumed that upon abandonment, drill sites and access roads would be reclaimed. Three to five years would be necessary to determine successful reclamation. It is projected that uranium and copper development would not occur within the WSA because the potential deposits are small and the low certainty that such deposits actually

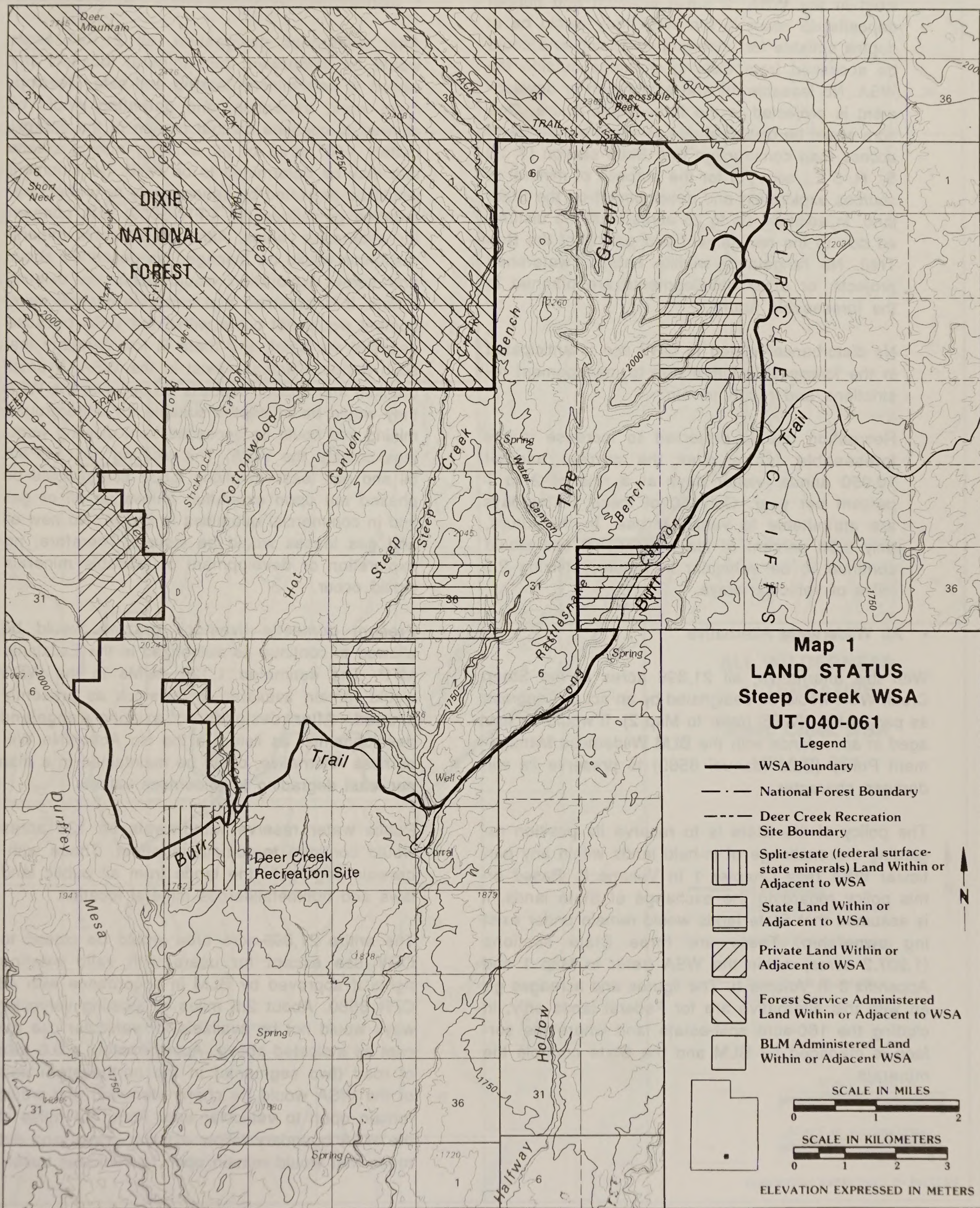
STEEP CREEK WSA

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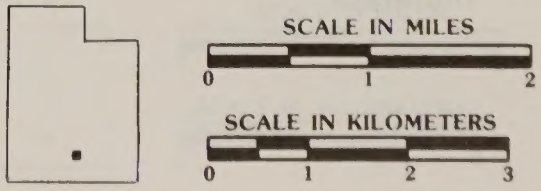
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T. 34 S.



Map 1
LAND STATUS
Steep Creek WSA
UT-040-061

- Legend**
- WSA Boundary
 - National Forest Boundary
 - Deer Creek Recreation Site Boundary
 - Split-estate (federal surface-state minerals) Land Within or Adjacent to WSA
 - State Land Within or Adjacent to WSA
 - Private Land Within or Adjacent to WSA
 - Forest Service Administered Land Within or Adjacent to WSA
 - BLM Administered Land Within or Adjacent WSA



ELEVATION EXPRESSED IN METERS

STEEP CREEK WSA

exist in the WSA. If small uranium and copper deposits do occur in the WSA they would be at depths suitable for underground mining and could be accessed from existing workings outside the WSA. No leasable mineral exploration or development is projected in the foreseeable future. One acre would be disturbed due to about a 0.5 mile of access road construction to a State section (T. 33 S., R. 5 E., sec. 16) for the purpose of mineral resources exploration and development on the State land. In addition, up to 25 acres could be disturbed due to the realignment and paving of the Burr Trail. No rangeland, wildlife habitat, watershed projects, or other developments are planned in the foreseeable future.

No disturbance related to ORV use is anticipated in the foreseeable future due to management restrictions and rough terrain.

Recreation use is projected to increase in the foreseeable future over the current use of 10,050 annual visitor days at a rate of 2 to 7 percent per year. Only 50 of these visitor days are attributable to vehicular use. In the future, only 0.50 percent of the recreational use would continue to be vehicular in nature, utilizing 2.5 miles of vehicular ways.

- All Wilderness Alternative

With this alternative, all 21,896 acres of the Steep Creek WSA would be designated by an act of Congress as part of the NWPS (refer to Map 2). It would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) to preserve its wilderness character.

The policy of the State is to reserve its position regarding the exchange of in-held lands within any particular WSA (see Chapter 1 in Volume I). Based on this policy regarding the exchange of State lands, it is assumed that State lands would remain under existing ownership. There are three State sections (1,907.2 acres) within the WSA (refer to Map 1 and Appendix 3 in Volume I). The figures and acreages given with this alternative are for Federal lands only, including the 160-acre split-estate land where the surface is managed by BLM and the State controls the minerals.

- Management Conditions and Constraints

After wilderness designation, all 21,896 acres would be withdrawn from mineral location and closed to new mineral leasing and sale. Development work, extraction, and patenting would be allowed to continue on that portion of the approximately 440 acres of 22 existing mining claims that may be determined to be valid. Development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809) with concern for wilderness values. Although locatable mineral resources would be managed as described above and some exploration would occur on existing claims, it is assumed that locatable mineral development would not occur within the WSA because deposits are small and there is low certainty that such deposits actually exist in the WSA. If small uranium and copper deposits do occur in the WSA they would be at depths suitable for underground mining and could be accessed from existing workings outside the WSA. The existing post-FLPMA oil and gas lease involving 2,532 acres would be phased out upon expiration unless an oil or gas find in commercial quantities is shown. No new oil and gas leases would be issued. Therefore, no exploration or development of leasable minerals would occur.

Present domestic livestock grazing would be allowed to continue as authorized in the Escalante MFP. The estimated 1,129 AUMs in the WSA would remain available to livestock as presently allotted. After designation, existing rangeland developments, as listed in the No Action/No Wilderness Alternative, could be maintained in a manner least degrading to wilderness values.

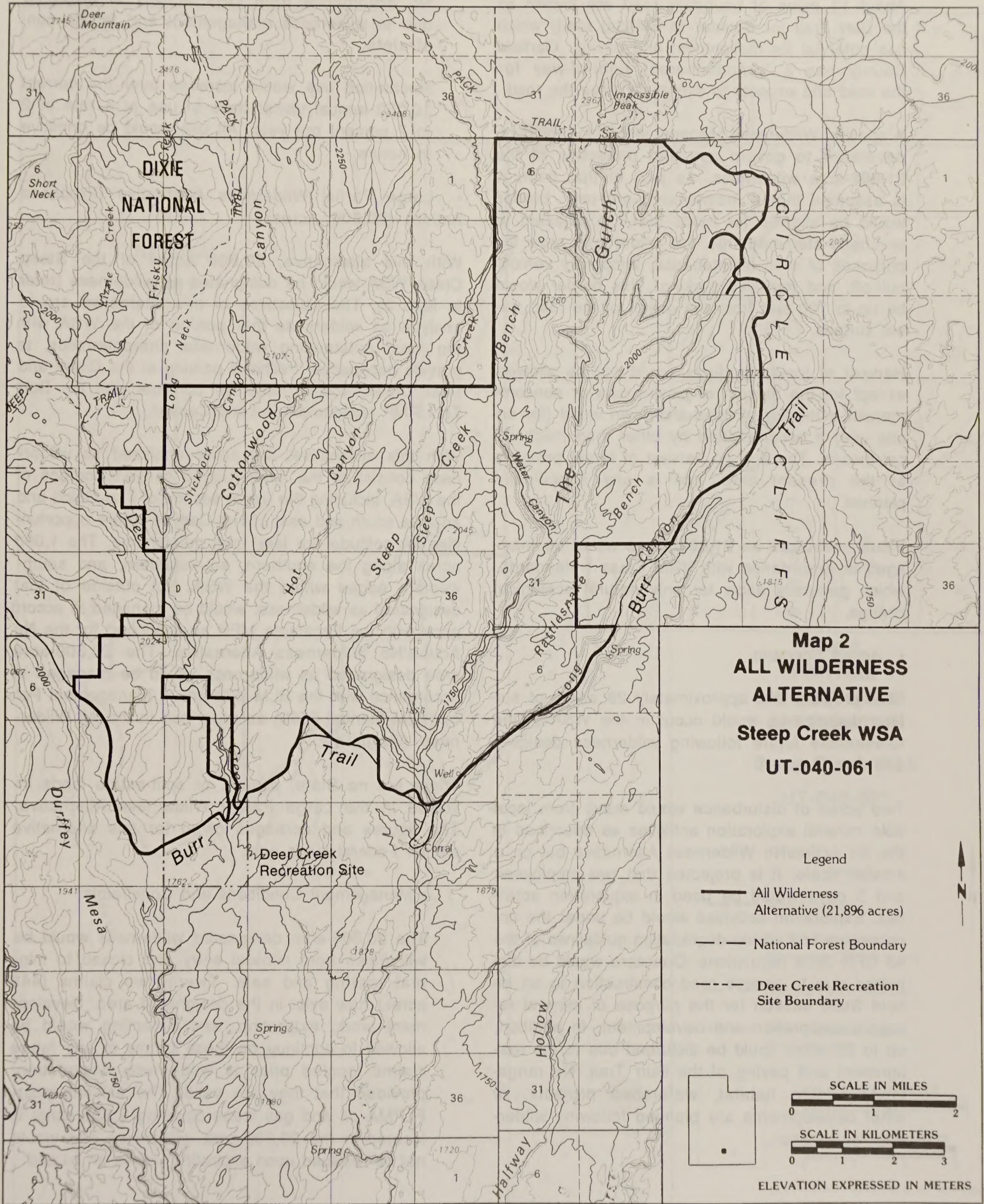
Public water reserve withdrawals on 120 acres would continue to remain in effect. These withdrawals segregate the lands from all public land laws and nonmetalliferous mineral location.

The entire 21,896-acre area would be closed to ORV use except for users with valid existing rights if approved by BLM in accordance with 43 CFR 8560. About 2.5 miles of existing vehicular ways would not be available for vehicular use except as indicated above. Approximately a 0.6 mile of road (two segments) in the northeastern part of the WSA would be cherry-stemmed and would remain open to vehicular use. About 14 miles of the WSA boundary follow existing gravel and dirt roads that would remain open to vehicular travel.

STEEP CREEK WSA




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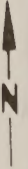
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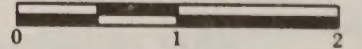
Map 2
ALL WILDERNESS
ALTERNATIVE
Steep Creek WSA
UT-040-061

Legend

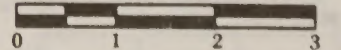
-  All Wilderness Alternative (21,896 acres)
-  National Forest Boundary
-  Deer Creek Recreation Site Boundary



SCALE IN MILES



SCALE IN KILOMETERS



ELEVATION EXPRESSED IN METERS

STEEP CREEK WSA

About 11 miles of boundary road are known as the Burr Trail (or Boulder to Bullfrog road) which has potential for realignment and paving. Garfield County has a "grandfathered" right-of-way for the road and expects to eventually pave the road.

A specific Wilderness Management Plan would be developed to govern use and protection of the 21,896-acre wilderness. As part of that plan, it is assumed that a maintenance-and-use border would be allowed for roads that are adjacent to or cherry-stemmed into the wilderness area for purposes of road maintenance, temporary vehicle pull-off, and trailhead parking. This border would be up to 100 feet from the center of the road travel surface.

Harvest of forest products would not be allowed except for the harvest of pinyon nuts or noncommercial gathering of dead-and-down wood (for on-site use) if accomplished by other than mechanical means. There is no harvest of forest products at the present time, nor is any specifically planned.

Visual resources on 21,896 acres would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change.

- Action Scenario

BLM projects that approximately 28 acres of surface disturbance would occur in the WSA in the foreseeable future following wilderness designation.

Two acres of disturbance would result from locatable mineral exploration activities as described in the No Action/No Wilderness Alternative but on a smaller scale. It is projected that two employees and 5 days would be used in exploration activities. Exploration activities would be under the unnecessary and undue degradation guidelines of the 43 CFR 3809 regulations. One acre would be disturbed due to access road construction to an in-held State section for the purpose of mineral resource exploration and development. In addition, up to 25 acres could be disturbed due to the realignment and paving of the Burr Trail. No rangeland, wildlife habitat, watershed projects, or other developments are planned following wilderness designation.

No disturbance from ORV activity is projected due to wilderness management and terrain constraints.

Recreation use would increase over the current 10,050 annual visitor days of use at a rate of 2 to 7 percent per year. All use would be primitive in nature.

- Large Partial Wilderness Alternative (Proposed Action) (20,806 Acres)

With this alternative, 20,806 acres of the Steep Creek WSA would be designated as wilderness (refer to Map 3). The objectives of this alternative are to analyze as wilderness that portion of the WSA with the most outstanding wilderness characteristics, to provide backpacker trailhead parking at the Gulch and Deer Creek, and to minimize conflicts with the Burr Trail RMP realignment in Long Canyon.

With this alternative, the acres analyzed as wilderness consist of the most rugged canyon portions of the WSA, including the upper section of The Gulch and an area south and east of Hot Canyon where opportunities for solitude are less than outstanding. The 1,090 acres along the southern, southeastern, and southwestern edges within the WSA, but outside of that designated as wilderness, would be managed in accordance with the Escalante MFP as described for the No Action/No Wilderness Alternative. The 20,806-acre area designated as wilderness would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) as described in the All Wilderness Alternative.

There are no State, private, or split-estate lands involved in the Large Partial Wilderness Alternative. The figures and acreages given for this alternative are for Federal lands only.

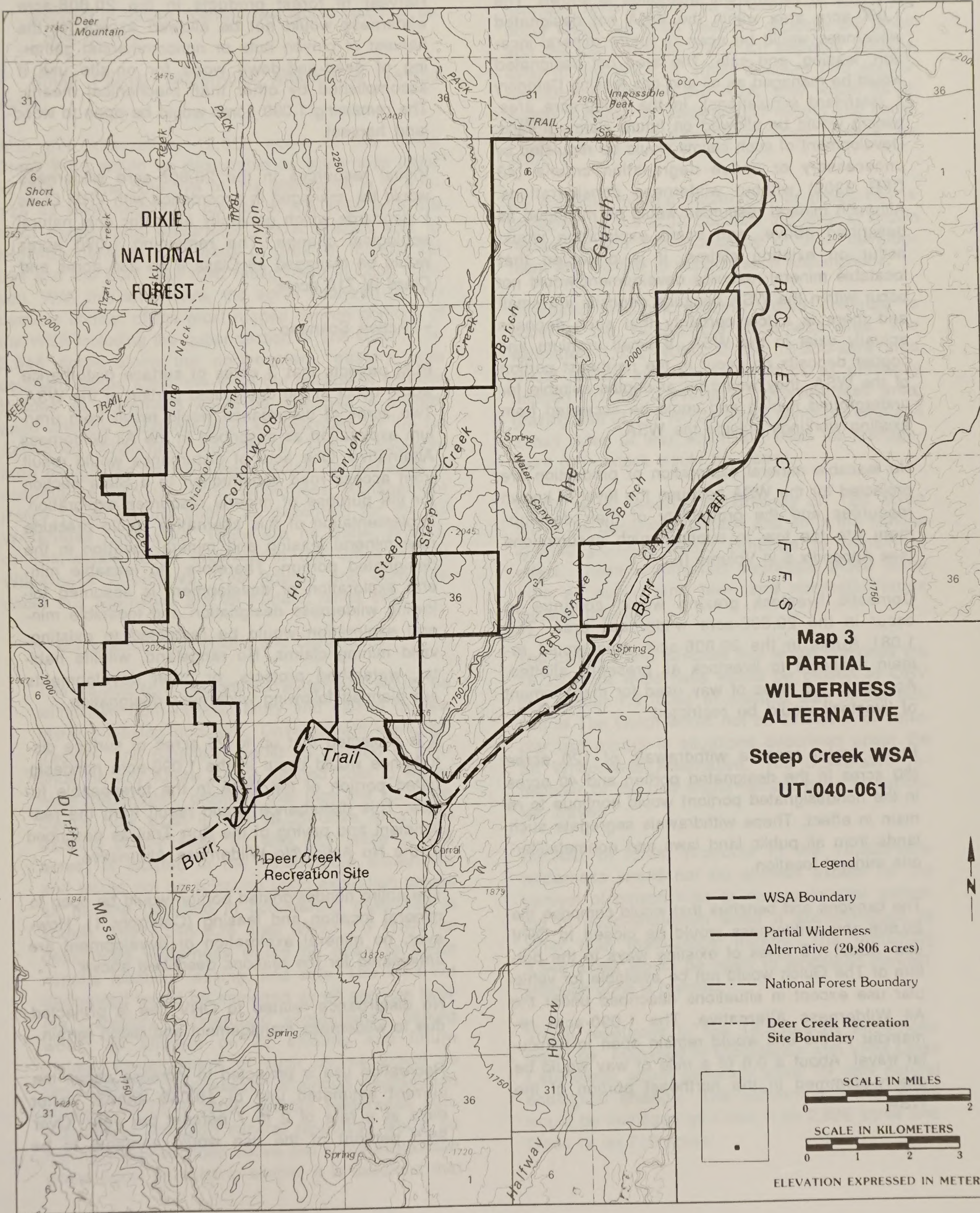
- Management Conditions and Constraints

The 20,806-acre designated wilderness would be withdrawn from mineral entry and closed to mineral leasing and sale. Twenty-two claims (440 acres) now exist in the designated area. Development work, extraction, and patenting would be allowed to continue on these claims or any future claims located prior to wilderness designation, provided that they are valid. The existing post-FLPMA oil and gas lease covering 2,532 acres is located in the 20,806-acre wilderness and would not be reissued upon expiration unless an oil and

STEEP CREEK WSA

R. 5 E.

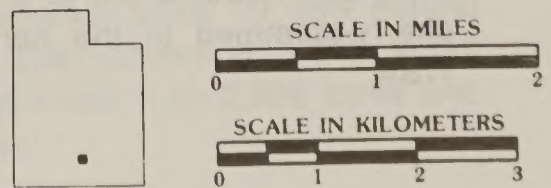
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**Map 3
PARTIAL
WILDERNESS
ALTERNATIVE
Steep Creek WSA
UT-040-061**

Legend

- WSA Boundary
- Partial Wilderness Alternative (20,806 acres)
- · - National Forest Boundary
- · - Deer Creek Recreation Site Boundary



STEEP CREEK WSA

gas find in commercial quantities is shown. The 1,090-acre area within the WSA not designated wilderness would be open to future mineral location, leasing, and sale. The area not designated would be managed as oil and gas leasing Category 1 (standard stipulations). In the 1,090-acre area, mining would be allowed on future claims if valid. Development of such claims would be regulated by unnecessary or undue degradation criteria (43 CFR 3809) without wilderness considerations. Although mineral resources would be managed as described above, and some exploration would occur on existing claims, it is projected that locatable mineral resource development would not occur within the WSA because deposits are small and there is a low certainty that such deposits actually exist in the WSA. If small uranium and copper deposits do occur in the northeast portion of the WSA, they would be at depths suitable for underground mining and could be accessed from existing workings outside the WSA.

No leasable mineral exploration or production are projected for the WSA because the level of known resources and the probability of their development are too low to support such assumptions (see Appendix 6 in Volume I).

Domestic livestock grazing would continue to occur in the 20,806-acre wilderness area. The 1,081 AUMs in the 20,806-acre area would remain available to livestock as presently allotted. Access to 1.5 miles of way used for management of livestock would be restricted.

Public water reserve withdrawals of 120 acres (80 acres in the designated portion and 40 acres in the nondesignated portion) would continue to remain in effect. These withdrawals segregate such lands from all public land laws and nonmetalliferous mineral location.

The canyons and benches that would comprise the 20,806-acre wilderness would be closed to ORV use. About 1.5 miles of existing ways in the bottom of The Gulch would not be available for vehicular use except in situations described under the All Wilderness Alternative. The 1,090-acre remainder of the unit would remain open to vehicular travel. About a 0.6 of a mile of way would be cherry-stemmed in the northeast portion of the WSA.

Harvest of forest products in the 20,806-acre wilderness would not be allowed except for the harvest of pinyon nuts or noncommercial gathering of dead-and-down wood for on-site use if accomplished by other than mechanical means. The remaining 1,090 acres would be open to woodland harvest.

Visual resources in the 20,806-acre wilderness would be managed in accordance with VRM Class I standards which generally allow for only natural ecological change. The remaining 1,090 acres would be managed as Class II on 380 acres and Class IV 710 acres.

- Action Scenario

BLM projects that 3 acres of surface disturbance would occur in the designated portion of the WSA. Two acres of disturbance would result from uranium exploration as described in the All Wilderness Alternative. One acre of disturbance would result from access road construction to a State section for the purpose of mineral resources exploration. Implementation of this alternative would preclude new mineral leasing and mineral location in the designated portion. Therefore, no leasable mineral exploration or development is assumed following wilderness designation and locatable mineral exploration would be restricted to existing, valid mining claims. No rangeland, wildlife habitat, watershed projects, or other developments are planned following wilderness designation.

It is projected that up to 25 acres of surface disturbance would occur in the 1,090-acre nondesignated portion of the WSA in the foreseeable future. This disturbance would result from the realignment and paving of the Burr Trail as described in the No Action/No Wilderness Alternative.

The entire nondesignated portion would be open to mineral location and leasing (Category 1). However, no mineral exploration or development are anticipated for the reasons described above.

No disturbance related to ORV use is projected due to wilderness management and rough terrain.

Recreation use is projected to increase above the current estimated use of 10,050 annual visitor days at a rate of 2 to 7 percent per year. Over 99.5 percent of the use would continue to be

STEEP CREEK WSA

primitive in nature. Vehicle use would continue on 1 mile of way.

- Small Partial Wilderness Alternative (18,350 acres)

With this alternative, 18,350 acres of the Steep Creek WSA would be designated as wilderness (refer to Map 4). The objective of this alternative is to analyze as wilderness that portion of the WSA with the most outstanding wilderness characteristics and to minimize conflicts with areas of greatest mineral values and the Burr Trail road realignment in Long Canyon. With this alternative, the acres analyzed as wilderness consist of the most rugged canyon portions of the WSA including the upper section of The Gulch. The 3,546 acres along the northeastern, eastern, and southern edges within the WSA but outside of that designated as wilderness would be managed in accordance with the Escalante MFP as described for the No Action/No Wilderness Alternative. The 18,350-acre area designated as wilderness would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) as described for the All Wilderness Alternative. There are no State, private, or split-estate lands involved in the Small Partial Wilderness Alternative. The figures and acreages under this alternative are for Federal lands only.

- Management Conditions and Constraints

The 18,350-acre designated wilderness would be withdrawn from mineral entry and closed to new mineral leasing and sale. Development work, extraction, and patenting would be allowed to continue on any future claims located prior to wilderness designation, provided that they are valid. No claims now exist in the 18,350-acre area. The existing post-FLPMA oil and gas lease (2,532 acres) is located in the 18,350-acre wilderness and would not be reissued upon expiration unless an oil and gas find in commercial quantities is shown. The 3,546-acre area within the WSA not designated wilderness would be open to future mineral location, leasing, and sale. The area not designated would be managed as oil and gas leasing Category 1 (standard stipulations). Mining would be allowed on 22 existing and future claims. Development of such claims would be regulated by unnecessary or undue degradation criteria (43 CFR 3809) without wilderness considerations. Although mineral resources would be managed as described above and some exploration would occur on existing claims, it is assumed that

locatable mineral resource development would not occur within the WSA because deposits are small and the low certainty that such deposits actually exist in the WSA. If small uranium and copper deposits do occur in the WSA, they would be at depths suitable for underground mining and could be accessed from existing workings outside the WSA.

No leasable mineral exploration or production is projected for the WSA because the level of known resources and the probability of their development are too low to support such assumptions.

Domestic livestock grazing would continue to occur in the 18,350-acre wilderness area. The estimated 1,012 AUMs in the 18,350-acre area would remain available to livestock as presently allotted. In the 3,546-acre nonwilderness area, grazing use of 117 AUMs would continue. One and a half miles of way which are used for management of livestock would be closed.

Public water reserve withdrawals on 120 acres (80 in the designated portion and 40 in the nondesignated portion) would continue to remain in effect. These withdrawals segregate those lands from all public land laws and nonmetalliferous mineral location.

The canyons and benches that would comprise the 18,350-acre wilderness would be closed to ORV use. About 1.5 miles of existing way in the bottom of The Gulch would not be available for vehicular use except in situations described under the All Wilderness Alternative. The 3,546-acre remainder of the unit would remain open to vehicular travel.

Harvest of forest products in the 18,350-acre wilderness would not be allowed except for the harvest of pinyon nuts or noncommercial gathering of dead-and-down wood if accomplished by other than mechanical means. The remaining 3,546 acres would be open to woodland harvest, although none is planned.

Visual resources in the 18,350-acre wilderness would be managed in accordance with VRM Class I standards which generally allow for only natural ecological change. The remaining 3,546 acres would be managed as Class II on 2,836 acres and Class IV on 710 acres.

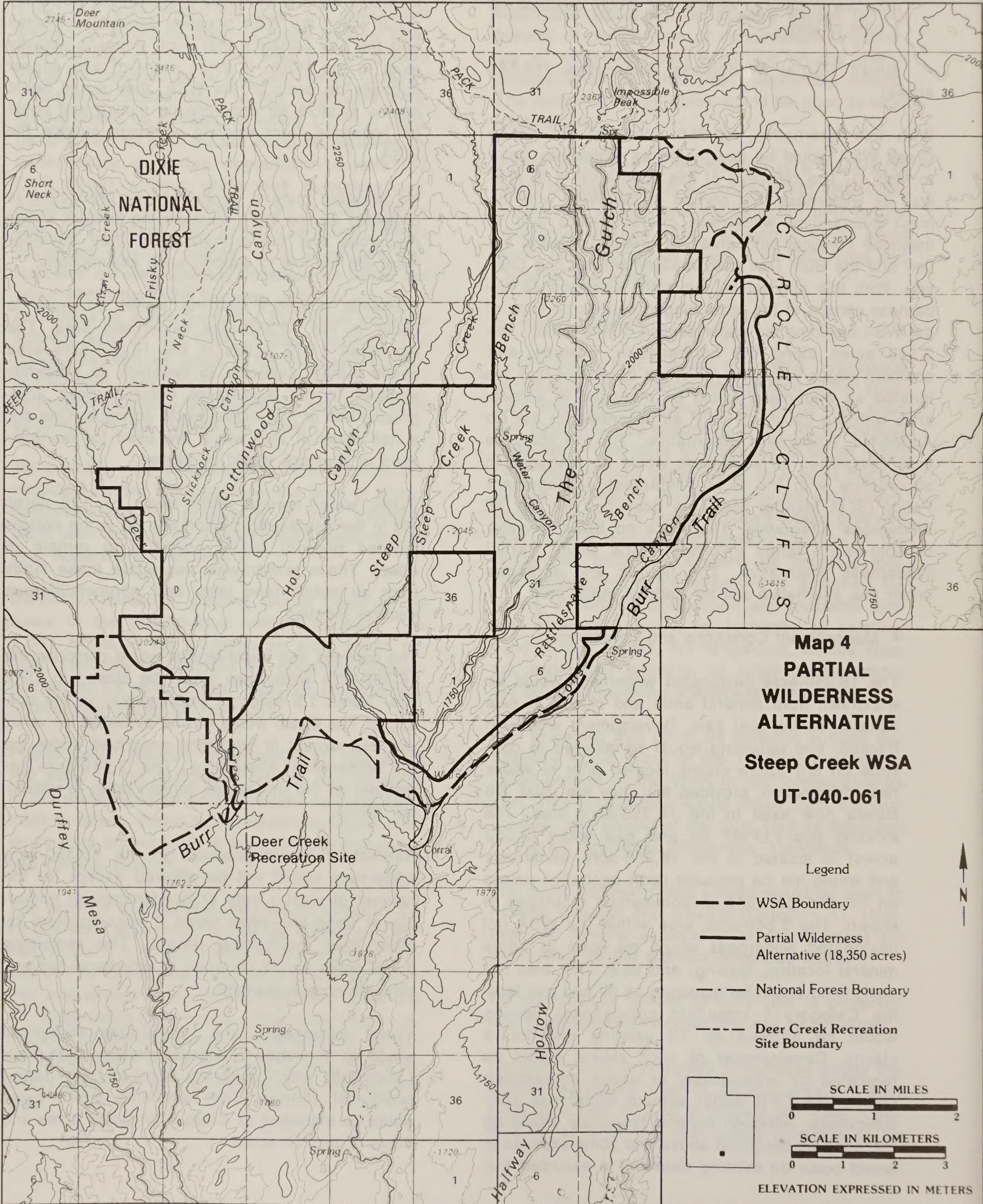
STEEP CREEK WSA

R. 5 E.

R. 6 E.

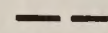

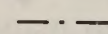
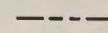
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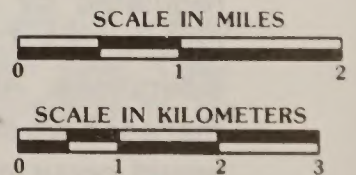
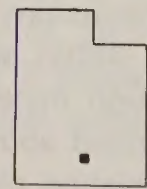
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Map 4
PARTIAL
WILDERNESS
ALTERNATIVE
Steep Creek WSA
UT-040-061

Legend

-  WSA Boundary
-  Partial Wilderness Alternative (18,350 acres)
-  National Forest Boundary
-  Deer Creek Recreation Site Boundary



ELEVATION EXPRESSED IN METERS

STEEP CREEK WSA

- Action Scenario

BLM projects that 2 acres of surface disturbance would occur in the designated portion of the WSA. One acre of disturbance would result from uranium exploration as described in the All Wilderness Alternative. One acre of disturbance would result from access road construction to a State section for the purpose of mineral resources exploration. Implementation of this alternative would preclude new mineral leasing and mineral location. Therefore, no leasable mineral exploration or development is assumed following wilderness designation and locatable mineral exploration would be restricted to existing, valid mining claims. No rangeland, wildlife habitat, watershed projects, or other developments are planned following wilderness designation.

It is projected that 30 acres of surface disturbance would occur in the 3,546-acre nondesignated portion of the WSA in the foreseeable future. Five acres of this disturbance would result from uranium exploration activities as described in the No Action/No Wilderness Alternative. Up to 25 acres would result from the realignment and paving of the Burr Trail.

The entire nondesignated portion would be open to mineral location and leasing (Category 1) and some locatable mineral exploration is anticipated as described. However, no locatable mineral development and no leasable mineral explorations or developments are expected for the reasons described above.

No disturbance related to ORV activity is projected to occur in the foreseeable future due to wilderness management and rough terrain.

Recreation use is projected to increase over the current estimated use of 10,050 annual visitor days at a rate of 2 to 7 percent per year. Over 99.5 percent of the use would continue to be primitive in nature. Vehicular use would continue on 1 mile of way.

Summary of Environmental Consequences

Table 1 presents the environmental consequences of alternatives analyzed in detail.

AFFECTED ENVIRONMENT

This section describes the overall environmental setting. This information allows for independent assessment by the public as required by the CEQ guidelines and provides a data base for the cumulative State-wide analysis found in Volume I, as well as the Environmental Consequences of Alternatives in this WSA analysis.

Unless otherwise indicated, information for this section was taken from BLM staff specialists, technical reports, and file documents.

Wilderness Values

- Size

The size of the WSA is 21,896 acres. It is approximately 9 miles long (north to south) and 8 miles wide (east to west).

- Naturalness

Naturalness is defined as an area where the evidences of man are substantially unnoticeable to the average visitor and where individual minor imprints of man exhibit no cumulative impact that is substantially noticeable. Imprints of man that remain in the WSA include 2.5 miles of vehicular ways, 2.7 miles of fence, and three existing rights-of-way. These imprints combined involve 20 acres of the WSA, but are not substantially noticeable in the WSA as a whole.

Since establishment of the WSA, less than 1 acre has been disturbed. This disturbance is the result of a private residential trespass with associated outbuildings and some landscaping (less than 1 acre total disturbance). Upon consummation of due process concerning this trespass, the area would be reclaimed to a substantially unnoticeable condition or the immediate site exchanged, sold, or otherwise removed from Federal ownership. No additional imprints have occurred in the WSA as a result of impairing uses or activities allowed under the BLM Interim Management Policy (USDI, BLM, 1979c).

- Solitude

The outstanding opportunity for solitude (15,500 acres) in the Steep Creek WSA is provided by both topographic and vegetative screening.

STEEP CREEK WSA

Table 1
Summary of Environmental Consequences

| Resource | Alternatives | | |
|------------------------------|--|--|---|
| | No Action/No Wilderness | All Wilderness (21,896 Acres) | Large Partial Wilderness (20,806 Acres) (Proposed Action) |
| Impacts on Wilderness Values | <p>Wilderness values would not be protected by wilderness designation and loss would occur as intrusions increase. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 32 acres and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to an additional 1,314 acres of the WSA. This impact would be due to mineral exploration, access to State in-held lands, and improvement of the Burr Trail. Special features including scenic features, endangered and sensitive species, wildlife associated with wilderness, and perennial streams would not significantly be affected. Class A scenery would be reduced in quality in the disturbed areas. Vehicular use of 2.5 miles of way and future mining roads would be an occasional annoyance that would detract from opportunities for solitude and primitive recreation in the WSA.</p> | <p>Wilderness designation would preserve overall the wilderness values in the WSA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 28 acres and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to an additional 876 acres of the WSA. This impact would be due to mineral exploration, access to State in-held lands, and improvement of the Burr Trail. Special features including scenic features, endangered and sensitive species, wildlife associated with wilderness, and perennial streams would be preserved overall. Class A scenery would be reduced in quality in the disturbed areas.</p> | <p>The best wilderness values would be preserved overall in the designated area involving approximately 95 percent of the WSA. Naturalness and opportunities for solitude and primitive recreation would be directly lost on 28 acres and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to an additional 876 acres of the WSA. Most of the impact would be in the nondesignated area. Special features including scenic features, endangered and sensitive species, wildlife associated with wilderness, and perennial streams would be preserved overall in the designated area. Class A scenery could be reduced in quality where disturbance occurs. Vehicular use of 1 mile of way as well as new mining roads in the nondesignated areas would be an occasional annoyance that would detract from opportunities for solitude and primitive recreation in the WSA.</p> |
| | | Small Partial Wilderness (18,350 Acres) | <p>The best wilderness values would be protected in the designated area involving approximately 84 percent of the WSA. Naturalness and opportunities for solitude and primitive recreation would be directly lost on 32 acres and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to an additional 1,095 acres of the WSA. Most of the impact would be in the nondesignated area. Special features including scenic features, endangered and sensitive species, wildlife associated with wilderness, and perennial streams would be preserved overall in the designated area. Class A scenery could be reduced in quality where disturbance occurs. Vehicular use of 1 mile of way as well as new mining roads in the nondesignated areas would be an occasional annoyance that would detract from opportunities for solitude and primitive recreation in the WSA.</p> |

STEEP CREEK WSA

Table 1 (Continued)
Summary of Environmental Consequences

| Resource | Alternatives | | |
|---|---|---|--|
| | No Action/No Wilderness | All Wilderness (21,896 Acres) | Large Partial Wilderness (20,806 Acres) (Proposed Action) |
| Impacts on Water Resources | The No Action/No Wilderness Alternative would not alter present or future water quality or uses because projected surface disturbance would be minor (32 acres) and would not significantly increase sediment yield and water could be utilized without consideration of wilderness values. | In the short term, wilderness designation would not significantly alter water quality or uses. In the long term, future water diversions and new and consumptive uses in the Escalante River system upstream of the WSA may be restricted or precluded in order to protect resource values in the wilderness. | The impacts and conclusions on water would be essentially the same as with the All Wilderness Alternative because the level of surface disturbance would be approximately the same and the perennial streams would pass through the designated areas. |
| Impact on Mineral and Energy Exploration and Production | Implementation of the No Action/No Wilderness Alternative would not adversely affect mineral and energy resource exploration and production in the Steep Creek WSA because minerals could be leased, claimed and developed as at present. | Wilderness designation would limit potential exploration opportunities for locatable minerals to those under valid mining claims at the time of designation. No significant mineral production would be foregone because the probability of development is low even if the WSA is not designated wilderness. | Mineral exploration would not be limited in the area considered to possess the most potential for locatable minerals. No significant impacts would occur to mineral and energy resource exploration and production because the probability of development is low even if the WSA is not designated wilderness. |

STEEP CREEK WSA

Table 1 (Continued)
Summary of Environmental Consequences

| Resource | Alternatives | | |
|---|--|---|--|
| | No Action/No Wilderness | All Wilderness (21,896 Acres) | Large Partial Wilderness (20,806 Acres) (Proposed Action) |
| Impacts on Wildlife Habitat and Populations | <p>There would be no significant impacts to wildlife habitat or populations including special status animal species because only 0.15 percent (32 acres) of the habitat in the WSA would be disturbed.</p> | <p>Wilderness designation would preclude the opportunity to improve needed habitat on elk winter range. Designation would protect all species and provide additional solitude. There would be no significant impacts to special status species because required mitigation and because only 0.13 percent (28 acres) of the habitat in the WSA would be disturbed.</p> | <p>The impacts and conclusions with this alternative are essentially the same as those with the All Wilderness Alternative. The partial designation would preclude the opportunities to improve needed habitat on elk winter range. Designation would protect all species and provide additional solitude on 95 percent (20,806 acres) of the WSA. There would be no significant impacts to special status species because of required mitigation and because only 0.13 percent (28 acres) of the habitat in the WSA would be disturbed.</p> |
| | | <p>Small Partial Wilderness (18,350 Acres)</p> | <p>Partial wilderness designation with this alternative would preclude the opportunity to improve needed habitat on elk winter range. Designation would protect all species with additional solitude on 83 percent (18,174 acres) of the WSA. There would be no significant impacts to special status species because of required mitigation and because only 0.15 percent (32 acres) of the habitat in the WSA would be disturbed.</p> |

STEEP CREEK WSA

Neither the size nor configuration of this WSA will enhance or detract from the outstanding opportunities for solitude present in the WSA.

The WSA is characterized by a series of parallel canyons and intervening benches or ridges extending in a north to south direction. The streams drain southerly from the Aquarius Plateau to the Escalante River south of the WSA. In portions of the WSA, the canyons are abruptly entrenched in Wingate Sandstone creating distinct and isolated intervening benches. In other portions of the WSA, the canyons extend to the divides between streams. In the eastern portion of the WSA, canyons have cut through the Circle Cliffs escarpment. In these situations, the Circle Cliffs and canyons together form the walls of the benches. Although some of the streams are ephemeral, in most instances the canyon bottoms are characterized by riparian growth. Deer Creek, Steep Creek, and The Gulch-Water Canyon possess perennial streams. Slickrock Canyon, Cottonwood Canyon, Hot Canyon, the upper reaches of The Gulch (including Egg Canyon), and Long Canyon are ephemeral.

Because of these topographic and vegetative influences, natural screening enables the visitor to find secluded spots throughout the WSA. The entire WSA can be considered to exhibit opportunities for solitude. The opportunities for solitude in the canyons were inventoried as outstanding. The deep, winding canyons with riparian vegetation are considered the factors contributing to these outstanding opportunities.

The true benches in the WSA, such as Rattlesnake Bench and East Steep Creek Bench, also offer opportunities for solitude because they are isolated geographically by the Steep Canyon Cliffs. The quality of the opportunity for solitude on these benches is dependent upon the degree of geographic isolation offered by the surrounding canyon walls and the internal topographic dissection of the benches.

The western portion of the WSA is characterized by a series of canyons with divides of Navajo Sandstone peaks, domes, and ridges. These include the Deer Creek, Slickrock Canyon, Cottonwood Canyon, and Hot Canyon. The canyons are entrenched and winding. They exhibit a dense growth of riparian vegetation. In most instances, both canyon and intervening ridge or upper canyon walls are Navajo Sandstone and the entire area exhibits alcoves, narrow side canyons, and the other excellent topographic screening features representative of the Navajo Sandstone. Outstanding

opportunities for solitude are present throughout this area.

In the lower Hot Canyon drainage, the Navajo Sandstone disappears and Hot Canyon loses its entrenchment. The landscape is relatively undifferentiated with little relief, a moderate pinyon-juniper overstory, and sandy soils. The opportunity for solitude is less than outstanding in this area. In the extreme southwestern portion of the WSA, an almost detached area exhibits a 600-foot slickrock mesa surrounded by scattered pinyon-juniper and Ponderosa pine. This area also lacks the outstanding opportunity for solitude.

The sights and sounds of human activities are not present from places within the WSA. It would be easy for a visitor to find seclusion in the deeper vegetated canyons and on the more isolated benches of the WSA. In summary, approximately 15,500 acres or 71 percent of the WSA has outstanding opportunities for solitude. The remaining 6,396 acres or 29 percent of the WSA does not meet this criterion.

• Primitive and Unconfined Recreation

Outstanding opportunities for primitive recreation (18,100 acres) are present within the WSA because the backpacking, hiking, horseback riding, photography, sightseeing, and rockhounding types of primitive recreation are each considered to be of outstanding quality. Backpacking, hiking, and horseback riding are of exceptional quality in this WSA. The following factors contribute to this quality. Each of the major canyons in the WSA intersects the Long Canyon-Burr Trail road, thus each canyon can provide dayhiking and riding opportunities. Backpacking is also enhanced by the road's presence because overnight loop trips in different canyons and benches can be conducted from the same staging area along the road. The Gulch is an exception because access to its benches is very difficult.

Although BLM policy does not consider the availability of water to be a constraint upon this wilderness characteristic, water sources are undeniably a convenience to the backpacker on extended trips. In the case of extended horseback trips, the availability of water would dictate whether this activity could occur at all. Because of the ready availability of water in the Steep Creek WSA, the backpacking opportunity is enhanced and horse packing is passable. In this WSA the limiting factor to horseback activities is nonnegotiable terrain rather than water. Most of the WSA,

STEEP CREEK WSA

other than several benches east of The Gulch, is accessible to horses.

All of the canyons and much of the bench areas in the WSA are of high scenic quality. The portion of The Gulch Canyon within the WSA is presently one of the important backpacking destinations on the Escalante River drainage. The impressive scenery of this section of The Gulch is probably responsible for its destination type of use. Because the WSA possesses seven individual canyons, there are many different trip or route options available to the hiker or rider. This repetitive canyon-and-bench configuration increases both the visitor capacity and diversity of foot and horseback experiences within the WSA.

It is from this combination of factors present in much of the WSA that the hiking, backpacking, and horseback riding opportunities derive their outstanding quality. Approximately 18,100 acres are considered to possess outstanding foot or horseback opportunities. Portions of the west Steep Creek Bench, and most of Long Canyon lack these outstanding activity opportunities.

The photography and sightseeing activities are directly related to the scenic values of the WSA. In general, the WSA is of uniformly high scenic quality, and the same areas supportive of the hiking, backpacking, and horseback opportunities also contribute to photography and sightseeing opportunities. The Gulch, Water Canyon, Egg Canyon, upper Long Canyon and the Circle Cliffs, Lamanite Natural Bridge and its canyon, the upper Steep Creek-The Gulch divide, and the Slickrock Canyon-Cottonwood Canyon-Upper Hot Canyon areas all represent very high quality photography and sightseeing objectives.

The rockhounding opportunity for the well-known Circle Cliffs petrified wood is limited to the northeastern portion of the WSA where the Chinle Formation is exposed. Approximately 2,300 acres exhibit the exposed Chinle stratum.

All in all the primitive recreation opportunities on 18,100 acres or 83 percent of the WSA are outstanding and the remaining 3,796 acres or 17 percent do not meet the standard.

• Special Features

The Steep Creek WSA exhibits important scenic values contributed by the geological features of the WSA. A large portion of the Steep Creek WSA pos-

sesses landscapes distinctive to the degree that they are easily recognized. Five landscapes can be distinguished within the WSA. Several of these landscapes are of extraordinarily high scenic value. The landscape types are identified as the Circle Cliffs, The Gulch Canyon-Rattlesnake Bench, Steep Creek-Steep Creek Bench, and the Deer Creek drainage.

The Circle Cliffs landscape type is found in the northeastern portion of the WSA. This is the best known and recognized landscape in the WSA. Within the WSA, the upper end of The Gulch, Egg Canyon, the unnamed canyon south of Egg Canyon, and the upper end of Long Canyon exhibit the attributes typical of this landscape. The landscape type also extends south along the western Circle Cliffs escarpment to Big Down Bench and is not unique to the WSA. Characteristic features include the intensively colored red, orange, and purple Chinle mounds and ledges at the base of Wingate Sandstone cliffs; vertically jointed cliffs banded with red, yellow, and white colors; and bench tops and upper cliff faces possessing innumerable orange-red Kayenta Sandstone knobs. This is one of the most spectacular and distinctive landscapes on the Colorado Plateau.

The section of The Gulch in the WSA represents a marked visual departure from The Gulch downstream in The Gulch ONA. In the WSA, The Gulch is deeply entrenched in very sheer red Wingate Sandstone walls. The canyon does not meander and the straight-line visual effect is broken only by the entering tributary canyons. The lower two-thirds of the Long Canyon tributary also possess these attributes. The drainage divide between the upper ends of Steep Creek and The Gulch is characterized by a series of high ridges and slickrock peaks. The ridges drop fairly abruptly to the canyons below. The peaks resemble the adjacent Impossible Peak area on the Dixie National Forest. The slickrock domes on the Steep Creek side of the divide are alcoved and heavily forested. The Gulch side of the divide is cut deeply by the unnamed canyon containing Lamanite Natural Bridge. These elements combine to create an overall landscape with important scenic values.

Much of the Steep Creek-Steep Creek Bench area constitutes a distinct landscape type within the WSA. This area is characterized by a straight and shallow Steep Creek Canyon and the relatively flat unbroken benches covered with pinyon and juniper on either side of Steep Creek. This landscape is lacking in colorful rock formations and offers little of scenic value.

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The remaining landscape type is the slickrock and canyons complex in the western portion of the WSA. Canyons tributary to Deer Creek, including terraces, are characteristic of the predominantly white Navajo Sandstone. Distinct benches between the streams are absent. The concentration of canyons, slickrock formations, and the high percentage of exposed rock are the esthetic elements contributing to a valuable scenic resource in this section of the WSA.

In addition to the Steep Creek-Steep Creek Bench area, there are other areas within the WSA that lack scenic values. These are areas of the WSA that exhibit no distinctive or peculiar landscape types. The lower Hot Canyon drainage is an example.

The Steep Creek WSA contains several features of scenic value. Lamanite Natural Bridge is actually a large arch with good symmetry and form. It is located in an impressive setting in a deep side canyon to The Gulch. The upper Gulch-Circle Cliffs area contains large, unbroken logs of petrified wood. The scenic value of these logs is enhanced by their colorful surroundings. In total, approximately 15,000 acres of the WSA possess outstanding scenic features, and approximately 19,100 acres (87 percent of the WSA) are rated Class A for scenic quality.

The WSA has resource values that, although not identified as such during the wilderness inventory, could be considered special features. There are two animal species (peregrine falcon and bald eagle) listed as endangered that may occasionally use the WSA. There are seven animal species and eight plant species that are considered sensitive that occur, or may occur, in the WSA. The WSA has populations of cougar and elk which are wildlife species associated with wilderness (refer to the Affected Environment, Vegetation and Wildlife Including Special Status Species sections for additional information). It has approximately 15 miles of perennial streams.

• Diversity

This WSA is in the Colorado Plateau Province Ecoregion and has the PNV type of juniper-pinyon woodland (refer to the Vegetation Including Special Status Species section for more discussion on ecoregions and PNV types). The ecoregion and PNV types represented by this WSA are compared with existing and other potential National Wilderness Preservation units in the Wilderness Values section in Volume I.

This WSA is within a 5-hour drive from one standard metropolitan statistical area, Provo-Orem, Utah.

Air Quality

The Steep Creek WSA and surrounding area have a Class II PSD classification under the Clean Air Act Amendments of 1977. Capitol Reef National Park (approximately 7 air miles east of the WSA) is the nearest Class I PSD area. The BLM will not consider or recommend any change in air quality classification as part of the wilderness study or wilderness recommendation. Any further air quality reclassification is the prerogative of the State government, not of the BLM (USDI, BLM, 1982b).

No measurements of air pollution or visibility levels have been made in the Escalante planning unit. Data collected from various sites such as Page, Arizona and Four Mile Bench, Garfield County, Utah, indicate the air is generally free of pollutants and within National Ambient Air Quality Standards and State regulations.

Geology and Topography

The Steep Creek WSA is within the Canyonlands section of the Colorado Plateau Physiographic Province. The WSA is characterized by a series of long, straight, steep canyons and flat-topped benches, all running in a north to south direction.

The oldest rocks exposed in the WSA outcrop along the eastern boundary and become progressively younger westward across the tract. The Triassic, Chinle, Kayenta, and Wingate Formations form the most extensive outcrops in the eastern portion of the tract. The Jurassic Navajo Sandstone covers the western portion (USDI, USBM, 1987d). At the extreme northeast end of the WSA, the axis of the Circle Cliffs anticline plunges northwest. Normal faults with small displacements are common within the eastern half of the WSA, and some can be traced along the surface for up to 6 miles.

Elevation ranges from about 7,600 feet on the tops of the benches in the northeastern part of the WSA to about 5,600 feet where Steep Creek joins the Gulch in the very southernmost part of the WSA. Major drainages flow in a southwesterly direction and include The Gulch, Long, Steep Creek, Hot, Cottonwood, and Slickrock Canyons.

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Soils

The major part of the WSA is rockland. This land type consists of exposures of bare bedrock, mostly sandstone and limestone with gentle to steep slopes. The rockland area has very little vegetation with native vegetation growing only in crevices and pockets of soil material (Wilson, et al., 1975). The erosion classes are shown in Table 2. Erosion condition was determined by using soil surface factors. Most erosion problems are due to natural geologic erosion rather than man-caused.

Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | Acres | Percent of WSA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|--------|----------------|--------------------------------------|
| Severe | 5.4 | 3,209 | 15 | 17,330 |
| Critical | 2.7 | 1,330 | 6 | 3,590 |
| Moderate | 1.3 | 0 | 0 | 0 |
| Slight | 0.6 | 0 | 0 | 0 |
| Stable | 0.3 | 17,357 | 79 | 5,210 |
| Total | | 21,896 | 100 | 26,130 |

Sources: USDI, BLM, 1978c and 1979c; Leifester, 1978.

The soils in the Steep Creek WSA are classified as nonsaline. The average annual salt production from undisturbed soils is estimated to be 33 lb per acre. Rehabilitation potentials or seed success probabilities are considered low because of steep slopes, rockland, and shallow rocky soils. However, approximately 5 percent (1,095 acres) of the acreage in the WSA (deep cobbly/gravelly loams) will produce good seedings.

Vegetation Including Special Status Species

The existing major vegetation type in the WSA is pinyon-juniper woodland (19,147 acres). The dominant species in this type include pinyon pine, juniper, sagebrush, Indian ricegrass, and sand dropseed occurring on the benches. The WSA also supports some scattered Ponderosa pine. Approximately 2,694 acres of the WSA are primarily slickrock and contain very little vegetation. Riparian vegetation (55 acres) can be found along the following streams: The Gulch, Deer Creek, and Steep Creek (USDI, BLM 1980a). Riparian species include cottonwood, redbud, and carex.

No threatened or endangered plant species are known to occur in the WSA. However, one Category 1 candidate species and seven Category 2 candidate species may occur in the WSA. These are Lepidium montanum

var. stellae, (the Category 1 species), Psoralea pariensis, Lepidium montanum var. neeseae, Coryphantha missouriensis var. marstonii, Heterotheca jonesii, Penstemon atwoodii, Xylorhiza cronquistii, and Spiranthes diluvialis (see Appendix 4 in Volume I). The habitat for all of these species extends beyond the WSA boundary.

The Steep Creek WSA is in the Colorado Plateau Province Ecoregion as shown on the Bailey-Kuchler ecosystems map (USDI, USGS, 1978a). The PNV type of the WSA is juniper-pinyon woodland.

Water Resources

The Steep Creek WSA is within the Escalante River subbasin of the Upper Colorado River hydrologic sub-region.

The Steep Creek WSA contains approximately 15 miles of perennial streams. These streams include Deer Creek, Steep Creek, and The Gulch (USDI, BLM 1979a). The headwaters of the streams in the WSA are on the Dixie National Forest, a few miles above the WSA boundary. Flash floods are common on these streams from July to mid-September during the thunderstorm season. The water quality standards for Escalante River and tributaries, from Lake Powell to confluence with Boulder Creek, are as follows: Class 2B (protected for boating, waterskiing and similar uses) and Class 3C (protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain).

Utah's 1986 305(b) water quality assessment report states that streams and tributaries entering Lake Powell in the southern portions of the Upper Colorado River drainage have impairments to their beneficial uses from high levels of TDS and sodium. These impairments results mainly from natural sources and low flows. The most prevalent water quality problem results from suspended sediment which is a direct result of flooding. One developed and four undeveloped springs, and one livestock reservoir exist in the WSA. Primary uses are livestock and wildlife watering.

The Steep Creek WSA is within the Escalante River Adjudication Area 97. The Escalante River and all tributaries are considered to be fully appropriated, and the underground water directly connected to the surface is closed to appropriation, with the exception of some limited applications for 0.015 cfs which have been approved on an individual basis. The State Engi-

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neer will accept applications to appropriate water from the underground aquifer located in bedrock and consider them on the individual merits of the applications (UDNRE, DWR 1988).

Water rights within the WSA's boundary total 33.77 acre-feet annually. Of this, 29.57 acre-feet of water is allocated to the BLM for livestock watering. The State of Utah has the water rights to 4.2 acre-feet of water from Steep Creek on a State section enclosed within the boundary of the WSA (UDNRE, DWR, 1969).

Utah Power and Light has applications on file with the State Engineer for over 200,000 feet of water in the Escalante River Basin. According to information on file, this water would be used for coal-fired steam power generation, mining, domestic, and irrigation purposes. Current information suggests that such power generating developments would not occur in the foreseeable future.

Mineral and Energy Resources

The energy and mineral resource rating summary for the Steep Creek WSA is given in Table 3. Appendix 5 in Volume I explains the mineral and energy resource rating system.

Table 3
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|-------------|---------------------------|------------------------|---|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f2 | c1 | Less than 10 million barrels of oil; less than 60 billion cubic-feet of gas |
| Uranium | f2 | c2 | Less than 500 metric-tons of uranium oxide |
| Copper | f2 | c2 | Less than 50,000 metric-tons. |

Source: SAI, 1982; USDI, BLM, 1987.

^aFavorability of the WSA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

The WSA could contain deposits of copper, which is currently listed as strategic and critical material (USDoD, 1988). Although listed as strategic, copper is relatively common and supplies currently exceed domestic demand.

• Leasable Minerals

There are no known deposits of any leasable minerals in the WSA. Currently, there are no active drilling, mining, or exploration activities for leasable minerals.

• Oil and Gas

Numerous oil shows (including oil-impregnated rock deposits) have been reported from Cambrian, Devonian, Mississippian, Pennsylvanian, Permian, and Triassic rocks in south-central Utah (Heylman, et al., 1965; Veal, 1976; and Campbell and Ritzma, 1979). The older rocks generally are only stained, whereas free oil has been recovered from Mississippian rocks at Upper Valley (Doelling, 1975). Because the most obvious structures in the area have already been explored, many investigators considered subtle stratigraphic traps in Permian and Triassic rocks to offer the best potential for future petroleum discoveries.

The only oil and gas production in south-central Utah in the vicinity of the WSA comes from the Upper Valley Field located 30 miles to the west. This field was discovered on the Upper Valley anticline in 1964 and stimulated drilling activity on similar anticlinal structures in south-central Utah. To date, however, no commercial oil and gas potential has been identified in the WSA.

The oil reservoir is located along the prominent Upper Valley anticline, but the producing area is offset from the crest of the anticline to the west flank and the southern plunging nose. This offset is attributed to a regional, south to west directed hydrodynamic drive in the Kaibab Formation (Sharp, 1976). Oil accumulation in other anticlines within the region may be displaced to the south. Total production from this field is expected to approach 50 million barrels. Production is from four distinct zones in the Timpoweap Formation (Triassic age) and the Kaibab Formation (Permian age) (Sharp, 1976). Shows of oil were also reported in the Cedar Mesa (Permian) and the Red-wall Formation (Mississippian).

Eight exploratory oil and gas wells have been drilled at distances of 8 to 16 miles away from the WSA. These wells tested part of each of the large anticlines that surround the WSA on its east, west, and north sides. Many of the wells

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bottomed in lower Paleozoic rocks and oil shows were reported from parts of the Pennsylvanian and Permian sections. Two of these wells tested the Circle Cliffs anticline 11 miles east of the WSA. This same anticline can be traced northward through the WSA. One of the wells was drilled in 1954 and bottomed in Cambrian rocks at a depth of 5,628 feet. Oil shows were logged in the White Rim and Cedar Mesa Sandstones of Permian age. The other well on the Circle Cliffs anticline was drilled in 1921 to the Redwall Limestone (Kunkel, 1965). Although the wells were positioned on the structurally highest part of the anticline and penetrated most of the Paleozoic section, the structure has not been adequately tested. In addition to structural traps, the WSA may have some potential for stratigraphic traps.

A significant carbon dioxide deposit was discovered in 1960 on the Escalante anticline about 10 miles northwest of the WSA. A carbon dioxide-rich gas cap also exists above the oil in the Upper Valley Field. Although no other occurrences of carbon dioxide were reported in any of the wells drilled near the WSA, the possibility exists that a deposit could be found along that portion of the Circle Cliffs anticline in the northeastern part of the WSA. No estimates of the amount of carbon dioxide that might exist can be made.

The WSA is assigned an oil and gas favorability rating of (f2) (SAI 1982). The size of the hydrocarbon accumulation in such an environment is anticipated to be less than 10 million barrels of oil or less than 60 billion cubic-feet of gas. Based on the available information, the certainty of occurrence for oil and gas is rated very low (c1).

In the current land use plan, all 21,896 acres of the WSA are in Category 1 (standard stipulations). There is presently one post-FLPMA lease covering 2,532 acres in the WSA.

• Coal

The WSA is between the Henry Mountains coal field approximately 10 miles to the northeast and the Kaiparowits Plateau coal field approximately 20 miles to the southwest. All coal-bearing rocks in these fields, as well as all other fields in southern Utah, are of Cretaceous age (Doelling and Graham, 1972). Since the WSA is entirely underlain by rocks of pre-Cretaceous age, there is no potential for coal resources in the WSA.

• Locatable Minerals

There are no known deposits of locatable minerals in the WSA. Twenty-two mining claims, covering 440 acres, are located in the WSA.

• Uranium

The Chinle Formation is the only rock unit underlying the WSA known to have potential for uranium in this area. The Chinle occurs at depths ranging from zero along the northeastern part of the WSA to about 1,500 feet along the western side. About 15,000 acres in the eastern portion of the WSA are considered favorable for significant deposits of uranium. The term significant is defined as an economically-extractable uranium deposit that contains a total of at least 100 metric-tons of uranium oxide at a grade of at least 0.01 percent (Peterson, et al. 1982). The criteria used to evaluate the favorability in the area included: (1) the distribution of potential host rocks, which is inferred from the distribution of sandstone-to-mudstone ratios; and (2) the distribution of potential uranium source rocks, the Petrified Forest Member of the Chinle Formation. The remainder of the unit is not considered to be favorable for significant uranium deposits.

In the area adjacent to the northeast portion of the WSA, there are three uranium prospects of greater than 0.01 percent uranium oxide and one deposit that has produced less than 10 metric-tons of uranium oxide (Hackman and Wyant, 1973). Uranium was mined at the Centipede Mine outside the northeastern study area boundary. Mine workings follow a north-westerly trending paleochannel, and may extend at depth into the study area (USDI, USBM, 1987d). All the deposits and prospects in the immediate area are from the Shinarump Member of the Chinle Formation.

On the basis of the discussion above, the WSA is assigned a uranium favorability of (f2) (containing less than 500 metric-tons of uranium oxide). The certainty that uranium deposits occur in the WSA is low (c2).

• Copper

Copper associated with uranium mineralization occurs in the Shinarump Member of the Chinle Formation (Doelling, 1975) near the eastern boundary of the WSA. The copper minerals most

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often associated with uranium deposits (malachite, azurite, chalcopyrite, bornite, and chrysocolla) seem to be controlled by the same factors that have deposited the uranium minerals. Copper prospects in the Chinle Formation in the vicinity of the eastern boundary of the WSA have reported assays of 0.1 to 13.2 percent copper (Doelling, 1975). The potential in the eastern part of the WSA is rated (f2) (favorability for less than 50,000 metric-tons of copper). The certainty of occurrence is low (c2).

- Bentonite

Large bentonite resources are present in the Monitor Butte and Petrified Forest members of the Chinle Formation inside the study area. No markets have been identified and higher quality resources are present outside the WSA.

- Salable Minerals

Large sandstone resources suitable for decorative uses are present in the WSA. Petrified wood suitable for gem and decorative material is abundant in the Petrified Forest Member inside the eastern study area boundary (USDI, USBM, 1987d). These deposits are not unique or economically significant due to the presence of ample similar materials outside the WSA.

- Hydroelectric Power

None of the streams which flow through the WSA have potential for hydroelectric power (Clyde et al., 1979).

Wildlife Including Special Status Species

The Steep Creek WSA has habitat that could support approximately 50 species of mammals, 170 species of birds, 17 species of reptiles, five species of amphibians, and six species of fish. The birds are mainly seasonal residents or migrants while the other species are primarily residents. Major game species inhabiting the WSA are mule deer, elk, cougar, mourning dove, and various waterfowl (USDI, BLM, 1981d).

The entire WSA provides yearlong, winter, and important winter range for mule deer; however, deer numbers are low. The important winter range supports a wintering deer population that spends the remainder of the year on the Dixie National Forest. The riparian areas are the most important use areas for the resident populations.

The WSA provides approximately 5,000 acres of important winter range for elk. UDWR transplanted 159 elk into the Boulder Mountain elk herd unit in 1976 to 1977. During years of heavy snowfall on the higher elevations of the Dixie National Forest, between 50 to 80 elk may migrate onto winter range which includes part of the WSA. Elk, during hard winters, are also using forage from private fields near Boulder. UDWR has identified a need for an elk habitat management plan that would help reduce the elk use of private lands. Portions of the Steep Creek WSA have potential for land treatments to improve elk habitat. Two endangered species, the peregrine falcon (Falco peregrinus) and bald eagle (Haliaeetus leucocephalus), are rare migrants and possibly winter visitors to the WSA.

At least seven other raptors are known to nest in the WSA, including the golden eagle (a BLM sensitive species) but only the American kestrel could be considered common. The UDWR list of sensitive species includes two species that occasionally occur within the WSA: Lewis woodpecker and western and mountain bluebirds. There are also seven Category 2 candidate species that could inhabit the WSA as follows: Great Basin Silverspot butterfly, Salt Gulch pocket gopher, ferruginous hawk, long-billed curlew, southern spotted owl, Swainson's hawk and white-faced ibis (see Appendix 4 in Volume I).

The most important game fish occurring in the WSA are brown and rainbow trout. Deer Creek is the only stream in the WSA that supports trout populations. Rainbow and brown trout are not native to this area but have been introduced at various times by the UDWR; however, they do not stock these waters on a regular basis. The WSA contains approximately 2 miles of fish habitat (USDI, BLM, 1979G).

No wildlife habitat plans or wildlife projects have been developed within the WSA.

Forest Resources

No significant forest resources occur in the WSA. The WSA does contain scattered Ponderosa pine trees and stands of pinyon pine and juniper trees (approximately 19,147 acres) that are open for the collection of fuelwood; however, due to the remoteness of the area, lack of access, and sparse vegetation, current use is minimal and is not expected to increase in the foreseeable future (USDI, BLM 1979g).

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Livestock and Wild Horses/Burros

The WSA encompasses one livestock (cattle) grazing allotment (White Rock) and portions of three others (Deer Creek, Circle Cliffs, and Steep Creek). Tables 4 and 5 summarize livestock use and existing and proposed range improvements in the WSA. There are no wild horses or burros in the WSA.

Predator control was not conducted during the 1986 to 1987 period in the grazing allotments that comprise the Steep Creek WSA (USDA, APHIS, 1988).

Visual Resources

The BLM visual resource inventory classified approximately 19,100 acres as Class A and 2,796 acres as Class B scenery. VRM classes assigned include 21,186 acres of the WSA in Class II and 710 acres in Class IV (refer to Appendix 7 in Volume I for more detail on the BLM VRM system). The landscapes of the WSA are derivative of both the Escalante River canyon country and the Circle Cliffs. The WSA is also on the shoulder of the Aquarius Plateau and exhibits some mountainous features. Scenic values are discussed in detail under the Wilderness Values, Special Features section.

Cultural Resources

A total of 15 archaeological sites have been recorded in the WSA (BLM, 1988). All of these are prehistoric surface lithic scatters. Only one temporally diagnostic artifact, a Middle Archaic projectile point, was

located. The cultural and temporal affiliations of the remaining sites are unknown. All of the sites except one are located on ridge tops. The remaining site is located in the bottom of a small drainage. Only one site was reported to contain buried archaeological deposits. None of the recorded sites are considered to be eligible for nomination to the National Register of Historic Places. One rockshelter site is known to exist in the WSA, but has not been recorded.

One cultural resource inventory, has been conducted within the boundaries of the WSA. One 160-acre quadrant was surveyed and the 15 sites were recorded (USDI, BLM, 1978a). Based on this information, site densities in the region are estimated to be approximately 400 sites per 23,000 acres. Site densities in the WSA may be very high; as the potential for finding additional sites in the unit are good. Most of these sites would probably be lithic scatters located on ridge tops, but additional rockshelter sites or Anasazi sites may also be found.

Recreation

Although the Steep Creek WSA offers opportunities for both primitive and nonprimitive types of recreational use, reliable data on existing visitor use are not available. Most of the present use of the WSA is probably associated with primitive opportunities such as hiking, backpacking, horseback riding, photography, sightseeing, and rockhounding. It is estimated that the area receives 10,050 visitor days annually. Approximately 50 visitor days are for activities where vehicles are used. Since 1981, motor vehicle

Table 4
Livestock Grazing Use Data

| Allotments | Total Acres | Acres in WSA | Total AUMs | Number of AUMs in WSA | Number and Kind of Livestock | Season of Use | Number of Operators |
|---------------|---------------|---------------|--------------|-----------------------|------------------------------|---------------|---------------------|
| White Rock | 1,302 | 1,286 | 60 | 56 | 30 Cattle | 12/01-01/31 | 1 |
| Deer Creek | 16,751 | 4,201 | 589 | 660 | 131 Cattle | 11/01-02/28 | 2 |
| Steep Creek | 10,414 | 8,696 | 448 | 318 | 53 Cattle | 11/01-03/31 | 1 |
| Circle Cliffs | 29,713 | 3,391 | 1,050 | 95 | 210 Cattle | 11/01-06/31 | 3 |
| Unallotted | | 4,322 | | | | | |
| Total | 58,180 | 21,896 | 2,147 | 1,129 | | | 7 |

Sources: BLM File Data.

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use of the Burr Trail which borders the WSA has increased from 5,000 vehicles to 10,000 vehicles per year. In addition, this road is becoming a popular biking route. Although no developed hiking trails exist in the WSA, at least 15 miles of hiking routes are available. Trailheads for hiking exist at the adjacent Deer Creek recreation area and on the Long Canyon-Burr Trail road crossing of The Gulch. The primary use period is from March to November.

Table 5
Existing and Proposed Range Improvements

| Allotment | Existing Range Improvement | Proposed Improvement |
|---------------|--|----------------------|
| White Rock | 0.75 mile fence 1 Reservoir | None |
| Deer Creek | None | None |
| Steep Creek | 1 Spring development 1.8 miles fence 3 miles stock trail | None |
| Circle Cliffs | 0.10 mile fence | None |

Source: USDI, BLM, 1980a.

The area is utilized by commercial outdoor survival groups as an outdoor classroom. About 800 of the total visitor use days are attributed to commercial use.

The Gulch and Egg Canyon have been identified as petrified wood areas. Collecting opportunities occur in the Morrison and Chinle Formations. The Egg Canyon petrified wood area contains significant quantities of petrified wood in the form of large logs. Deer Creek offers sport-fishing opportunities for brown and rainbow trout. Fishing use is minor.

Approximately 18,356 acres of the WSA are open, 3,220 acres are closed to ORV use, and ORV use is limited to existing roads and trails on 320 acres as indicated in the MFP. The closed areas include Cottonwood Wash (670 acres), Hot Canyon (770 acres), Steep Creek (640 acres), and The Gulch (1,140 acres). ORV use is limited to designated roads and trails in the Egg Canyon petrified wood area.

Land Use Plans

The WSA contains 21,896 acres of public land administered by the BLM. Public lands in the WSA lie within the BLM Escalante planning unit and are being managed according to the land use decisions of the Escalante MFP (USDI, BLM, 1981d).

Principle uses include recreation and grazing. Wilderness is not addressed in the Escalante MFP. However, wilderness designation is part of the BLM multiple-use concept, and the BLM land use plan is linked to the Statewide Wilderness EIS through analysis of the present plan as the No Action/No Wilderness Alternative.

Three rights-of-way exist in the WSA: (1) Garkane Power Company's powerline easement (U27727); (2) Wilderness Survival Inc.'s right-of-way for an irrigation ditch (U29688); and (3) a telephone line (U-30747). These rights-of-way are associated with Deer Creek Ranch which is private land adjacent to the WSA boundary.

The WSA is BLM-administered public land except for three State sections (1,907.2 acres) and 160 acres of split-estate (Federal surface-State minerals). The current policy of the State is to maximize economic returns from State lands and to reserve its position regarding the exchange of in-held lands (see Chapter 1 in Volume I). In 1986, the Utah State Legislature passed S.C.R. No. 1 opposing any additional wilderness designation in Utah and urging that State lands not be exchanged out of wilderness areas. Of the 1,907.2 acres of in-held State land, 627.2 acres are under lease for oil, gas and hydrocarbons, and 640 acres are leased for grazing. The only current activity on these lands is livestock grazing.

The Garfield County Master Plan (Five County Association of Governments, 1984) recognizes the need for protection of specific areas. Within the county the plan proposes 142,653 acres be designated wilderness by Congress. A portion of the Steep Creek WSA (18,350 acres) is included in the recommended acreage. The master plan recommends that the remainder of the WSA be managed for multiple use, including uses such as forestry, livestock grazing, mining, wildlife, and recreation.

Regardless of the master plan, the Garfield County Commission has endorsed the Consolidated Local Government Response to Wilderness (Utah Counties, 1986) that opposes wilderness designation of BLM lands in Utah.

The County also has plans to improve the Boulder to Bullfrog road (Burr Trail) by paving to make it an all-weather road. The road would be designed primarily for scenic sightseeing use.

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Socioeconomics

• Demographics

The Steep Creek WSA is located in Garfield County and is approximately 3 and 30 road miles from the respective communities of Boulder and Escalante. Most of the economic impacts are expected to be restricted to this county.

Garfield County has an average population density of less than one person per square mile. This density is very low when compared to the statewide average of 17 persons per square mile (USDC, Bureau of the Census, 1981). From 1970 to 1980 the population of Garfield County grew from 3,157 to 3,700, an overall increase of about 17 percent. Table 6 presents the baseline and projected population data for Garfield County. It is estimated that between 1980 and 1987, population increased to about 4,085. Population projections indicate that the number of people living in Garfield County in the year 2010 will be about 4,850 for about a 19-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

Table 6
Baseline and Projected Population and Employment Growth
Garfield and Wayne Counties

| | 1980 | 1990 | 2000 | 2010 |
|------------|-------|-------|-------|-------|
| Population | 3,700 | 4,250 | 4,350 | 4,850 |
| Employment | 2,156 | 2,000 | 2,200 | 3,200 |

Source: Utah Office of Planning and Budget, 1987.

• Employment

Table 6 shows the baseline and projected total employment for Garfield County to the year 2010.

Garfield County is part of the Southwest MCD. Table 7 shows the baseline (1980) and projected employment by source for the MCD to the year 2010. In 1980 the leading employment sectors for the Southwest MCD were government (23 percent), trade (20 percent), and nonfarm proprietors (12 percent). Mining provided approximately 2 percent of the direct employment in the MCD.

It is projected that by the year 2010, employment in the MCD will more than double. Services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 3 percent, Government to 18 percent, and mining to less than 1 percent of the total MCD employment.

Table 7
Southwest Multi-County District
Employment*

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|--------------|--------------|--------------|--------------|
| Agriculture | 1,810 | 1,700 | 1,600 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,800 | 3,300 |
| Transportation, Utilities | 1,006 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 8,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 8,900 | 8,900 |
| Government | 4,818 | 5,800 | 8,500 | 8,100 |
| Nonfarm Proprietors | <u>2,386</u> | <u>3,100</u> | <u>3,500</u> | <u>4,700</u> |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

*Includes Beaver, Garfield, Iron, Kane, and Washington Counties.

• Sales and Revenues

Economic-related activities in the WSA include mineral exploration, livestock production, and recreation. Table 8 summarizes the local sales and Federal revenues from the WSA. Appendix 9 in Volume I identifies the multipliers used to estimate sales and revenues.

Table 8
Sales and Revenues

| Source | Estimated Annual Local Sales* | Estimated Annual Federal Revenues |
|-------------------------|----------------------------------|--------------------------------------|
| Oil and Gas Leases | 0 | \$5,064 |
| Mining Claim Assessment | \$2,200 | 0 |
| Livestock Grazing | \$22,580 | \$1,739 |
| Recreational Use | <u>\$41,205</u> | <u>\$ 450^b</u> |
| Total | \$65,985 | \$7,253 |

Sources: BLM File Data; Appendix 9 in Volume I.

*Local sales represent money potentially spent. They do not account for the total income that would be generated by these expenditures.

^bPart of a total of \$1,350 in revenue received from commercial organizations also using the North Escalante Canyons/The Gulch ISA and Steep Creek ISA.

The WSA has 22 mining claims. Regulations require a \$100 annual expenditure per claim for labor and improvements, an undetermined part of which is spent in the local economy.

No oil and gas or mineral has been produced from the WSA. Therefore, mineral and energy resource production from the WSA has not contributed to local employment or income.

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Seven livestock operators have a total grazing privilege of 1,129 AUMs within the WSA. If all this forage were utilized, it would account for \$22,580 of livestock sales and \$5,645 of ranchers' returns to labor and investment.

The WSA's nonmotorized recreational use is low. Related local expenditures are low and could only be significant to the commercial outfitters who currently use the WSA. These expenditures are insignificant to both the local economy and individual businesses other than the commercial outfitters who use the WSA, because most purchases are made outside of the county and the City of Escalante. Related local expenditures are low. They are insignificant to both the local economy and individual businesses other than to commercial outfitters. The actual amount of income generated locally from recreational use in the WSA is unknown. However, an approximate range of expenditures can be deduced (Dalton, 1982). This study indicates that the Statewide average local expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for the Steep Creek WSA is estimated to be about 10,050 visitor days per year.

The WSA generates Federal revenues from mineral leases, livestock, and recreation sources (refer to Table 8).

Oil and gas leases in the WSA cover approximately 2,532 acres. At up to \$2 an acre, lease rental fees generate up to \$5,064 of Federal revenues annually. Half of these monies are allocated to the State which, in turn, reallocates these revenues to various funds, the majority of which are related to energy development and mitigation of local impacts of energy and mineral development.

The seven livestock permittees in the WSA can use up to 1,129 AUMs per year. Based on a \$1.54 per AUM grazing fee, the WSA can potentially generate \$1,739 of grazing fee revenues annually, 50 percent of which would be allocated back to the local BLM District for the construction of rangeland improvements. Recreation permits generate about \$450 of Federal revenues annually.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

Analysis assumptions and guidelines for all alternatives are described in the Introduction to Volume III-B. The following analysis is also based on imple-

mentation of the Action Scenarios presented in the Description of the Alternatives.

No Action/No Wilderness Alternative

• Impacts on Wilderness Values

Because the WSA would not be designated wilderness with this alternative, the identified wilderness values would not receive the degree of protection afforded by application of the BLM Wilderness Management Policy (BLM Manual 8560). Wilderness values in the WSA would be somewhat protected by limitations placed on potential-surface disturbing activities (i.e., VRM Class II management on 21,186 acres and ORV closure limitations on 3,220 acres).

In the foreseeable future, disturbance of approximately 32 acres from exploration and development of uranium mining claims in the eastern portion of the WSA, from development of access to a State Section (T. 33 S., R. 5 E., sec. 16) and from reclaiming and paving the Burr Trail would result in a loss of naturalness and opportunities for solitude and primitive, unconfined recreation in the disturbed areas. Special features, including endangered and sensitive species, wildlife associated with wilderness, and perennial streams, would not be significantly affected because the direct disturbance would be minor involving only 0.15 percent (32 acres) of the WSA and the disturbance would generally not be located where these special features are located. In addition, appropriate measures would be taken to protect endangered and sensitive species prior to any surface-disturbing activity. Loss of scenic quality would occur in disturbed areas. Some A Class scenery could be affected.

During the period of activity, the visual and audible disturbance from uranium exploration and development and from realigning and paving the Burr Trail would reduce the quality of opportunities for solitude and primitive recreation not only on directly disturbed areas but also indirectly on adjacent portions of the WSA. As much as 6 percent (1,314 acres) of the WSA would be so affected in the foreseeable future.

Because future vehicular use would generally be limited by terrain to existing vehicular ways or future mining roads, no additional disturbance from ORV activity is anticipated in the future. The continued and increased use of existing ways or future mining roads would occasionally detract from opportunities for solitude and primitive recreation.

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The increased visitor use that would occur over time would not be expected to reduce the quality of wilderness values significantly because the additional use would be largely primitive in nature.

The extent that disturbance would occur over the long term and, therefore, the long-term loss of wilderness values that would occur is not accurately known. Loss would occur as intrusions increase.

Conclusion: Wilderness values would not be protected by wilderness designation. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 32 acres and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to an additional 1,314 acres. Some Class A scenery would be reduced in quality in disturbed areas.

• Impacts on Water Resources

Since precipitation is low and the amount of disturbance is minor, no significant sedimentation or change in TDS, including salt production, is expected to occur from the 32 acres of disturbed soil. Water could be diverted from upstream of the WSA without consideration of wilderness values. Existing and future water resources and uses would not be affected.

Conclusion: The No Action/No Wilderness Alternative would not significantly alter present or future water quality or uses.

• Impacts on Mineral and Energy Exploration and Production

The WSA would remain open to exploration and development of mineral and energy resources without consideration of wilderness values. Therefore, mineral and energy resources would not be affected by the No Action/No Wilderness Alternative.

Conclusion: Implementation of the No Action/No Wilderness Alternative would not adversely affect mineral exploration or production.

• Impacts on Wildlife Habitat and Populations Including Special Status Species

With this alternative wildlife, particularly elk, could be affected by a change in habitat. The WSA has potential for vegetation treatments in the northern part and there is a need to develop additional elk winter habitat. However, there are no formal plans for doing

so at the present time. Disturbance of an estimated 32 acres through road realignment and mineral and energy exploration may temporarily disrupt wildlife. Deer, elk, and mobile nongame animals would be dispersed from the area during the construction phase of these activities. Less mobile wildlife would either perish or co-exist with these disturbances at smaller and less viable population levels.

There is a slight potential that individual animals of the two endangered and seven Category 2 species that may occur in the WSA could be disturbed by locatable minerals exploration. This would only exist where such mineral operations would occur on areas of less than 5 acres, and where a plan of operation and approval is not required under the 43 CFR 3809 regulations. The Endangered Species Act and subsequent regulations apply to these operations and any losses would be inadvertent. It is not anticipated that mineral-related actions in the WSA would affect the continued existence of any of the endangered or other special status species.

Prior to authorizing any surface-disturbance activities, including realignment of the Burr Trail and development of access to State land, the BLM would conduct site-specific clearances of the potentially disturbed areas. If any threatened or endangered species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (refer to Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Because necessary measures would be taken to protect these species, the viability of populations of threatened, endangered, or other special status animal species would not be significantly affected with the No Action/No Wilderness Alternative.

Conclusion: There would be no significant impacts to wildlife habitat or populations including special status animal species because only 0.15 percent of the habitat in the WSA would be disturbed. The opportunity to develop elk winter habitat would continue.

All Wilderness Alternative (21,896 Acres)

• Impacts on Wilderness Values

Designation and management of all 21,186 acres as wilderness would contribute to the preservation of the wilderness values in the Steep Creek WSA. The potential for surface-disturbing activities would be

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reduced through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I which allows for only natural ecological change. Naturalness would be protected on all 21,896 acres. Solitude would be protected on approximately 15,500 acres that meet and 6,396 acres that do not meet the standards for outstanding. Primitive and unconfined recreation would be protected on approximately 18,100 acres that meet and 3,796 acres that do not meet the standards for outstanding. Resources that could be considered as special features in the WSA, including Class A scenery, scenic features, endangered and sensitive species, wildlife associated with wilderness, and perennial streams, would also be protected.

Although protected, complete preservation of wilderness values would not be assured because of valid existing rights. In the foreseeable future, disturbance of up to 28 acres is anticipated from exploration and development of valid mining claims in the eastern portion of the WSA, from development of access to a State Section (T. 33 S., R. 5 E., sec. 16) and from the realigning and paving of the Burr Trail. Wilderness values of naturalness and opportunities for solitude and primitive recreation would be directly lost on the disturbed areas. Opportunities for solitude and primitive recreation would also be indirectly reduced in quality on adjacent portions of the WSA during the period of activity. As much as 4 percent of the WSA (876 acres) could be so affected. Special features, including endangered and sensitive species, wildlife associated with wilderness, and perennial streams would not be significantly affected because the disturbance would be minor, involving only 0.13 (28 acres) of the WSA, and the disturbance would not be located where these special features are located. In addition, appropriate measures would be taken to protect endangered and sensitive species prior to any surface-disturbing activity. Mitigation to protect wilderness values would be applied, but loss of wilderness values would be allowed if development involving valid existing rights could not be otherwise achieved. Some Class A scenery would be reduced in quality in the disturbed areas. All in all, the disturbance would not be substantially noticeable in the area as a whole.

Vehicular use of existing ways would generally cease with ORV closure, improving opportunities for solitude and primitive recreation.

Over the long term, there would be no potential for loss of wilderness values due to development of new

leases and mining claims. The potential for long-term loss due to development of valid existing rights and State in-holdings is not accurately known, but would be less than with the No Action/No Wilderness Alternative due to wilderness protection mitigation.

Increased visitor use that would occur with time would be primitive in nature and would be managed so as to not result in loss of wilderness values.

Conclusion: Wilderness values in the WSA would be preserved overall. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be lost on 28 acres and opportunities for solitude and primitive recreation would be reduced in quality on up to an additional 876 acres of the WSA.

• Impacts on Water Resources

Since precipitation is low and the amount of disturbance is low, no significant sedimentation or change in TDS, including salt production, is expected to occur from 28 acres of disturbed soil.

Approximately 15 miles of perennial streams flow through the WSA which in turn flow into the Escalante River. Projects upstream of the WSA could be hampered because changes in use, changes in points of diversion, or transfer of water rights could be protested by the Federal government to maintain flow through the WSA in order to protect resource values. Potential upstream water uses include steam power generation, mining, domestic, and irrigation purposes.

Conclusion: In the short term, wilderness designation would not significantly alter water quality or use. In the long term, future water diversions and new and consumptive uses in the Escalante River system upstream of the WSA may be restricted or precluded.

• Impacts on Mineral and Energy Exploration and Production

• Leasable Minerals

Approximately 2,532 acres are under lease for oil and gas. However, no exploration or development of oil and gas is presently occurring within the WSA. Existing leases could be developed subject to the stipulations issued at the time of leasing. It is unlikely that the existing lease will be

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developed or a showing of commercial quantities made prior to their expiration dates, and the expired lease would not be re-issued.

Exploration for and development of a potential resource of up to 10 million barrels of oil in-place and less than 60 billion cubic-feet of natural gas with 3 million barrels of oil and 18 billion cubic-feet of natural gas that is recoverable could be foregone under this alternative. However, due to the small size of the potential deposits, the low certainty that these exist, and the low likelihood of exploration and development activities, it is concluded that this alternative would not result in a significant loss of potential oil and gas recovery.

- Locatable Minerals

Approximately 440 acres are covered by 22 mining claims within the WSA. Up to 5,000 metric-tons of uranium oxide and up to 50,000 metric-tons of copper could occur within the WSA. Development work, extraction, and patenting would be allowed to continue on valid claims after wilderness designation under unnecessary or undue degradation guidelines (43 CFR 3809). It is estimated that 2 acres would be disturbed due to exploration of locatable mineral resources in the northeastern corner of the WSA

An impact to minerals would occur if potentially recoverable deposits are not within existing mining claims or claims filed prior to designation. In that case the potential for recovery of up to 5,000 metric-tons of uranium and 50,000 metric-tons of copper would be foregone. Because production of these metals is not currently occurring and because economic considerations (e.g., transportation, low potential, etc.) are unfavorable, it is unlikely that development will occur in the foreseeable future. Therefore, this alternative would not result in a significant loss of recoverable uranium or copper resources.

Conclusion: Potential exploration opportunities for locatable minerals would be limited to those under valid mining claims at the time of designation. No significant mineral production would be foregone.

- Impacts on Wildlife Habitat and Populations Including Special Status Species

With this alternative, some wildlife could benefit due to the preservation of solitude. However, potential vegetation treatment for improvement of elk habitat would be foregone. This could result in continued damage to private fields near Boulder. The two endangered and seven Category 2 species which may occur in the WSA would be provided with additional protection over the entire area. Prior to any surface disturbance (estimated 2 acres due to locatable mineral exploration, 1 acre due to development of access to State land, and 25 acres due to realignment of the Burr Trail), appropriate inventories, clearances, and (if required) consultation with the FWS would be undertaken in compliance with the Endangered Species Act. Therefore, no significant impacts to wildlife would occur.

Conclusion: The opportunity to improve habitat on elk winter range would be precluded. Designation would protect all species with additional opportunities for solitude. Special status species would be protected.

Large Partial Wilderness Alternative (Proposed Action) (20,806 Acres)

- Impacts on Wilderness Values

Wilderness designation of 20,806 acres would contribute to the preservation of the area's best wilderness values. This Partial Wilderness Alternative would reduce the potential for surface-disturbing activities that could impair wilderness values over the long term in the designated area. Protection in the designated area would include management under VRM Class I which generally allows for only natural ecological change, ORV closure including closure of 1.5 miles of way, and closure to future mineral leasing and location. Naturalness, outstanding opportunities for solitude, including approximately 15,500 acres that meet and 5,306 acres that do not meet the standards for outstanding, and primitive recreation including approximately 17,270 acres that meet and 3,536 acres that do not meet the standards of outstanding, and special features including scenic features, endangered and sensitive species, wildlife associated with wilderness, and perennial streams, would be protected.

In the foreseeable future, direct loss of naturalness and opportunities for solitude and primitive recreation due to allowable surface disturbance from min-

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eral exploration and development and from providing access to a State Section (T. 33 S., R. 5 E., sec. 16), and from realigning and paving the Burr Trail would occur on up to 3 acres within the designated portion and on up to 25 acres within the nondesignated portion. Special features would be largely preserved because disturbance would involve only about 0.13 percent (28 acres) of the WSA. In addition, appropriate measures would be taken to protect endangered and sensitive species prior to any surface-disturbing activity. Areas of Class A scenery would be reduced in quality in the disturbed areas.

Sights and sounds from foreseeable development would reduce the quality of opportunities for solitude and primitive recreation indirectly on areas adjacent to the disturbed areas, including up to 4 percent (876 acres) of the WSA. Most of this type of impact would be in the nondesignated area.

Elimination of ORV use involving approximately 1.5 miles of way in the designated area would improve opportunities for solitude and primitive recreation in the WSA although continued vehicular use of 1 mile of way in the nondesignated area would continue to detract from these opportunities during the period of activity.

The extent that disturbance would occur over the long term and, therefore, the long-term loss of wilderness values that would occur is not accurately known. Loss would be less than with the No Action/No Wilderness Alternative due to the application of mitigation in the designated area that would limit development subject to valid existing rights.

Conclusion: The best wilderness values would be preserved overall in the designated area which includes about 95 percent of the WSA. Naturalness and opportunities for solitude and primitive recreation would be directly lost on 32 acres, and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to an additional 4 percent (876 acres) of the WSA. Class A scenery could be reduced in quality in the disturbed areas.

• Impacts on Water Resources

The impacts and conclusions on water would be essentially the same as with the All Wilderness alternative, because the level of disturbance would be the same and the perennial streams would pass through the designated areas.

Conclusion: In the short term, wilderness designation would not significantly alter water quality or use. In the long term, future water diversions and new and consumptive uses in the Escalante River system upstream of the WSA may be restricted or precluded.

• Impacts on Minerals and Energy Exploration and Production

• Leasable Minerals

The area designated wilderness would be placed in Category 4 status with no new leasing. There are approximately 2,532 acres of oil and gas leases in the area that would be designated wilderness. Activities on these leases would occur subject to the stipulations issued at the time of leasing. That portion of the WSA not designated wilderness would be subject to oil and gas exploration and development as discussed for the No Action/No Wilderness Alternative.

It is concluded that, due to the small size of the potential deposits the low certainty that these exist and the low likelihood for exploration and development activities, this alternative would not result in a significant loss in recovery of oil and gas resource.

• Locatable Minerals

There are presently 22 mining claims within the area that would be designated wilderness. It is possible additional claims could be staked before wilderness designation. Development work, extraction, and patenting could occur on valid claims after wilderness designation under unnecessary or undue degradation guidelines. After designation, all other lands (including claims not determined valid) would be closed to prospecting and development (USDI, BLM, 1981a).

In the designated portion, it is estimated that 2 acres would be disturbed due to exploration of locatable mineral resources. This activity would occur in the northeastern corner of the WSA. No exploration or development activity is anticipated on the remainder of the WSA because resource values are too low to support that assumption. In addition, no developments are projected for the area where exploration would occur because of the low certainty that small uranium and copper deposits actually exist within the WSA. If such deposits do occur, they would be at depths suit-

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able for underground mining and could be accessed from existing workings outside the WSA.

Conclusion: Potential exploration opportunities for locatable minerals would be limited to claims existing at the time of designation. No significant minerals production would be foregone.

• Impacts on Wildlife Habitat and Populations Including Special Status Species

The projected impacts with this alternative are essentially the same as those discussed with the All Wilderness Alternative. The partial designation would preclude the opportunity to improve habitat on elk winter range. Designation would protect all species with additional opportunities for solitude and there would be no significant impacts to special status species, because of required mitigation and because only 0.13 percent (28 acres) of the habitat in the WSA would be disturbed.

Conclusion: The opportunity to improve elk winter range habitat would be precluded. Designation would protect all species with additional opportunities of solitude. There would be no significant impacts to special status species.

Small Partial Wilderness Alternative (18,350 Acres)

• Impacts on Wilderness Values

Wilderness designation of 18,350 acres would contribute to preservation of the area's best wilderness values. Although in the foreseeable future, impacts would be about the same as identified for the No Action/No Wilderness Alternative, this Partial Wilderness Alternative would reduce the potential for surface-disturbing activities that could impair wilderness values over the long term in the designated area. Protection in the designated area would include management under VRM Class I which generally allows for only natural ecological change, ORV closure including closure of 1.5 mile of ways, and closure to future mineral leasing and location. Naturalness, outstanding opportunities for solitude including about 14,395 acres that meet and 3,955 acres that do not meet the standards for outstanding, and primitive recreation including about 16,859 acres that meet and 1,491 acres that do not meet the standards of outstanding, and special features including scenic features, endangered and sensitive species, wildlife asso-

ciated with wilderness, and perennial streams, would be protected.

In the foreseeable future, direct loss of naturalness and opportunities for solitude and primitive recreation due to allowable surface disturbance from mineral exploration and development, from providing access to a State Section (T. 33 S., R. 5 E., sec. 16), and from the realigning and paving of the Burr Trail would occur on up to 2 acres within the designated portion and on up to 30 acres within the nondesignated portion. Loss of these values would be confined to the eastern and southern portions of the WSA. Special features would be largely preserved because the direct disturbance would involve only 0.14 percent (30 acres) of the WSA, and except for Class A scenery development, is not expected in areas where special features are located. In addition, appropriate measures would be taken to protect endangered and sensitive species prior to any surface-disturbing activity.

Sights and sounds from foreseeable development would indirectly reduce the quality of opportunities for solitude and primitive recreation on areas adjacent to the disturbed areas, including up to 5 percent (1,095 acres) of the WSA. Most of this type of impact would be in the nondesignated area.

Elimination of ORV use in the designated area would improve opportunities for solitude and primitive recreation in the WSA, although vehicular use of 1 mile of way and future mining roads in the nondesignated area would continue to detract from these opportunities during the period of activity.

The extent that disturbance would occur over the long term and, therefore, the long-term loss of wilderness values that would occur is not accurately known. Loss would be less than with the No Action/No Wilderness Alternative due to the application of mitigation in the designated area that would limit development subject to valid existing rights.

Conclusion: The best wilderness values would be preserved overall in the designated area which includes about 84 percent of the WSA. Naturalness and opportunities for solitude and primitive recreation would be directly lost on 30 acres, and opportunities for solitude and primitive recreation would be temporarily reduced in quality on up to an additional 5 percent (1,095 acres) of the WSA. Class A scenery would be reduced in quality in disturbed areas.

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- Impact on Water Resources

The impacts and conclusions on water would be essentially the same as with the All Wilderness Alternative, because the level of surface disturbance would be approximately the same and the perennial streams would pass through the designated area.

Conclusion: In the short term, wilderness designation would not significantly alter water quality or use. In the long term, future water diversions and new and consumptive uses in the Escalante River system upstream of the WSA may be restricted or precluded.

- Impact to Minerals and Energy Exploration and Production

- Leasable Minerals

The area designated wilderness would be placed in Category 4 status with no new leasing. There are approximately 2,532 acres of oil and gas leases in the area that would be designated wilderness. Activities on these leases would occur subject to the stipulations issued at the time of leasing. The nondesignated portion of the WSA could be developed for oil and gas as discussed in the No Action/No Wilderness Alternative.

It is concluded that, due to the small size of the potential deposits, the low certainty that these exist, and the low likelihood for exploration and development activities, this alternative would not result in a significant loss in recovery of the oil and gas resource.

- Locatable Minerals

There are presently no mining claims within the area that would be designated wilderness. However, some claims could be staked before wilderness designation. Development work, extraction, and patenting could occur on valid claims after wilderness designation under unnecessary or undue degradation guidelines. After designation, all other lands (including claims not determined valid) would be closed to prospecting and development (USDI, BLM, 1981a).

In the designated portion, it is estimated that 1 acre would be disturbed due to exploration of locatable mineral resources.

This activity would occur in the northeastern corner of the WSA. About 5 acres would be disturbed by exploration on the remainder of the WSA. However, development is not projected for the area where exploration would occur because of the low certainty that small uranium and copper deposits actually exist within the WSA. If such deposits do occur, they would be at depths suitable for underground mining and could be accessed from existing workings outside the WSA.

Conclusion: Mineral exploration would not be limited in the area considered to possess the most potential for locatable minerals. No significant minerals exploration or production would be foregone.

- Impacts on Wildlife Habitat and Population Including Special Status Species

With this alternative, some wildlife could benefit due to the preservation of solitude on 84 percent (18,350 acres) of the WSA. However, potential vegetation treatment for improvement of elk habitat would be foregone as discussed for the All Wilderness Alternative. In the designated portion of the WSA the two endangered and seven Category 2 candidate species which may occur in the WSA would be provided with additional protection. Disturbance of an estimated 32 acres (0.15 percent of the WSA) through road realignment and mineral and energy exploration may temporarily disrupt wildlife.

There is a slight potential that individual animals of the two endangered and seven Category 2 species that may occur in the WSA could be disturbed by locatable minerals exploration. This would only exist where such mineral operations would occur on areas of less than 5 acres, where a plan of operation and approval are not required under the 43 CFR 3809 regulations. The Endangered Species Act and subsequent regulations apply to these operations and any losses would be inadvertent. It is not anticipated that mineral-related actions in the WSA would threaten the continued existence of any special status species.

Prior to authorizing any surface-disturbance activities, including realignment of the Burr Trail and development of access to State land, BLM would conduct site-specific clearances of the potentially disturbed areas. If any threatened or endangered species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (refer to Appendix 4 in Volume I).

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Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Because necessary measures would be taken to protect these species, the viability of populations of threatened, endangered, or other special status animal species would be preserved with the Small Partial Wilderness Alternative.

Conclusion: The opportunity to improve habitat on elk winter range would be precluded. Designation would protect all species with additional opportunities for solitude on 84 percent (18,350 acres) of the WSA. There would be no significant impacts to threatened, endangered, or other special status species.

North Escalante Canyons/ The Gulch ISA



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NORTH ESCALANTE CANYONS/THE GULCH ISA

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NORTH ESCALANTE CANYONS/THE GULCH ISA

INTRODUCTION

General Description of the Area

The North Escalante Canyons/The Gulch ISA is located in Garfield County approximately 5 miles east of the town of Escalante, Utah. The ISA contains 119,752 acres. There are 119,300 acres of full estate BLM-administered land, which include the North Escalante Canyons ONA (5,800 acres), Tracts 2, 3, and 4 of the Escalante Canyon ONA (480 acres), The Gulch ONA (3,430 acres), The Wolverine Petrified Wood Natural Environmental Area (2,213 acres), and portions of Deer Creek recreation area (475 acres), Calf Creek recreation area (425 acres), and Phipps-Death Hollow ONA (12 acres). The ISA encloses 7,623 acres of State land and includes 452 acres of split-estate lands (Federal surface, State minerals). The ISA is administered by the BLM Cedar City District Escalante Resource Area office.

The ISA is separated from the Phipps-Death Hollow ISA by State Highway 12 and an existing powerline on the northwestern boundary. The Boulder to Bullfrog road (Burr Trail) separates the northern border of the ISA from the Steep Creek WSA. The southeastern boundary of the North Escalante Canyons/The Gulch ISA is contiguous to the Glen Canyon NRA.

The majority of the ISA is characterized by steep-walled canyons, mesas, plateaus, and natural arches. The Escalante River and The Gulch run through the ISA. Much of the ISA is bare rock outcrop. Pinyon-juniper woodland is the major vegetation type.

In general, the climate is temperate and arid with annual precipitation averaging about 10 inches. From June through early September convection-type thunderstorms advance from the Pacific Ocean off the coast of Mexico and southern California. Frontal-type storms out of the northwest move over the area from October through June. The highest precipitation rates occur primarily from November through March.

Summer temperatures in Escalante, Utah, range approximately 30 degrees Fahrenheit (F) with highs in the mid-90s and lows in the mid-60s. Winters in Escalante, Utah, have a temperature range of about 27 degrees F with highs in the low 40s and lows of about 15. Snowfall in Escalante generally averages 28 inches and begins in October or November and ends in March or April.

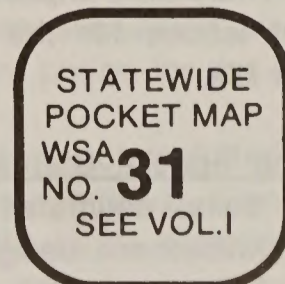
Changes for the Final EIS

In addition to the changes noted in the Introduction to Volume III-B, the following changes specific to the ISA have been made since publication of the Draft EIS.

1. Small portions of the boundary of the ISA (T. 36 S., R. 6 E., secs. 2 and 16) have been redrawn to correct errors in the Draft EIS maps. These changes exclude State sections that are on the ISA boundary. Changes did not require Federal acreage adjustments, but acreage figures for State lands have been adjusted for the Final EIS. In addition, the ISA boundary was redrawn to include a portion of T. 34 S., R. 5 E. sec. 16. This was necessary to correct an error which omitted a 452-acre parcel of split-estate land where the surface is Federal and the subsurface is controlled by the State of Utah. A corresponding acreage adjustment has been made which increases the size of the ISA to 119,752 acres, as was reported in the 1980 BLM Wilderness Inventory Decision.

2. The Draft EIS identified a Large Partial Wilderness Alternative of 100,300 acres. This alternative was designed to avoid most conflicts with potential mineral development (especially tar sands). In response to public comments received on the Draft EIS and a reassessment of tar sand development potentials, the Partial Wilderness Alternative has been revised for the Final EIS. The new Large Partial Wilderness Alternative now includes Wolverine Bench, Death Hollow, Little Bown Bench, and Big Bown Bench. However, the new Large Partial Wilderness Alternative now excludes lands along the southern boundary of the ISA which are lacking in outstanding wilderness qualities. These include the V Flat and the area south of Spencer Flat. This new Large Partial Wilderness Alternative contains 91,558 acres of Federal land and is BLM proposed action.

3. The anticipated surface disturbance presented in the Draft EIS (4,300 acres) was based on the assumption that all mineral and other resources potentially



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within the WSA would be developed sometime in the future without consideration of technical or economic feasibility. In response to public comments relative to the feasibility of developments, the disturbance estimates have been revised to focus on activities projected to be feasible within the foreseeable future (see Appendix 6 in Volume I). This resulted in a reduction of surface disturbance estimates from 4,300 acres reported in the Draft EIS to 104 acres of surface disturbance for the Final EIS.

Specific Issues Identified Through Scoping and Public Comment

• Issues Considered But Not Analyzed in Detail

In addition to the issues discussed and eliminated from further consideration in the Introduction to Volume III-B (i.e., impacts on air quality, water rights, geology and topography, and land use plans and policies), the following issues or impacts specific to the North Escalante Canyons/The Gulch ISA were considered but are not analyzed in detail in the Final EIS for the reasons described below:

1. Soil: The public is concerned that without wilderness designation, mineral development, land treatment, or ORV use would occur on soils that are not easily reclaimed, leading to unacceptable increases in soil erosion. Within the foreseeable future, the anticipated surface disturbance from mineral exploration in the North Escalante Canyons/The Gulch ISA without wilderness designation would be 57 acres and mitigation would be required through the unnecessary and undue degradation requirements of 43 CFR 3809 and the provisions of 43 CFR 3100. Approximately 25 acres would be disturbed due to realignment of the Burr Trail. This disturbance would be temporary and would likely occur with each alternative. This is also the situation with the 6 acres of disturbance anticipated due to development of access to State sections and 16 acres which could be disturbed with the development of rangeland projects. Terrain and surface features generally restrict vehicles to the perimeter of the ISA and sandy and slickrock areas near Spencer Flats and The V. Therefore, impacts on soil erosion are not significant issues for the North Escalante Canyons/The Gulch ISA.

2. Wildlife Including Special Status Species: As discussed above for soils, estimates of total surface disturbance without wilderness designation have been revised downward from the 4,300 acres reported in the Draft EIS to 104 acres for the Final EIS. Given

this new scenario, the impacts of direct disturbance of wildlife would be reduced and would not be significant with any of the alternatives.

Two threatened or endangered animal species (the bald eagle and peregrine falcon) are rare winter visitors of the ISA. In addition, seven Category 2 candidate species may occur in the ISA. There is a slight potential that individual animals of these species could be disturbed by locatable mineral exploration. This situation would only exist where such mineral operations would occur on sites of 5 acres or less, where a plan of operations and approval are not required under 43 CFR 3809 regulations. The Endangered Species Act and subsequent regulations apply to these operations and any loss would be inadvertent. It is not projected that locatable mineral-related actions in the ISA would threaten the continued existence of any of the endangered or other special status species. Before authorizing any surface-disturbing activities including oil and gas exploration, the realignment of the Burr Trail, rangeland developments, and access to State land, BLM would conduct site-specific clearances of the potentially disturbed areas. If any threatened or endangered species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (see Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Because necessary measures would be taken to protect these species, the viability of populations of threatened, endangered, or other special status animal species would be preserved with any alternative. Approximately 20,358 acres are closed to ORV use with current land use planning decisions. Existing ORV use is occurring around the perimeter of the ISA and on the sandy slickrock areas near Spencer Flats and the V. The endangered or other special status animal species which may occur in the ISA do not depend on these sites for critical habitat requirements. Therefore, impacts on wildlife are not analyzed in detail for the Final EIS.

3. Forest Resources: Forest resources in the ISA consists of over 93,000 acres of pinyon pine and juniper trees. Demand is low, there is limited access, and only 104 acres would be disturbed in the entire ISA. For these reasons impacts on forest resources are not significant issues for analysis in the Final EIS.

4. Livestock Management: The public is concerned that wilderness designation would interfere with livestock management by placing restrictions on

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access for maintenance of existing range improvements and moving of livestock and by preventing future range improvements, and placing restrictions on predator control. However, under the BLM Wilderness Management Policy (BLM Manual 8560), there shall be no curtailments in grazing simply because an area is wilderness. Grazing reductions have already been imposed as a result of a grazing EIS.

There are several proposed rangeland developments only five of which (three reservoirs, one retention dam, and one stock tank) would be precluded by wilderness designation. Five miles of way would be closed should the area be designated as wilderness. However, since motorized vehicles are used very little in livestock management, little effect on management of livestock grazing is expected. Even though spring loaded cyanide guns (M-44s) would be prohibited, several methods of predator control would be allowed in designated wilderness. For these reasons the impacts on livestock management are not significant issues for the North Escalante Canyons/The Gulch ISA.

5. Visual Resources: As discussed above for soils and vegetation, the estimates of surface disturbance have been reduced for the Final EIS. Therefore, the impacts on visual resources would be less than described in the Draft EIS. With the No Action/No Wilderness Alternative, impacts on visual resources would occur from 104 acres of surface disturbance related to the realignment of the Burr Trail, mineral exploration rangeland developments, and developing access to State sections. In the Final EIS, impacts on visual resources are not addressed under the heading of Visual Resources, but are addressed as part of the discussion of naturalness and special features in the Wilderness Values sections.

6. Economic Conditions: Some, including State and local government, are concerned that wilderness designation would preclude mineral or other economic developments and adversely affect local economic conditions. Others believe that primitive recreation use would increase following wilderness designation and would contribute to the local economy.

There are no existing or anticipated mineral or other developments for the North Escalante Canyons/The Gulch ISA. There would be mineral exploration activities employing up to six people for no more than a few weeks at a time and an increase of recreational visitors of 2 to 7 percent a year could be expected. However, this increased level of employment or visi-

tor use would occur under any of the alternatives and would not result in significant impacts to the local economy.

• Issues Analyzed in Detail

The significant issues for the North Escalante Canyons/The Gulch ISA are:

1. Impacts on the wilderness values of naturalness, opportunities for solitude and primitive recreation, and special features.
2. Impacts on vegetation including special status species.
3. Impacts on water resources.
4. Impacts on mineral and energy exploration and production.
5. Impacts on the preservation of cultural resources.
6. Impacts on recreational use of the ISA.

Comments made during the public comment period for the Draft EIS centered mainly on the need for, and adequacy of, the rationale for the BLM proposed action; the need for further inventories of resource values; and BLM's assessments of wilderness values, the Burr Trail setback, tar sand, and other mineral values. See Volume VII-B for responses to general comments applicable to all WSAs and/or the Statewide analysis and Volume VII-C, Section 31, for responses to specific comments about the North Escalante Canyons/The Gulch ISA.

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated From Detailed Study

Alternatives that would add State and Federal acreage, mainly in the Big Spencer Flats and along the southern border of the ISA while deleting other small areas south of Highway 12 (net addition of about 5,700 acres), were suggested by the public during the public comment period for the Draft EIS.

State owned land is not included in the wilderness study (refer to Volume VII-B, General Comment Response 6.4). Public lands outside the ISA boundary were considered and dropped during the Inventory Phase of the Wilderness Review and are not analyzed

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in the Final EIS (refer to Volume VII-B, General Comment Response 3.1). The proposed changes would not result in impacts appreciably different from the Alternatives analyzed in the Final EIS.

Alternatives Analyzed

Four alternatives are analyzed for this ISA: (1) No Action/No Wilderness; (2) All Wilderness (119,752 acres); (3) Large Partial Wilderness (Proposed Action) (91,558 acres); and (4) Small Partial Wilderness (54,500 acres). A description of each alternative follows. Where management intentions have not been clearly identified, assumptions are made based on management projections under each alternative. These assumptions are indicated in each case. The analysis assumptions presented in the Introduction to Volume III-B are also applicable.

- No Action/No Wilderness Alternative

With this alternative, none of the 119,752-acre North Escalante Canyons/The Gulch ISA would be designated by Congress as part of the NWPS. The area would continue to be managed in accordance with the BLM Escalante MFP (USDI, BLM, 1981d). The 12 sections (7,623 acres) of State land and the subsurface of 452 acres of split-estate lands with State minerals within the ISA have not been identified in the MFP for Federal acquisition through exchange or purchase (refer to Map 1). It is assumed that these lands would remain in State ownership.

- Management Conditions and Constraints

About 83,252 acres would be managed as oil and gas leasing Category 1 (standard stipulations), 13,700 acres would be in Category 3 (no surface occupancy), and 22,800 acres would continue to be in Category 4 as closed to oil and gas leasing. The entire area would remain open to mineral location, leasing, and sale. Development work, extraction, and patenting would be allowed on 66 existing mining claims (1,320 acres) and future mining claims that may be found valid. About 10,260 acres of the ISA are part of the Circle Cliffs Special Tar Sand Area (STSA). There are 12,880 acres of oil and gas leases (4,280 acres, pre-FLPMA and 8,600 post-FLPMA) located in the WSA. Approximately 8,960 acres of the existing oil and gas leases are involved in lease conversion applications for tar sand development by in-situ methods (USDI, BLM, 1984b). Interim wilderness protection stipulations that may be applied

to the leases while the area is under wilderness review would be dropped if the area is not designated.

Although mineral resources would be managed as described above and further exploration is anticipated, no leasable or locatable mineral developments are projected in the ISA for the foreseeable future, because the level and/or quality of known resources and the probability of their development are too low to support a development assumption. Appendix 6 in Volume I explains the mineral and energy development projections.

The present domestic livestock grazing use in the area would continue as authorized in the MFP (7,554 AUMs). Use and maintenance of four corrals, 3 miles of fence, fifteen reservoirs, nine improved springs, 4 miles of pipeline, one stock tank, four cabins, and 10 miles of stock trail would continue in a routine manner. New rangeland improvements could be implemented without wilderness considerations. This could include proposed developments of four springs, three reservoirs, one retention dam, one stock tank, a 0.5 mile of fence, one well, 8 miles of pipeline, and four water catchments.

Public water reserve withdrawals on 477 acres would remain in effect. These withdrawals segregate the lands from all public land laws and nonmetalliferous minerals location.

ORV use would continue to be open on 99,394 acres, including 5 miles of ways within the ISA. The area would remain closed to ORV use on 20,358 acres.

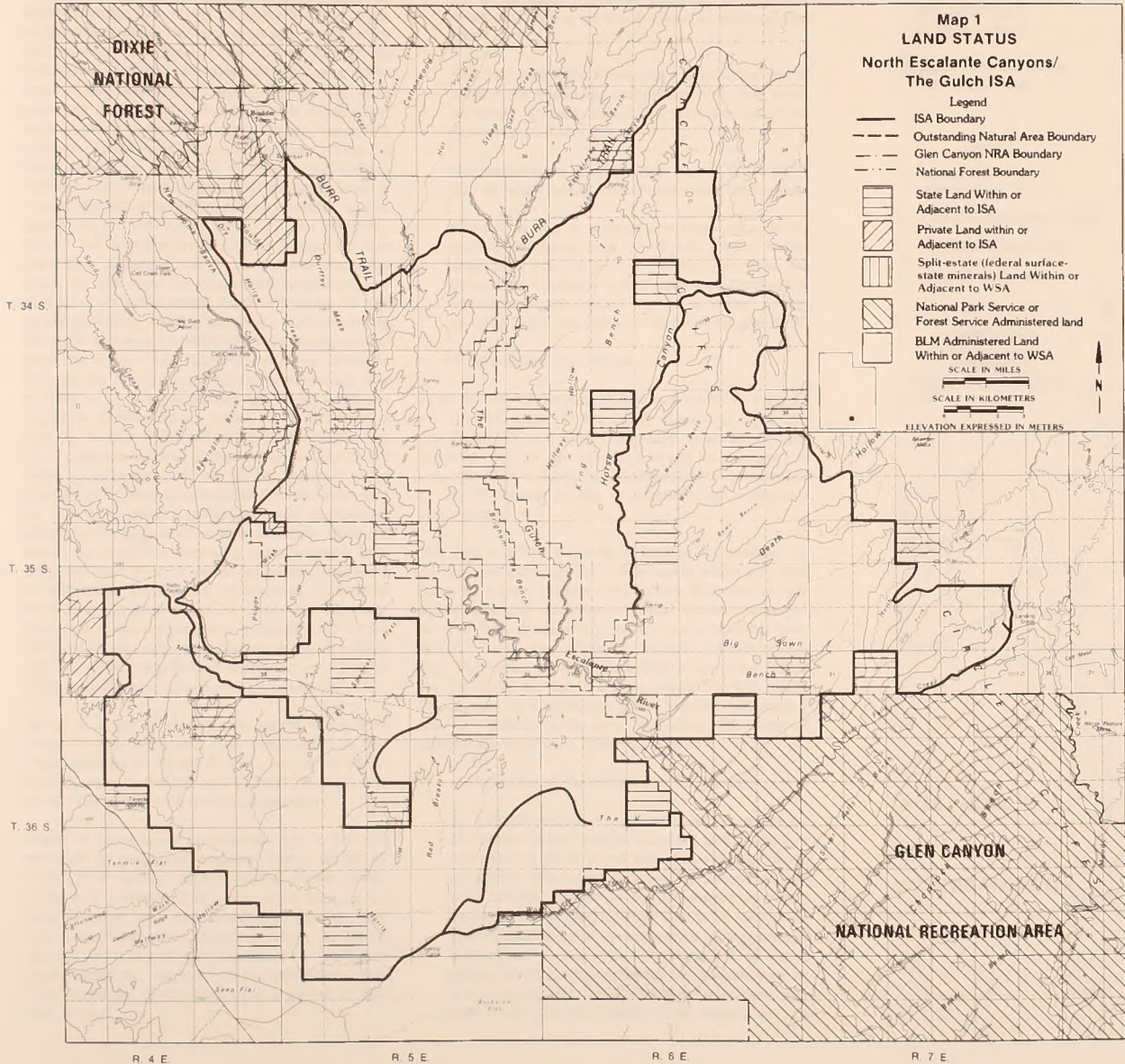
Except for 425 acres in the Calf Creek recreation area, the entire area would be open to forest product harvest. However, there is little, if any, harvest of forest products at the present time, and none is projected.

The area would continue to be managed under VRM Class I on 13,400 acres, Class II on 22,102 acres, Class III on 5,600 acres, and Class IV on 78,650 acres.

- Action Scenario

Given the management plans described above and the resources described in the Affected Environment, BLM projects that implementation of the No

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Action/No Wilderness Alternative would result in approximately 104 acres of surface disturbance in the foreseeable future. Exploration for uranium and associated copper in the eastern half of the ISA would result in 17 acres of surface disturbance. Initial exploration would include up to 6 miles of access road building with exploration drilling being conducted along these roads. As uranium mineralization is encountered, step-out holes would be drilled. If significant mineralization is found in several holes in the same area, a closely spaced grid drilling program would be conducted in an attempt to block out ore reserves. Based on exploration activities typical of the area, it is assumed that 16 employees would be used for 40 days in exploration activities. An additional 40 acres would be disturbed by oil and gas exploration drilling activities. Locations for the wells would be determined from previous geophysical work. The Collett anticline extends through the ISA from northwest to southeast and is likely to be the area where the oil and gas exploratory drilling would occur. It is anticipated that up to four wells would be drilled within the area covered by the Collett anticline. Up to 12 miles of access roads would be necessary. An average of 10 employees would operate each well for a 3 to 6 month period of time. Exploration areas for both locatable and leasable minerals would be reclaimed following abandonment. It is projected that 3 to 5 years would be necessary to determine successful reclamation. Locatable mineral exploration would be under the unnecessary and undue degradation guidelines of the 43 CFR 3809 regulations. Leasable mineral activity will be under regulations contained in 43 CFR 3100. No tar sand development is projected.

Up to 6 acres of disturbance would result from about 3 miles of access road construction to four State sections (T. 36 S., R. 4 E., sec. 2; T. 36 S., R. 5 E., secs. 2 and 32; and T. 35 S., R. 6 E., sec. 2) for the purpose of mineral exploration.

About 16 acres would be disturbed due to the construction of rangeland projects. These would include four spring developments, three reservoirs, one retention dam, one stock tank, a 0.5 mile of fence, one well, 8 miles of pipeline, and four water catchments. About 2 months of on-the-ground work would be necessary to complete these projects, however, it is recognized that they would be constructed over a period of several years.

Up to 25 acres would be disturbed with realignment and paving of the Boulder to Bullfrog road (Burr Trail).

The No Action/No Wilderness Alternative would include the continued designation of 10,562 acres as ONA. Surface-disturbing activities would be restricted in these areas.

No disturbance is projected from ORV activity due to rough terrain and management constraints.

Recreation use is projected to increase over the current estimated use of 32,350 annual visitor days at a rate of 2 to 7 percent per year. No more than 4 percent of that use would continue to involve vehicular use of 5 miles of ways, as well as ORV use in the acres of Spenser Flat and the V.

• All Wilderness Alternative

With the All Wilderness Alternative (refer to Map 2), all 119,752 acres of the North Escalante Canyons/The Gulch ISA would be designated by an act of Congress as part of the NWPS. It would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) to preserve its wilderness character.

The policy of the State is to reserve its position regarding the exchange of in-held lands within any particular WSA (see Chapter 1 in Volume I). Based on this policy regarding exchange of State lands, it is projected that State lands would remain under existing ownership. There are 12 State sections (7,623 acres) and 452 acres of split-estate (State minerals) within the ISA (refer to Map 1 and Appendix 3 in Volume I). The figures and acreages given with this alternative are for Federal lands only (including 452 acres of split-estate land with Federal surface).

• Management Conditions and Constraints

All 119,300 acres of Federal minerals would be withdrawn from mineral location and closed to new mineral leasing and sale. Development work, extraction, and patenting would be allowed to continue on that portion of the approximately 1,320 acres of 66 existing mining claims or any other claims located prior to wilderness designation if determined to be valid. Development of these claims would be regulated by the unnecessary or undue degradation guidelines with wilderness considerations (43 CFR 3809). After designation, 10

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existing post-FLPMA oil and gas leases, involving 8,600 acres, would not be reissued upon expiration unless an oil or gas find in commercial quantities is shown. The eight pre-FLPMA leases (4,280 acres) could be developed per the stipulations attached at the time of lease issuance. Oil and gas leases converted to combined hydrocarbon leases on up to 8,960 acres which are currently under a conversion application in the ISA would contain nonimpairment stipulations; therefore, under this alternative, tar sand development on the 8,960 acres could occur only in a manner not degrading to wilderness values.

Although mineral resources would be managed as described above and further exploration is anticipated, no leasable or locatable mineral developments are projected in the ISA for the foreseeable future because the level and/or quality of known resources and the probability of their development are too low to support a development assumption (see Appendix 6 in Volume I).

Present domestic livestock grazing would continue as authorized in the Escalante MFP. The 7,554 AUMs in the ISA would remain available to livestock as presently allotted. The use and maintenance of rangeland improvements existing at the time of designation, as listed in the No Action/No Wilderness Alternative, could continue in the same manner as in the past, based on practical necessity and reasonableness. After designation, new rangeland developments would be allowed on a case-by-case basis if determined necessary for the purposes of resource protection (rangeland and/or wilderness) and the effective management of these resources, provided that certain criteria are met to adequately protect wilderness values (refer to Appendix 1 in Volume I). It is assumed that the proposed four spring developments, a 0.5 mile fence, one well, 8 miles of pipeline, and four catchments would be designed and installed consistent with wilderness protection criteria. It is assumed that the proposed three reservoirs, one retention dam, and one stock tank would likely not be allowed.

Public water reserve withdrawals on 477 acres would remain in effect. These withdrawals segregate the lands from all public land laws and non-metalliferous minerals location.

The entire ISA would be closed to ORV use except for: (1) those users with valid existing rights if

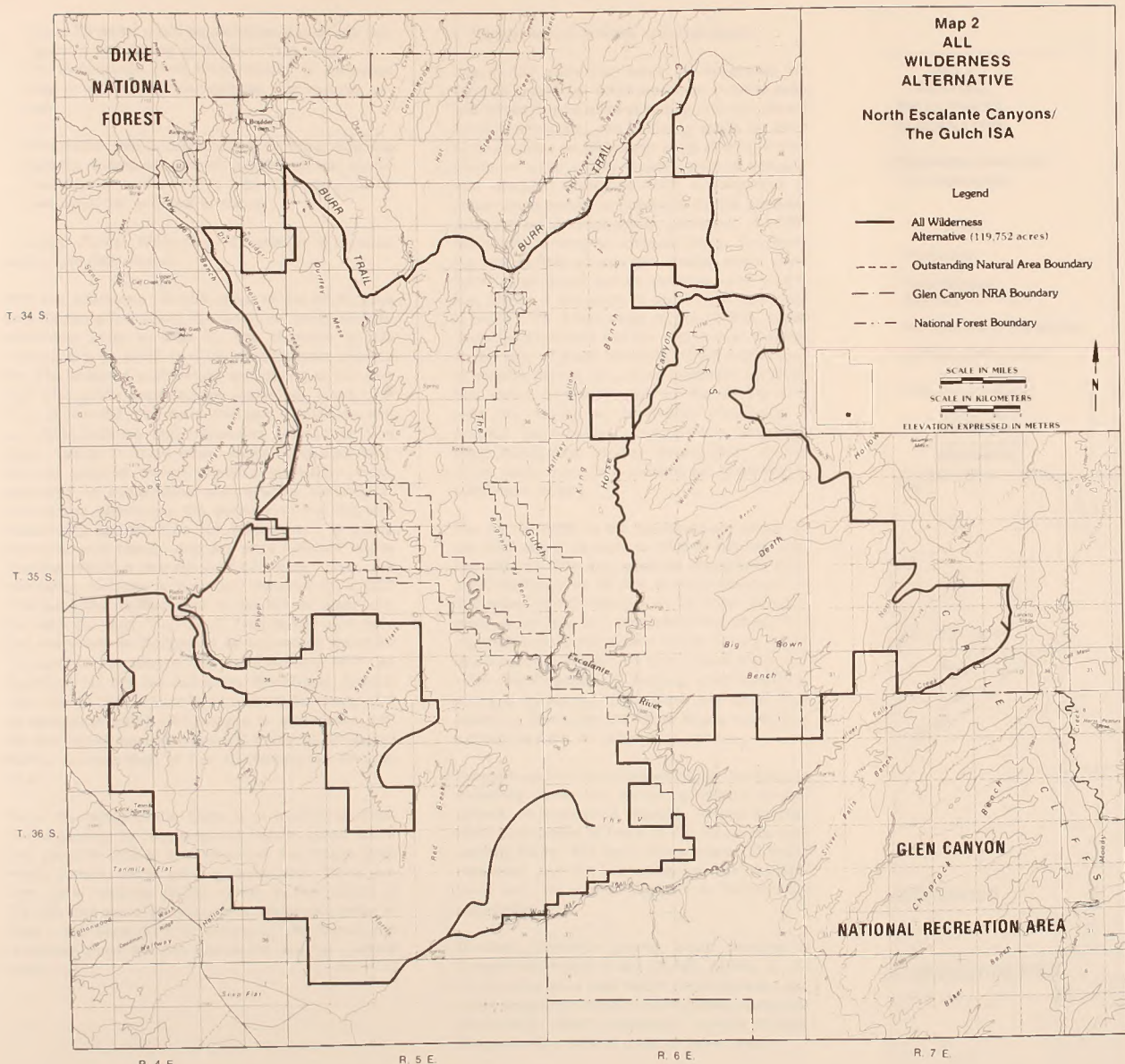
approved by BLM in accordance with 43 CFR 8560 provisions; or (2) occasional and short-term vehicular access approved by BLM for maintenance of approved rangeland improvements, including those mentioned above. About 5 miles of existing vehicular ways in the ISA would not be available for vehicular use, except as indicated above. About 8 miles of road along Horse Canyon (including two State sections) and 6 plus miles along the southern boundary of the ISA would be cherry-stemmed. About a 0.5 mile of road north of Wolverine Bench also would be cherry-stemmed. These roads would remain open to vehicles. About 20 miles of the ISA boundary follow existing paved roads and 20 miles follow unpaved roads, which would remain open to vehicular travel. About 12 miles of boundary road are known as the Burr Trail (or Boulder to Bullfrog road) which has potential for realignment and paving by Garfield County as a grandfathered right.

• Action Scenario

BLM projects that 46 acres of surface disturbance would occur following wilderness designation. Five acres of disturbance would result from uranium and copper exploration activities as discussed in the No Action/No Wilderness Alternative but on a smaller scale. It is projected that four employees and 10 days would be used in exploration drilling activities. Locatable mineral exploration would be restricted to existing mining claims. Wilderness designation would preclude new mineral location and mineral leasing. No leasable mineral exploration or development is projected. Six acres of disturbance would result from 3 miles of access road construction to in-hold State sections for the purpose of mineral resources exploration on the State lands.

Ten acres of surface disturbance would occur due to the construction of several rangeland projects, including the four spring developments, a 0.5 mile of fence, four catchments, one well, and 8 miles of pipeline. These projects would be designed and installed consistent with wilderness protection standards. The three reservoirs and retention dam in the No Action/No Wilderness Alternative would not be allowed. No additional rangeland, wildlife habitat, watershed projects or other developments are projected following wilderness designation.

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**Map 2
ALL
WILDERNESS
ALTERNATIVE**

**North Escalante Canyons/
The Gulch ISA**

Legend

- All Wilderness Alternative (119,752 acres)
- Outstanding Natural Area Boundary
- Glen Canyon NRA Boundary
- National Forest Boundary

SCALE IN MILES

SCALE IN KILOMETERS

ELEVATION EXPRESSED IN METERS



R. 4 E.

R. 5 E.

R. 6 E.

R. 7 E.

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Up to 25 acres could be disturbed due to the realignment and paving of the Burr Trail road.

No disturbance from ORV activity is projected due to wilderness management and rugged terrain.

Recreation use is projected to increase over the current estimated use of 32,350 annual visitor use days at a rate of 2 to 7 percent per year. All use would be primitive in nature.

- Large Partial Wilderness Alternative (Proposed Action) (91,558 Acres)

With this alternative, 91,558 acres of the North Escalante Canyons/The Gulch ISA would be designated as wilderness (refer to Map 3). The objective of this alternative is to avoid conflicts of wilderness designation with potential realignment and paving of the Burr Trail road while analyzing as wilderness those portions of this ISA that have the best wilderness values. BLM believes that wilderness values are of a higher quality in areas where outstanding opportunities for solitude and/or primitive recreation exist, preferably in combination with special features. In forming this alternative, the portions of the ISA with outstanding opportunities for solitude and primitive recreation and special features were included where possible within a manageable boundary. Thus, the alternative includes a boundary setback of a 0.25 mile along the northern part of the ISA to avoid conflict with the Burr Trail road. The 28,194-acre area that would not be designated as wilderness would be managed in accordance with the Escalante MFP, as described for the No Action/No Wilderness Alternative. The 91,558-acre area that would be designated as wilderness would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560), as described in the All Wilderness Alternative.

Since the policy of the State is to reserve its position regarding the exchange of in-held lands within any particular WSA; it is assumed that State lands would remain under existing ownership. There are nine State sections (5,701 acres) in the portion of the ISA that would be designated wilderness (refer to Map 1 and Appendix 3 in Volume I). The figures and acreages given for this alternative are for Federal lands only.

- Management Conditions and Constraints

The 91,558 acres that would be designated wilderness would be withdrawn from mineral entry and closed to new mineral leasing and sale. Development, extraction, and patenting would be allowed to continue on 520 acres of 26 existing mining claims or other claims located prior to designation, provided these are valid. Development on these claims would be regulated by the unnecessary and undue degradation guidelines (43 CFR 3809) with wilderness considerations. The existing post-FLPMA oil and gas leases, which cover 6,820 acres would not be reissued upon expiration unless a discovery in commercial quantities is made. The 3,380 acres of pre-FLPMA leases could be developed per the stipulations attached at the time of lease issuance. About 8,960 acres of existing leases are under combined hydrocarbon lease application within the 91,558-acre area that would be designated wilderness. If granted, these leases would contain nonimpairment stipulations limiting development to that which could occur in a manner not degrading to wilderness values.

The 28,194 acres in the nondesignated portion of the WSA would be open to mineral location, leasing, and sale. The area would be managed as leasing Category 1 on 27,374 acres; Category 3 on 800 acres; and Category 4 on 20 acres. Development, extraction, and possible patent of 40 existing claims (800 acres) and future mining claims could occur in the 27,742-acre area if claims are valid. Development of existing post-FLPMA oil and gas leases on 1,780 acres and pre-FLPMA leases on 900 acres and future leases could occur without concern for wilderness values.

Although mineral resources would be managed as described above and further exploration is anticipated, no leasable or locatable mineral development is projected to occur in the ISA in the foreseeable future. The level and/or quality of known resources and the probability of their development are too low to support a development assumption.

Domestic livestock grazing would continue at present estimated levels (5,854 AUMs) in the 91,558-acre area that would be designated. Existing rangeland improvements (seven spring developments, eleven reservoirs, 4 miles of pipeline, one stock tank, 2 miles of fence, four

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corrals, four cabins, and 10 miles of stock trail) in the 91,558-acre area could be used and maintained in the same manner as in the past, based on practical necessity and reasonableness. New rangeland improvements would be allowed on a case-by-case basis if determined necessary for the purposes of resource protection (rangeland and/or wilderness) and the effective management of these resources, as long as wilderness protection criteria are met (refer to Appendix 1 in Volume I). The proposed facilities in the designated area (one catchment, one well, and 8 miles of pipeline) would be allowed. The proposed retention dam and stock tank would probably not be allowed. In the 28,194 acres that would not be designated as wilderness, use of 1,700 AUMs would continue as currently authorized. Existing rangeland improvements (two springs, four reservoirs, and 1 mile of fence) could be used and maintained without wilderness considerations. In the 28,194-acre area, new rangeland improvements could be developed without concern for wilderness values. Proposed facilities include four spring developments, three reservoirs, three catchments, and a 0.5 mile of fence.

Public water reserve withdrawals on 477 acres would remain in effect. These withdrawals segregate the lands from all public land laws and nonmetalliferous minerals location.

The 91,558-acre area that would be designated wilderness would be closed to ORV use. Within this area, vehicular activity would be allowed only by BLM permit for users with valid mineral rights or for maintenance of approved rangeland improvements. About 4 miles of existing vehicular ways in the 91,558-acre area would not be available for vehicular use, except if the criteria given in the All Wilderness Alternative were met. One cherry-stemmed road would remain open for vehicle use. The 28,194-acre nondesignated area, including 1 mile of way, would be open to ORV use. All roads forming the boundary of the ISA would be open to vehicular travel.

Harvest of forest products in the 91,558-acre area that would be designated wilderness would not be allowed except for the harvest of pinyon nuts or noncommercial gathering of dead-and-down wood for on-site use if accomplished by other than mechanical means. The remaining 28,194 acres would be open to forest product harvest. No commercial harvest of forest pro-

ducts is projected because lack of access is a limiting factor.

Visual resources in the 91,558-acre area that would be designated would be managed in accordance with VRM Class I standards. The remaining nondesignated 28,194 acres would be managed as Class II on 2,970 acres and Class IV on 25,224 acres.

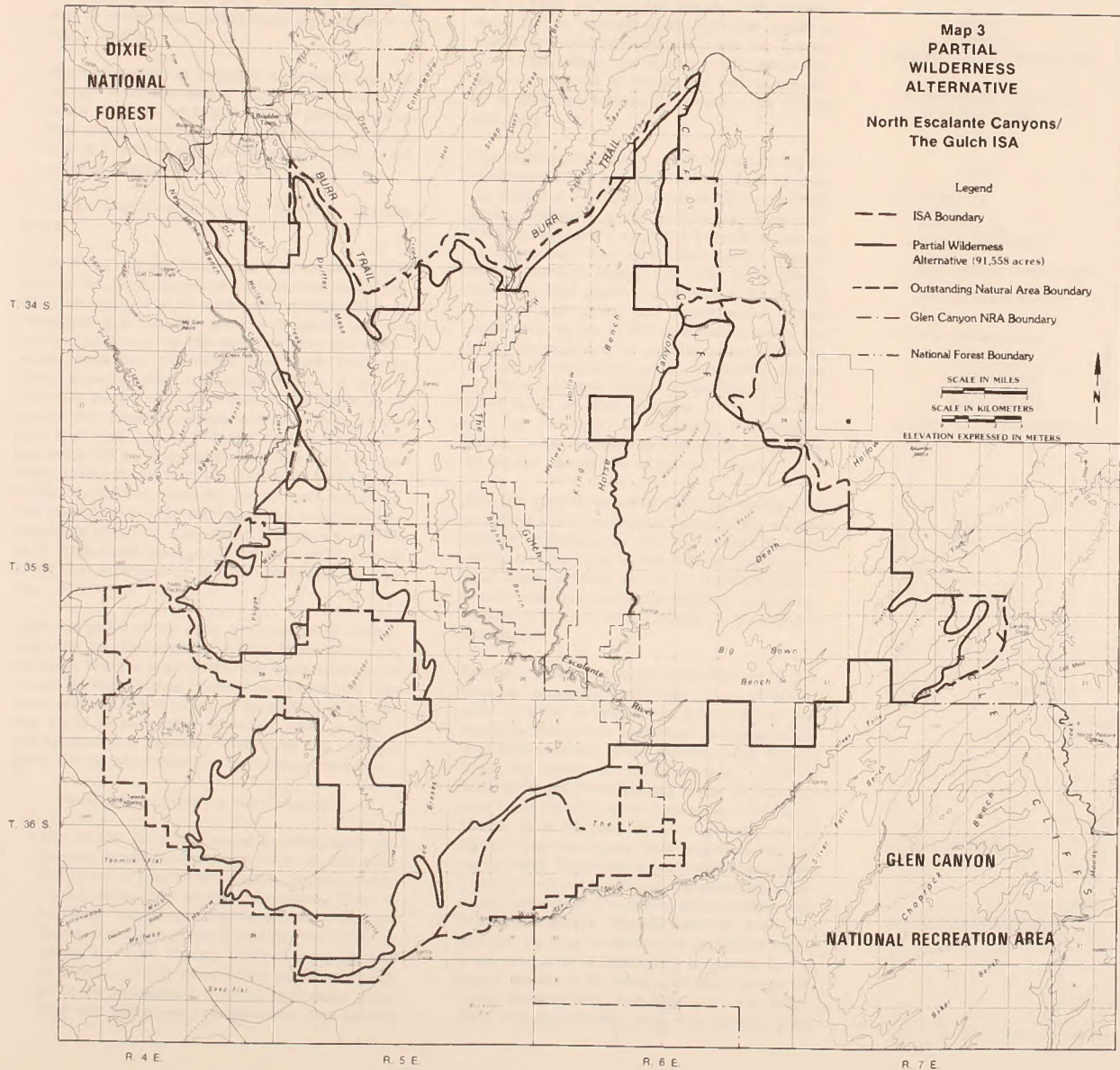
• Action Scenario

It is projected that 16 acres of surface disturbance would occur in the designated portion of the ISA in the foreseeable future. Three acres would be disturbed due to uranium and associated copper exploration activities as described in the All Wilderness Alternative. No new mineral location or mineral leasing would be allowed. Therefore, no leasable mineral exploration or development would occur following wilderness designation. Locatable mineral exploration and developments would be restricted to existing, valid mining claims at the time of wilderness designation. Four acres of disturbance would result from access road construction to in-held State lands. Nine acres of disturbance would result from construction of rangeland projects, including 8 miles of pipeline, one well, and one catchment. The stock tank and retention dam would not be allowed. No additional rangeland, wildlife habitat, watershed projects, or other developments are planned following wilderness designation.

It is projected that approximately 44 acres of surface disturbance would occur in the 28,184-acre nondesignated portion of the ISA in the foreseeable future. Ten acres would be disturbed due to uranium and associated copper exploration activities as described in the No Action/No Wilderness Alternative. No exploration or development of leasable minerals is projected. Two acres would be disturbed due to access road construction to State lands for the purpose of minerals exploration. Seven acres would be disturbed due to construction of rangeland projects, including four springs, three reservoirs, three catchments, and a 0.5 mile of fence. No additional rangeland, wildlife habitat, watershed projects, or other developments are planned in the short term.

Up to 25 acres could be disturbed due to the realignment and paving of the Burr Trail road.

NORTH ESCALANTE CANYONS/THE GULCH ISA



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No disturbance from ORV activity is projected due to wilderness management constraints and rough terrain.

Recreational use is projected to increase over the current estimated use of 32,350 visitor days annually at a rate of 2 to 7 percent per year. Less than 4 percent of the use would involve vehicular use of 1 mile of way as well as ORV use in the areas of Spenser Flat and The V.

- **Small Partial Wilderness Alternative (54,500 Acres)**

In the Small Partial Wilderness Alternative, 54,500 acres of the North Escalante Canyons/The Gulch ISA would be designated as wilderness (refer to Map 4). The objective of this alternative is to identify and analyze that portion of the ISA which includes and immediately surrounds The Gulch and North Escalante ONAs. It also includes a boundary setback of up to a 0.25 mile along the northern part of the ISA to avoid conflict with potential realignment and paving of the Burr Trail road. The 65,252-acre area within the ISA that would not be designated wilderness would be managed in accordance with the Escalante MFP, as described in the No Action/No Wilderness Alternative. The 54,500-acre area that would be designated as wilderness would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560), as described in the All Wilderness Alternative.

Since the policy of the State is to reserve its position regarding the exchange of in-held lands within any particular WSA, it is projected that State lands would remain under existing ownership. There are five State sections (3,200 acres) in the portion of the ISA that would be designated wilderness (refer to Map 1 and Appendix 3 in Volume I). The figures and acreages given for this alternative are for Federal lands only.

- **Management Conditions and Constraints**

The 54,500 acres that would be designated wilderness would be withdrawn from mineral entry and closed to new mineral leasing and sale. Seven mining claims (140 acres) are presently found in this area. Exploration and development of these claims and future claims if located prior to designation, would be allowed, provided these are valid. Development on these claims would be regulated by the unnecessary or undue degradation guidelines with wilderness considerations. One existing

post-FLPMA oil and gas lease, (360 acres), would not be reissued upon expiration unless a find in commercial quantities is made. No existing pre-FLPMA leases are located in the designated portion. There are no leases that may be converted to combined hydrocarbon leases in the 54,500-acre area.

The 65,252-acre Federal area that would not be designated wilderness would be managed as leasing Category 1 (standard stipulations on 60,152 acres), Category 3 (no surface occupancy on 4,800 acres), and Category 4 (closed to leasing on 300 acres). This area would remain open to mineral location, leasing, and sale. Development, extraction, and possible patenting of 59 existing claims (1,180 acres) and future mining claims could occur in the 64,800-acre area if claims are valid. Development of existing post-FLPMA oil and gas leases (8,240 acres), pre-FLPMA leases (4,280 acres) and future leases (including the 8,960 acres of existing leases in this area that may be converted to combined hydrocarbon leases) in the 64,800-acre area could be developed without concern for wilderness values.

Although mineral resources would be managed as described above and further explorations are anticipated, no leasable or locatable mineral developments are projected in the ISA for the foreseeable future because the level and/or quality of known resources and the probability of their development are too low to support a development assumption.

Domestic livestock grazing in the ISA would continue as presently authorized at an estimated level of 2,357 AUMs in the 54,500 acres that would be designated wilderness. Existing rangeland improvements (three corrals, a 0.5 mile of fence, ten reservoirs, seven springs, 7 miles of stock trail, and three cabins) in the 54,500-acre area could continue to be maintained in the same manner as in the past, based on practical necessity and reasonableness. New rangeland improvements would be allowed on a case-by-case basis if determined necessary for the purposes of resource protection (rangeland and/or wilderness) and the effective management of these resources, as long as wilderness protection criteria are met (refer to Appendix 1 in Volume I). Proposed facilities in the designated area include two spring developments, one well, one water catchment, and one retention dam. It is doubtful if the

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retention dam and well could be built in a manner nonimpairing to wilderness. In the 65,252-acre area that would not be designated, use of 5,197 AUMs would continue as authorized. Existing rangeland improvements (one corral, 2.5 miles of fence, five reservoirs, two improved springs, 4 miles of pipeline, 3 miles of stock trail, and one cabin) could be used and maintained without restrictions. In the 64,800-acre area, proposed rangeland improvements (including two spring developments, three reservoirs, 8 miles of pipeline, one stock tank, a 0.5 mile of fence, and three water catchments) could be developed without concern for wilderness values. Public water reserve withdrawals on 477 acres would remain in effect. These withdrawals segregate the lands from all public land laws and nonmetalliferous minerals location.

The canyons and benchlands comprising the 54,500 acres that would be designated wilderness would be closed to ORV use. Within this area, vehicular activity would be allowed only by BLM permit for users with valid mineral rights or for maintenance of approved rangeland improvements. This alternative excludes all vehicular ways in the ISA from the proposed wilderness acreage. All cherry-stemmed roads are also excluded from the designated portion of the ISA. The 65,252-acre area, including 5 miles of ways, would be open to ORV use. All 22 miles of roads forming the boundary of the ISA would be open to vehicular travel.

Harvest of forest products in the 54,500 acres that would be designated wilderness would not be allowed except for the harvest of pinyon nuts or noncommercial gathering of dead-and-down wood for use in the wilderness if accomplished by other than mechanical means. The remaining 65,252 acres would be open to forest product harvest. However, there is no harvest in the ISA at the present time, nor is any projected.

Visual resources on the 54,500 acres that would be designated wilderness would be managed in accordance with VRM Class I standards. The remaining 65,252 acres would be managed as Class I on 1,560 acres, Class II on 12,172 acres, and Class IV on 51,520 acres.

• Action Scenario

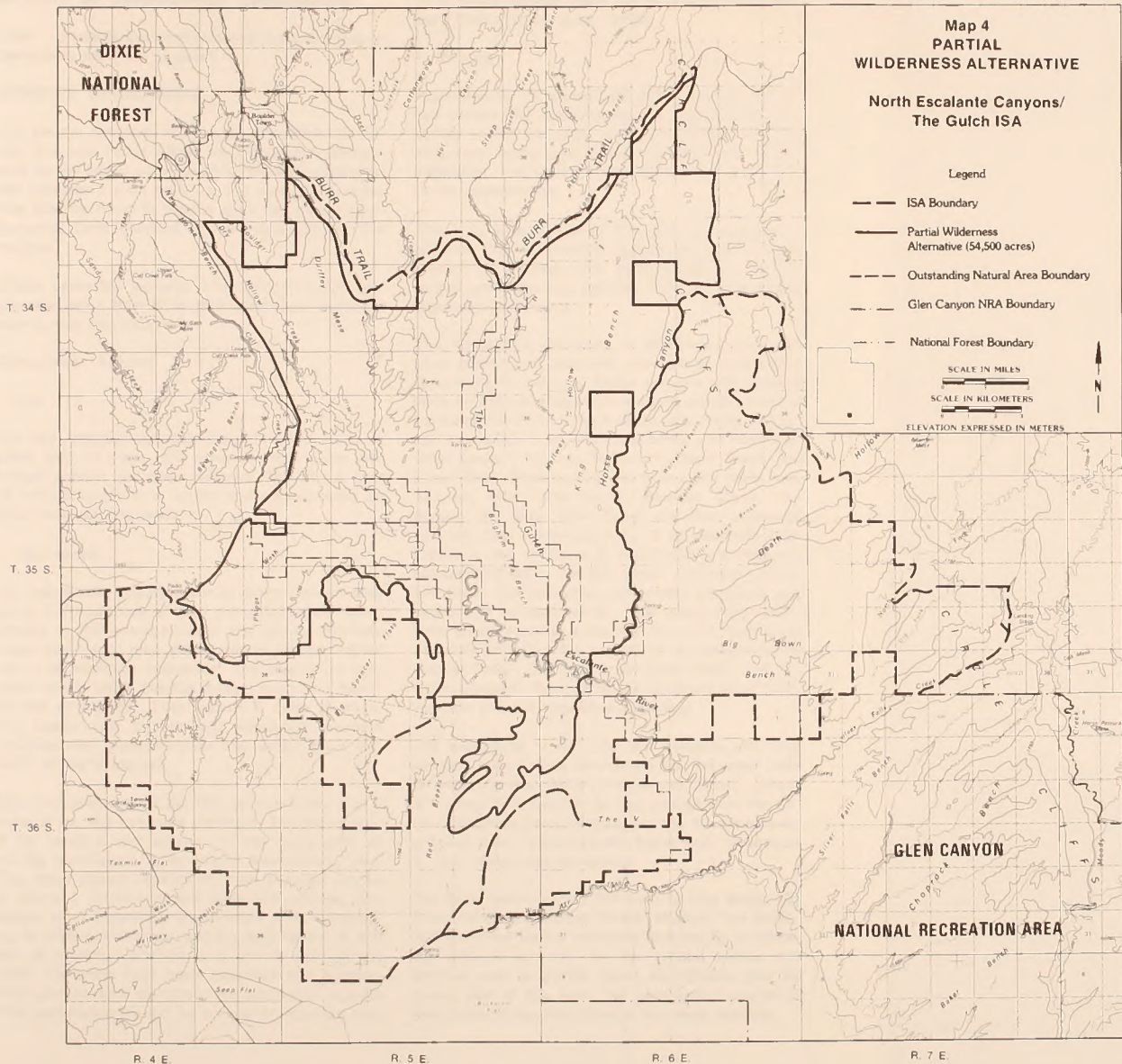
It is projected that 4 acres of surface disturbance would occur in the designated portion of the ISA in the foreseeable future. Two acres would be disturbed due to uranium and associated copper exploration activities as described in the All Wilderness Alternative. No new mineral location or mineral leasing would be allowed. Therefore, no leasable mineral exploration and development would occur following wilderness designation. Locatable mineral exploration would be restricted to existing valid mining claims at the time of wilderness designation. No access to in-held State sections is projected for the designated area. Two acres would be disturbed due to construction of rangeland projects, including two spring developments, one well, and one catchment, as discussed in the All Wilderness Alternative. A retention dam would not be allowed. No additional rangeland, wildlife habitat, watershed projects, or other developments are planned following wilderness designation.

It is projected that approximately 63 acres of surface disturbance would occur in the 65,252-acre nondesignated portion of the ISA in the foreseeable future. Twelve acres would be disturbed due to uranium and associated copper exploration activities as described in the No Action/No Wilderness Alternative. Twenty acres would be disturbed due to oil and gas exploratory drilling activities in the Collett anticline area as described in the No Action/No Wilderness Alternative. Six acres of disturbance would result from access road construction to four State sections for the purpose of mineral exploration. Up to 25 acres could be disturbed due to the realignment and paving of the Burr Trail road.

No disturbance from ORV activity is projected due to management and terrain constraints.

Recreation use is projected to increase over the current estimated use of 32,350 annual visitor days at a rate of 2 to 7 percent per year. No more than 4 percent of the use would continue to involve vehicular use of 5 miles of ways as well as ORV activity in the areas of Spenser Flats and The V.

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Summary of Environmental Consequences

Table 1 presents the environmental consequences of alternatives analyzed in detail.

AFFECTED ENVIRONMENT

This section describes the overall environmental setting. This information allows for independent assessment by the public as required by the CEQ guidelines and provides a data base for the cumulative State-wide analysis found in Volume I, as well as the Environmental Consequences of Alternatives in this ISA analysis.

Unless otherwise indicate, information for this section was taken from BLM staff specialists, technical reports, and file documents.

Wilderness Values

• Size

The ISA includes approximately 119,752 acres of public land. Of these, 452 acres are split-estate with Federal surface and State minerals. The ISA is over 20 miles long (north to south) and approximately 20 miles wide (east to west).

• Naturalness

The naturalness characteristic is defined as an area where the evidences of man are substantially unnoticeable to the average visitor and where individual minor imprints of man exhibit no cumulative impact that is substantially noticeable. The imprints of man which remain within the ISA involve much less than 1 percent of the ISA. They include 5 miles of ways, four cabins with corrals, and numerous livestock improvements. Approximately 600 acres show evidence of man's imprints.

Since establishment of the ISA, approximately 1 to 2 acres of the ISA has been disturbed. This disturbance is the result of two actions: (1) the construction of the Big Horn/Upper Cattle division fence during 1984. This fence project consists of three separate fences of 200-foot, 3,000-foot and 3,400-foot lengths. The fences are substantially unnoticeable and nonimpairing to wilderness values, and (2) construction of 600 feet of irrigation pipeline onto private land during 1984. The areas have been reclaimed to a substantially unnoticeable condition. No additional imprints have occurred in the ISA as a result of impairing uses

or activities allowed under the BLM Interim Management Policy (USDI, BLM, 1979c).

• Solitude

Approximately 75 percent (89,814 acres) of the ISA has outstanding opportunities for solitude due to a variety of factors. Size, deep meandering canyons and other topographic screening situations, canyon vegetation, and isolation all contribute to the quality of the opportunities.

The 119,752-acre size of this ISA is considered to enhance the outstanding opportunities for solitude present in the ISA. The configuration of the ISA neither enhances nor detracts from the outstanding opportunities present.

The topographic screening in all of the major canyons, named and unnamed, provides an outstanding opportunity for solitude. These canyons vary tremendously in shape and appearance. Some canyons such as the Escalante River, Phipps Wash, and Horse Canyon possess vertical walls and many bends and meanders. Other canyons such as The Gulch, Harris Wash, and upper Deer Creek exhibit more rounded walls with frequent twists and bends. Boulder Creek, Dry Hollow, and lower Deer Creek are deep V-shaped canyons. The confluence area of Boulder and Deer Creeks is one of the most convoluted and dissected sandstone areas in the ISA. Lower Wolverine Canyon and Death Hollow exhibit entrenched meanders and sections of narrows. All of these topographic conditions create superior screening situations. Vegetative screening enhances the opportunity for solitude in the Boulder Creek, Dry Fork, lower Deer Creek, and The Gulch Canyons. Portions of the Escalante River Canyon also possess vegetative screening.

The exceptions to the rule that canyons offer outstanding opportunities for solitude are the upper ends of Horse Canyon, Wolverine Canyon, Death Hollow, and Silver Falls Canyon as they emerge from the Circle Cliffs. Here these canyons assume the appearance of broad open valleys between buttes and, consequently, lack topographic screening.

The larger benches in the ISA such as King Bench, Big Bown Bench, Little Bown Bench, Brigham Tea Bench, and Wolverine Bench are totally isolated by surrounding cliffs or canyons. On the smaller mesas and benches such as Durrfeys Mesa, Red Breaks, and the mesas east of Big Horn, the geographic isolation is even more pronounced. Most of the larger benches

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Table 1
Summary of Environmental Consequences

| Alternatives | |
|------------------------------|---|
| Resource | Alternatives |
| Impacts on Wilderness Values | <p>No Action/No Wilderness (119,752 Acres)</p> <p>Wilderness values would not be protected by wilderness designation and loss would occur as intrusions increase. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 104 acres of the ISA and opportunities for solitude and primitive recreation would be reduced in quality on up to an additional 11,975 acres. This impact would be due to mineral exploration, providing access the State in-holdings, rangeland projects, improvement of the Burr Trail and continued ORV use of the "V" and Spenser Flats areas. Some Class A scenery could be reduced in quality in disturbed areas. Also, over the long term, water flow in the Escalante River could change due to upstream appropriations. Vehicular use of 5 miles of existing ways and future access and exploration roads would occasionally detract from opportunities for solitude and primitive recreation in the ISA. This alternative would not complement and enhance wilderness values, uses, and management of the contiguous NRA which is proposed for wilderness designation by the NPS.</p> |
| | <p>All Wilderness (119,752 Acres)</p> <p>Wilderness designation would preserve overall the wilderness values in the ISA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 46 acres and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to an additional 3,593 acres. This impact would be due to mineral exploration, rangeland projects, and improvement of the Burr Trail. Special features including the wild and scenic qualities of the Escalante River would be preserved overall, although some Class A scenery might be reduced in quality because of disturbance. This alternative would complement and enhance wilderness uses, values, and management of the contiguous NRA which is proposed by the NPS for wilderness designation.</p> |
| | <p>Large Partial Wilderness (91,558 Acres) (Proposed Action)</p> <p>Wilderness values would be preserved overall in the designated area which is approximately 76 percent of the ISA. Naturalness and opportunities for solitude and primitive recreation would be directly lost on 60 acres and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to an additional 7,185 acres of the ISA. The impact would be due to mineral exploration, providing access to State in-holdings, rangeland projects, improvement of the Burr Trail, and continued ORV use of the "V" and Spenser Flats areas. Almost all of the impact would be in the nondesignated area. Special features including the Escalante River would be protected. Some Class A scenery could be reduced in quality. Vehicular use of 5 miles of existing ways and future access and exploration roads in the nondesignated portion would occasionally detract from opportunities for solitude and primitive recreation in the ISA. This alternative would not complement or enhance wilderness values, uses, and management of contiguous NRA lands proposed for wilderness designation by the NPS.</p> |
| | <p>Small Partial Wilderness (54,500 Acres)</p> <p>Wilderness values would be preserved overall in the designated area which is approximately 46 percent of the ISA. Naturalness and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to an additional 7,185 acres of the ISA. The impact would be due to mineral exploration, providing access to State in-holdings, rangeland projects, improvement of the Burr Trail, and continued ORV use of the "V" and Spenser Flats areas. Almost all of the impact would be in the nondesignated area. Most special features including the Escalante River would be protected. Some Class A scenery could be reduced in quality. Vehicular use of 5 miles of existing ways and future access and exploration roads in the nondesignated portion would occasionally detract from opportunities for solitude and primitive recreation in the ISA. This alternative would not complement or enhance wilderness values, uses, and management of contiguous NRA lands proposed for wilderness designation by the NPS.</p> |

NORTH ESCALANTE CANYON/THE GULCH ISA

Table 1 (Continued)
Summary of Environmental Consequences

| Resource | Alternatives | | |
|----------------------------|---|--|---|
| | No Action/No Wilderness | All Wilderness (119,752 Acres) | Large Partial Wilderness (91,558 Acres) (Proposed Action) |
| Impacts on Vegetation | <p>Vegetation types would not be significantly affected by implementation of the No Action/No Wilderness Alternative because only 0.09 percent (104 acres) of the ISA would be disturbed. There would be no significant impacts to special status plant populations from mineral access, BLM-initiated activities, Burr Trail realignment, or ORV use because of required mitigation and continued monitoring and management actions.</p> | <p>Vegetation types and special status species would not be protected because potential surface disturbance would be reduced to 46 acres.</p> | <p>Vegetation types would not be significantly affected by implementation of this alternative because of 0.05 percent of the ISA (60 acres) would be disturbed. There would be no significant impacts to special status plant populations from mineral access, BLM-initiated activities, Burr Trail realignment, or ORV use because of required mitigation and continued monitoring and management actions.</p> |
| Impacts on Water Resources | <p>The No Action/No Wilderness Alternative would not significantly alter water quality because only 0.09 percent (104 acres) of the ISA would be disturbed and mitigation would be required. Present or future water uses would not be affected because water could be developed without consideration of wilderness values.</p> | <p>In the short term, wilderness designation would not significantly alter water quality or uses. In the long term, future water diversions and new consumptive uses in the Escalante River system upstream of the ISA may be restricted or precluded.</p> | <p>In the short term, this small partial wilderness designation would not significantly alter water quality or uses. In the long term, future water diversions and new consumptive uses in the Escalante River system upstream of the ISA may be restricted or precluded.</p> |
| | | | <p>The impacts for this alternative would be essentially the same as for the Large Partial Wilderness Alternative because the potential disturbance is only 2 acres more with this alternative and the same area would be available for ORV use.</p> |
| | | | <p>Small Partial Wilderness (54,500 Acres)</p> |

NORTH ESCALANTE CANYON/THE GULCH ISA

**Table 1 (Continued)
Summary of Environmental Consequences**

| | | Alternatives | | |
|--|---|---|---|---|
| Resource | No Action/No Wilderness | All Wilderness (119,752 Acres) | Large Partial Wilderness (91,558 Acres) (Proposed Action) | Small Partial Wilderness (54,500 Acres) |
| Impacts on Mineral and Energy Exploration and Production | Implementation of the No Action/No Wilderness Alternative would not limit energy and mineral exploration and development beyond the limitations which are already in effect. Mineral leasing, location of mining claims, and mineral development would continue as at present. | Wilderness designation would limit potential exploration and development opportunities for minerals that may occur in the ISA to those areas under lease or mining claim at the time of designation. However, no significant locatable or leasable mineral production would be foregone because there is a low probability of development even if the ISA is not designated wilderness. | Partial wilderness with this alternative would limit potential exploration and development opportunities for minerals that may occur in the designated portion (76 percent) of the ISA to those areas under lease or mining claim at the time of designation. However, no significant locatable or leasable mineral production would be foregone because there is a low probability of development even if a portion of the ISA is not designated wilderness. | Partial wilderness with this alternative would limit potential exploration and development opportunities for minerals that may occur in the designated portion (46 percent) of the ISA to those areas under lease or mining claim at the time of designation. However, no significant locatable or leasable mineral production would be foregone because there is a low probability of development even if a portion of the ISA is not designated wilderness. |
| Impacts on Cultural Resources | Some impacts to cultural resources including 60 recorded sites would result with this alternative. Some inadvertent loss or damage to archaeological sites as well as intentional vandalism due to increased accessibility may occur, but would probably be minimal. Cultural resource management would continue without regard to wilderness management. | The benefits of protection of cultural resources including 60 recorded sites from most surface disturbance and all vehicular access would outweigh adverse effects from increased future recreational use. Management of cultural resources could be restricted in order to protect other wilderness values. | Cultural resources including 43 recorded sites would receive protection from wilderness designation with this alternative. Sites in the nondesignated portion would continue to receive protection under existing laws but some inadvertent loss or damage to cultural sites due to locatable mineral exploration and ORV activity could occur. The likelihood of significant damage or loss is minimal. | Cultural resources, including 37 recorded sites would receive protection as a result of wilderness designation with this alternative. All sites in the nondesignated area would continue to be protected by existing laws. |

NORTH ESCALANTE CANYON/THE GULCH ISA

Table 1 (Continued)
Summary of Environmental Consequences

| Resource | Alternatives | | |
|-----------------------|--|---|---|
| | No Action/No Wilderness | All Wilderness (119,752 Acres) | Large Partial Wilderness (91,558 Acres) (Proposed Action) |
| Impacts on Recreation | <p>The quality of primitive recreation would be directly reduced on 104 acres and indirectly reduced on about 11,975 acres. Both primitive and motorized recreation use would increase but vehicular use would comprise no more than 4 percent of the total.</p> | <p>The All Wilderness Alternative would preserve primitive recreation opportunities overall by reducing the likelihood for surface-disturbing activities and increasing management attention and recognition of recreational values. Primitive recreational values would be reduced in quality directly on 46 acres and indirectly on up to 3,593 acres of the ISA due to valid existing rights. ORV use would be precluded but primitive use would increase.</p> | <p>The quality of primitive recreational opportunities would be preserved overall in the designated area. The quality of the primitive opportunity would be directly reduced on 60 acres and indirectly reduced on up to 7,185 acres. Both primitive and motorized recreational use would increase. Vehicular recreational use would be less than 4 percent of the total use.</p> |
| | | | <p>Small Partial Wilderness (54,500 Acres)</p> <p>The quality of primitive recreational opportunities would be preserved overall in the designated area. The quality of the primitive opportunity would be directly reduced on 67 acres and indirectly reduced on up to 7,185 acres. Both primitive and motorized recreational use would increase. Vehicular recreational use would be no more than 4 percent of the total use.</p> |

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possess rough or dissected interiors that offer excellent topographic screening. Wolverine Bench, Little Bown Bench, the Upper Halfway Hollow section of King Bench, and the eastern end of Big Bown Bench are examples. However, certain areas in the interiors of the three largest benches (Brigham Tea, King, and Big Bown Benches) are open and flat and offer a less than outstanding opportunity for solitude.

There are other landforms within the ISA that cannot be classified as benches or canyons. These areas include the V Flat, the dissected sandstone area between the upper Gulch and Deer Creek, the massive sandstone outcroppings northeast of the Red Breaks, and the Chinle exposures at the bottom of the Circle Cliffs. With the exception of the V and the Chinle slopes, these areas all possess outstanding opportunities for solitude due to topographic screening. Topographic screening is only present in the slickrock areas of the V and in the more dissected and gullied areas at the base of the Circle Cliffs.

Outside sights and sounds are an insignificant influence on solitude at present. It would be easy for a visitor to find seclusion in most of the canyons of the ISA. The user can also easily find seclusion on all but the interiors of the Brigham Tea, King, and Big Bown Benches of the ISA because of the isolating effect of the surrounding cliffs or canyons.

In all, approximately 89,814 acres or 75 percent of the ISA have outstanding opportunities for solitude. The topographic and vegetative screening enables visitors to find a secluded spot in the majority of the ISA.

• Primitive and Unconfined Recreation

The ISA provides outstanding opportunities for primitive, unconfined recreation activities such as camping, backpacking, hiking, horseback riding, photography, and sightseeing for geological, historical and archaeological features. In general, the area that exhibits an outstanding opportunity for backpacking determines the extent of this wilderness characteristic in the ISA. The locations where the camping, hiking, horseback riding, photography, and sightseeing for historical and archaeological feature activities are of outstanding quality are all within the backpacking activity area.

The backpacking opportunity in the ISA is unquestionably of outstanding significance. Participant origins, participation levels, the number of public inquiries,

and published works all contribute to this conclusion. There are various intrinsic characteristics of the ISA that enhance the backpacking opportunity. The ISA contains a variety of extremely high quality scenic landscapes. The ISA has many water sources and is thus conducive to trips with unlimited overnights. The resultant riparian canyon vegetation is a scenic feature not found in much of the canyon country.

The configuration of the canyon system is a major factor influencing the quality of the backpacking activity. The canyons tributary to the central Escalante River Canyon form a dendritic pattern that offers a variety of routes to the river. Although the Escalante River and several other canyons are probably the major objectives of current backpacking use, the benches are also of destination value. Several benches, such as King Bench, are sufficiently large to provide a backpacking experience of several nights' duration. Benches such as Little Bown and Big Bown offer high quality scenic or solitude experiences for the backpacker. Benches and certain other noncanyon areas also offer travel routes to the Escalante River or between other canyons. Examples include the route across King Bench from The Gulch to Horse Canyon, the route across Big Bown Bench from Horse Canyon to either Silver Falls Canyon or the Escalante River, and the route from Big Spencer Flats to the Escalante River Canyon and Sheffield Bend.

Sightseeing for geological features is of outstanding quality in the Wolverine Petrified Wood Natural Environment Area. This area lacks an outstanding opportunity for backpacking.

The primitive recreation opportunities on 94,604 acres or 79 percent of the ISA meet the outstanding criterion for lands under wilderness review. The ISA has eight recreational opportunities of outstanding quality.

• Special Features

The ISA is a large and geographically complex area associated with that section of the Escalante River canyon between the Glen Canyon NRA and the highway between Boulder and Escalante, Utah. The area has some of the most outstanding scenery in the country. The scenic values are correlated to landforms in the ISA; to understand the quality of this special feature, the topographic character of the ISA should be understood.

NORTH ESCALANTE CANYONS/THE GULCH ISA

East of Horse Canyon in the eastern portion of the ISA, canyons draining to Horse Canyon through the Circle Cliffs escarpment have created a unique canyon and bench system. Four canyons (Horse, Wolverine, Death Hollow, and Silver Falls) have isolated 10 benches of varying size including the named Wolverine, Little Bown, and Big Bown Benches. Wolverine Canyon and Death Hollow possess extremely narrow and convoluted sections, but the most distinctive topographic feature is the surface of the benches. Many of the bench tops exhibit an intricate pattern of innumerable orange-red Kayenta Sandstone knobs. The east face of King Bench also possesses this feature.

In the north-central portion of the ISA, another distinctive area of topographic character is evident. This area is dominated by King Bench, which is the largest bench in the ISA. The much smaller Brigham Tea Bench is also characteristic of the area. The Gulch ONA with its perennial stream is located in the western portion of the area. King Bench is a rough isolated bench wholly within the ISA. For the most part, King Bench and Brigham Tea Bench lack the extensive Navajo or Kayenta Sandstone Formations and exposures characteristic of other sections of the ISA.

The northwestern section is an extremely dissected rugged area. It includes the canyons of the Escalante River, Deer Creek, Dry Hollow, and Boulder Creek. Durffey Mesa is a prominent isolated mesa which, in places, rises 600 feet above Deer Creek and Boulder Creek. With the exception of portions of Haymaker Bench, most of this section is characterized by a yellow-white Navajo Sandstone exposed as cliffs, domes, and canyon walls.

Several distinctive landforms surround Big Spencer Flats in the southwestern portion of the ISA. The Phipps Wash area contains Phipps Wash Canyon draining to the Escalante River and benches with extensive rock outcropping on either side of the canyon.

The Harris Wash area southwest of Big Spencer Flats contains the canyon of Harris Wash and several tributary canyons such as Big Horn, draining Big and Little Spencer Flats. South of Big Spencer Flats, the area changes to a rough sand and slickrock region cut by short canyons. Large sand dunes are present below the small, isolated buttes east of Big Horn. Navajo Sandstone domes and peaks are present in this area. Harris Wash is a canyon of the classic Escalante River drainage canyon form with many entrenched meanders in the Navajo Sandstone.

The Red Breaks southeast of Big Spencer Flats is a colorful dissected area in the Carmel Formation. The Red Breaks are bounded on the west by a Navajo Sandstone escarpment. A large canyon draining to Harris Wash bisects the Red Breaks and cuts into the underlying Navajo Sandstone. To the northeast, the Red Breaks are replaced by one of the most extensive Navajo Sandstone areas in the ISA. The Navajo forms massive domes, peaks, and mesas and extends to the rim of the Escalante River canyon. From the mouth of Boulder Creek to The Gulch, several short side canyons enter the river from this sandstone area.

The Navajo Sandstone area and the Red Breaks are bounded on the east by the V flat created by the intersection of the Harris Wash and Escalante River Canyons. The V lacks relief and is characterized by a patchwork pattern of open sandy soil areas and slickrock. Several sand dune areas are present. In total, approximately 81,000 acres of the ISA possess scenic values of significance.

The ISA possesses numerous archaeological sites. A historical site of significance is the Old Boulder road, which was the main route between Escalante and Boulder, Utah.

The ISA has resource values that, although not identified as such during the wilderness inventory, could be considered special features. There are two animal species (peregrine falcon and bald eagle) listed as endangered that may occasionally use the ISA. There are seven animal species and nine plant species that are considered sensitive that may occur in the ISA. The ISA has small populations of cougar and elk which are wildlife species associated with wilderness (refer to the Vegetation and Wildlife Including Special Status Species sections for additional information). Approximately 43 percent (51,752 acres) of the ISA is rated Class A for scenic quality. It has approximately 42.4 miles of perennial streams. The Escalante River is a National Inventory River Segment for possible wild and scenic river designation. There are four arches found in the ISA.

• Diversity

This ISA is in the Colorado Plateau Province Ecoregion and has the PNV types of juniper-pinyon woodland, galleta-threawn shrub steppe and saltbush-greasewood. Refer to the Vegetation Including Special Status Species section for more discussion on ecoregions and PNV types. The ecoregion and PNV types represented by this ISA are compared with existing

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and other potential National Wilderness Preservation units in the Wilderness Values section of Volume I.

This ISA is within a 5-hour drive from one standard metropolitan statistical area, Provo-Orem, Utah.

Air Quality

The ISA and surrounding area have been designated as a PSD Class II area under the 1977 Clean Air Act Amendments. The BLM will not consider or recommend any change in air quality classification as part of the wilderness study or wilderness recommendations. Any further air quality reclassification is the prerogative of the State government, not of the BLM (USDI, BLM, 1982b). Capitol Reef National Park is the closest Class I area to the ISA. It is located 6 miles east of the ISA.

No measurements of air pollution or visibility levels have been made in the Escalante planning unit; however, data collected from various sites (Page, Arizona; Capitol Reef National Park; and Four Mile Bench, Kane County, Utah) indicate the air is generally free of pollutants and within National Ambient Air Quality Standards and State regulations.

Geology and Topography

The North Escalante Canyons/The Gulch ISA is in the Canyonlands section of the Colorado Plateau Physiographic Province. This section is characterized by steep-walled canyons, mesas, and plateaus. Four arches (Maverick, Bowington, Phipps, and an unnamed arch in Long Canyon) occur in the ISA.

Rocks of Triassic and Jurassic ages, totalling about 3,000 feet, crop out in the ISA. Underlying Paleozoic rocks are more than 4,000 feet thick (USDI, USGS, 1981). Grayish-orange, crossbedded sandstone of the Navajo Formation forms the most extensive outcrops. Older formations crop out only in the eastern part of the area and along the Escalante River and its major tributaries. The Carmel Formation caps mesas in the central part of the area and forms the major outcrop along the southwestern edge of the tract.

In most of the area, the rocks dip gently to the southwest. Two major folds, the Boulder-Collet Canyon anticline and the Harris Wash syncline, interrupt this prevailing dip. Both folds are relatively narrow and plunge generally southward. Normal faults, having a displacement of a few feet to about 150 feet, locally cut the western flank of the Harris Wash syncline.

Elevations range from about 6,800 feet on top of King Bench in the northeast part of the ISA and on top of Durffey's Mesa in the northwestern part of the ISA, to about 4,800 feet along the Escalante River in the southeastern corner of the ISA. Major drainages in the ISA include the Escalante River, Deer Creek, Boulder Creek, The Gulch, Horse Canyon, and Harris Wash.

Soils

The major part of the ISA is rockland. Rockland consists of exposed bedrock, mostly sandstone and limestone with gentle to steep slopes. These areas have very little vegetation with native vegetation growing in crevices and pockets of soil material (Wilson, et al., 1975). Bare rock is estimated to be from 50 to 70 percent of the land type. Shallow and very shallow soils make up 20 to 40 percent of this type. The remaining 5 to 10 percent are deep to moderately deep soils.

Sandy soils occur in the northwest corner of the ISA (New Home Bench). Runoff and sediment production from these soils are low, and they are subject to soil blowing.

Light-colored soils of valleys, terraces, and mesas occur along the eastern boundary of the ISA. Runoff is medium to rapid, and sediment production is moderate to low.

Highly erodible soils occur adjacent to Harris Wash and between Red Breaks and Big Horn Wash. Twenty percent of this association consists of badland and rock outcrop. Outcrops mainly consist of sandstone. Runoff is moderate to high, and sediment production is high. Erosion condition was determined by using soil surface factors as summarized in Table 2 (terms are defined in the Glossary).

Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | Acres | Percent of WSA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|---------|----------------|--------------------------------------|
| Severe | 5.4 | 0 | 0 | 0 |
| Critical | 2.7 | 2,385 | 2 | 6,440 |
| Moderate | 1.3 | 75,594 | 63 | 97,680 |
| Slight | 0.6 | 17,890 | 15 | 10,730 |
| Stable | 0.3 | 23,883 | 20 | 7,160 |
| Total | | 119,752 | 100 | 122,010 |

Sources: USDI, BLM, 1978c and 1979c; Leifeste, 1978.

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Soils in the ISA are classified as nonsaline and have an estimated annual salt production of 31 lb per acre.

Approximately 80 percent (95,802 acres) of the ISA is unsuitable for seeding because of rocklands and steep slopes. Twenty percent of the ISA has a poor to fair seeding potential where soil depths vary from 20 to 60 inches.

Vegetation Including Special Status Species

Pinyon-juniper woodland (93,364 acres) is the most common existing vegetation type in the ISA, which includes sagebrush and desert brush vegetation. Large barren areas (26,188 acres) adjacent to the Escalante River, The Gulch, Deer Creek, and Boulder Creek Canyons are primarily slickrock and support very sparse vegetation. Riparian vegetation is found on about 200 acres along the Escalante River, Boulder Creek, Deer Creek, Dry Hollow, The Gulch, and Willow Gulch.

No threatened or endangered plant species are known to occur in the ISA. However, the ISA does contain two Category 1 candidate species, seven Category 2 candidate species, and one sensitive plant species. The Category 1 candidate species are Lepidium montanum var. stellae and Silene petersonii var. minor. The Category 2 Candidate species are Psoralea pariensis, Lepidium montanum var. neeseae, Coryphantha missouriensis var. marstonii, Heterotheca jonesii, Penstemon atwoodii, Xylorhiza cronquistii, and Spiranthes diluvialis. Astragalus barnebyi is the sensitive plant species (refer to Appendix 4 in Volume I). The habitats of all of these species extend beyond the WSA boundary.

The North Escalante Canyons/The Gulch ISA is in the Colorado Plateau Province Ecoregion as shown on the Bailey-Kuchler ecosystems map (USDI, USGS, 1978a). The PNV types of the ISA are juniper-pinyon woodland (79,192 acres), galleta-threawn shrub steppe (27,160 acres), and saltbush greasewood (13,400 acres).

Water Resources

The North Escalante Canyons/The Gulch ISA is within the Escalante River subbasin of the Upper Colorado River hydrologic subregion.

The ISA contains nine developed and eight undeveloped springs and approximately 42.4 miles of perennial streams in the Escalante River drainage. These

streams include the Escalante River, Boulder Creek, Deer Creek, The Gulch, Dry Hollow, and Harris Wash. Flash floods are common on these streams from July to mid-September during the thunderstorm season. The water quality standards for Escalante River and tributaries, from confluence with Boulder Creek to headwaters are as follows: Class 2B (protected for boating, waterskiing, and similar uses), Class 3A (protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain), and Class 4 (protected for agricultural uses including irrigation of crops and stockwatering). For the area close to Lake Powell, the additional classification of Class 3C (protected for nongame fish and other aquatic life) is included.

Utah's 1986 305(b) water quality assessment report states that streams and tributaries entering Lake Powell in the southern portions of the Upper Colorado River drainage have impairments to their beneficial uses from high levels of TDS and sodium. These impairments result mainly from natural sources and low flows. The most prevalent water quality problem results from suspended sediment which is a direct result of flooding.

The North Escalante Canyons/The Gulch ISA is within the Escalante River adjudication area 97. The Escalante River and all tributaries are considered to be fully appropriated, and the underground water directly connected to the surface is closed to appropriation, with the exception of some limited applications for 0.015 cfs which have been approved on an individual basis. The State Engineer will accept applications to appropriate water from the underground aquifer located in bedrock and consider them on the individual merits of the applications (UDNRE, DWR 1988).

Water rights within the ISA total 95.39 acre-feet annually. This water is allocated to BLM for livestock watering. The State of Utah has been allocated 20.16 acre-feet of water for livestock watering in State sections enclosed within the ISA.

Utah Power and Light has applications on file with the State Water Engineer for over 200,000-acre feet from the Escalante River system. Information on file indicates that it would be used for coal-fired steam power generation, mining, domestic, and agricultural purposes.

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Mineral and Energy Resources

The mineral and energy resource rating summary for the North Escalante Canyons/The Gulch ISA is given in Table 3. See Appendix 5 in Volume I for a description of the mineral and energy rating system.

Table 3
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|---------------|---------------------------|------------------------|--|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f3 | c1 | Between 10 and 50 million barrels of oil; between 60 and 300 billion cubic-feet of gas |
| Tar Sand | f3 | c3 | Between 10 and 50 million barrels of oil |
| Uranium | f2 | c1 | Less than 500 metric-tons of uranium oxide |
| Copper | f2 | c2 | Less than 50,000 metric-tons |
| Hydroelectric | f2 | c4 | from 0.05 to 1 megawatts |

Source: SAI, 1982; USDI, BLM, 1987.

^aFavorability of the WSA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

The ISA could contain deposits of copper, which is currently listed as a strategic and critical material (USDoD, 1988). Although listed as strategic, copper is relatively common and supplies currently exceed domestic demand.

• Leasable Minerals

Currently, there are no active drilling, mining, or exploration activities for leasable minerals.

• Oil and Gas

Numerous oil shows (including oil-impregnated rock deposits) have been reported from Cambrian, Devonian, Mississippian, Pennsylvanian, Permian, and Triassic rocks in south-central Utah (Heylman, et al., 1965; Veal, 1976; and Campbell and Ritzma, 1979). The older rocks generally are only stained, whereas free oil has been recovered from Mississippian rocks at Upper Valley (Doelling, 1975). Numerous wildcat wells have been drilled in central Garfield County including 11 wells within the ISA. Most of the wells within the ISA were drilled on the Boulder-Collet Canyon anticline into Permian strata (USDI, USGS, 1981b). Shows of oil and gas were rare, and all the wells have been abandoned. Since most obvi-

ous structures in the area have already been explored, many investigators consider subtle stratigraphic traps in Permian and Triassic rocks to offer the best potential for future petroleum.

The only oil and gas production in south-central Utah in the vicinity of the ISA comes from the Upper Valley field located about 20 miles to the southwest. This field was discovered on the Upper Valley anticline in 1964 and stimulated drilling activity on similar anticlinal structures in south-central Utah. The oil reservoir is located along the prominent Upper Valley anticline, but the producing area is offset from the crest of the of the anticline to the west flank and the southern plunging nose. This offset is due to a regional, southwest-directed hydrodynamic drive in the Kaibab Formation (Sharp, 1976). Oil accumulation in other anticlines within the region may be displaced to the south. Total production from this field is expected to approach 50 million barrels. Production is from four distinct zones in the Timpoweap Formation (Triassic age) and the Kaibab Formation (Permian age). Shows of oil were also reported in the Permian Cedar Mesa and Mississippian Redwall Formation (Sharp, 1976).

Although many potential structural targets remain in this large unit, the most favorable areas may be associated with structural-stratigraphic or stratigraphic traps, especially with respect to the more deeply buried Pennsylvanian and Mississippian rocks. To date, however, no commercial oil and gas potential has been identified in the ISA.

Based on the above, the ISA is assigned an oil and gas favorability rating of (f3). The size of the hydrocarbon accumulation in such an environment is anticipated to be between 10 and 50 million barrels of oil or between 60 and 300 billion cubic-feet of gas. Based on the available information, the certainty of occurrence for oil and gas is rated very low (c1).

In the current land use plan, 83,252 acres of the ISA are in Category 1 (standard stipulations); 13,700 acres are in Category 3 (no surface occupancy); and 22,800 acres are in Category 4 (closed to leasing). There are presently eight pre-FLPMA leases (4,280 acres) and ten post-FLPMA leases (8,600 acres), covering a total of 12,880 acres in the ISA.

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• Tar Sand

Approximately 10,260 acres in the southeast portion of the ISA are located within the Circle Cliffs STSA. This portion of the Circle Cliffs STSA represents the western flank of the tar sand deposits. BLM estimates that the west flank deposit covers about 15,000 acres and contains an estimated 447 million barrels of oil in-place (USDI, BLM, 1984b). About 1,700 acres of the ISA occur within this minable portion of the deposit, and contain an estimated 45 million barrels of oil in-place. The remaining ISA acreage within the STSA is not known to contain minable deposits of tar sand. About 8,960 acres of existing oil and gas leases located in the STSA are under application for conversion to combined hydrocarbon leases.

The tar sand has been assigned a favorability rating of (f3), indicating a potential for 10 to 50 million barrels of oil. The certainty level that this deposit exists is moderate (c3) due to surface exposures and the extensive studies in the area.

Development of tar sand in the Circle Cliffs area is very unlikely due to several factors. The deposits themselves are not generally considered to be of a high quality. The tar sand is poorly saturated with oil, the oil is unusually heavy, and the oil contains a high percentage of sulfur (Wood and Ritzma, 1972). Also, the deposit is very lean, and it may not be feasible to recover the bitumen by in-situ methods due to tar sand compaction, low porosity, and low bitumen content (Glassett and Glassett, 1976). Other factors include (1) high clay and salt content of the ore, (2) remoteness and inaccessibility, and (3) lack of water for processing and land reclamation (Glassett and Glassett, 1976).

• Coal

The ISA is near the Kaiparowits Plateau coal field, which is a few miles to the west. All coal-bearing rocks in this field, as well as all other fields in southern Utah, are of Cretaceous age (Doelling and Graham, 1972). Since the ISA is entirely underlain by rocks of pre-Cretaceous age, there is no potential for coal resources in the ISA.

• Locatable Minerals

There are no known deposits of locatable minerals in the ISA. Sixty-six mining claims, covering 1,320 acres, are located in the ISA.

• Uranium

The Chinle Formation is the only rock unit underlying the ISA known to have potential for uranium in this area. The Chinle occurs at depths ranging from zero along the north and southeastern part of the ISA to about 2,500 feet along the western side. About 36,000 acres in the eastern portion of the ISA are considered favorable for significant deposits of uranium. The term significant is defined, as an economically-extractable uranium deposit that contains a total of at least 100 metric-tons of uranium oxide at a grade of at least 0.01 percent (Peterson, et al., 1982). The criteria used to evaluate the favorability in the area included: (1) the distribution of potential host rocks, which is inferred from the distribution of sandstone-to-mudstone ratios; and (2) the distribution of potential uranium source rocks, the Petrified Forest Member of the Chinle Formation. The remainder of the unit is not considered to be favorable for significant uranium deposits.

The USGS and USBM examined the ISA and concluded that it had a very low potential for uranium occurrence (USDI, USGS, 1981b).

On the basis of the discussion above, the ISA is assigned a uranium favorability rating of (f2) (containing less than 500 metric-tons of uranium oxide). The certainty that uranium deposits occur in the ISA is very low (c1).

• Copper

Copper, associated with uranium mineralization, occurs in the Shinarump Member of the Chinle Formation (Doelling, 1975) near the eastern boundary of the ISA. The copper minerals most often associated with uranium deposits (malachite, azurite, chalcopyrite, bornite, and chrysocolla) seem to be controlled by the same factors that have deposited the uranium minerals. Copper prospects in the Chinle Formation in the vicinity of the eastern boundary of the ISA have reported assays of 0.1 to 13.2 percent copper (Doelling, 1975). The potential in the eastern part of the ISA is rated (f2) (favorability for less than

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50,000 metric-tons of copper). The certainty of occurrence is low (c2).

- **Salable Minerals**

Stream gravel and other loose rock material that could be used for construction occur within the tract. These deposits are not unique or economically significant due to the presence of ample similar materials outside the ISA.

- **Hydroelectric**

The ISA has a favorability only for small-scale hydroelectric developments (1 megawatt) (SAI, 1982). This is due largely to the fact that discharge from the Escalante River can vary greatly from one day to the next depending on the severity of thunderstorms. Under these conditions, only small-scale hydroelectric facilities would be practical. SAI has assigned the ISA a hydroelectric rating of (f2) and a certainty of occurrence rating of (c4). The largest opportunity for hydroelectric power generation on perennial streams within the ISA is on Boulder Creek which could produce 0.85 megawatts 95 percent of the time (Clyde, et al., 1979).

Wildlife Including Special Status Species

The North Escalante Canyons/The Gulch ISA has habitat that theoretically could support approximately 50 species of mammals, 170 species of birds, 17 species of reptiles, five species of amphibians, and six species of fish. The birds are mainly seasonal residents or migrants while the other species are primarily residents (USDI, BLM, 1981a).

Major game species that inhabit or frequent the ISA are mule deer, cottontail, cougar, mourning dove, and waterfowl. Mule deer occur throughout the ISA in limited numbers (fewer than 100 animals) on a year-long basis. There is an additional influx of deer from Boulder Mountain during the winter. The number of wintering deer is variable, but probably does not exceed 200 deer most winters. Deer are most commonly associated with the pinyon-juniper woodland and riparian habitats.

Elk were transplanted onto Boulder Mountain in 1977 and about 50 to 80 animals now winter in the Boulder and Deer Creek areas. A few of these elk move into the ISA from those areas occasionally during the win-

ter. Elk numbers within the ISA could increase as the herd size increases.

Cougars are present throughout the ISA in small numbers (probably less than 10). A few may be resident, but the majority are winter visitors. Cougars occur in the pinyon-juniper woodland and riparian habitats as well as rocky and cliff areas, usually in close proximity to areas occupied by mule deer.

Chukar were introduced in the Escalante area in 1956. A few birds have been seen along Harris Wash in the southern portion of the ISA.

Two endangered species, peregrine falcon and bald eagle, are rare migrants and possibly winter visitors of the ISA. Bald eagles commonly winter on Lake Powell at the mouth of the Escalante River and may occasionally move up the river into the ISA.

At least seven other raptors are known to nest in the ISA, including the golden eagle (a BLM sensitive species), but only the American kestrel could be considered common. The UDWR list of sensitive species includes two species that occur occasionally within the ISA: Lewis woodpecker and western bluebird. There are also seven Category 2 candidate species that could inhabit the ISA as follows: Great Basin Silver-spot butterfly, Salt Gulch pocket gopher, ferruginous hawk, long-billed curlew, southern spotted owl, Swainson's hawk, and white-faced ibis (see Appendix 4 in Volume I).

No critical habitat has been identified in the ISA. No wildlife habitat plans or wildlife projects have been developed within the ISA and none have been proposed.

Brown and rainbow trout occur in Deer Creek, Boulder Creek, and possibly in the Escalante River near its confluence with Deer Creek. Trout in Deer Creek are restricted to a few deep pools cut in the sandstone bottom. The ISA contains approximately 14 miles of fish habitat.

Forest Resources

No significant forest resources occur in the ISA. The Calf Creek recreation area (425 acres) is closed to wood cutting. About 119,327 acres are open to the collection of fuelwood; however, due to the remoteness of the area, lack of access, and sparse vegetation, current use is minimal (USDI, BLM, 1979a). Some fence post cutting and fuelwood harvest by

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local residents occurs in the New Home Bench area. The type of fuelwood used is pinyon pine and juniper. The quantity harvested is unknown.

Livestock and Wild Horses/Burros

The ISA encompasses three livestock grazing allotment (cattle) and portions of eight others. Table 4 summarizes allotment information concerning the ISA.

Existing range improvements in the ISA include: nine spring developments, 15 reservoirs, 4 miles of pipeline, one stock tank, 3 miles of fence, four corrals, a 10-mile stock trail, and four cabins. Proposed range improvements include: four spring developments, three reservoirs, 8 miles of pipeline, one stock tank, a 0.5 mile of fence, one well, four catchments, and one retention dam. Proposed range improvements would improve livestock distribution which is a problem in some areas due to lack of water.

Predator control was not conducted during the 1986 to 1987 period in the grazing allotments that com-

prise the North Escalante Canyons/The Gulch ISA (USDA, APHIS, 1988).

There are no wild horses or burros within the ISA.

Visual Resources

Approximately 51,752 acres are classified as Class A, 53,700 acres as Class B, and 14,300 acres as Class C scenery. The VRM classes for this unit are as follows: Class I on 13,400 acres, Class II on 22,102 acres, Class III on 5,600 acres, and Class IV on 78,650 acres. Refer to Appendix 7 in Volume I for more information regarding the BLM VRM system. In the Glen Canyon NRA wilderness proposal, NPS evaluated several areas common with the ISA and assigned a Value Class of I (highest) to the Escalante River and Harris Wash Canyons. Value Class III (next to lowest) was given to Big Bown Bench and the V. Approximately 8 percent of the ISA was designated as ONAs in recognition of "unique scenic values and natural wonders." The landscapes of the ISA are derivative of both the Escalante River canyonlands and the Circle Cliffs. Portions of the remaining ISA also contain visual resources with unique scenic values.

Table 4
Livestock Grazing Use Data

| Allotments | Total Acres | Acres in WSA | Total AUMs | Number of AUMs in WSA | Number and Kind of Livestock | Season of Use | Number of Operators |
|--------------------|----------------|----------------|---------------|-----------------------|------------------------------|---------------|---------------------|
| Boulder Creek | 2,032 | 2,032 | 63 | 63 | 48 Cattle | 09/01-10/15 | 1 |
| Haymaker | 3,945 | 3,945 | 100 | 100 | 50 Cattle | 11/01-12/31 | 2 |
| King Bench | 48,728 | 31,291 | 2,414 | 1,328 | 484 Cattle | 11/01-03/31 | 1 |
| Deer Creek | 16,751 | 12,079 | 584 | 400 | 131 Cattle | 11/01-04/30 | 2 |
| Little Bowns Bench | 4,284 | 4,284 | 130 | 130 | 26 Cattle | 11/01-03/31 | 1 |
| Death Hollow | 17,883 | 6,740 | 1,005 | 400 | 194 Cattle | 11/01-03/31 | 1 |
| Wagon Box Mesa | 25,256 | 4,120 | 632 | 105 | 110 Cattle | 11/01-03/31 | 2 |
| Big Bowns Bench | 13,814 | 13,814 | 2,338 | 2,338 | 344 Cattle | 10/16-02/28 | 4 |
| Escalante River | 67,891 | 5,254 | 2,959 | 238 | 364 Cattle | 09/01-03/31 | 1 |
| Upper Cattle | 63,658 | 19,383 | 4,734 | 1,446 | 631 Cattle | 11/01-06/15 | 4 |
| Big Horn | 50,224 | 16,810 | 2,994 | 1,006 | 399 Cattle | 11/01-06/15 | 3 |
| Total | 314,466 | 119,752 | 17,953 | 7,554 | | | 22 |

Sources: BLM File Data.

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Cultural Resources

A total of 60 archaeological sites have been recorded in the ISA (USDI, BLM, 1988a). Approximately two-thirds of these are prehistoric surface lithic scatters. Most are small in size and many are located in sand dune deposits in the ISA. Some of the scatters are larger in size and may represent lithic quarries or campsites. Thirteen rockshelters have been recorded in the ISA. Some of these contain storage cists and some have associated rock art panels. One pithouse village site and one structural habitation site, probably of Anasazi origin, have been recorded. The remaining sites are of unknown cultural or temporal affiliation. Generally the lithic scatter sites are confined to ridge tops and benches while the remaining site types are found primarily on canyon bottoms and sides. Most of the recorded sites are located in the central and southwestern portions of the unit. Only one historic site, a petroglyph panel, has been recorded. Sections of the Old Boulder Road or Boulder Mail Trail, the main route between Escalante and Boulder until the Civilian Conservation Corps built the Hell's Backbone road and Highway 12 in the 1930s, are located in the ISA. Intact sections of the Old Boulder road have been nominated to the National Register of Historic Places in the Phipps-Death Hollow ISA. Insufficient physical manifestations are present in this unit to be included in the nomination. Some of the rockshelter and rock art sites and one campsite in the ISA are potentially eligible for nomination to the National Register.

Two Class II inventories have been conducted in the boundaries of the ISA. Five 160-acre quadrants were intensively surveyed and 32 sites were recorded in the unit (USDI, BLM, 1978a). A total of 800 acres were surveyed representing 0.67 percent of the study unit. Two other sites were recorded in the ISA (Tipps, et al., 1988). Site densities for the Escalante planning unit as a whole are estimated to be approximately 397 sites per 23,000 acres. Site densities in the ISA are estimated to be from 576 to 637 per 23,000 acres. Neither inventory was specifically designed for the ISA. Extrapolation of site density estimates to a larger geographic units usually overestimates total site quantities (Tipps, et al., 1988). However, the potential for finding additional sites in the ISA is considered to be exceptionally high. Most of the unrecorded sites in the ISA are likely to be small lithic scatters; however, rockshelters, rock art sites, pithouse villages, and Anasazi structural sites are also likely to be found.

Recreation

Although the ISA offers important opportunities for nonprimitive types of recreation use, most of the use presently occurring within the ISA is probably associated with primitive recreation opportunities. The ISA contains 10,082 acres of four ONAs designated on December 23, 1970, for the purpose of preserving "unique scenic values and natural wonders." The ONAs include North Escalante Canyon (5,800 acres), The Gulch (3,430 acres), tracts 2, 3, and 4 of the Escalante Canyons (480 acres), and Phipps-Death Hollow (12 acres). The ISA includes 110,030 acres of lands contiguous to the ONAs. Within this contiguous area are the Calf Creek recreation area (425 acres) and the Wolverine Petrified Wood NEA (2,213 acres). The area is closed to ORV use on 20,358 acres and open to ORV use on 99,394 acres. Closed areas include all of the ONAs, Calf Creek recreation area, and the Wolverine Petrified Wood NEA.

Other closed areas include 610 acres in Dry Hollow, 820 acres in Boulder Creek, 240 acres in Wolverine Canyon, 930 acres in Death Hollow, and 5,038 acres in Deer Creek.

On September 11, 1970, the Escalante River from its source to Lake Powell, was identified by the Department of the Interior as one of 47 candidate Wild and Scenic Rivers under Section 5(d) of the Wild and Scenic Rivers Act. The ISA contains 11.5 miles of the Escalante River. BLM must, as part of its environmental review process, mitigate adverse impacts to the river and consult with the NPS before taking any action that could foreclose wild, scenic, or recreational river status (CEQ, 1980).

The ISA is viewed by occupants of approximately 121,000 motor vehicles per year traveling Highway 12 between the communities of Boulder and Escalante. This use is particularly heavy on the Hogsback portion of the route where there is an overview of the Dry Hollow Canyon and the Boulder Creek confluence. Sightseeing use is also heavy where Highway 12 overlooks the Escalante River Canyon and upper Phipps Wash. Since 1981, motor vehicle use of the Burr Trail has increased from 5,000 vehicles to 10,000 vehicles per year. In addition, this road is becoming a popular biking route. Car campers at Deer Creek recreation area probably use Deer Creek in the ISA. Motor vehicle tourists undoubtedly hike into the Wolverine Petrified Wood area. Other uses of the ISA include the collecting of "thunderball" iron concretions along the Big Spencer Flat Road and the V road,

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both of which have been cherry-stemmed, and light fishing use of Boulder Creek and Deer Creek.

The overall recreation use for North Escalante Canyons/The Gulch ISA is estimated to be about 32,350 visitor days per year. ORV use of the open ORV areas is estimated to be about 1,250 visitor days. This use occurs mainly on the perimeter of the ISA and areas near Spencer Flats and the V. Primitive recreation use of the ISA is estimated to be about 31,100 visitor days. Primitive recreation use levels seem to be a function of both the national reputation of the area and intrinsic factors such as the large number of hiking route alternatives. Approximately 50 miles of hiking routes associated with the major drainages (Escalante River, Boulder Creek, Deer Creek, The Gulch, Harris Wash, Horse Canyon, Wolverine Canyon, and Death Hollow) are available. Trailheads for these hiking routes are located at the Highway 12 crossing of the Escalante River, Harris Wash, Silver Falls Canyon, and the Burr Trail road at Deer Creek and The Gulch.

The ISA is used by survival groups. It is estimated that 800 of the total visitor days of commercial survival group training use occurs each year in the ISA.

Land Use Plans

The ISA is located within the BLM Escalante planning unit which is being managed under the land use decisions of the Escalante MFP (USDI, BLM, 1981d). The present principal uses within the ISA are livestock grazing and recreation. Wilderness is not addressed in the Escalante MFP. However, wilderness designation is part of the BLM multiple-use concept and the BLM land use plan is linked to the Statewide Wilderness EIS through analysis of the present plan as the No Action/No Wilderness Alternative.

The WSA is BLM-administered public land except for 12 State sections (7,623 acres) and 452 acres of Federal surface and State minerals (split-estate). The current policy of the State is to maximize economic returns from State lands and to reserve its position regarding the exchange of in-held lands (see Chapter 1 in Volume I). In 1986, the Utah State Legislature passed S.C.R. No. 1 opposing any additional wilderness designation in Utah and urging that State lands not be exchanged out of wilderness areas. All of the 7,623 acres of in-held State lands are under lease for grazing and 2,557 acres are under lease for oil,

gas, and hydrocarbons. Grazing is presently the only use on in-held state land.

The Garfield County Master Plan makes recommendations for wilderness designation. The master plan recognizes that the county possesses ". . . some of the most spectacular scenery in the United States . . . The county is sparsely populated and most of it is in its original pristine condition." (Five County Association of Governments, 1984). The plan recommends that 53,447 acres of the North Escalante Canyons/The Gulch ISA be designated wilderness. The county plan recommends that the remaining lands within the county be retained for multiple use. The plan's concept of multiple use includes forestry, livestock grazing, mining, wildlife, and recreation. Regardless of the Garfield County Master Plan, the Garfield County Commission has endorsed the Consolidated Local Government Response to Wilderness (Utah Counties, 1986) that opposes wilderness designation of BLM lands in Utah.

The northern boundary of the ISA is formed by the Burr Trail road. According to Garfield County in 1982, this boundary should be adjusted to allow for future improvements to the transportation route and serve as a utility corridor should the need arise. Also, the county suggested that the eastern boundary of the ISA should be adjusted to allow for uranium exploration and development.

With regard to State land, the 1982 Garfield County position was that the State lands (7,623 acres) should be traded with public lands outside of the wilderness area but must remain in the geographical area of Garfield County.

The Glen Canyon NRA forms the southern boundary of the ISA. This contiguous area is recommended by NPS for wilderness designation in the Glen Canyon NRA Management Plan (USDI, NPS, 1979).

Socioeconomics

• Demographics

The North Escalante Canyons/The Gulch ISA is located in Garfield County, Utah. Most economic impacts are expected to be restricted to this county. Garfield is a rural county having an average population density of less than one person per square mile. From 1970 to 1980, the population of Garfield County grew from 3,157 to 3,700, an overall increase of about 17 percent. Table 5 presents the baseline and projected

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population data for Garfield County. It is estimated that between 1980 and 1987, population increased to about 4,085. Population projections indicate that the number of people living in Garfield County in the year 2010 will be about 4,850 for about a 19-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

Table 5
Baseline and Projected Population and Employment Growth
Garfield County

| | 1980 | 1990 | 2000 | 2010 |
|------------|-------|-------|-------|-------|
| Population | 3,700 | 4,250 | 4,350 | 4,850 |
| Employment | 2,156 | 2,000 | 2,200 | 3,200 |

Source: Utah Office of Planning and Budget, 1987.

The community of Escalante lies along a major access route to the ISA (Highway 12). Escalante is one of the larger communities in the area having a 1980 population of 652 persons (USDC, Bureau of the Census, 1981). Escalante is a main gateway and service area for visitors to the ISA.

• Employment

Table 5 shows the baseline and projected total employment for Garfield County to the year 2010.

Garfield County is part of the Southwest MCD. Table 6 shows the baseline (1980) and projected employment by source for the MCD to the year 2010.

Table 6
Southwest Multi-County District
Employment*

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|--------------|--------------|--------------|--------------|
| Agriculture | 1,810 | 1,700 | 1,600 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,600 | 3,300 |
| Transportation, Utilities | 1,006 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 6,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 6,900 | 8,900 |
| Government | 4,616 | 5,800 | 6,500 | 8,100 |
| Nonfarm Proprietors | <u>2,386</u> | <u>3,100</u> | <u>3,500</u> | <u>4,700</u> |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

*Includes Beaver, Garfield, Iron, Kane, and Washington Counties.

In 1980 the leading employment sectors for the Southwest MCD were government (23 percent), trade (20 percent), and nonfarm proprietors (12 percent). Min-

ing provided approximately 2 percent of the direct employment in the MCD.

It is projected that by the year 2010, employment in the MCD will more than double. Services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 3 percent, Government to 18 percent, and mining to less than 1 percent of the total MCD employment.

• Sales and Revenues

Economic-related activities in the ISA include mineral exploration, livestock production, and recreation. Table 7 summarizes the local sales and Federal revenues from the ISA. Appendix 9 in Volume I identifies the multipliers used to estimate sales and revenues.

Table 7
Sales and Revenues

| Source | Estimated Annual Local Sales* | Estimated Annual Federal Revenues |
|--------------------|----------------------------------|--------------------------------------|
| Oil and Gas Leases | 0 | \$25,760 |
| Mining Claims | \$6,600 | 0 |
| Livestock Grazing | \$151,080 | \$11,633 |
| Recreational Use | <u>\$132,635</u> | <u>\$ 450</u> |
| Total | \$290,315 | \$37,843 |

Sources: BLM File Data; Appendix 9 in Volume I.

*Local sales represent money potentially spent. They do not account for the total income that would be generated by these expenditures.

The ISA has 66 mining claims that require assessment work to remain valid. Regulations require a \$100 annual expenditure per claim for labor and improvements, an undetermined part of which is spent in the local economy. Not all of the claims are current in assessment.

The geophysical exploration and oil and gas well drilling that has been conducted in the ISA has generated some temporary local employment and income.

No oil and gas or mineral production has occurred in the ISA. Therefore, mineral and energy resource production from the ISA has not significantly contributed to local employment or income.

Twenty-two livestock operators have a total grazing privilege of 7,554 AUMs within the ISA. If all this forage were utilized, it would account for \$151,080 of livestock sales and \$37,770 of ranchers' returns to labor and investment.

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Some woodland products have been harvested from the ISA; however, the harvests have been small and are insignificant to the local economy and only of minor significance to those involved in the harvest.

The ISA's primitive recreational use is high. Related local expenditures, however, would be low due to the spending pattern of the users. The ISA's motorized recreational use is minimal and related local expenditures are also minimal. The actual amount of income generated locally from recreational use in the ISA is unknown. However, an approximate range of expenditures can be deduced (Dalton, 1982). This study indicates that the Statewide average local expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for North Escalante Canyons/The Gulch ISA is estimated to be about 32,350 visitor days per year.

The ISA generates Federal revenues from recreation, livestock grazing, and mineral leasing.

Oil and gas leases in the ISA cover approximately 12,880 acres. At \$2 per acre, lease rental fees generate up to \$25,760 of Federal revenues annually. Half of these monies are allocated to the State, which then reallocates these revenues to various funds, the majority of which are related to energy development and mitigation of local impacts of energy and mineral development.

Average actual livestock use and, therefore, revenues generated from grazing in the ISA are unknown; however, the permittees in the ISA can use up to 7,554 AUMs per year. Based on a \$1.54 per AUM grazing fee, the ISA can potentially generate \$11,633 of grazing fee revenues annually, 50 percent of which would be allocated back to the local BLM District for the construction of rangeland improvements.

Approximately \$450 in Federal revenues have also been generated annually from commercial recreation use permits that have been issued for areas within the ISA.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

Analysis assumptions and guidelines for all alternatives are described in the Introduction to Volume III-B. The following analysis is also based on implementation of the action scenarios presented in the Description of the Alternatives.

No Action/No Wilderness Alternative

• Impacts on Wilderness Values

Because the ISA would not be designated wilderness with this alternative, the identified wilderness values would not receive the degree of protection afforded by application of the BLM Wilderness Management Policy (BLM Manual 8560). Wilderness values in the ISA would be somewhat protected by limitations placed on potential surface-disturbing activities (i.e., VRM Class I management on 13,400 acres, VRM Class II management on 22,102 acres, management under oil and gas leasing Category 4 [closed to leasing] on 22,800 acres and oil and gas leasing Category 3 [no surface occupancy] on 13,700 acres, and ORV closure on 20,358 acres).

In the foreseeable future, disturbance of approximately 104 acres from uranium, copper, and oil and gas exploration, rangeland projects, development of access to State in-holdings, and from the realigning and paving of the Burr Trail, would result in a direct loss of naturalness and opportunities for solitude and primitive, unconfined recreation in the disturbed areas. In the foreseeable future, special features, including scenic values, geologic values, perennial streams and rivers, endangered and sensitive species, wildlife associated with wilderness, and historical and archaeological values, would not be significantly affected because the disturbance would be minor (involving 0.09 percent of the ISA). In addition, appropriate measures would be taken to protect endangered and sensitive species and cultural values prior to any surface-disturbing activity. Proposed rangeland developments involving water would benefit wildlife special features associated with wilderness because of increased water sources. Some Class A scenery or special scenic features could be disturbed.

During the period of activity, the visual and audible disturbance from mineral exploration, rangeland development, and access road construction and use would reduce the quality of opportunities for solitude and primitive recreation not only on directly disturbed areas, but also on adjacent portions of the ISA. As much as 10 percent (11,975 acres) of the ISA could be so affected in the foreseeable future.

The continued and increased vehicular use of 5 miles of existing ways, new exploration and access roads, and ORV activity in the Spencer Flats and the V areas would detract from opportunities for solitude and primitive recreation.

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The increased visitor use that would occur over time would be expected to somewhat reduce the quality of the opportunities for solitude and primitive recreation because although the ISA is large and the additional use would be largely primitive in nature, use is expected to continue to be significant in this already popular area. Primitive and vehicular uses would clash in some areas, and primitive use could become very heavy in some areas without management direction.

The extent that disturbance would occur over the long term and, therefore, the long-term loss of wilderness values that would occur is not accurately known. Loss would occur, however, as intrusions increase.

This alternative would not complement and enhance wilderness values, uses, and management of the contiguous NRA which is proposed for wilderness designation by the NPS.

Conclusion: Wilderness values would not be protected by wilderness designation, and loss would occur as intrusions increase. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 104 acres and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to an additional 11,975 acres. Special features would not be significantly affected, except that some Class A scenery could be disturbed.

- Impacts on Vegetation Including Special Status Species

Implementation of the No Action/No Wilderness Alternative with 104 acres of direct surface disturbance would not significantly alter any vegetation type in the ISA because only 0.9 percent of the ISA would be affected. Two Category 1 candidate species, seven Category 2 candidate species, and one special status plant species may occur in the WSA. There is a slight potential that individual plants of these species could be disturbed by locatable minerals exploration. This situation would only exist where such minerals operations would occur on sites of 5 acres or less, where a plan of operations and approval are not required under 43 CFR 3809 regulations. The Endangered Species Act and subsequent regulations apply to these operations and any loss would be inadvertent. It is not anticipated that mineral-related actions in the WSA would threaten the continued existence of any of the special status species. Before authorizing any surface-disturbing activities (including realignment of the Burr

Trail, oil and gas exploration activities, development of access to State land, and construction of rangeland projects) BLM would conduct site-specific clearances of the potentially disturbed areas. If any threatened or endangered species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (see Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Continued ORV use in the Big Spencer Flat and the V areas may impact special status plant species which could occur there including Coryphantha missouriensis var. marstonii, Heterotheca jonesii and Astragalus barnebyi. Intensive monitoring efforts would be established to determine if any special status plant species actually occur in the ORV areas and what impacts were occurring. Should it become necessary, BLM would implement additional measures (closures) to protect the species. Because necessary measures would be taken to protect these species, the viability of populations of special status plant species would be preserved with the No Action/No Wilderness Alternative.

Conclusion: No vegetation types would be significantly affected by implementation of the No Action/No Wilderness Alternative. There would not be significant impacts to special status plant populations from mineral access or BLM-initiated activities. With continued monitoring and management, ORV use would not threaten special status plant species.

- Impacts on Water Resources

Since precipitation is low and existing streams carry a lot of sediment within the ISA, no significant sedimentation or change in TDS, including salt, is expected to occur from the 104 acres of surface disturbance. In addition, restrictions on development imposed by public water reserves, guidelines for protection of riparian habitat and existing restrictions in the Escalante land use plan (22,800 acres closed to mineral leasing, 13,700 closed to surface occupancy, and 20,358 acres closed to ORVS), and wild and scenic river inventory segment restrictions, would also preserve water quality in the ISA.

Present use of water in and upstream of the ISA would not be affected

Conclusion: The No Action/No Wilderness Alternative would not alter present or future water quality or uses.

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- Impacts on Mineral and Energy Exploration and Development

The ISA would remain open to exploration and development of mineral and energy resources without consideration of wilderness values. Therefore, mineral and energy resources would not be affected by the No Action/No Wilderness Alternative.

Conclusion: Mineral exploration or production would not be adversely affected.

- Impacts on Cultural Resources

Implementation of this alternative would result in approximately 104 acres of surface disturbance in the foreseeable future and may impact some archaeological sites. The entire ISA would remain open to mineral location and all except 22,800 acres would remain open to leasing. It is estimated that approximately 57 acres of disturbance due to mineral exploration would occur in the foreseeable future. Some sites could be subject to disturbance or loss in areas where locatable mineral exploration occurs on areas less than 5 acres in size and not subject to regulations contained in 43 CFR 3809. However, sites in the ISA would continue to receive protection under existing Federal and State antiquities laws, and the probability of such mineral development occurring on or near cultural sites is low. Any surface disturbance due to leasable mineral activities, road realignment, etc., would be preceded by standard inventory and mitigation procedures; however, some sites, especially those that cannot be identified by surface inspection, may be inadvertently damaged or lost. In addition, increased activity in developed areas may provide opportunities for illegal artifact collection.

The ISA would remain closed to ORV use on 20,358 acres. Although it is not likely to occur, there could be some impacts to sites in the slickrock and sandy areas near the V and Big Spencer's Flats due to ORV activity.

Vandalism would continue to be a problem and would increase with the general population growth and increased recreational use of the area.

With this alternative, archaeological sites would be subject to standard cultural resource management procedures (Neumann and Reinburg, 1988). Stabilization, interpretation, and excavation could proceed without the restrictions of wilderness values maintenance.

Conclusion: Some impact on cultural resources including 60 recorded sites would result with this alternative. Some inadvertent loss or damage to archaeological sites as well as intentional vandalism due to increased accessibility may occur, but would probably be minimal. Cultural resource management would continue without regard to wilderness management.

- Impacts on Recreation

The quality of a user's primitive recreational experience would be reduced by surface-disturbing activities. A direct loss of opportunity would occur on the 104 disturbed acres, and an indirect reduction in the quality would occur on adjacent acres involving up to 10 percent (11,975 acres) of the ISA. Under this alternative mineral-related exploration is possible on 57 acres. Wherever access roads and drill pads are located, primitive recreational opportunities could be lost. In addition, primitive values could be reduced or lost due to disturbance of 25 acres with realignment of the Burr Trail, 16 acres with rangeland projects, and 6 acres with development of access to State sections. However, roads and ways created for energy and mineral exploration and development would improve access into the area for nonprimitive recreation. About 99,394 acres and 5 miles of ways would remain open to ORV use.

The future trends in recreational use of the ISA are unknown. However, based on a review of several projections (UDNRE, ORA 1980; UDNRE, DPR 1985; Utah Office of Planning and Budget, 1984; Jungst, 1978; and Hof and Kaiser, 1981) it is estimated that outdoor recreation in Utah will increase at about 2 to 7 percent per year over the next 30 years. At this rate, overall recreational use is expected to increase from 32,350 current visitor days per year to between 60,965 and 281,939 visitor days at the end of 30 years. Vehicular use would continue to comprise only about 4 percent of the use. Overflow from Capitol Reef National Park and Glen Canyon NRA could further increase use. In addition, if the Burr Trail road is paved, improved access would increase recreational use of these areas.

Conclusion: The quality of primitive recreation opportunities would be directly reduced on 104 acres with an indirect impact on about 11,975 acres of the WSA. Both primitive and motorized recreation use would increase and vehicular use would continue to comprise about 4 percent of the total use.

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All Wilderness Alternative (119,752 Acres)

• Impacts on Wilderness Values

Designation and management of all 119,752 acres as wilderness would contribute to the preservation of the wilderness values in the North Escalante Canyons/The Gulch ISA. The potential for surface-disturbing activities would be reduced through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I which allows for only natural ecological change. Naturalness would be protected on all 119,752 acres. Solitude would be protected on approximately 89,500 acres that meet and 30,252 acres that do not meet the standards for outstanding opportunities. Primitive and unconfined recreation would be protected on approximately 94,200 acres that meet and 25,552 acres that do not meet the standards for outstanding opportunities. Resources that could be considered as special features in the ISA, including Class A scenery, other scenic features, endangered and sensitive species, wildlife associated with wilderness, archaeological and historical features, geologic features, and perennial waters, would also be protected. This alternative would enhance protection of the Escalante River segment being studied for possible wild and scenic river designation.

Although protected, complete preservation of wilderness values would not be assured because of the existence of valid existing rights. In the foreseeable future, disturbance of up to 46 acres is anticipated from exploration of valid claims, from rangeland projects, from development of access to State in-holdings, and from the realigning and paving of the Burr Trail. Wilderness values of naturalness and opportunities for solitude and primitive recreation would be directly lost on the disturbed areas. Opportunities for solitude and primitive recreation would also be indirectly reduced in quality on adjacent portions of the WSA. As much as 3 percent (3,593 acres) of the WSA could be so affected. Special features would not be significantly affected because the direct disturbance would be minor (involving only 0.04 percent of the ISA). In addition, appropriate measures would be taken to protect endangered and sensitive species and archaeological and historic features prior to any surface-disturbing activity. Although the disturbance would generally not be located where the special features are located, some Class A scenery could be disturbed and reduced in quality. Spring developments would benefit wildlife special features associated with wilderness because of increased water sources.

Mitigation to protect wilderness values would be applied, but loss of wilderness values would be allowed if development involving valid existing rights could not be otherwise achieved. Rangeland projects, on the other hand, would be designed to meet wilderness management criteria and upon completion would not be substantially noticeable in the area as a whole.

Vehicular use of existing ways and other ORV activity would generally cease with ORV closure, improving opportunities for solitude and primitive recreation and naturalness.

Over the long term, there would be no potential for loss of wilderness values due to development of new leases and mining claims. The potential for long-term development of existing mining claims and State in-holdings are not accurately known but would be less with this alternative than with No Action/No Wilderness due to application of mitigation that would protect wilderness values subject to valid existing rights.

Increased visitor use that would occur with time would be primitive in nature and would be managed so as to not result in the loss of wilderness values. Some limitation of visitation may be necessary.

Designation of this ISA as wilderness could benefit the values and uses of the contiguous NPS wilderness proposal. These areas share a common watershed, canyon system, extended recreation travel trails (hiking and horseback riding), and archaeological values.

Conclusion: Wilderness values in the ISA would be preserved overall. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be lost on 46 acres, and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to 3,593 acres of the ISA. Some Class A scenery might be reduced in quality because of disturbance.

• Impacts on Vegetation Including Special Status Species

The vegetation resource, including the special status species would be provided additional protection over the entire ISA. Prior to any surface disturbance (estimated 46 acres) due to locatable mineral exploration, realignment of the Burr Trail, construction of rangeland projects, and development access to State land, appropriate inventories, clearances, and, if required,

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consultation with the FWS would be undertaken per the Endangered Species Act and subsequent regulations. Therefore, impacts would not be significant.

Conclusion: Vegetation including special status species would be protected by the Ali Wilderness Alternative.

• Impacts on Water Resources

Since precipitation is low and the estimated soil disturbance is only 46 acres, no significant sedimentation or change in TDS, including salt production, is expected to occur.

Approximately 42 miles of perennial streams, including 11.5 miles of the Escalante River, flow through the ISA. All surface waters of the Escalante River system are fully appropriated. However, projects that would consumptively use water upstream of the ISA would be hampered because changes in use, changes in points of diversion, or transfer of water rights could be protested by the Federal government to maintain flow through the ISA. Potential upstream water uses include steam-power generation, mining, domestic, and agricultural uses.

Conclusion: In the short term, there would be no significant impact on water quality or uses. In the long term, future water diversions and new consumptive uses in the Escalante River system upstream of the ISA may be restricted or precluded.

• Impacts on Mineral and Energy Exploration and Production

• Leasable Minerals

Approximately 12,880 acres are under oil and gas leases, including 8,960 acres under application for conversion to combined hydrocarbon leases. However, no exploration or development of oil and gas is presently occurring within the ISA.

Existing leases could be explored and developed subject to the stipulations issued at the time of leasing. It is unlikely that existing leases will be developed or a showing of commercial quantities made prior to their expiration dates. Expired leases will not be reissued and no new leasing would be allowed.

Exploration for and development of a potential resource of up to 50 million barrels of oil in-place and less than 300 billion cubic-feet of natural gas could be foregone under this alternative. However, due to the very low certainty that these exist, and the low likelihood of development following exploration, it is concluded that this alternative would not result in any significant loss of potential oil and gas recovery.

The eastern side of the ISA has potential for tar sand deposits. Approximately 10,260 acres of the ISA are part of the Circle Cliffs STSA and 8,960 acres are under lease conversion application. It is unlikely that the lease could be developed considering the wilderness protection stipulations.

It is concluded that the potential for development of 10,260 acres of tar sand (10 to 50 million barrels of recoverable oil) would be foregone. However, the likelihood for development is thought to be low because the deposit is considered to be low quality, poorly saturated with a high sulfur content.

• Locatable Minerals

Approximately 1,320 acres are under mining claim within the ISA, principally for uranium and associated copper. Up to 500 metric-tons of uranium and up to 50,000 metric-tons of copper could occur within the ISA. Development work, extraction, and patenting would be allowed to continue on valid claims after wilderness designation under unnecessary or undue degradation guidelines. However, because production of these metals is not currently occurring and because of economic considerations, low favorability and low certainty that such deposits actually exist in the ISA, it is unlikely that development will occur following exploration. Therefore, this alternative would not result in a significant loss of recoverable uranium or copper resources.

Conclusion: Potential exploration and development opportunities for minerals that may occur in the ISA would be limited to those areas under lease or mining claim at the time of designation. However, no significant leasable or locatable mineral production would be foregone.

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• Impacts on Cultural Resources

All surface disturbance expected with this alternative would be preceded by appropriate inventories and protective stipulations if necessary. All vehicular access would be completely eliminated within the boundaries of the ISA. Approximately 15 miles of cherry-stemmed roads would continue to provide some access to sites in the interior of the ISA, however, resulting indirect impacts would probably be minimal. Very little intentional or unintentional damage to cultural resources is expected due to surface development or continued vehicular access.

As recreational use of the unit increases in the future, site vandalism and collection of small transportable objects may increase. However, due to the lack of vehicular access, collection of large artifacts and illegal excavation of sites may decrease. If sites containing valuable artifacts or specific features are present in the ISA, the increased inaccessibility of wilderness designation may encourage large scale commercial looting. The rockshelters, rock art sites, pit houses, and Anasazi structural sites in the ISA may meet these requirements (Wylie, 1988). The benefits of protection of cultural resources from all ORV activity, vehicular access, and surface development would, however, probably outweigh any adverse effects from increases in vandalism due to increased recreational use in the future.

All cultural resource management procedures would be subject to the restrictions of wilderness designation (Neumann and Reinburg, 1988). Access to sites for stabilization, interpretation, or excavation may be limited or denied.

Conclusion: Cultural resources, including 60 recorded sites, would benefit from reduction in potential surface disturbance. Management may be restricted in scope and execution due to wilderness designation.

• Impacts on Recreation

Primitive recreational use is currently about 31,100 visitor days a year. The ISA has outstanding primitive recreational values. If the ISA is designated wilderness, those high quality recreational opportunities would be further recognized, managed, and preserved.

As discussed for the No Action/No Wilderness Alternative, recreational use of the ISA is estimated to increase about 2 to 7 percent per year over the next

30 years in relation to population increases and current trends of recreational use. All use would be primitive in nature. Because management provided through a Wilderness Management Plan would attempt to control destructive increases in future recreation use, the quality of the primitive recreation experience would probably not be negatively affected by the increased use.

Mineral-related surface disturbance on up to 5 acres could cause localized impairment of values. If roads for development of valid mining claims could not be denied, the quality of primitive recreational opportunities would be reduced. Because the potential for mineral production is low and wilderness designation would reduce the potential for surface disturbance, the quality of the primitive recreational experience would likely be preserved throughout the area. In addition, surface disturbance on 41 acres is anticipated from realignment of the Burr Trail (25 acres), development of access to State sections (6 acres), and rangeland developments (10 acres). Indirect impacts would affect up to 3 percent (3,593 acres) of the ISA.

Conclusion: Primitive recreation opportunities would benefit by reducing the likelihood for surface-disturbing activities and increasing management attention and recognition of recreational values. The quality of primitive recreation opportunities would be directly reduced on 46 acres and indirectly reduced on up to 3,593 acres. All use would be primitive in nature, and would increase.

Large Partial Wilderness Alternative (Proposed Action) (91,558 Acres)

• Impacts on Wilderness Values

Wilderness designation of 91,558 acres would contribute to the preservation of the area's wilderness values. This Partial Wilderness Alternative would reduce the potential for surface-disturbing activities that would impair wilderness values by almost half that anticipated for the No Action/No Wilderness Alternative. Protection in the designated area would include management under VRM Class I (which generally allows for only natural ecological change), ORV closure, including closure of 4 miles of ways, and closure to future mineral leasing and location. Naturalness, outstanding opportunities for solitude (including about 80,000 acres that meet and 11,558 acres that do not meet the standards for outstanding), and primitive recreation (including about 85,900 acres that

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meet and 5,658 acres that do not meet the standards of outstanding), and special features, including most of the Class A scenery, scenic features and geologic features, all water features including the Escalante River, the historical features, and most of the archaeological values, would be protected. Special status species and wildlife associated with wilderness would benefit from the protection in the designated area.

In the foreseeable future, loss of naturalness and opportunities for solitude and primitive recreation due to allowable surface disturbance from mineral exploration, rangeland projects, access road development to State in-holdings, and Burr Trail upgrading would occur on up to 16 acres within the designated portion and on up to 44 acres within the nondesignated portion. Special features would be largely preserved because direct disturbance would involve only 0.05 percent of the WSA and is generally not expected in areas where special features are located. In addition, appropriate measures would be taken to protect endangered and sensitive species and cultural values prior to any surface-disturbing activity. Some areas of Class A scenery could be reduced in quality.

Sights and sounds from foreseeable development would indirectly reduce the quality of opportunities for solitude and primitive recreation on areas adjacent to the disturbed areas, including up to 6 percent (7,185 acres) of the ISA. Most of this type of impact would be in the nondesignated area.

Elimination of ORV use in the designated area would improve opportunities for solitude and primitive recreation overall in the ISA, although vehicular use of 1 mile of way of new exploration and access roads, and of Spenser Flats and the V in the nondesignated area would continue to detract from these opportunities during the period of activity.

The extent that disturbance would occur over the long term and, therefore, the long-term loss of wilderness values that would occur is not accurately known. Loss would be less than with the No Action/No Wilderness Alternative due to application of mitigation in the designated area that would limit development subject to valid existing rights.

This alternative would complement and enhance wilderness values, uses, and management of contiguous NRA lands proposed for wilderness designation by the NPS.

Conclusion: Wilderness values would be preserved overall in the designated area which is approximately 76 percent of the ISA. Naturalness and opportunities for solitude and primitive recreation would be directly lost on 60 acres and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to 7,185 acres of the ISA. Some Class A scenery would be reduced in quality by surface disturbance.

This alternative would complement and enhance wilderness values, uses, and management on contiguous NRA lands proposed for wilderness designation by NPS.

• Impacts on Vegetation Including Special Status Species

Impacts on vegetation types would not be significant with this alternative because only 0.05 percent (60 acres) of the ISA would be disturbed. For the 91,558 acres that would be designated as wilderness, the impacts would be the same as for the All Wilderness Alternative. The entire 91,558 acres would be closed to ORVs, mineral leasing, and location. Any surface disturbance would be preceded by appropriate inventories and clearances. Therefore, impacts on special status species would not be significant.

For the 28,194 acres that would not be designated, the impacts would be the same as for the No Action/No Wilderness Alternative. Individual special status plant species could be disturbed by locatable minerals exploration where a plan of operations and approvals are not required under 43 CFR 3809 regulations as described in the No Action/No Wilderness Alternative. Since the V and immediate vicinity would not be designated with this alternative, the impacts due to continued ORV use would be the same as analyzed for the No Action/No Wilderness Alternative. Because necessary measures would be taken to protect these special status species, the viability of populations of special status plant species would be preserved with the Large Partial Wilderness Alternative.

Conclusion: Vegetation types would not be significantly affected by implementation of the large Partial Wilderness Alternative. There would be no significant impacts to special status plant populations from mineral, access, BLM initiated activities, Burr Trail realignment, or ORV use because of required mitigation and continued monitoring and management actions.

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• Impacts on Water Resources

Since precipitation is low and the estimated soil disturbance is only 56 acres, no significant sedimentation or change in TDS, including salt production, is expected to occur.

Approximately 42 miles of perennial streams, including 11.5 miles of the Escalante River, flow through that portion of the ISA that would be designated as wilderness. All surface waters of the Escalante River system are fully appropriated. However, projects that would consumptively use water upstream of the ISA would be hampered or precluded because changes in use, changes in points of diversion, or transfer of water rights could be protested by the Federal government to maintain flow through the ISA. Potential upstream water uses include steampower generation, mining, domestic, and agricultural uses.

Conclusion: In the short term, this partial wilderness designation would not significantly alter water quality or uses. In the long term, future water diversions and new consumptive uses in the Escalante River system upstream of the ISA may be restricted or precluded.

• Impacts on Mineral and Energy Exploration and Production

• Leasable Minerals

The area that would be designated wilderness would be placed in Category 4 status with no new leasing. There are approximately 10,200 acres of oil and gas leases in the area that would be designated wilderness. Activities on these leases would occur subject to the stipulations issued at the time of leasing.

It cannot be determined how much of the existing potential resource of between 10 to 50 million barrels of in-place oil and between 60 to 300 billion cubic-feet of natural gas falls within the area that would be designated as wilderness under this alternative. The 28,194-acre nondesignated portion of the ISA would be open to oil and gas development as discussed in the No Action/No Wilderness Alternative. However, due to the small size of the potential deposits, the low certainty that these exist, and the low likelihood for development in the foreseeable future, implementation of this alternative would not result in any significant loss in recovery of the oil and gas resource.

Approximately 9,700 acres of the Circle Cliffs STSA are within the portion of the ISA that would be designated wilderness. About 8,960 acres are presently under lease conversion application. It is assumed that conversion applications would either be approved with wilderness nonimpairment stipulations or denied and that future leasing would not be allowed. Potential for development of the tar sand resource would be foregone as discussed for the All Wilderness Alternative.

In the nondesignated area, tar sand could be explored and developed as discussed for the No Action/No Wilderness Alternative. However, the potential for development of this resource is low because the deposit is considered to be low quality. (poorly saturated with a high sulphur content).

• Locatable Minerals

Approximately 520 acres of mining claims are within the area that would be designated wilderness. Development work, extraction, and patenting could continue on valid claims after wilderness designation under unnecessary or undue degradation guidelines. After designation, all other lands (including claims not determined valid) would be closed to prospecting and development (USDI, BLM, 1981a).

Because locatable minerals are not being recovered at present within the ISA and because of economic considerations, low favorability and low certainty that such deposits actually exist in the ISA, implementation of this alternative would not prevent recovery of significant amounts of uranium or associated copper.

Conclusion: Potential exploration and development opportunities for minerals that may occur in the designated portion of the ISA would be limited to those areas under lease or mining claims at the time of designation. However, no significant locatable or leasable mineral production would be foregone.

• Impacts on Cultural Resources

Forty-three of the 60 recorded sites would be located in the designated portion and would receive protection under wilderness management. Only 16 acres of surface disturbance is expected for the designated area for the foreseeable future with this alternative and all surface disturbance would be preceded by

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inventories and clearances. Quadrants inventoried (USDI, BLM 1978a) are included in the designated portion. Site densities are probably similar to those estimated for the All Wilderness Alternative. The 91,558 acres composing the wilderness would be closed to ORV use, thus, protecting archaeological sites from both intentional and unintentional impacts. Approximately 15 miles of cherry-stemmed roads would continue to provide some vehicular access to sites in the interior of the ISA.

The remaining 17 recorded sites and all unrecorded sites in the nondesignated portion would be protected by existing Federal and State antiquities laws. Little inventory work has been conducted in this area making site densities difficult to estimate. The nondesignated area would remain open to mineral location and leasing, but potential impacts to cultural resources are unknown. There is a slight possibility that some sites may be damaged due to locatable mineral activities on operations not subject to 43 CFR 3809 regulations as described in the No Action/No Wilderness Alternative. Only 10 acres of such surface disturbance is expected in the foreseeable future and the probabilities of damage or loss is slight.

Any surface disturbance due to leasable mineral activities, road realignment, etc., would be preceded by standard inventory and mitigation measures.

The nondesignated area would remain open to ORV use. Although it is not likely to occur, there could be some impact to sites in the slickrock and sandy areas near the V due to ORV activity.

Conclusion: Forty-three of the 60 recorded sites would receive protection from wilderness designation with this alternative. Sites in the nondesignated portion would continue to receive protection under existing laws but some inadvertent loss or damage to cultural sites due to locatable mineral exploration and ORV activity could occur. However, the likelihood of significant damage or loss is minimal.

• Impacts on Recreation

Primitive recreational opportunities would be protected in the 91,558-acre designated area. Mineral-related surface disturbance on about 7 acres could cause localized impairment of those values. Surface disturbance on 9 acres due to rangeland projects would be temporary and not result in long-term impacts. About 4 miles of way would be closed to vehicle use.

In the 28,194-acre nondesignated area primitive recreational opportunities could be impaired on 10 acres due to mineral exploration activities, 2 acres due to development of access to State sections, 25 acres with realignment of the Burr Trail, and 7 acres with rangeland projects. About 1 mile of way would be open and vehicle-related recreational use and the major ORV use areas near Spencer Flat and the V could continue to provide vehicular use.

Recreation use will continue to increase as described in the No Action/No Wilderness Alternative. At least 96 percent of the use would continue to be primitive in nature.

Conclusion: The quality of primitive recreational opportunities would be protected in the designated area. Opportunities for primitive recreation would be reduced in quality, directly on 60 acres and indirectly on up to 7,185 acres. The levels of recreational use would increase and would continue to be at least 96 percent primitive in nature.

Small Partial Wilderness Alternative (54,500 Acres)

• Impacts on Wilderness Values

Wilderness designation on 54,500 acres would contribute to the preservation of the area's wilderness values. This partial wilderness alternative would reduce the potential for surface-disturbing activities by almost half that anticipated for the No Action/No Wilderness Alternative. Protection in the designated area would include management under VRM Class I (which generally allows for only natural ecological change), ORV closure (no miles of ways would be closed), and closure to future mineral leasing and location. Naturalness and outstanding opportunities for solitude and primitive recreation (all 54,500 acres meet the standards) and special features, including most of the Class A scenery and other scenic features, most archaeological and historical features, and most perennial water features, including the Escalante River, would be protected. Endangered and sensitive species and wildlife associated with wilderness would benefit from wilderness designation.

In the foreseeable future, loss of naturalness and opportunities for solitude and primitive recreation due to allowable surface disturbance from mineral exploration, rangeland projects, development from access road development to State in-holdings, and from upgrading the Burr Trail would directly occur on

NORTH ESCALANTE CANYONS/THE GULCH ISA

up to 4 acres within the designated portion and on up to 63 acres within the nondesignated portion. Special features would be largely preserved because disturbance would involve only 0.06 percent (67 acres) of the ISA. In addition, appropriate measures would be taken to protect endangered and sensitive species and cultural values prior to any surface-disturbing activity. Some Class A scenery could be disturbed.

Sights and sounds from foreseeable development would indirectly reduce the quality of opportunities for solitude and primitive recreation on areas adjacent to the disturbed areas, including up to 6 percent (7,185 acres) of the ISA. Almost all of this type of impact would be in the nondesignated area.

Elimination of ORV use in the designated area would improve opportunities for solitude and primitive recreation, although vehicular use of all 5 miles of ways, of future access and mineral exploration roads and of Spenser Flats and the V in the nondesignated area would detract from these opportunities during the period of activity.

The extent that disturbance would occur on Federal lands and State in-holdings over the long term and, therefore, the long-term loss of wilderness values that would occur is unknown, but would be less than with the No Action/No Wilderness Alternative due to application of mitigation in the designated area that would limit development subject to valid existing rights.

Lands designated with this alternative would not be contiguous to the NRA lands proposed for wilderness designation by the NPS. Therefore, this alternative would not enhance or complement wilderness uses, values, or management of the NRA lands.

Conclusion: Wilderness values would be preserved overall in the designated area which is approximately 46 percent of the ISA. Naturalness and opportunities for solitude and primitive recreation would be directly lost on 67 acres, and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to 7,185 acres. Some Class A scenery could be reduced in quality.

• Impacts on Vegetation Including Special Status Species

There would be no significant impact to vegetation types with this alternative because only 0.06 percent (67 acres) of the ISA would be disturbed. For the

54,500 acres that would be designated as wilderness, the impacts would be the same as for the All Wilderness Alternative. The entire 54,500 acres would be closed to ORVs, and mineral leasing location. Any surface disturbance would be preceded by appropriate inventories and clearances. Therefore, special status species would not be significantly effected.

For the 65,252 acres that would not be designated, the impacts would be the same as for the No Action/No Wilderness Alternative. Individual special status plant species could be disturbed by locatable minerals exploration where a plan of operations and approvals are not required under 43 CFR 3809 regulations as described in the No Action/No Wilderness Alternative. Since the V and immediate vicinity would not be designated with this alternative, the impacts due to continued ORV use would be the same as the No Action/No Wilderness Alternative. Because necessary measures would be taken to protect these special status species, the viability of populations of special status plant species would be preserved with the Small Partial Wilderness Alternative.

Conclusion: Vegetation types would not be significantly affected by implementation of the Small Partial Wilderness Alternative. There would be no significant impacts to special status plant populations from minerals access, BLM-initiated activities, realignment of the Burr Trail, or ORV use because of required mitigation and continued monitoring and management actions.

• Impacts on Water Resources

Since precipitation is low and the estimated soil disturbance is only 67 acres, no significant sedimentation or change in TDS, including salt production, is expected to occur.

Approximately 42 miles of perennial streams, including 10.5 miles of the Escalante River, flow through that portion of the ISA that would be designated as wilderness. All surface waters of the Escalante River system are fully appropriated. However, projects that would consumptively use water upstream of the ISA would be hampered or precluded because changes in use, changes in points of diversion, or transfer of water rights could be protested by the Federal government to maintain flow through the ISA. Potential upstream water uses include steam power generation, mining, domestic, and agricultural uses.

NORTH ESCALANTE CANYONS/THE GULCH ISA

Conclusion: In the short term, partial wilderness designation would not significantly alter water quality or uses. In the long term, future water diversions and new consumptive uses in the Escalante River system upstream of the ISA may be restricted or precluded.

- Impacts on Mineral and Energy Exploration and Production

- Leasable Minerals

The 54,500-acre area that would be designated wilderness would be placed in Category 4 status with no new leasing. There are approximately 360 acres of oil and gas leases in this area. Activities on these leases would occur subject to the stipulations issued at the time of leasing. Oil and gas development activities in the 65,252-acre nondesignated portion could be explored and developed as discussed in the No Action/No Wilderness Alternative.

However, due to the small size of the potential deposits, the low certainty that these exist, and the low likelihood for development activities, this alternative would not result in a significant loss in recovery of the oil and gas resource.

There are no tar sand resources within the 54,500-acre designated area. Therefore, impacts due to tar sand development would be the same as the No Action/No Wilderness Alternative.

- Locatable Minerals

There are seven mining claims (140 acres) within the designated portion of the ISA. These seven claims and future claims located prior to designation could be developed under unnecessary or undue degradation guidelines. After designation, all other lands (including claims not determined valid) would be closed to prospecting and development (USDI, BLM, 1981a) in the designated area.

Because locatable minerals are not being recovered at present within the ISA and because of economic considerations, low favorability, and low certainty that such deposits actually exist in the ISA, it is unlikely that development would occur in the foreseeable future. Therefore, this alternative would not prevent recovery of significant amounts of uranium or copper.

Conclusion: Potential exploration and development opportunities for minerals that may occur in the designated portion of the ISA would be limited to those areas under lease or mining claim at the time of designation. However, no significant leasable or locatable mineral production would be foregone.

- Impacts on Cultural Resources

With this alternative, 37 of the 60 recorded sites in the ISA would receive protection under wilderness management. The remaining 23 recorded sites and all unrecorded sites in the nondesignated portion would continue to receive protection under existing Federal and State antiquities laws. Cultural resource values are similar and impacts would be similar to those described in the All Wilderness and No Action/No Wilderness Alternatives for the designated and nondesignated portions respectively.

Conclusion: In the designated area, cultural resources including 37 of the 60 recorded sites would receive protection as a result of wilderness designation with this alternative. All sites in the nondesignated area would continue to be protected by existing laws.

- Impacts on Recreation

Primitive recreational opportunities would be preserved overall in the designated area. The quality of opportunities for primitive recreation would be directly reduced on 67 acres and indirectly reduced on up to 7,185 acres. Vehicular use would continue in all present use areas.

Conclusion: The quality of primitive recreational opportunities would be protected in the designated area. Opportunities for primitive recreation would be directly reduced on 67 acres and indirectly reduced on up to 7,185 acres. The levels of both primitive and vehicle recreational use would increase, but continue to be at least 96 percent primitive.

Carcass Canyon WSA



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General Overview of the Area
Canyon to the West
Special Issues

DESIGN

AFTER

Recreation
Land Use Plans
Socioeconomics

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

No Action/No Wilderness Alternative (Proposed Action)
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CARCASS CANYON WSA

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CARCASS CANYON WSA

(UT-040-076)

INTRODUCTION

General Description of the Area

The Carcass Canyon WSA is located in Garfield and Kane Counties, approximately 2 miles south of Escalante, Utah. The WSA contains 46,711 acres of BLM-administered land of which 30,748 acres (66 percent) are located in Garfield County and 15,963 acres (34 percent) are in Kane County. It is administered by the BLM Cedar City District Escalante Resource Area Office. The WSA encloses 1,280 acres of State land, plus 640 acres of split-estate land (State minerals and Federal surface). The WSA is characterized by pinyon-juniper woodland vegetation, rugged rimrock topography, and the Straight Cliffs escarpment.

In general, the climate is temperate and arid with annual precipitation averaging about 10 inches. The highest monthly precipitation occurs from November through March. Intensive thunderstorms are common during the summer months.

Summer temperatures in Escalante, Utah, range approximately 30 degrees Fahrenheit (F) with highs in the upper 80s and lows in the 50s. Winter temperatures range about 27 degrees F with highs in the low 40s and lows of about 15 degrees F. Snowfall in Escalante averages 28 inches and generally begins in October or November and ends in March or April.

Changes for the Final EIS

In addition to the changes noted in the Introduction to Volume III-B, the following changes specific to the Carcass Canyon WSA have been made since publication of the Draft EIS.

1. A small portion of the boundary of the WSA (T. 38 S., R. 4 E., sec. 29) has been redrawn to correct an error in the Draft EIS maps. In addition, several cherry-stemmed roads were clarified and added to the map. These changes did not require acreage adjustments because acreage calculations were based on the boundaries in the inventory document and Final EIS.

2. The anticipated surface disturbance presented in the Draft EIS (4,710 acres) was based on the assumption that all mineral and other resources potentially within the WSA would be developed sometime in the future without consideration of technical or economic

feasibility. In response to public comments relative to the feasibility of developments, the disturbance estimates have been revised to focus on activities projected to be feasible within the foreseeable future (see Appendix 6 in Volume I). This resulted in a reduction of surface disturbance estimates from the 4,710 acres reported in the Draft EIS to 668 acres of surface disturbance for the Final EIS.

3. The Draft EIS identified 2,400 acres of vegetation treatments within the WSA to improve mule deer habitat and increase livestock forage production. However, BLM does not anticipate sufficient funding in the foreseeable future to complete these projects. As a result, the land treatment estimates have been revised downward to 600 acres in the Final EIS to reflect more realistic funding projections. Estimates of potential increases in wildlife populations and livestock forage have been revised accordingly.

4. Three acres of the projected surface disturbance would result from the construction of three livestock reservoirs and is considered in the Final EIS.

Specific Issues Identified Through Scoping and Public Comment

• Issues Considered But Not Analyzed in Detail

In addition to the issues discussed and eliminated from further consideration in the Introduction to Volume III-B (i.e., impacts on air quality, water rights, geology and topography, and land use plans), the following issues or impacts specific to the Carcass Canyon WSA were considered but are not analyzed in detail in the Final EIS for the reasons described below.

1. Soils: Soil disturbance estimates have been revised downward from 4,710 acres analyzed in the Draft EIS to 668 acres in the Final EIS. About 600 acres of the projected disturbance would result from vegetation treatments which would be reclaimed and existing soil conditions would likely be improved over the

STATEWIDE
POCKET MAP
WSA
NO. **32**
SEE VOL. I

CARCASS CANYON WSA

long term. Further, this disturbance would take place in those portions of the WSA where reclamation potential is the highest. At any rate, given this new scenario, the impacts of direct disturbance of soil would affect only about 1.4 percent of the WSA. Therefore, impacts on soils are not significant issues for analysis in the Final EIS.

2. Water Resources: There are no perennial streams in the Carcass Canyon WSA. Existing water developments could be maintained as in the past and would not be affected. Existing use of water for livestock, wildlife, and recreation would be compatible with wilderness management. There would not be large increases in soil erosion because only 1.4 percent of the WSA would be disturbed. Therefore, impacts on water uses and quality are not discussed in detail.

3. Forest Resources: The forest resources in the WSA consist of pinyon-juniper woodland. Demand for forest resources in the WSA would continue to be very low due mainly to more accessible and higher quality areas located elsewhere. Therefore, impacts on forest resources are not significant issues for analysis in the Final EIS.

4. Visual Resources: As already discussed, estimates of surface disturbance have been substantially reduced for the Final EIS. The 668 acres of surface disturbance projected to occur in the foreseeable future would affect only about 1.4 percent of the WSA. Disturbance would occur in Scenic Class B and C areas and in VRM Class IV areas. Impacts on visual resources are considered in the Final EIS as part of the discussion of naturalness in the Wilderness Values section.

5. Recreation: Recreational use of the Carcass Canyon WSA is light, approximately 100 visitor use days per year. This use is generally restricted to the 12 miles of cherry-stemmed road and the 5 miles of way and dry stream beds in canyon bottoms in the WSA. Recreational changes resulting from designation or nondesignation would not be significant due to limited use now occurring and projected to occur in the future in the WSA.

6. Kaiparowits Coal Transportation Corridor: A portion of two Kaiparowits coal corridors extend across the southern portion of the WSA. Commentors on the Draft EIS expressed concern that designated wilderness areas, including the Carcass Canyon WSA, could block the use of these corridors. If wilderness designation were to occur, development of the coal trans-

portation systems would not be allowed within the WSA. However, the transportation corridors described in the ERT study extend beyond the WSA boundary, therefore coal transportation systems could be sited outside the WSA and still be within the designated corridors. Development of major rights-of-way in the long term are not projected to occur within the WSA due to topography and the presence of more favorable routes elsewhere. Therefore, impact related to potential coal transportation systems are not analyzed further for the Carcass Canyon WSA.

• Issues Analyzed in Detail

The significant issues for the Carcass Canyon WSA are:

1. Impacts on the wilderness values of naturalness, opportunities for solitude and primitive recreation, and special features.
2. Impacts on mineral and energy exploration and production.
3. Impacts on vegetation including special status species.
4. Impacts on wildlife habitat and populations including special status species.
5. Impacts on livestock management.
6. Impacts on the preservation of cultural resources.
7. Impacts on local economic conditions.

Comments made during the public comment period for the Draft EIS centered mainly on the need for, and adequacy of, the rationale for the BLM proposed action; the need for further inventories of resource values; and mineral values.

See Volume VII-B for responses to general comments applicable to all WSAs and/or the Statewide analysis and Volume VII-C, Section 32, for responses to specific comments about the Carcass Canyon WSA.

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated From Detailed Study

An alternative that would add up to 12,289 acres of Federal and State lands mostly located on the eastern

CARCASS CANYON WSA

side of the WSA was suggested in the public comments. This alternative is not analyzed because the inclusion of State lands is not consistent with BLM's wilderness review guidelines (refer to Volume VII-B, General Comment Response 6.4) and because the additional public lands were dropped from study during the inventory phase (refer to Volume VII-B, General Comment Response 3.1).

Alternatives Analyzed

Two alternatives are analyzed for this WSA: (1) No Action/No Wilderness (Proposed Action); and (2) All Wilderness (46,711 acres). A description of BLM's management practices with each alternative follows. Where management intentions have not been clearly identified, assumptions are made based on management projections for each alternative. These assumptions are indicated in each case. The assumed management actions presented in the Introduction to Volume III-B are also applicable.

- No Action/No Wilderness Alternative (Proposed Action)

With this alternative, none of the 46,711-acre Carcass Canyon WSA would be designated by Congress as part of the NWPS. Although BLM's land use plans are regularly updated, it is assumed that the area would continue to be managed in accordance with the Escalante Planning Unit MFP (USDI, BLM, 1981d). The 1,280 acres of State land and 640 acres of split-estate lands (Federal surface, State minerals) within the WSA (refer to Map 1 and Appendix 3 in Volume I) have not been identified in the MFP for special Federal acquisition through exchange or purchase. The figures and acreages given are for Federal lands only.

- Management Conditions and Constraints

All 46,711 acres would remain open to mineral location and sale. Development work, extraction, and patenting would be allowed on 89 existing mining claims (1,780 acres) and potential future mining claims. Development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809), without consideration for wilderness values. Existing post-FLPMA oil and gas leases (two leases totaling 1,071 acres) could be developed under leasing Category 1 (standard stipulations). The balance of the WSA (44,931 acres) would be open for new oil and gas leases under Category 1. Existing coal leases (nine leases covering 18,494 acres) and future new coal leases

could be developed without wilderness considerations. If all coal leasing factors are met, one existing Preference Right Lease Application (PRLA) partially located in the WSA (35 acres) could be approved and the lease issued. No oil and gas exploration or development is projected in the WSA because the level of known resources and the probability of their development is too low to support that assumption. Appendix 6 in Volume I explains the mineral and energy development projections. Exploration of a potential uranium resource in the short term and of the substantial coal resource in the long term are projected.

Domestic livestock grazing use of the WSA would continue as authorized at an estimated level of 154 AUMs. Existing developments for livestock, including nine spring developments, one corral, two reservoirs, and 2.5 miles of fence, identified in the management plans would continue to be maintained. The proposed range improvements (three reservoirs and 600 acres of vegetation treatments in the MFP) would be allowed. The 5 miles of way and 12 miles of cherry-stemmed road would be available for vehicular access.

Use, maintenance, and development of facilities for wildlife, water resources, etc., could be allowed if in conformance with the MFP. The 600 acres of vegetation treatments and three reservoirs discussed for livestock would also improve wildlife habitat.

The entire WSA acreage would continue to be open to ORV use. The 5 miles of way and 12 miles of cherry-stemmed road would be available for vehicular access.

The entire 46,711-acre area would be open to woodland product harvest. There is some noncommercial harvest of forest products (fuelwood and fenceposts) at the present time adjacent to ways and cherry-stemmed roads. Historical use has been low and is anticipated to continue to be low because of difficulty of access.





The entire area would continue to be managed under VRM Class IV.

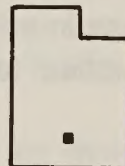
A 287.5-acre public water reserve withdrawal would continue to remain in effect. The withdrawn land is segregated from public land laws and nonmetalliferous mining.

CARCASS CANYON WSA

Map 1 LAND STATUS Carcass Canyon WSA UT-040-076

Legend

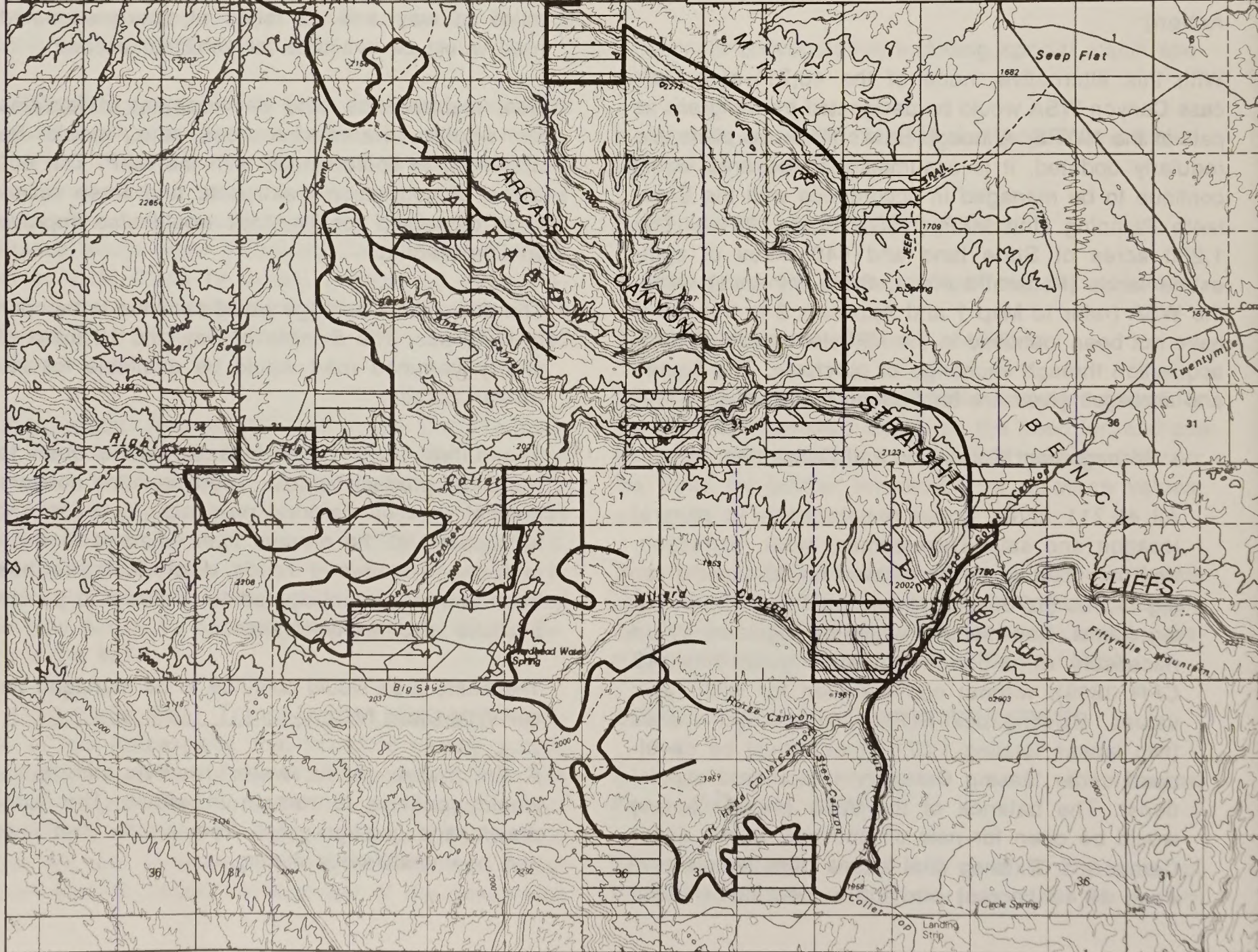
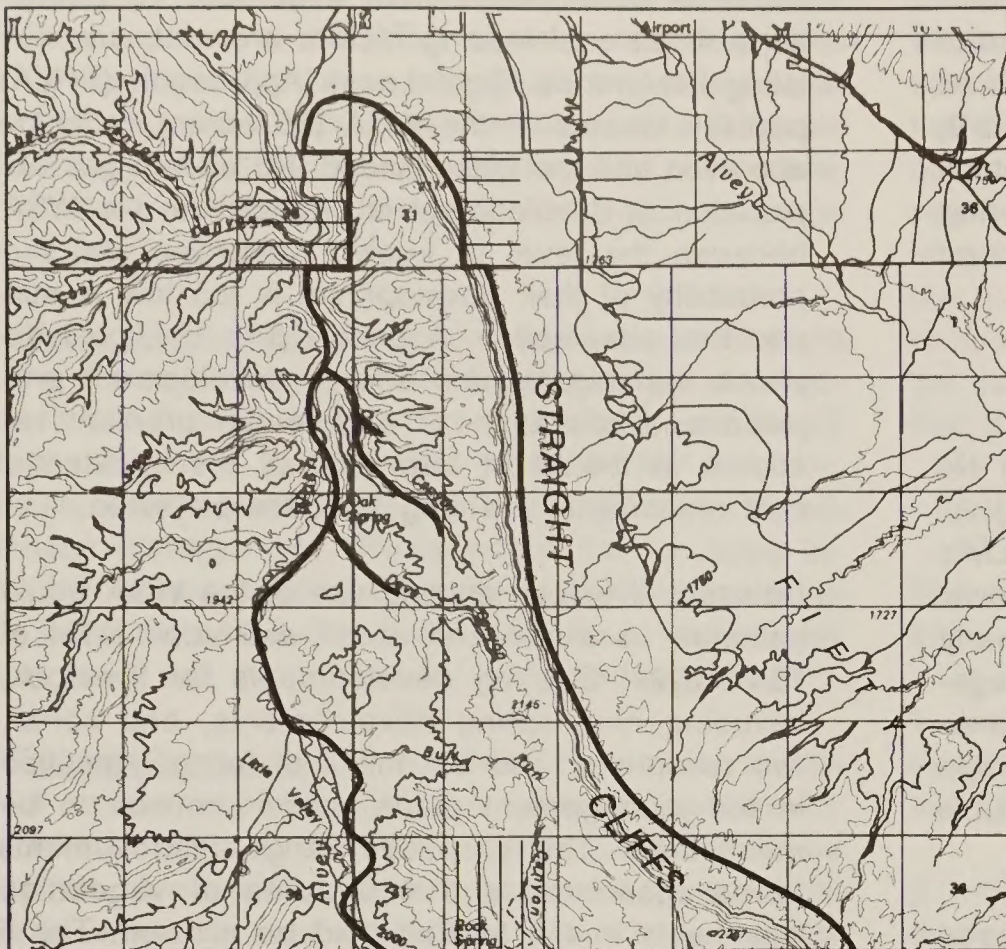
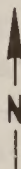
-  WSA Boundary
-  State Land Within or Adjacent to WSA
-  Split-estate (federal surface-state minerals) Land Within or Adjacent to WSA
-  BLM Administered Land Within or Adjacent to WSA



SCALE IN MILES
0 1 2

SCALE IN KILOMETERS
0 1 2 3

ELEVATION EXPRESSED IN METERS



T. 36 S.

T. 37 S.

T. 38 S.

R. 3 E.

R. 4 E.

CARCASS CANYON WSA

- Action Scenario

It is projected that implementation of the No Action/No Wilderness Alternative would result in approximately 668 acres of surface disturbance in the foreseeable future. In the short term, about 600 acres of the assumed disturbance would result from vegetation treatments (pinyon-juniper woodland chaining and seeding) to improve livestock forage and wildlife habitat. Three acres would be disturbed due to the construction of three livestock reservoirs. Less than 1 month of actual on-the-ground work would be necessary to complete these projects. Both the chainings and seedings and the reservoirs would be maintained over the long term. No additional rangeland, wildlife habitat, watershed projects, or other developments are planned in the short term.

Twenty-three acres would be disturbed by uranium exploration activities in the central portion of the WSA. Possible host rocks for uranium lie 700 and 3,500 feet below the surface. Surface disturbance would be limited to up to 9 miles of road building and exploration drilling along these roads. Based on exploration activities typical of this area, it is assumed that 20 employees and 50 days would be used in exploration activities in the short term. Exploration would be under the unnecessary and undue degradation guidelines of the 43 CFR 3809 regulations. It is assumed that disturbed areas would be reclaimed following abandonment. About 3 to 5 years would be required to determine successful reclamation.

It is also projected that up to 1 mile of access road (2 acres of disturbance) would be constructed to in-held State lands in the WSA. The purpose of this access would be to explore for minerals, including coal, on the State lands.

It is projected in the long term that exploration and development of the extensive coal resource in the WSA would occur. A PRLA partially located in the WSA could be approved. Coal development would most likely occur in the western and southern portions of the WSA. Actual development operations would be by underground methods. Portal locations would likely be situated in the canyon area in the southern portion of the WSA where the coal could be easily accessed. The size of individual coal operations, typical of the intermountain area, differ. Each surface facility site, including up to 5 miles of access roads, could occupy up

to 20 acres. Additional surface disturbance would result from exploratory drilling activities. Approximately 40 acres of direct surface disturbance would occur in the WSA from long-term coal development. Employees, including supervisory personnel, would number from 20 to 300. Operations would last from 30 to 40 years. All disturbed areas would be reclaimed upon abandonment.

No disturbance from ORV use is projected due to rugged terrain that would restrict vehicle use to 5 miles of ways, cherry stemmed and future roads, and to washes when disturbance would be temporary.

Recreation use is projected to increase over the current estimated use of 100 annual visitor days at a rate of 2 to 7 percent per year. About 90 percent of the use will continue to be vehicular in nature.

- All Wilderness Alternative

With this alternative, all 46,711 acres of the Carcass Canyon WSA would be designated by an act of Congress as part of the NWPS (refer to Map 2). It would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) to preserve its wilderness character.

The policy of the State is to reserve its position regarding the exchange of in-held lands within any particular WSA (see Chapter 1 in Volume I). Based on this policy regarding exchange of State lands, it is projected that State lands would remain under existing ownership. There are two State sections (1,280 acres) and one tract of split-estate land (640 acres of Federal surface and State minerals) within the WSA (refer to Map 1 and Appendix 3 in Volume I). No private lands are located in the WSA. The figures and acreages given with this alternative are for Federal lands only.

- Management Conditions and Constraints

After wilderness designation, all 46,711 acres would be withdrawn from mineral location and closed to new mineral leasing and sale. Development work, extraction, and patenting on 89 existing mining claims would be allowed where they are determined to be valid. Development of any valid existing claims would be regulated by unnecessary or undue degradation guidelines, with concern for wilderness values. Existing post-FLPMA

CARCASS CANYON WSA

Map 2

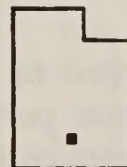
ALL WILDERNESS ALTERNATIVE

Carcass Canyon WSA

UT-040-076

Legend

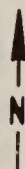
— All Wilderness Alternative (46,711 acres)



SCALE IN MILES
0 1 2

SCALE IN KILOMETERS
0 1 2 3

ELEVATION EXPRESSED IN METERS



T. 36 S.

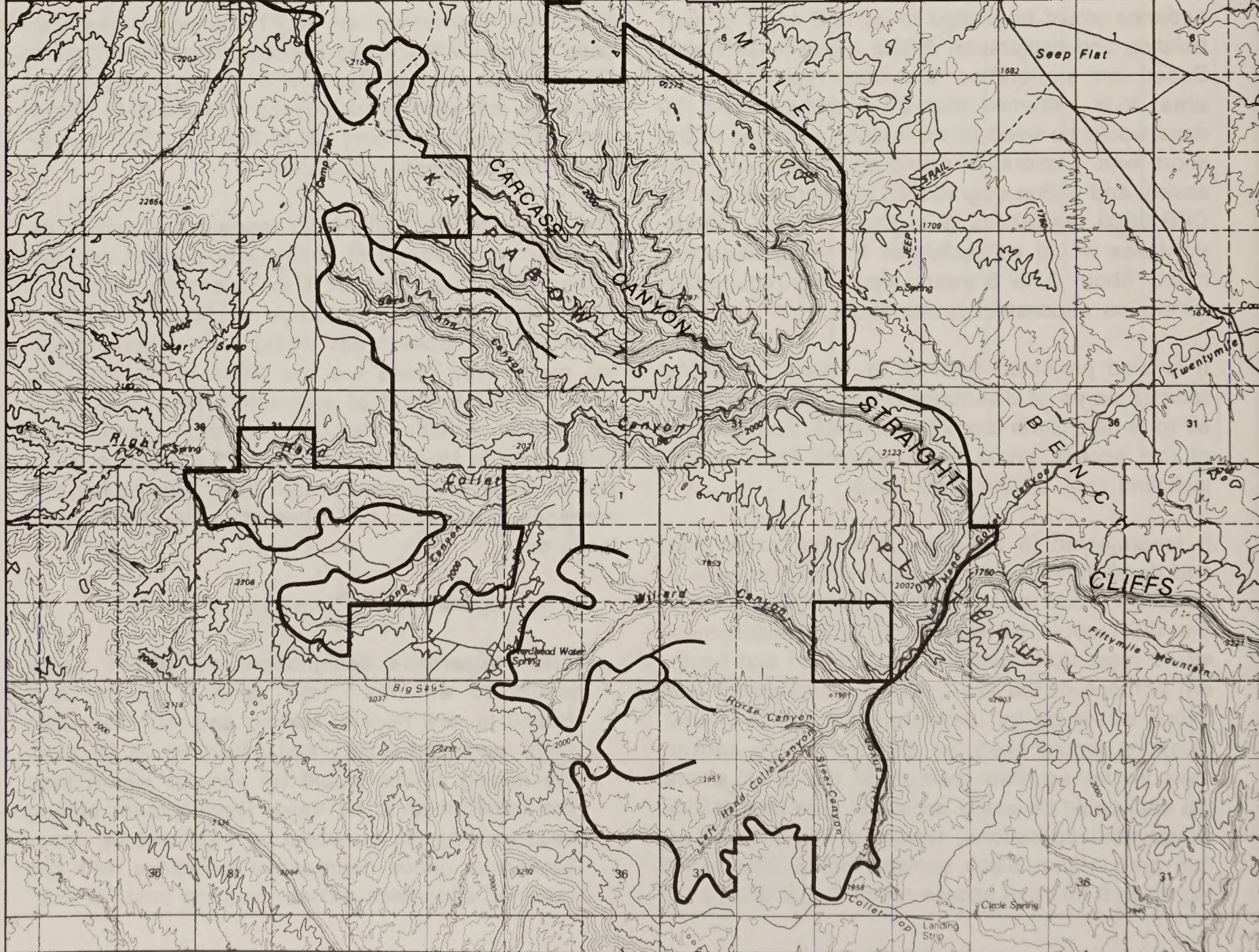
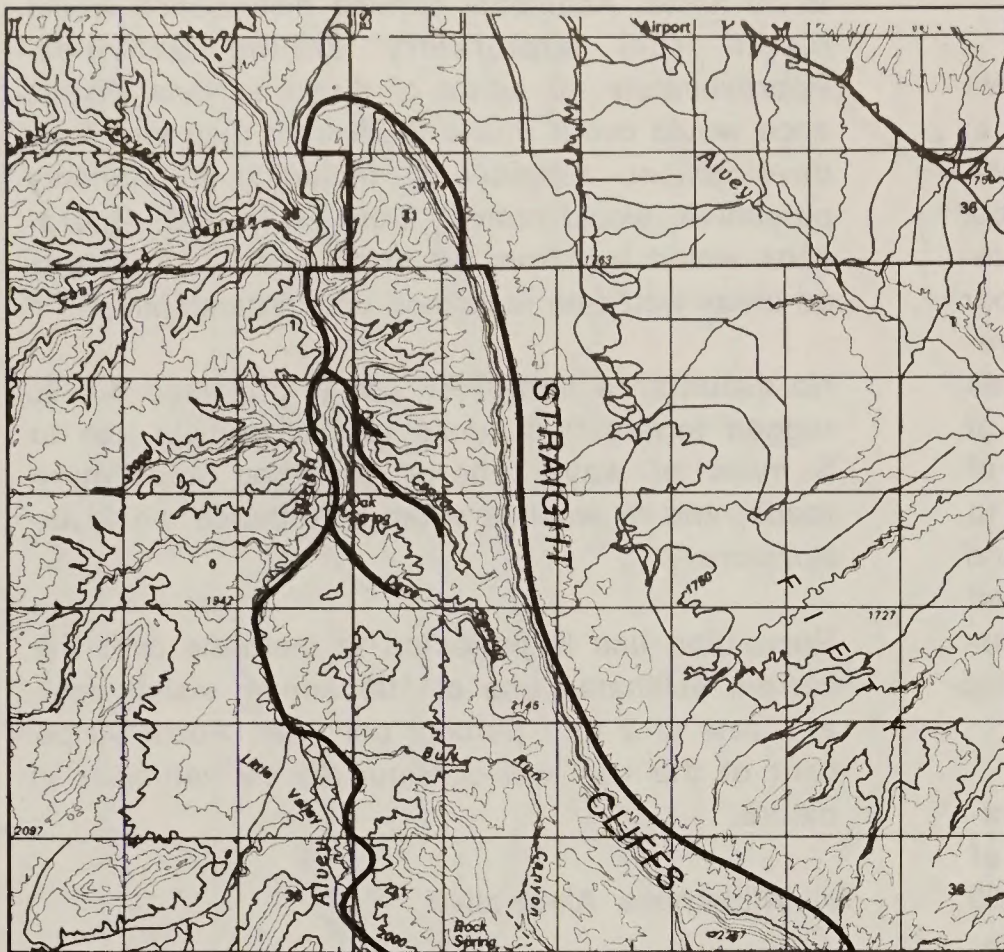
T. 37 S.

T. 38 S.

R. 3 E.

6

R. 4 E.



CARCASS CANYON WSA

oil and gas leases about 1,071 acres would not be reissued upon expiration unless a find of oil or gas in commercial quantities is shown. No new oil and gas leases would be issued. No exploration or development of existing oil and gas leases is projected. It is assumed that existing coal leases (18,494 acres) would be terminated if diligent development criteria are not met, and they would not be extended or reissued. No new coal leases would be issued on the 28,217 acres currently not leased, including the existing PRLA that would not be approved on 35 acres. No exploration or development of existing leases is projected.

Present domestic livestock grazing would continue as authorized. The estimated 154 AUMs in the WSA would remain available to livestock as presently allotted. After designation, existing range facilities (as listed in the No Action/No Wilderness Alternative) could be maintained in a manner least degrading to wilderness values. New rangeland developments would be allowed on a case-by-case basis if necessary for resource protection (rangeland and/or wilderness) and the effective management of these resources, provided that wilderness protection criteria are met. However, the three proposed reservoirs and 600-acre vegetation treatment would not be allowed.

The entire 46,711-acre area would be closed to ORV use except for (1) users with valid existing rights if approved by BLM in accordance with 43 CFR 8560 provisions; or (2) for occasional and short-term vehicular access approved by BLM for maintenance of approved livestock developments. About 5 miles of existing ways would be closed. The 12 miles of cherry-stemmed road and about 19 additional miles of dirt roads that border the WSA would remain open to vehicular use.

A 287.5-acre public water reserve withdrawal would continue to remain in effect. The withdrawn land is segregated from public land laws and nonmetalliferous mining.

• Action Scenario

A total of 9 acres of surface disturbance would occur in the WSA following wilderness designation. Seven of these acres of disturbance would result from uranium exploration activities as described in the No Action/No Wilderness Alternative but on a smaller scale limited to existing, valid claims at the time of wilderness designa-

tion. It is assumed that six employees and 15 days would be used in exploration drilling. The planned rangeland projects (600 acres of vegetation treatments and three reservoirs) would not be allowed. No additional rangeland, wildlife habitat, watershed projects or other developments are planned following wilderness designation.

No mineral resources exploration or development is projected from existing mineral leases in the WSA. It is also projected that the PRLA in the WSA would not be approved. Implementation of the All Wilderness Alternative would preclude new mineral location and mineral leasing. Therefore, no exploration or development of leasable minerals, including coal, is projected following wilderness designation. Up to 1 mile of access road (2 acres of surface disturbance) would be constructed to in-held State lands in the WSA. The purpose of this access would be to explore for minerals on the State lands.

No disturbance from ORV activity is projected due to wilderness management and rugged terrain.

Primitive recreation use is projected to increase over the current estimated primitive use of about 10 annual visitor days at a rate of 2 to 7 percent per year. Recreation involving use of vehicles would be curtailed.

Summary of Environmental Consequences

Table 1 presents the environmental consequences of alternatives analyzed in detail.

AFFECTED ENVIRONMENT

This section describes the overall environmental setting. This information allows for independent assessment by the public as required by the CEQ guidelines and provides a data base for the cumulative State-wide analysis found in Volume I, as well as the Environmental Consequences of Alternatives in this WSA analysis.

Unless otherwise indicated, information for this section was taken from BLM staff specialists, technical reports, and file documents.

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Table 1
Summary of Environmental Consequences

| Alternatives | |
|------------------------------|--|
| Resource | No Action/No Wilderness (Proposed Action) |
| Impacts on Wilderness Values | <p>Wilderness values would not be protected by wilderness designation, and loss would occur as intrusions increase. In the short-term future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 628 acres of the WSA because of development of rangeland projects, vegetation treatments, and access to State in-held lands for mineral exploration and indirectly reduced in quality on up to 7,007 acres. Special features would not be significantly affected. Vehicular use of 5 miles of ways as well as washes and exploration roads would occasionally detract from opportunities for solitude and primitive recreation. Coal development over the long term would result in direct loss of wilderness values on 40 acres and an indirect reduction in the quality of wilderness values on up to an additional 4,670 acres. Special features would not be significantly affected.</p> |
| Impacts on Vegetation | <p>Special status plant species would not be significantly affected. Only about 1.4 percent (668 acres) of the pinyon-juniper woodland in the WSA would be altered as a result of rangeland projects and long term coal development. Therefore, there would not be significant changes in the vegetation types in the WSA.</p> |
| | <p>All Wilderness (61,550 Acres)</p> <p>Wilderness designation would preserve overall the wilderness values in the WSA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 9 acres because of uranium exploration and development of access roads to State in-holdings for mineral exploration. The quality of wilderness values would be indirectly reduced on up to 1,400 acres of the WSA. Special features would be preserved.</p> <p>Implementation of the All Wilderness Alternative would not significantly affect the vegetation resource in the WSA. Vegetation types and special status plant species would be protected because potential disturbance would be reduced to 9 acres.</p> |

CARCASS CANYON WSA

Table 1 (Continued)
Summary of Environmental Consequences

| | No Action/No Wilderness (Proposed Action) | Alternatives | All Wilderness (61,550 Acres) |
|---|---|--------------|--|
| Resource | | | |
| Impacts on Mineral and Energy Exploration and Development | Implementation of the No Action/No Wilderness Alternative would not adversely affect mineral exploration or production because minerals could be leased, claimed, and developed as at present. | | Wilderness designation would preclude or severely constrain potential development of about 280 million tons of recoverable coal. Loss of exploration and development opportunities for other mineral and energy resources would not be significant because the probability of development is low even if the area is not designated as wilderness. |
| Impacts on Wildlife Habitat and Populations | Wildlife habitat and populations including special status animal species would not be significantly affected. Implementation of the projected water and vegetation treatment projects would benefit wildlife by providing additional water, forage, and ecotones. Less than 1.4 percent (668 acres) of the wildlife habitat in the WSA would be affected. | | Wilderness designation would preclude 600 acres of vegetation treatments designed to improve wildlife habitat and livestock forage, but would provide all species with additional opportunities for solitude. Only 9 acres of wildlife habitat would be disturbed in the WSA. |
| Impacts on Livestock Management | Livestock management and grazing lands would not be adversely affected because access and management practices would continue as at present. Approximately 600 acres of seeding that would produce 95 AUMs of forage could be done. | | Wilderness designation would not significantly affect current livestock management practices. Restricting motorized use of the 5 miles of ways could slightly increase management costs and inconvenience the 7 permittees. The opportunity for an increase of 95 AUMs through vegetation treatments would be foregone. |

CARCASS CANYON WSA

Table 1 (Continued)
Summary of Environmental Consequences

| Resource | Alternatives | |
|--------------------------------|--|---|
| | No Action/No Wilderness (Proposed Action) | All Wilderness (61,550 Acres) |
| Impacts on Cultural Resources | Cultural resources would continue to be protected by existing laws. Unintentional damages to sites may occur as a result of vegetation treatments and some vandalism may occur due to continued vehicular access. Cultural resource management would continue without regard to preservation of other wilderness values. | Prohibiting most surface disturbance and vehicular access would provide additional protection for cultural resources including 105 known sites. Management of cultural resources may be restricted in scope and execution in order to protect other wilderness values. |
| Impacts on Economic Conditions | No loss of local employment or income would occur. Federal and State revenues would not be reduced. Economic opportunities could be realized through mineral and energy resource exploration and eventual development in the long term. There would be major beneficial and adverse effects in Garfield and Kane Counties. | Wilderness designation would not significantly affect present local or regional economic conditions. However, new leasing in the WSA would not be allowed; therefore, potential sales and revenues from the coal would be foregone. Over the long term, coal development and associated beneficial and adverse economic impacts would not occur. This would significantly change future economic conditions in Garfield and Kane Counties from what they would be without wilderness designation. |

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Wilderness Values

- Size

The Carcass Canyon WSA is approximately 20 miles long (north to south) and 11 miles wide (east to west) and encompasses 46,711 acres.

- Naturalness

Imprints in the WSA include 2.5 miles of fence, two spring developments, one corral, and 5 miles of way. Overall, the WSA appears natural, with the imprint of man substantially unnoticeable. The high quality of naturalness has not changed since the BLM Intensive Wilderness Inventory (USDI, BLM, 1980b) decision. No surface-disturbing activities have occurred since the inventory.

- Solitude

The WSA affords outstanding opportunities for solitude where topographic and vegetation screening elements occur in combination. The size and configuration of this WSA neither enhance nor detract from the outstanding opportunities for solitude present in the WSA.

The outstanding opportunities for solitude are located in the Right Hand and Left Hand Collet drainages where canyons and intervening rimrock ridges offer superior topographic screening. This topographic screening is enhanced by vegetation screening created by pinyon-juniper, Douglas fir, and Ponderosa pine forest. Most of the canyons within the WSA exhibit outstanding opportunities for solitude. In much of the remainder of the WSA, the benches and ridges between canyons are flat with a pinyon-juniper forest cover of moderate density. In the Calf Canyon-Alvey Wash area, the Carcass Canyon drainage, and the area north of Willard Canyon, the intervening ridges exhibit extensive ledging and shelving. These ridges also possess a denser forest cover. It would be easy for a visitor to find seclusion in the Carcass Canyon system of canyons. Outstanding opportunities for solitude are present on these ridges.

The sights and sounds of human activities are not present from most places within the WSA. From the top of the Straight Cliffs, vehicular activity on the Hole-in-the-Rock road can be observed. This activity is a minor aspect.

In summary, approximately 26,500 acres (57 percent of the WSA) present opportunities for solitude that meet the outstanding criterion for lands under wilderness review due to topographic and vegetation screening.

- Primitive and Unconfined Recreation

The opportunity to explore is considered outstanding in the Carcass Canyon WSA. No other outstanding individual activity was identified, nor has a diversity of primitive activities been identified.

This exploration opportunity is outstanding in complex canyon systems, along the top of the Straight Cliffs, and on the narrow ridges in the WSA. The Carcass Canyon drainage is an area of 15 square miles that exhibits the most complex pattern of canyons in the WSA. There are three major forks to Carcass Canyon, and these branches possess 16 miles of canyon bottom. Numerous lateral canyons join the main branches, and a total of 43 miles of canyons is present within the drainage. At approximately 3 miles of canyon bottom per square mile, the Carcass Canyon drainage exhibits the highest density of canyons in the WSA. Because of the density of canyons, the intervening ridges between canyons in the Carcass Canyon drainage are extremely narrow and precipitous and represent the best opportunity for hiking and exploration. The rim of the Straight Cliffs also exhibits this opportunity, with an additional 1,700 acres present north and south of the Carcass Canyon area.

Overall, outstanding opportunities for primitive recreation are found on 11,800 acres (25 percent) of the WSA. Approximately 10,500 of these acres also have outstanding opportunities for solitude.

- Special Features

The Carcass Canyon WSA exhibits several special features which are summarized below.

The paleontological values contained within the WSA are of scientific value. Invertebrate and vertebrate specimens are found in the Straight Cliffs, Tropic Shale, and Dakota Formations. These scientific values are likely to occur along the entire length of the Straight Cliffs.

The ancient coal fires of Right Hand Collet Canyon have left surface remains in the form of clinkers and deep red ash. These remains dominate the visual character in portions of this drainage.

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The Straight Cliffs, rising 2,000 feet above the Escalante Valley floor, are a scenic landmark in southern Utah. These cliffs are the dominant topographic feature between the town of Escalante and Lake Powell. From the cliffs are spectacular scenic views of the Escalante River drainage, the Waterpocket Fold, Boulder Mountain, and the Henry Mountains. The remaining canyon scenery of the Collet systems, Sarah Ann, and Carcass Canyons are noteworthy but are typical of the scenery found on the Kaiparowits Plateau. One arch with a span of 40 feet is located in Calf Canyon and is visible from the Alvey Wash road. It is an interesting landmark.

Several archaeological sites have been recorded in this WSA. The sites consist of open campsites, lithic scatters, petroglyphs, and cave habitation sites.

The WSA has resource values that, although not identified as such during the wilderness inventory, could be considered special features. There are two animal species (peregrine falcon and bald eagle) listed as endangered that may occasionally use the WSA. There are nine animal species and seven plant species, considered sensitive that occur or may occur, in the WSA. The WSA has a small population of cougar, which is a wildlife species commonly associated with wilderness (refer to the Vegetation and Wildlife Including Special Status Species sections for additional information).

- Diversity

This WSA is in the Colorado Plateau Province Eco-region and has the PNV type of juniper-pinyon woodland (refer to the Vegetation Including Special Status Species section for more discussion on ecoregions and PNV types). The ecoregion and PNV types represented by this WSA are compared with existing and other potential National Wilderness Preservation units in the Wilderness Values section of Volume I.

This WSA is within a 5-hour drive from one standard metropolitan statistical area, Provo-Orem, Utah.

Air Quality

The Carcass Canyon WSA and surrounding area have been designated Class II under the PSD regulations. No measurements of air pollution or visibility levels have been made in the Escalante planning unit; however, data collected from various sites (Page, Arizona, and Four Mile Bench, Utah) indicate the air is

generally free of pollutants and within National Ambient Air Quality Standards and State regulations.

The BLM will not consider or recommend any change in air quality classification as part of the wilderness study or wilderness recommendations. Any further air quality reclassification is the prerogative of the Utah State government (USDI, BLM, 1982b). The WSA is midway between Bryce Canyon and Capitol Reef national parks that are PSD Class I areas. Capitol Reef is approximately 28 miles east of the WSA and Bryce Canyon is about the same distance to the west. Visibility within the WSA is excellent. Good visibility adds to the quality of the vistas, both within and from the WSA.

Geology and Topography

The Carcass Canyon WSA is within the Canyonlands section of the Colorado Plateau Physiographic Province (Thornbury, 1965).

The WSA consists of several canyon systems cut into the Kaiparowits Plateau and a section of the Straight Cliffs. The Straight Cliffs run in a northwest to southeast direction and form the eastern boundary of the WSA. One arch with a span of 40 feet is located in Calf Canyon.

Rocks of Cretaceous age totaling about 2,000 feet in thickness crop out in the WSA. The Cretaceous Straight Cliffs Formation forms the most extensive outcrop in the WSA. The upper units of the Cretaceous Tropic Shale and Dakota Sandstone Formations are exposed along the eastern boundary, and the lowermost units of the Cretaceous Wahweap Sandstone are exposed along the western boundary.

The Wahweap, Straight Cliffs, Tropic Shale, and Dakota Formations contain invertebrate and vertebrate fossil specimens. Thirteen collection sites have been recorded, containing gastropods and cephalopods in the upper Cretaceous Formations, with vertebrate samples occurring in the Dakota and Tropic Shales. These specimens are likely to occur along the entire length of the Straight Cliffs. The Dakota and Morrison formations contain significant fossil specimens and should be critically reviewed prior to surface disturbances.

Two ill-defined structural axes, probably extensions of the Rees anticline and the Croton syncline, cut across the WSA in a roughly north to south direction

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(Doelling and Graham, 1972). Two miles west of the WSA, the Alvey syncline separates the WSA structurally from the east limb of the Upper Valley anticline. No faults are known to occur within the WSA (Hintze, 1973).

Elevations vary from less than 5,400 feet in Left-Hand Collet Canyon, at the southeast corner of the WSA, to more than 7,500 feet on top of the Straight Cliffs along the eastern side of the WSA.

The main drainages are Carcass Canyon, Right-Hand Collet Canyon, and Willard Canyon, all flowing generally in an easterly direction.

Soils

The major part of the WSA is rockland. Rockland areas occur primarily along the Straight Cliffs and have minimal soil development and surface cover. Bare rock is estimated to be from 50 to 75 percent of the land type. Shallow and very shallow soils make up 20 to 40 percent of this type.

The remaining 5 to 10 percent are deep to moderately deep soils. Runoff is high in this area due to the lack of soil development and surface cover.

Highly erodible soils (silty and silty clay loams) occur in Bull Run, Upper Carcass Canyon, and in portions of the Lower Right-Hand Collet and Willard Canyons. Surface runoff is moderate to high and sediment production is high.

The southeast corner of the WSA (Long, Willard, and Horse Canyons) has shallow to moderately deep fine sandy to coarse gravelly loam soils. Sediment production is moderate to low. Erosion condition was determined by using soil surface factors as summarized in Table 2 (terms as defined in the Glossary).

Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | Acres | Percent of WSA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|--------|----------------|--------------------------------------|
| Severe | 5.4 | 0 | 0 | 0 |
| Critical | 2.7 | 42,000 | 90 | 113,400 |
| Moderate | 1.3 | 0 | 0 | 0 |
| Slight | 0.6 | 0 | 0 | 0 |
| Stable | 0.3 | 4,711 | 10 | 1,413 |
| Total | | 46,711 | 100 | 114,813 |

Sources: USDI, BLM, 1978c and 1979c; Leifeste, 1978.

According to an unpublished Kane County soil survey conducted by BLM, 60 percent of the soils within the WSA are classified as moderately saline, 20 percent are classified as slightly saline, and 20 percent classified as nonsaline. The estimated annual salt yield from undisturbed soils within the WSA is 32 lb per acre.

Vegetation Including Special Status Species

The major vegetation type in the WSA is pinyon-juniper woodland. The dominant species in this type are pinyon pine, juniper, sagebrush, and Indian ricegrass. Scattered areas of Douglas fir and Ponderosa pine occur at higher elevations. No riparian vegetation is found within the WSA.

No threatened or endangered plant species are known to occur in the WSA. However, the WSA may contain one Category 1 candidate species and six Category 2 candidate species. These are Lepidium montanum var. stellae, (the Category 1 species), Psoralea pariensis, Lepidium montanum var. neeseae, Coryphantha missouriensis var. marstonii, Heterotheca jonesii, Pentstemon atwoodii, and Xylorhiza cronquistii (see Appendix 4 in Volume I). Distribution of Lepidium montanum var. stellae and Heterotheca jonesii is restricted to minor plant communities in canyons and upper elevations of the WSA while the remaining species are found in the extensive pinyon-juniper woodland. The habitat of all of these species extends beyond the WSA boundary.

The Carcass Canyon WSA is in the Colorado Plateau Province Ecoregion as shown on the Bailey-Kuchler ecosystems map (USDI, USGS, 1978a). The PNV type of the WSA is juniper-pinyon woodland.

Water Resources

The Carcass Canyon WSA is within the Escalante River subbasin of the Upper Colorado River hydrologic subregion. The WSA does not contain any perennial streams. The major drainages in the WSA include Carcass Canyon, Right-Hand Collet Canyon, and Left-Hand Collet Canyon, which drain into the Twenty-Five Mile Wash (a tributary of the Escalante River). These washes may flow periodically from July through mid-September in response to summer thunderstorms. Nine developed and two undeveloped springs are known to occur in the WSA, but water quality is unknown. There are also two livestock reservoirs inside the WSA.

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The water quality standards for the Escalante River and tributaries, from the confluence with Boulder Creek to the headwaters are as follows: Class 2B (protected for boating, waterskiing, and similar uses), Class 3A (protected for cold water species of game fish and other cold water food chain), and Class 4 (protected for agricultural uses including irrigation of crops and stockwatering). For the areas closer to Lake Powell, an additional classification of Class 3C (protected for nongame fish and other aquatic life) is included.

Utah's 1986 305(b) water quality assessment report notes that streams and tributaries entering Lake Powell in the southern portions of the Upper Colorado River drainage have impairments to their beneficial uses due to high levels of TDS and sodium. These impairments result mainly from natural sources and low flows.

The Carcass Canyon WSA is within the Escalante River Adjudication Area 97. The Escalante River and its tributaries are considered to be fully appropriated. The underground water directly connected to the surface is closed to appropriation, with the exception of some limited applications for 0.015 cfs which have been approved on an individual basis. The State-of-Utah Engineer will accept applications to appropriate water from the underground aquifer located in bedrock and consider them on the individual merits of the applications (UDNRE, DWR, 1988).

Water rights within the WSA boundaries total 98.34 acre-feet of water annually. Private individuals have the water rights to 6.44 acre-feet of water for livestock watering from Alvey Wash, adjacent to the western boundary of the WSA. The BLM has the right to 89.66 acre-feet of water for livestock watering. The State of Utah has the water rights to 2.24 acre-feet of water annually on State sections enclosed within the WSA (UDNRE, DWR, 1969).

Utah Power and Light Company has filed an application with the State of Utah to appropriate 5 second-feet of groundwater. The applicant would utilize the appropriated water (diverted from two point sources) to develop coal leases. However, Utah Power and Light Company has not filed a plan of operation to develop these leases.

Mineral and Energy Resources

The energy and mineral resource rating summary for the Carcass Canyon WSA is given in Table 3.

Appendix 5 in Volume I explains the mineral and energy resource rating system.

Table 3
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|-------------|---------------------------|------------------------|--|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f3 | c1 | Between 10 and 50 million barrels of oil; between 60 and 500 billion cubic-feet of gas |
| Coal | f4 | c4 | 0.55 billion metric tons |
| Uranium | f3 | c1 | Between 500 and 1,000 metric-tons of uranium oxide ^b |
| Titanium | f2 | c4 | Less than one million metric-tons of titanium oxide |

Source: SAI, 1982; USDI, BLM, 1987.

^aFavorability of the WSA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

The WSA contains deposits of titanium that is currently listed as a strategic and critical mineral (USDoD, 1988).

• Leasable Minerals

Currently, there are no active drilling, mining, or exploration activities for leasable minerals.

• Oil and Gas

Numerous oil shows (including oil-impregnated rock deposits) have been reported from Cambrian, Devonian, Mississippian, Pennsylvanian, Permian, and Triassic rocks in south-central Utah (Heylmun, et al., 1965; Veal, 1976; and Campbell and Ritzma, 1979). The older rocks generally are only stained, whereas free oil has been recovered from Mississippian rocks at Upper Valley (Doelling, 1975). Because the most obvious structures in the area have already been explored, many investigators considered subtle stratigraphic traps in Permian and Triassic rocks to offer the best potential for future petroleum discoveries.

The only oil and gas production in south-central Utah in the vicinity of the WSA comes from the Upper Valley field located 6 miles to the west. This field was discovered on the Upper Valley anticline in 1964 and stimulated drilling activity on similar anticlinal structures in south-central

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Utah. To date, however, no commercial oil and gas potential has been identified in the WSA.

The oil reservoir is located along the prominent Upper Valley anticline, but the producing area is offset from the crest of the anticline to the west flank and the southern plunging nose. This offset is due to a regional, south to west directed hydrodynamic drive in the Kaibab Formation (Sharp, 1976). Oil accumulation in other anticlines within the region may be displaced to the south. Total production from this field is expected to approach 50 million barrels. Production is from four distinct zones in the Timpoweap Formation (Triassic age) and the Kaibab Formation (Permian age) (Sharp, 1976). Shows of oil were also reported in the Cedar Mesa (Permian) and the Redwall Formation (Mississippian). The south-plunging Rees Canyon anticline, which runs approximately north to south through the central and southern portions of the WSA, may be the most favorable structure in the WSA. However, closures on the Rees Canyon anticline appear to be considerably less than on the Upper Valley anticline (Irwin, 1976). Three exploratory wells have tested the Rees Canyon anticline immediately west of the WSA. One of the wells (#11-9 Federal) was drilled in 1977 and penetrated Cambrian rocks at a total depth of 10,285, with shows reported from the Cedar Mesa Formation of Permian age. The other two wells (#44-30 Federal; #1 Lyons Federal) penetrated Permian strata, with shows in the Cedar Mesa Formation from the #44-30 well.

Three other wells tested the Rees Canyon anticline approximately 6 to 10 miles southeast of the WSA. One of these wells (#1 Byrd, drilled in 1954) penetrated Devonian rocks and bottomed at a total depth of 10,045 feet. BLM well file data indicates that no oil shows were reported. The other two wells (#2 Unit, drilled in 1955; #1-16 State, drilled in 1968) penetrated Mississippian and Permian Formations respectively, and no oil shows were reported from either well.

Another test of this structure was made in 1973 about a mile east of the WSA (T. 36 S., R. 3 E., sec. 15) and penetrated the Cedar Mesa Formation. No oil shows have been reported from this well.

Based on this discussion, the WSA is assigned an oil and gas favorability rating of (f3). The size of the hydrocarbon accumulation in such an environ-

ment is anticipated to be between 10 and 50 million barrels of oil or between 60 and 300 billion cubic-feet of gas. Based on the available information, the certainty of occurrence for oil and gas is rated very low (c1).

Under the current land use plan, all 46,711 acres of the WSA are in Category 1 (standard stipulations). There are presently two post-FLPMA leases covering 1,071 acres in the WSA.

• Coal

The WSA is on the eastern side of the Kaiparowits Plateau coal field, and most of the tract is underlain by the coal-bearing Cretaceous Straight Cliffs Formation. Other minor coal-bearing rocks occur in the Dakota Sandstone and Tropic Shale that crop out in the southern part of the WSA.

Estimated coal reserves within the entire Kaiparowits Plateau coal field total 15.2 billion tons (Doelling and Graham, 1972). A total of approximately 42,000 acres, containing an estimated 0.55 billion tons of minable coal (based on coal seams greater than 4 feet thick) occur within the WSA. Approximately one-third to one-half of the coal is recoverable.

Except for about 4,000 acres along the eastern boundary, all of the WSA contains minable coal (Doelling and Graham, 1972). All of these coal seams are within the Straight Cliffs Formation, and include, from oldest to youngest, the Christensen, Rees, and Alvey coal zones. Coalbeds more than 10 feet thick have been measured in the Christensen and Alvey zones in nearby areas (Doelling and Graham, 1972). Although minable coal occurs throughout most of the WSA, it appears that about two-thirds of the coal occurs in the western and southern portions of the WSA. All of the coal zones thin to the east across the WSA.

Approximately 42,000 acres of the WSA is in the Kaiparowits Plateau KRCRA, which includes the minable coal area. In accordance with the underground mining exemption from the unsuitability criteria (43 CFR 3401.2[a]), none of the areas in the KRCRA within the WSA were determined to be unsuitable for mining as a result of the application of the unsuitability criteria (USDI, BLM, 1981d).

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Based on the above discussion, the coal in the WSA is assigned a favorability rating of (f4) (potential for large tonnages of coal) with a high (c4) certainty of occurrence. There are presently nine coal leases, covering 18,494 acres in the WSA.

• Locatable Minerals

There are presently 89 mining claims, covering 1,780 acres in the WSA.

• Uranium

The Triassic Chinle and Jurassic Morrison Formations are the only rock units considered favorable for uranium in south-central Utah (USDOE, 1979). The Chinle lies at depths exceeding 3,500 feet through the WSA (Hintze, 1973), and uranium deposits found in this formation nearby, such as the Henry and Carrizo Mountains, tend to be small and highly localized (Bendix, 1978).

The Morrison Formation is, therefore, the only formation considered to be favorable for "significant" uranium deposits in the vicinity of the WSA. It lies at a depth of about 700 feet throughout most of the WSA (Hintze, 1973). The term significant is defined as an economically-extractable uranium deposit that contains a total of at least 100 metric-tons of uranium oxide at a grade of at least 0.01 percent (Peterson, et al., 1982). The criteria used to judge the favorability of the Morrison Formation for significant uranium deposits included: (1) low fluvial energy regimes during Morrison time, (2) active folding at the time of sedimentation, (3) orientation of fold axes at large angles to the direction of transport of paleostreams, and (4) the presence of gray mudstone beds. On the basis of these criteria, it is concluded that the Morrison Formation underlying the central portion of the WSA is favorable for one or more significant uranium deposits in the Salt Wash Member (Peterson, et al., 1982).

On the basis of the discussion above, the WSA is assigned a uranium favorability rating of (f3) (containing between 500 and 1,000 metric-tons of uranium oxide). The certainty that uranium deposits occur in the WSA is very low (c1).

• Titanium

Large deposits of primary titanium ore have not been reported in Utah, but sedimentary deposits

of titanium-bearing black sandstones, similar to those found in other western States, occur in several places (Adams, 1964). The known titaniferous black sandstone deposits in Utah are contained in the Straight Cliffs Formation and the Mancos Shale, both of Late Cretaceous age. The deposits represent fossil beach placers that contain very fine-grained ilmenite, zircon, and monazite. The heavy metals were eroded from older rocks to the west and then transported by streams into eastward-retreating Late Cretaceous seas where they were winnowed and concentrated by waves and winds into large sandstone lenses along northwest-trending beaches (Adams, 1964). Because these deposits are slightly radioactive, many were discovered during the uranium exploration boom on the Colorado Plateau in the 1950s.

Although titaniferous black sandstones are known to occur in south-central Utah (Adams, 1964; and Doelling, 1975), all the deposits discovered to date contain only small tonnages of titanium. Two titaniferous placer deposits occur in the WSA in the upper part of the John Henry Member of the Straight Cliffs Formation (T. 36 S., R. 3 E., secs. 7 and 17) (Zeller, 1973b). The deposit in Section 17 occurs as part of a channel in a massive white sandstone between the Alvey and Christensen coal zones (Doelling, 1975). The ore body is about 12 feet thick, 600 feet long, and 200 feet wide, although part of the deposit has undoubtedly been removed by erosion (Doelling, 1975). The upper 6 feet of this deposit contains 13.4 percent titanium oxide, 6.5 percent zirconium oxide, 11.7 percent iron, and 0.09 percent equivalent thorium oxide. The lower 6 feet contains 24.1 percent titanium oxide, 18.1 percent zirconium oxide, 17.8 percent iron, and 0.15 percent equivalent thorium oxide (Dow and Batty, 1961).

It seems likely that similar, although covered, titaniferous sandstone deposits occur sporadically in Late Cretaceous rocks throughout this region. Partly on this basis, and in view of the preceding discussion, the WSA has been assigned a titanium favorability rating of (f2) (favorable for less than 1 million metric-tons). Because titanium deposits occur in the WSA and because the generally recognized titanium-bearing formations underlie the WSA, the certainty of occurrence of titanium deposits within the tract is high (c4).

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• Salable Minerals

Stream gravel and other loose rock material that could be used for construction occur within the tract. These deposits are not unique or economically significant due to the presence of ample similar materials outside the WSA.

Wildlife Including Special Status Species

The Carcass Canyon WSA has habitat that could support approximately 43 species of mammals, 125 species of birds, 17 species of reptiles, and two species of amphibians. No fish exist in the WSA due to the lack of perennial streams or permanent bodies of water.

Major game species include mule deer, cougar, mourning dove, and chukar. Mule deer are fairly common throughout the WSA in the winter. A few cougar are present during the winter months. Mourning dove are common throughout the WSA from May to September. Chukar were introduced into the Escalante area in 1956. They occur in several of the canyons in the WSA and along the Straight Cliffs.

Two endangered species (peregrine falcon and bald eagle) have been recorded within 10 miles of the WSA. They may occasionally migrate through the WSA.

There are also six Category 2 candidate species that could inhabit the WSA. These are the Great Basin Silverspot butterfly, ferruginous hawk, long-billed curlew, southern spotted owl, Swainson's hawk, and white-faced ibis (see Appendix 4 in Volume I). If present, most of these species would be associated with riparian and wet meadow areas or cliff faces and deep canyons, except for the ferruginous hawk and Swainson's hawk. The ferruginous hawk inhabits pinyon-juniper woodland areas where there are ecotones or edges that provide opportunities for nesting, cover, and hunting activities. The Swainson's hawk inhabits open plains, grasslands, and prairies. The UDWR 1987 revised list of sensitive species includes two species that occur in the WSA: Lewis woodpecker and the western bluebird.

Approximately eight species of raptors are known to nest in the WSA. The golden eagle (a BLM sensitive species), red-tailed hawk, Cooper's hawk, and the American kestrel are fairly common in the WSA.

No critical habitat has been identified in the WSA. No existing or proposed wildlife habitat plans or projects have been identified in the WSA.

Forest Resources

Pinyon pine and juniper trees are the forest resources in the WSA. The entire WSA is open to fuelwood harvest but, due to limited access and the topography of the area, use is minimal and is not expected to substantially increase in the foreseeable future. Approximately 150 cords of fuelwood and an unknown number of juniper posts have been harvested from the WSA in the past, primarily by residents of Escalante, Utah. Use occurs primarily in the Alvey Wash area along cherry-stemmed roads.

Livestock and Wild Horses/Burros

The WSA contains portions of five livestock grazing allotments. There are an estimated 154 AUMs within the WSA. Approximately 2,523 acres are suitable for grazing, with 44,188 being unsuitable. Seven operators are licensed to graze cattle within the WSA (refer to Table 4). At present there are 2.5 miles of fence, nine spring developments, two reservoirs, and one corral within the WSA. Six hundred acres of vegetation treatments and three reservoirs are proposed for the WSA. The land treatment would provide approximately 95 additional AUMs of livestock forage. The projects were identified to better distribute livestock grazing in the allotments. Vehicles are used within the WSA for the management of livestock and maintenance of range developments. Use is restricted to the 5 miles of way and 12 miles of cherry-stemmed road in the WSA.

Predator control was not conducted during the 1986 to 1987 period in the grazing allotments that comprise the WSA (USDA, APHIS, 1988).

There are no wild horses or burros in the WSA.

Visual Resources

Approximately 43,911 acres as Class B and 2,800 acres are classified as Class C scenery. The entire WSA has been assigned a VRM Class IV (refer to Appendix 7 in Volume I for more information on the BLM VRM system). The major visual resource of the WSA is the Straight Cliffs which constitute a landmark in southern Utah.

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Table 4
Livestock Grazing Use Data

| Allotments | Total Acres | Acres in WSA | Total AUMs | Number of AUMs in WSA | Number and Kind of Livestock | Season of Use | Number of Operators |
|--------------|----------------|---------------|--------------|-----------------------|------------------------------|---------------|---------------------|
| Alvey Wash | 48,606 | 19,070 | 1,066 | 106 | 280 Cattle | 05/15-09/23 | 1 |
| Cedar Wash | 12,807 | 1,250 | Unallotted | | | | |
| Colletts | 15,252 | 9,315 | 90 | 8 | 90 Cattle | 09/15-10/15 | 1 |
| Last Chance | 229,724 | 16,986 | 3,708 | 31 | 309 Cattle | yearlong | 1 |
| Upper Cattle | 63,658 | 90 | 4,734 | 9 | 631 Cattle | 11/01-06/15 | 4 |
| Total | 370,047 | 46,711 | 9,598 | 154 | | | 7 |

Sources: BLM File Data.

Cultural Resources

A total of 105 archaeological sites have been recorded in the WSA (USDI, BLM, 1988a). The majority of these (88) are prehistoric surface lithic scatters located on pinyon-juniper woodland covered mesa tops. Nearly all of these are located in stabilized dunes or in shallow eolian deposits. Six of the lithic scatter sites contain ceramic artifacts and ten of them contain ground stone artifacts. Several of them exhibit multiple components which may represent different occupations. Buried deposits were reported to be present at several of the sites. Temporally diagnostic artifacts from the Archaic, Late Prehistoric, and historic Paiute periods were found at several of the lithic scatter and indicate a long period of occupation in the WSA. The cultural or temporal affiliation of the remaining lithic scatters is unknown.

Ten rockshelters have been recorded in the WSA. Some of them contain storage cists or storage caches, one has a masonry room, and three contain granaries. Petroglyph or pictograph panels are associated with some of the shelter sites.

These sites are associated with Anasazi or Fremont occupation of the region. One prehistoric burial site which is located in a talus slope has been recorded in the unit. All of these sites are located in the canyon sides and bottoms.

Two historic sites, a set of 1904 inscriptions and a pre-1931 campsite, have been recorded in the unit. No other historical resources or values are known to exist in the WSA.

There are no sites in the unit which have been nominated for the National Register of Historic Places. Several of the lithic scatters which contain buried deposits and some of the rockshelter sites are considered to be eligible for nomination to the Register. Many of the recorded sites have not been evaluated for eligibility.

Six 160-acre quadrants have been intensively surveyed within the boundaries of the WSA (USDI, BLM, 1978). A total of eight sites were recorded. Using these data an average site density of approximately 190 sites per 23,000 acres was computed. This is lower than the average site density for the sampling unit (Escalante River planning unit) as a whole which was estimated at nearly 400 sites per 23,000 acres (USDI, BLM, 1978). The potential for finding additional sites in the WSA is considered to be good. Most of these would probably be small lithic scatters, however, additional rockshelters, rock art sites, and Fremont or Anasazi structural sites may also be present.

Recreation

The Carcass Canyon WSA offers opportunities for both primitive and nonprimitive types of recreation use. Sightseeing use of the WSA by motor vehicle tourists on the Hole-in-the-Rock road accounts for the majority of use of the WSA.

The entire WSA is open to ORV use; however, terrain generally limits vehicle access to existing ways, cherry-stemmed roads, and washes. Camp Flat and Big Sage Bench receive occasional ORV use, but this use is primarily nonrecreational and associated with ranch operations.

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The majority of recreational use is associated with sightseeing use of the Straight Cliffs from the Hole-in-the-Rock road. Approximately 7,500 visitors annually travel this road. Some motor vehicle sightseeing also occurs from the Alvey Wash road at the western boundary of the WSA. Both of these are outside the WSA. Recreational use within the WSA is estimated to be less than 100 visitor days per year. About 10 percent of this use would be for primitive recreation use and the remaining 90 percent for hunting or sightseeing activities using vehicular access.

Land Use Plans

Public lands within the WSA are in the Escalante planning unit and are managed in accordance with the Escalante MFP (USDI, BLM, 1981d). Grazing is the principal land use in the WSA. Wilderness is not addressed in the MFP. Wilderness designation is part of the BLM multiple-use concept and the BLM land use plan is linked to the Statewide Wilderness EIS through analysis of the present plan as the No Action/No Wilderness Alternative.

The WSA is BLM-administered public land except for two State sections (1,280 acres) and 640 acres of split-estate lands (Federal surface, State minerals). The current policy of the State is to maximize economic returns from State lands and to reserve its position regarding exchange of in-held State land (see Chapter 1 in Volume I). Of the 1,280 acres of in-held State land, 640 acres are leased for grazing. The only current activity on these lands is livestock grazing. The 640 acres of split-estate lands are leased for coal.

The WSA is adjacent to major portions of the Kaiparowits coal field (refer to Mineral and Energy Resources Coal section). The Kaiparowits Coal Development and Transportation Study (ERT, 1980) identified potential coal transportation systems and corridors necessary for the future development of the Kaiparowits coal resources. The objective of the study was to identify possible areas for construction and operation of future coal transportation systems within the restrictions of general environmental and engineering constraints. Corridor segments were required to contain at least one potential route for a railroad or coal slurry pipeline. Specific routes, however, were not identified. By selecting corridors between 2 and 15 miles in width, maximum flexibility for future location of specific routes was maintained. Corridors C13 and C17 extend into the southern portion of the Car-

cass Canyon WSA for a short distance. However, the majority of the corridors remain outside of the WSA.

The Garfield County Master Plan covers this WSA. The master plan recognizes that the county possesses ". . . some of the most spectacular scenery in the United States . . . The County is sparsely populated and most of it is in its original pristine condition." (Five County Association of Governments, 1984). The county plan recommends that the area of the Carcass Canyon WSA be retained for multiple uses. The Plan's concept of multiple-use includes forestry, livestock grazing, mining, wildlife, and recreation.

The Garfield County Commission has endorsed the Consolidated Local Government Response to Wilderness (Utah Counties, 1986) that opposes wilderness designation of BLM lands in Utah.

The Kane County Master Plan states, "Kane County supports the total concept of multiple use of lands. We reject exclusionary recreational forms that cannot be used by the average recreation visitor. Wilderness, as conceived by the Federal land agencies, is rejected because of the limited visitor utilization possibilities and rejection of the multiple use concept." (Kane County Board of Commissioners, 1982).

In addition, the Consolidated Local Government Response to Wilderness (Utah Counties, 1986) indicates that Kane County opposes wilderness designation of BLM lands in Utah.

Socioeconomics

• Demographics

The Carcass Canyon WSA is located in both Garfield and Kane Counties, Utah. Most economic impacts would be restricted to these two counties. Garfield and Kane are rural counties having average population densities of less than one person per square mile. This density is very low when compared to the Statewide average of 17 persons per square mile (USDC, Bureau of the Census, 1981). Much of the population in these counties (3,673 persons in Garfield and 4,024 in Kane County) is concentrated in small communities rather than being evenly distributed throughout the area.

From 1970 to 1980, the population of Kane County grew from 2,421 to 4,050, an overall increase of about 67 percent. Table 5 presents the baseline and

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projected population data for Kane County. It is estimated that between 1980 and 1987, population increased to about 4,890. Population projections indicate that the number of people living in Kane County in the year 2010 will be about 6,950 for about a 72-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

From 1970 to 1980, the population of Garfield County grew from 3,157 to 3,700, and overall increase of about 17 percent. Table 5 presents the baseline and projected population data for Garfield County. It is estimated that between 1980 and 1987, population increased to about 4,085. Population projections indicate that the number of people living in Garfield County in the year 2010 will be about 4,850 for about a 19-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

Table 5
Baseline and Projected Population and Employment Growth
Garfield and Kane Counties

| | 1980 | 1990 | 2000 | 2010 |
|-----------------|-------|-------|-------|-------|
| Garfield | | | | |
| Population | 3,700 | 4,250 | 4,350 | 4,850 |
| Employment | 2,156 | 2,000 | 2,200 | 3,200 |
| Kane | | | | |
| Population | 4,050 | 5,250 | 5,750 | 6,950 |
| Employment | 1,403 | 1,900 | 2,300 | 2,900 |

Source: Utah Office of Planning and Budget, 1987.

The community of Escalante is located along a major access route (Utah Highway 12) to the Carcass Canyon WSA. Escalante is one of the larger communities in the area having a 1980 population of 652 persons (USDC, Bureau of the Census, 1981). Escalante is a gateway and service area for visitors to the WSA.

• Employment

The economies of Kane and Garfield Counties are somewhat similar in structure, both being dominated by the government sector and having strong services sectors in terms of employment (USDC, Bureau of Economic Analysis, 1982). Table 5 shows the baseline and projected total employment for Kane and Garfield County to the year 2010. Garfield and Kane Counties are part of the Southwest MCD. Table 6 shows the baseline (1980) and projected employment by source for MCD to the year 2010. In 1980 the leading employment sectors for the Southwest MCD were government (23 percent), trade (20 percent), and non-farm proprietors (12 percent). Mining provided

approximately 2 percent of the direct employment in the MCD.

Table 6
Southwest Multi-County District
Employment^a

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|---------------|---------------|---------------|---------------|
| Agriculture | 1,810 | 1,700 | 1,600 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,600 | 3,300 |
| Transportation, Utilities | 1,006 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 6,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 6,900 | 8,900 |
| Government | 4,616 | 5,800 | 6,500 | 8,100 |
| Nonfarm Proprietors | <u>2,386</u> | <u>3,100</u> | <u>3,500</u> | <u>4,700</u> |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

^aIncludes Beaver, Garfield, Iron, Kane, and Washington Counties.

It is projected that by the year 2010, employment in the MCD will more than double. Services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 3 percent, Government to 18 percent, and mining to less than 1 percent of the total MCD employment.

• Sales and Revenues

Economic-related activities in the WSA include mineral leasing and livestock production. Table 7 summarizes the local sales and Federal revenues from the WSA. Appendix 9 in Volume I identifies the multipliers used to estimate sales and revenues. The WSA has 89 mining claims. Regulations require a \$100 annual expenditure per claim for labor and improvements, an undetermined part of which is spent in the local economy.

Table 7
Sales and Revenues

| Source | Estimated Annual Local Sales ^a | Estimated Annual Federal Revenues |
|-------------------------|--|--------------------------------------|
| Oil and Gas Leases | 0 | \$2,142 |
| Coal | 0 | \$55,482 |
| Mining Claim Assessment | \$8,900 | 0 |
| Livestock Grazing | \$3,080 | \$237 |
| Recreational Use | <u>\$ 410</u> | <u>0</u> |
| Total | \$12,390 | \$57,861 |

Sources: BLM File Data; Appendix 9 In Volume I.

^aLocal sales represent money potentially spent. They do not account for the total income that would be generated by these expenditures.

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No oil and gas or mineral production has occurred in the WSA. Therefore, mineral and energy resource production from the WSA has not significantly contributed to the local employment or income.

Seven livestock operators have a total grazing privilege of approximately 154 AUMs within the WSA. If all this forage were utilized, it would account for approximately \$3,080 of livestock sales including \$770 of ranchers' returns to labor and investment.

Some woodland products are harvested from the WSA; however, the harvests have been small noncommercial and are insignificant to the local economy and only of minor significance to those involved in the harvest.

The WSA's nonmotorized and motorized recreational use is low and related local expenditures are also low. The actual amount of income generated locally from recreational use in the WSA is unknown. However, an approximate range of expenditures can be deduced (Dalton, 1982). This study indicates that the Statewide average local expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for Carcass Canyon WSA is estimated to be less than 100 visitor days per year.

The WSA generates Federal revenues from mineral leases and livestock (refer to Table 7).

Oil and gas leases in the WSA cover approximately 1,071 acres and coal leases cover 18,494 acres. At \$2 per acre, oil and gas lease rental fees generate up to \$2,142 of Federal revenues annually. At \$3 per acre, coal lease rental fees generate up to \$55,482 of Federal revenues annually. Half of these monies are allocated to the State, which then reallocates these revenues to various funds, the majority of which are related to energy development and mitigation of local impacts of energy and mineral development.

Average actual livestock use and, therefore, revenues generated from grazing in the WSA are unknown; however, the permittees in the WSA can use up to 154 AUMs per year. Based on a \$1.54 per AUM grazing fee, the WSA can potentially generate \$237 of grazing fee revenues annually, 50 percent of which would be allocated back to the local BLM District for the construction of rangeland developments.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This section describes the environmental consequences of implementing the alternatives. The analysis is based on the BLM management actions and anticipated activities presented in the Introduction to Volume III-B and the Description of the Alternatives for the Carcass Canyon WSA.

A major long-term consideration in impact analysis for this WSA is development of the Kaiparowits coal field. For a detailed analysis of potential impacts of coal development in southern Utah, the reader is referred to the Final EIS for "Development of Coal Resources in Southern Utah" (USDI, USGS, 1979).

No Action/No Wilderness Alternative (Proposed Action)

• Impacts on Wilderness Values

Because the WSA would not be designated wilderness with this alternative, the identified wilderness values would not receive the protection afforded by application of the BLM Wilderness Management Policy (BLM Manual 8560).

In the short term, disturbance of approximately 628 acres from vegetation treatments, rangeland projects, access to State in-holdings, and uranium exploration mainly in the central portion of the WSA would result in a direct loss of naturalness and opportunities for solitude and primitive, unconfined recreation in the disturbed areas. Special features, including scenic values, paleontological and archaeological values, endangered and sensitive species, and wildlife associated with wilderness, would not be significantly affected because the disturbance would involve only 1.3 percent (628 acres) of the WSA and would generally not be located where the special features are located. In addition, appropriate measures would be taken to protect special status species and archaeological and paleontological values prior to any surface-disturbing activity, and no significant negative impact would occur to these values. Proposed water developments and vegetation treatments would benefit wildlife special features associated with wilderness because of increased water and forage sources.

During the period of activity, the visual and audible disturbance from mineral exploration, vegetation treatments, and rangeland developments would reduce the quality of opportunities for solitude and

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primitive recreation not only on directly disturbed areas but also indirectly on adjacent portions of the WSA. As much as 15 percent (7,007 acres) of the WSA could be so affected in the foreseeable future.

Because future vehicular use would generally be limited by terrain to existing vehicular ways and to dry washes, no additional disturbance from ORV activity is anticipated in the future. The continued and increased use of 5 miles of existing ways and washes, cherry-stemmed roads, and of future exploration roads, would occasionally detract from opportunities for solitude and primitive recreation.

The increased visitor use that would occur over time would be expected to reduce the quality of wilderness opportunities because the additional use would be largely vehicular in nature.

The extent that disturbance would occur over the long term and, therefore, the long-term loss of wilderness values that would result is not accurately known. Coal development would occur in the canyons where the WSA's best wilderness values are, and direct loss of wilderness values over the long term from direct impacts would involve only up to 0.09 percent (40 acres) of the WSA. Indirect reduction in wilderness qualities would involve up to an additional 10 percent (4,671 acres) of the WSA.

Conclusion: Wilderness values would not be protected by wilderness designation and loss would occur as intrusions increase. In the short term, naturalness and opportunities for solitude and primitive recreation would be directly lost on 628 acres of the WSA, and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to an additional 7,007 acres. Over the long term, naturalness and opportunities for solitude and primitive recreation would be directly lost on 40 acres and opportunities for solitude and primitive recreation would be indirectly reduced in quality on an additional 467 acres. Special features would not be significantly affected.

• Impacts on Vegetation Including Special Status Species

The 668 acres of surface disturbance projected for the No Action/No Wilderness Alternative would mainly occur in the pinyon-juniper woodland. On the 600-acre vegetation treatments, vegetation composition would change from woodland to grass-shrub. It is assumed that the grass-shrub vegetation would be maintained over the long term. However, once active

maintenance ceased, the area would eventually revert back to pinyon-juniper woodland. The vegetation treatments would be designed to provide forage for livestock and browse for wildlife habitat. There would also be a loss of naturalness in the disturbed area. However, due to the small size of the disturbance, the overall impact would not be significant. The 3 acres of surface disturbance due to the construction of three reservoirs would be committed to reservoir use over the long term. The 23 acres disturbed by uranium exploration would be reclaimed following completion of the exploration activities. In the long term, anticipated coal development could disturb up to 40 acres as a result of surface facility and access roads construction. While no significant impacts to vegetation or sensitive species are anticipated, it is expected that this disturbance would remain for the 30- to 40-year life of the operations.

No threatened or endangered plant species are known to occur in the WSA. Seven Category 1 and 2 candidate species may occur in the WSA. Many of these species occur in the pinyon-juniper woodland. Surface-disturbing activities could result in the inadvertent loss of some individual plants of these species. However, the continued existence of any of these special status species would not be threatened. Before authorizing any surface-disturbing activities, BLM would conduct site-specific clearances of the potentially disturbed areas. If any threatened or endangered species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (refer to Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Because necessary measures would be taken to protect these species, the viability of populations of threatened, endangered, or other special status plant species would be preserved with the No Action/No Wilderness Alternative.

Conclusion: Special status plant species would not be significantly impacted. About 1.4 percent (628 acres) of the pinyon-juniper woodland type in the WSA would be altered.

• Impacts on Mineral and Energy Exploration and Production

The WSA would remain open to exploration and development of mineral and energy resources without consideration of wilderness values. Therefore, mineral

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and energy resources would not be affected by the No Action/No Wilderness Alternative.

Conclusion: Implementation of the No Action/No Wilderness Alternative would not adversely affect mineral exploration or production.

• Impacts on Wildlife Habitat and Populations Including Special Status Species

Wildlife habitat would be improved by an increase in the availability of water through the construction of three livestock reservoirs. Also, wildlife habitat would be improved through the 600 acres of potential pinyon-juniper woodland and sagebrush vegetation treatments. Deer, cougar, and other game and non-game species would be dispersed from affected area during the construction stage of these livestock projects (603 acres of surface disturbance) and projected uranium exploration activities (23 acres of disturbance). Less mobile wildlife would either perish or co-exist with these disturbances, possibly at smaller or less viable population levels. However, only about 1.4 percent (628 acres) of the WSA would be directly impacted in the short term. An additional 40 acres would be disturbed in the long term as a result of coal development activities. This additional acreage would generally not be available for use by wildlife. The extent and use of the WSA by the bald eagle, peregrine falcon, or the six Category 2 candidate species and other special status species that may occur is unknown. Vegetation treatment proposals would not affect most of these species because activities would be in the flat pinyon-juniper woodland and sagebrush areas. These species, if present, would inhabit the riparian and cliff-face areas in the canyons where no disturbance is anticipated.

The proposed vegetation-treatment projects would create additional ecotones and edges which should improve ferruginous hawk habitat. Also, Swainson's hawk habitat would improve since vegetation treatments would create additional grasslands.

BLM would conduct site-specific clearances of the potentially disturbed areas. If any threatened or endangered species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (refer to Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Because necessary measures would be taken to protect these species, potential populations of threat-

ened, endangered, or other special status animal species would be preserved with the No Action/No Wilderness Alternative.

Conclusion: Wildlife habitat and populations including special status animal species would not be significantly affected. Overall, implementation of the water and vegetation-treatment projects would benefit wildlife by providing additional water, forage, and ecotones. About 1.4 percent (628 acres) of the wildlife habitat in the WSA would be disturbed.

• Impacts on Livestock Management

Domestic livestock grazing would continue as authorized. The estimated 154 AUMs currently allocated in the WSA are controlled by seven livestock permittees. The three proposed reservoirs and 600 acres of vegetation treatment could be developed and would result in improved livestock distribution and increased carrying capacity of an estimated 95 AUMs. The 5 miles of way and 12 miles of cherry-stemmed road would continue to be available for livestock management and maintenance of rangeland developments.

Conclusion: Livestock management and grazing levels would not be adversely affected by implementation of the No Action/No Wilderness Alternative. The projected rangeland developments would result in an additional 95 AUMs annually.

• Impacts on Cultural Resources

In the short term, approximately 628 acres of surface development resulting from rangeland developments and uranium exploration is expected with this alternative. Projected 600 acres of vegetation treatments would occur on the flat mesa tops where most of the recorded cultural sites are located and site densities are high. Some impact to cultural resources is likely to occur as a result of any vegetation treatment project. The nature and extent of potential impact on archaeological sites from coal development in the long term is currently unknown. However, all sites in the WSA would continue to be protected under existing State and Federal antiquities laws and appropriate inventory and mitigation procedures would precede any surface disturbance.

Many of the recorded sites in the WSA are located on or in unconsolidated eolian deposits. These sites are vulnerable to disturbance by vehicular traffic. ORV activity may cause inadvertent damage to unrecorded archaeological sites likely to be located in the dune

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deposits throughout the WSA. In addition, general vehicular access to the unit would provide increased opportunities for illegal artifact collecting (Nickens, et al., 1981).

With this alternative, archaeological sites would be subject to standard cultural resource management procedures (Neumann and Reinburg, 1988). Stabilization, interpretation, and excavation could proceed without the restrictions of wilderness values maintenance.

Conclusion: Some impact to cultural resources is expected with this alternative, but archaeological sites would continue to be protected by existing laws. Unintentional damage to archaeological sites may occur as a result of vegetation treatments and some vandalism may occur due to continued vehicular access. Cultural resource management would continue without regard to wilderness management.

• Impacts on Economic Conditions

There would not be a loss of local employment or income as a result of implementing this alternative. The existing ability to explore and develop mineral resources would remain as at present. The employment of 600 people (two mines) would represent only 1.3 percent of the projected Southwest MCD for the year 2010. However, it would be about 19 percent of the Garfield County or 21 percent of the Kane County projected employment in the year 2010 and nearby local communities would be significantly affected. There would be both beneficial and adverse impacts. Beneficial impacts would include increases in employment and income while adverse impacts would include increased demands for housing and infrastructure such as schools, law enforcement, etc. The probability of economic development of coal within the WSA is high in the long term (refer to the Mineral and Energy Resources section for a description of mineral and development potentials).

There would be no livestock-related economic losses because the existing grazing use (154 AUMs) and ability to maintain, replace, and build new range improvements would remain as at present. The proposed vegetation treatments would produce 95 AUMs of new allocated forage that could lead to an additional \$1,900 of livestock sales and \$475 of ranchers' returns to labor and investment.

Recreational use and, therefore, recreation-related local expenditures, could increase at a rate of 2 to 7

percent per year to the year 2020. Because overall recreation-related expenditures average \$4.10 per visitor day, recreation-related expenditures attributable to the WSA would likely not be significant to the local economy.

Federal and State revenues would not be reduced by this alternative. There are 44,931 acres open to leasing for oil and gas and 28,217 acres open to leasing for coal in the WSA that are currently not leased. If leased they would bring up to \$174,513 additional Federal lease fee revenues per year, in addition to new royalties from lease production and bonus bids. Half of these monies would be allocated to the State, a portion of which could reach the local economy. Collection of livestock grazing fees (\$238 per year) would continue. The additional 95 AUMs of forage produced by proposed new range developments and allocated to livestock under this alternative would increase Federal revenues by \$147 annually. About 50 percent of the increased revenues would be returned to the local BLM District for use in range development projects.

Conclusion: No loss of local employment or income would occur. Federal and State revenues would not be reduced. Economic opportunities could be realized through mineral and energy resource exploration and eventual development in the long term. There would be major beneficial and adverse economic impacts in Garfield and Kane Counties.

All Wilderness Alternative (46,711 Acres)

• Impacts on Wilderness Values

Designation and management of all 46,711 acres as wilderness would contribute to the preservation of the wilderness values in the Carcass Canyon WSA. The potential for surface-disturbing activities would be reduced through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I which allows for only natural ecological change. Naturalness would be protected on all 46,711 acres. Solitude would be protected on approximately 26,500 acres that meet and 20,211 acres that do not meet the standards for outstanding opportunities. Primitive and unconfined recreation would be protected on approximately 11,800 acres that meet and 34,911 acres that do not meet the standards for outstanding opportunities. Resources that could be considered as special features in the WSA including scenic values, endangered and sensitive species, archaeological and

CARCASS CANYON WSA

paleontological values, and wildlife associated with wilderness, would also be protected.

Although protected, complete preservation of wilderness values would not be assured because of the existence of valid existing rights. In the short term, disturbance of up to 9 acres is anticipated from exploration of valid uranium mining claims and for development of access to State in-holdings. Wilderness values of naturalness and opportunities for solitude and primitive recreation would be lost in the disturbed areas. Opportunities for solitude and primitive recreation would also be indirectly reduced in quality on adjacent portions of the WSA. As much as 3 percent (1,400 acres) of the WSA could be so affected. Special features would not be significantly affected because the direct disturbance would be minor involving only 0.02 percent (9 acres) of the WSA and the disturbance would generally not be located where the special features are located. In addition, appropriate measures would be taken to protect endangered and sensitive species and archaeological and paleontological values prior to any surface-disturbing activity, and it can be assumed that no significant negative impact would occur to these species. Mitigation to protect wilderness values would be applied, but loss of wilderness values would be allowed if development involving valid existing rights could not be otherwise achieved. All in all, the disturbance would not be substantially noticeable in the area as a whole.

Vehicular use of existing ways and washes would cease with ORV closure, improving opportunities for solitude and primitive recreation and naturalness.

Over the long term, there would be no potential for loss of wilderness values due to development of new leases and mining claims. The potential for long-term development of existing mining claims and State in-holdings is not accurately known but would be less with this alternative than with No Action/No Wilderness due to application of mitigation that would protect wilderness values subject to valid existing rights. Coal development would not occur, so no wilderness values would be lost due to that.

Visitor use that would occur would be primitive in nature and would be managed so as to not result in loss of wilderness values. It is likely that visitor use in this WSA would actually decrease as a result of wilderness designation, which would additionally preserve naturalness and improve opportunities for solitude and primitive recreation.

Conclusion: Wilderness designation would preserve wilderness values where found in the WSA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be lost on 9 acres, and opportunities for solitude and primitive recreation would be temporarily reduced in quality on up to an additional 1,400 acres. Special values would be preserved.

• Impacts on Vegetation Including Special Status Species

Implementation of the All Wilderness Alternative would not directly affect any vegetation type in the WSA. The projected 600 acres of vegetation treatments or livestock reservoirs would not be allowed. Only 9 acres of surface disturbance is projected; therefore, no impacts to any vegetation type would occur. Wilderness designation would provide additional protection for special status plant species.

Conclusion: Implementation of the All Wilderness Alternative would protect the vegetation resource, including special status species, in the WSA, because potential disturbance would be reduced to 9 acres.

• Impacts on Mineral and Energy Exploration and Production

• Leasable Minerals

Approximately 1,071 acres are under oil and gas leases; however, no exploration or development of oil and gas is presently occurring within the WSA. Existing leases could be developed subject to the stipulations issued at the time of leasing. It is unlikely that existing leases would be developed or a showing of commercial quantities made prior to their expiration dates, and expired leases will not be reissued.

The WSA has an estimated 0.55 billion tons of in-place coal, one-third to one-half of which is recoverable. About 18,494 acres are under existing lease. These leases are not projected to be developed. It is also projected that the PRLA would not be developed. Wilderness designation would preclude issuance of additional leases and development of the remaining coal resource. Since exploration and development have been projected in the long term with nondesignation, recovery of up to 0.28 billion tons of coal would be foregone with designation.

CARCASS CANYON WSA

- Locatable Minerals

About 1,780 acres of mining claims are located in the WSA. Limited uranium exploration would occur. However, development is not anticipated in the foreseeable future with or without wilderness designation. Therefore, significant locatable mineral production would not be foregone.

- Salable Minerals

No exploration or development is anticipated. Because of low potential of the deposit, and the availability of better sources of material outside of the WSA, any loss of salable mineral products would be insignificant.

Conclusion: Potential exploration and development of approximately 280 million tons of recoverable coal would be foregone. Loss of exploration and development opportunities for other mineral and energy resources would not be significant.

- Impacts on Wildlife Habitat and Populations Including Special Status Species

With this alternative, some wildlife could benefit due to the preservation of solitude. However, the loss of three livestock reservoirs and the 600 acres of vegetation treatments would have a negative impact on wildlife (loss of additional sources of water, ecotones, and edges).

Potential disturbance (9 acres) due to exploration and development of locatable mineral resources would not significantly disrupt wildlife populations or result in species leaving the area.

The wildlife including special status animal species that may occur would be provided additional protection and solitude with wilderness designation.

Conclusion: Vegetation treatments on 600 acres and the three reservoirs could be precluded, but all species would be protected. The 9 acres of potential mining activities would not adversely affect species diversity or populations.

- Impacts on Livestock Management

Present domestic livestock grazing would continue as authorized. The estimated 154 AUMs currently allocated in the WSA are controlled by seven livestock permittees. The proposed 600-acres of vegetation

treatment would not be allowed. Therefore, an additional 95 AUMs of livestock forage would be foregone. The three proposed livestock reservoirs would also not be allowed.

Existing rangeland developments would be maintained as in the past, based on practical necessity and reasonableness. No new rangeland developments are projected following wilderness designation. The use of 5 miles of way would be restricted; however, the 12 miles of cherry-stemmed road would continue to be open for livestock management purposes.

Conclusion: Current livestock management practices would not be significantly affected. Slight increases in management costs and inconvenience to seven permittees could occur. The opportunity for an increase of 95 AUMs through vegetation treatment would be foregone.

- Impacts on Cultural Resources

Only 9 acres of surface disturbance is expected with this alternative and vehicular access would be restricted within the boundaries of the WSA. Approximately 12 miles of cherry-stemmed road would remain open and provide some access to archaeological sites located in the WSA's interior. Little intentional or unintentional damage to cultural resources is expected due to surface development or continued vehicular access.

As recreational use of the unit increases in the future, site vandalism and collection of small transportable objects may increase. Due to the lack of vehicular access, collection of large artifacts and illegal excavation of sites could decrease. However, if sites containing valuable artifacts or specific features are present in the WSA, wilderness designation may encourage large-scale commercial looting. The rockshelters in the WSA may meet these requirements (Wylie, 1988). The benefits of protection of cultural resources from vehicular access and surface development would, however, probably outweigh any negative affects from increases in vandalism due to increased recreational use.

All cultural resource management procedures would be subject to the restrictions of wilderness designation (Neumann and Reinburg, 1988). Access to sites for stabilization, interpretation, or excavation may be limited or denied.

CARCASS CANYON WSA

Conclusion: Cultural resources including 105 known sites, would provide additional protection. Management may be restricted in scope and execution due to wilderness designation.

• Impacts on Economic Conditions

Overall there would be no significant changes in current trends of population, employment, and local income distribution in the short term.

Because of restrictions placed on the use of resources under wilderness designation, there could be losses in local income and Federal revenues currently provided by resource uses in the WSA (refer to Table 7), as well as loss of potential increases in income and Federal revenues that could occur under the No Action/No Wilderness Alternative.

Valid existing oil and gas leases and mining claims could be developed but designation would preclude new leases and claims from being established in the WSA. No development of existing leases is projected. Exploration of existing mining claims could occur but no development is anticipated. Precluding exploration and development of minerals would not alter existing economic conditions, but would alter future economic conditions from what they would be with mineral development under the No Action/No Wilderness Alternative. Because the potential for coal development is high in the long term, it is estimated that potential mineral-related local income would be significantly reduced by wilderness designation. Major beneficial and adverse economic impacts in Garfield and Kane Counties from coal development in the WSA would not occur.

Livestock use and ranchers' income would continue as at present with \$3,080 of livestock sales and \$770 of ranchers' return to labor and investment. Proposed livestock developments would be foregone along with about \$1,900 per year in livestock sales, including \$475 in ranchers' return to labor and investment.

Nonmotorized recreation use would increase; however, motorized recreational use would decline. Related local expenditures would be small (average of \$4.10 per visitor day).

The loss of 1,071 acres currently leased for oil and gas and 28,217 acres now leased for coal would cause an eventual loss of up to \$57,630 per year of lease fees to the Federal Treasury. There would also be a potential loss of \$174,513 annually in Federal

revenues from the 44,931 acres for oil and gas and 28,217 acres for coal that could be leased without designation. In addition to these rental fees, any potential royalties from new lease production and bonus bid revenues from new leases could also be foregone.

If the proposed vegetation treatments are not developed and used, an estimated annual \$147 of Federal grazing revenues from an increase of 95 AUMs would be foregone.

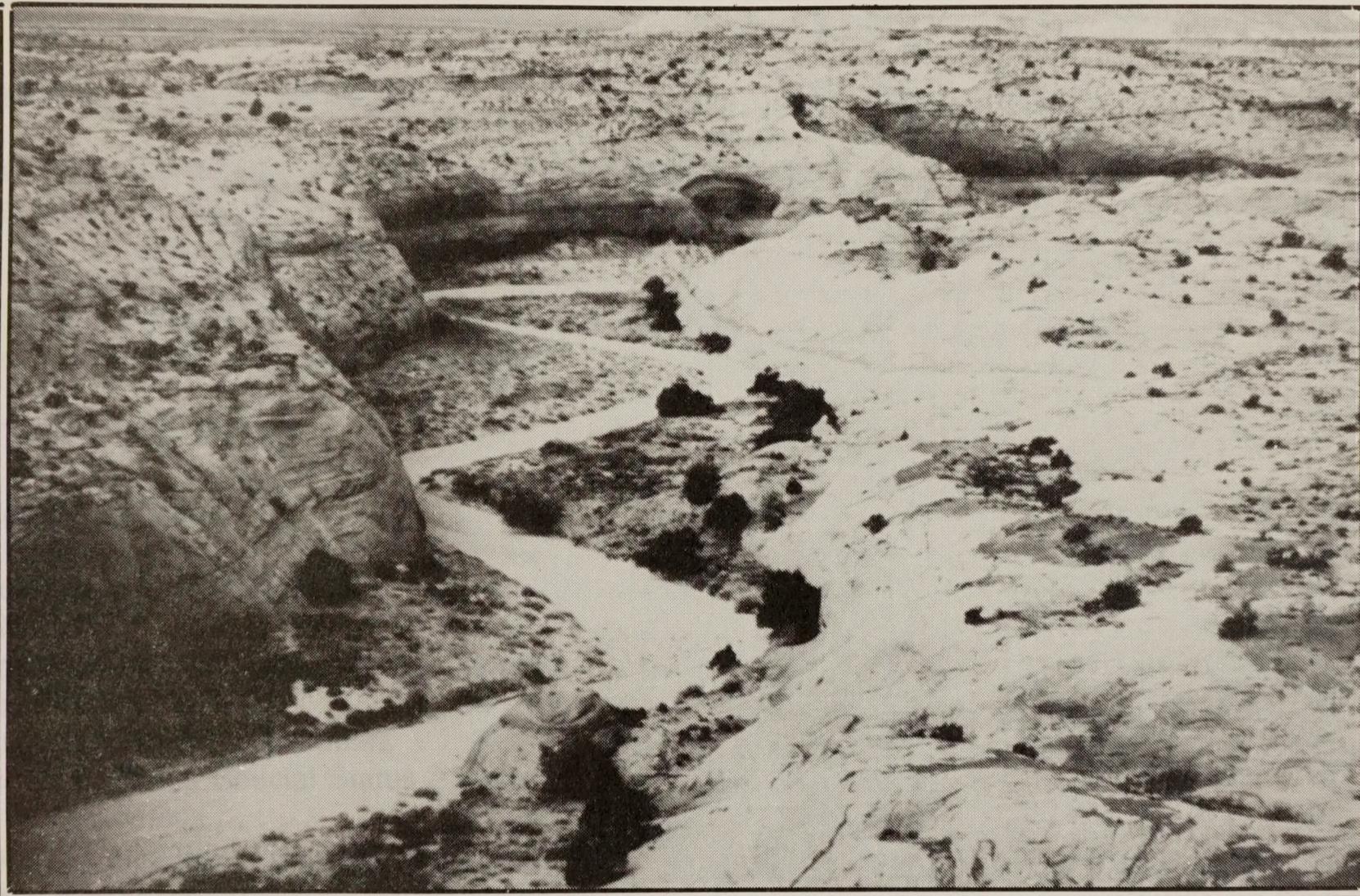
Conclusion: Present local or regional economic conditions would not significantly be affected. However, new leasing in the WSA would not be allowed; therefore, potential sales and revenues from coal development would be foregone.

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SCORPION WSA

(UT-040-082)

INTRODUCTION

General Description of the Area

The Scorpion WSA is located in Kane and Garfield Counties approximately 25 miles southeast of the town of Escalante and adjacent to the western boundary of the Glen Canyon NRA. The WSA contains 35,884 acres of BLM-administered land, of which 9,631 acres are in Garfield County and 26,253 acres are in Kane County. The WSA encloses 1,280 acres (two sections) of State land. It is managed by the BLM Cedar City District, Escalante Resource Area Office.

The Scorpion WSA includes two major tributaries (Twenty-Five Mile Wash and the Dry Fork of Coyote Wash) which eventually drain into the Escalante River. Narrow, winding canyons total 56 miles in length and cover over 5,000 acres. The dominant vegetation type is desert shrub, and much of the area is comprised of colorful slickrock.

In general, the climate is temperate and arid with annual precipitation averaging about 10 inches. From June through early September convection-type thunderstorms advance from the Pacific Ocean off the coast of Mexico and southern California. Frontal-type storms out of the northwest move over the area from October through June. The highest precipitation rates generally occur from November through March.

Summer temperatures in Escalante, Utah, range approximately 30 degrees Fahrenheit (F) with highs in the upper 90s and lows in the mid 60s. Winters in Escalante, Utah, have a temperature range of about 27 degrees F, with highs in the low 40s and lows about 15 degrees F. Snowfall in Escalante averages 28 inches and begins in October or November and ends in March or April.

Changes for the Final EIS

In addition to the changes noted in the Introduction to Volume III-B, the following changes specific to the WSA have been made since publication of the Draft EIS.

1. The Draft EIS analyzed a Partial Wilderness Alternative of 9,620 acres. This alternative was designed to analyze the portion of the WSA with the most outstanding wilderness values. In response to public com-

ments received on the Draft EIS, the Partial Wilderness Alternative has been revised for the Final EIS. The new Partial Wilderness Alternative and BLM proposed action is 14,978 acres (refer to Map 3).

2. The anticipated surface disturbance presented in the Draft EIS (200 acres) was based on the assumption that all mineral and other resources potentially within the WSA would be developed sometime in the future without consideration of technical or economic feasibility. In response to public comments relative to the feasibility of developments, the disturbance estimates have been revised to focus on activities projected to be feasible within the foreseeable future (see Appendix 6 in Volume I). This resulted in a reduction of surface disturbance estimates from the 200 acres reported in the Draft EIS to 4 acres of surface disturbance for the Final EIS.

Specific Issues Identified Through Scoping and Public Comment

• Issues Considered But Not Analyzed in Detail

In addition to the issues discussed and eliminated from further consideration in the Introduction to Volume III-B (i.e., impacts on air quality, water rights, geology and topography, and land use plans and policies), the impacts of surface disturbance on soils, vegetation including special status species, and visual resources discussed in the Draft EIS would be insignificant because only 4 acres of surface disturbance is projected in the WSA in the foreseeable future. Therefore, these impacts and issues are not analyzed in detail in the Final EIS.

The following issues and impacts are also insignificant for the Final EIS for the reasons described below:

1. Water Resources: The Escalante River and tributaries are fully appropriated. Water rights inside the WSA are allocated to BLM and there are no major proposals for consumptive use of water upstream of the

STATEWIDE
POCKET MAP
WSA
NO. **33**
SEE VOL. I

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WSA on Twenty-Five Mile Wash, the only perennial stream in the unit. The only potential uses of water in the drainage are livestock, wildlife, and recreation. Only 4 acres of disturbance is projected, therefore, impacts on water uses and quality are not significant issues for the Scorpion WSA.

2. Mineral Resources: The public has expressed concern that wilderness designation would interfere with or prevent mineral exploration, development, and production. There are no oil and gas leases within the WSA. Potential oil and gas deposits are small with a very low certainty that they exist.

There are no mining claims in the WSA. BLM believes that projected uranium and other locatable mineral deposits are small and/or could not be economically developed in the foreseeable future (see Appendix 6 in Volume I). More accessible deposits of salable minerals exist outside the WSA. For these reasons, it is determined that mineral exploration or development would not occur in the foreseeable future with or without wilderness designation. Therefore, impacts on mineral and energy exploration and production are not analyzed in detail for the Scorpion WSA.

3. Wildlife Including Special Status Species: The public is concerned that without wilderness designation mineral or other developments would destroy wildlife habitat and lead to reductions in wildlife populations. They are also concerned that use of ORVs would disturb wildlife and destroy habitat. The Scorpion WSA provides habitat for a variety of animal species, but populations are low and no one species can be described as abundant. Two endangered and nine other special status species may be found in the WSA. Because no mineral developments are expected in the WSA in the foreseeable future, wildlife habitats would not be lost. Recreation use (estimated at 175 visitor days use per year) is not expected to be a problem in the foreseeable future because 1,740 acres would be closed to vehicle use by the Escalante MFP, if necessary, and the area is remote from population centers. Given these conditions, the potential impacts on wildlife habitat and populations are not significant issues for the Final EIS.

4. Forest Resources: There are no significant forest resources in the WSA. Vegetation is sparse and the area is remote resulting in little demand for fuel wood. Therefore, there would not be significant impacts on forest resources.

5. Livestock: The public is concerned that wilderness designation would interfere with livestock management by placing restrictions on access for maintenance of existing range improvements, moving of livestock, and by preventing future range improvements. Restrictions would be placed on predator control, and livestock losses could increase in both the wilderness area and on adjacent lands.

The Scorpion WSA comprises a portion of five grazing allotments utilized by 18 ranchers. However, only about 1.5 miles of way in the WSA are utilized by the permittees in the WSA. The only existing range improvement is 1.5 miles of fence and it is expected that a proposed water pipeline, storage tank, and a 0.75 mile of fence would be allowed in the wilderness area. Predators have not been controlled in the area for several years. For these reasons, impacts on livestock management are not significant issues for the Scorpion WSA.

6. Cultural Resources: Cultural resources could be destroyed by surface-disturbing projects, use of vehicles or vandalism. Twenty cultural resource sites have been recorded in the WSA; however, no mineral-related surface disturbance is projected. Total visitation is light (175 visitor days per year) and mainly primitive. ORV use is light (estimated 25 visitor days per year) and is expected to remain low in the foreseeable future because of closure of certain areas under the BLM land use plan and the remoteness of the area. Additionally, inventories for the purpose of site recordation and mitigation of impacts would take place prior to any surface disturbance in the future. Given these conditions, impacts on cultural resources are not significant issues for the Scorpion WSA.

7. Recreation: The public has expressed concern that wilderness designation would change recreational use from motorized to primitive or conversely that without wilderness designation motorized recreation will eliminate or reduce opportunities for primitive recreation. Recreational use of the WSA is light (estimated 175 visitor days per year) and would remain largely primitive with or without wilderness designation. Therefore, impacts on recreation use would not be significant and they are not analyzed in detail in the Final EIS.

8. Economic Conditions: The public, including the State and local governments, is concerned that wilderness designation would preclude mineral or other economic developments and adversely affect local economic conditions. Others believe that primitive

SCORPION WSA

recreation use would increase following wilderness designation and would contribute to the local economy.

There are no existing or anticipated mineral developments or proposals for lands or realty activities which would be impaired with or without wilderness designation. Because no economic developments are expected and because recreational use is only 175 visitor days per year, potential impacts on economic conditions are not significant issues for the Final EIS.

- **Issues Analyzed in Detail**

The only issue analyzed in detail for the Scorpion WSA is impacts on the wilderness values of naturalness, opportunities for solitude and primitive recreation, and special features.

Comments made during the public comment period for the Draft were voluminous and centered mainly on the inadequacies of the BLM wilderness inventory, the need to protect the Dry Fork of Coyote Gulch, BLM's assessment of wilderness values, the assessment of uranium potential, and the relationship of the WSA to the values and management of the adjacent Glen Canyon NRA.

See Volume VII-B for responses to general comments applicable to all WSAs and/or the Statewide analysis and Volume VII-C, Section 33, for responses to specific comments about the Scorpion WSA.

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated From Detailed Study

Alternatives of 38,380 and 35,400 acres that would designate 504 and 3,484 acres less than the All Wilderness Alternative were suggested in the public comments. These alternatives are not analyzed because the proposed deletions would not result in impacts appreciably different than BLM's All Wilderness Alternative and, therefore, offer no major distinctions beyond the alternatives analyzed in the Final EIS.

Alternatives Analyzed

Three alternatives are analyzed for this WSA: (1) No Action/No Wilderness; (2) All Wilderness (35,884 acres); and (3) Partial Wilderness (Proposed Action) (14,978 acres). A description of each alternative follows. Where management intentions have not been

clearly identified, assumptions are made based on management projections under each alternative. These assumptions are indicated in each case. The assumed management actions presented in the Introduction to Volume III-B are also applicable.

- **No Action/No Wilderness Alternative**

With this alternative, none of the 35,884-acre Scorpion WSA would be designated by Congress as part of the NWPS. Although BLM's land use plans are regularly updated, it is assumed that the area would continue to be managed in accordance with the Escalante planning unit MFP (USDI, BLM, 1979d). The two sections (1,280 acres) of State land within the WSA (refer to Map 1 and Appendix 3 in Volume I) has not been identified in the MFP for special Federal acquisition through exchange or purchase. No private or split-estate lands are located in the WSA.

- **Management Conditions and Constraints**

All 35,884 acres would remain open to mineral location, leasing, and sale. Forty acres of public water reserve withdrawals would continue to be segregated from nonmetalliferous mining. No mining claims are presently located in the WSA. Development work, extraction, and patenting would be allowed on future mining claims under unnecessary or undue degradation guidelines (43 CFR 3809), without concern for wilderness values. There are no mineral leases in the WSA. Future leases could be developed under leasing Category 1 (standard stipulations) in the entire WSA.

Although minerals would be managed as described, mineral exploration and development are not anticipated because the level of known resources and the probability of their development are too low to support a development assumption. Appendix 6 in Volume I explains the mineral exploration and development assumptions.

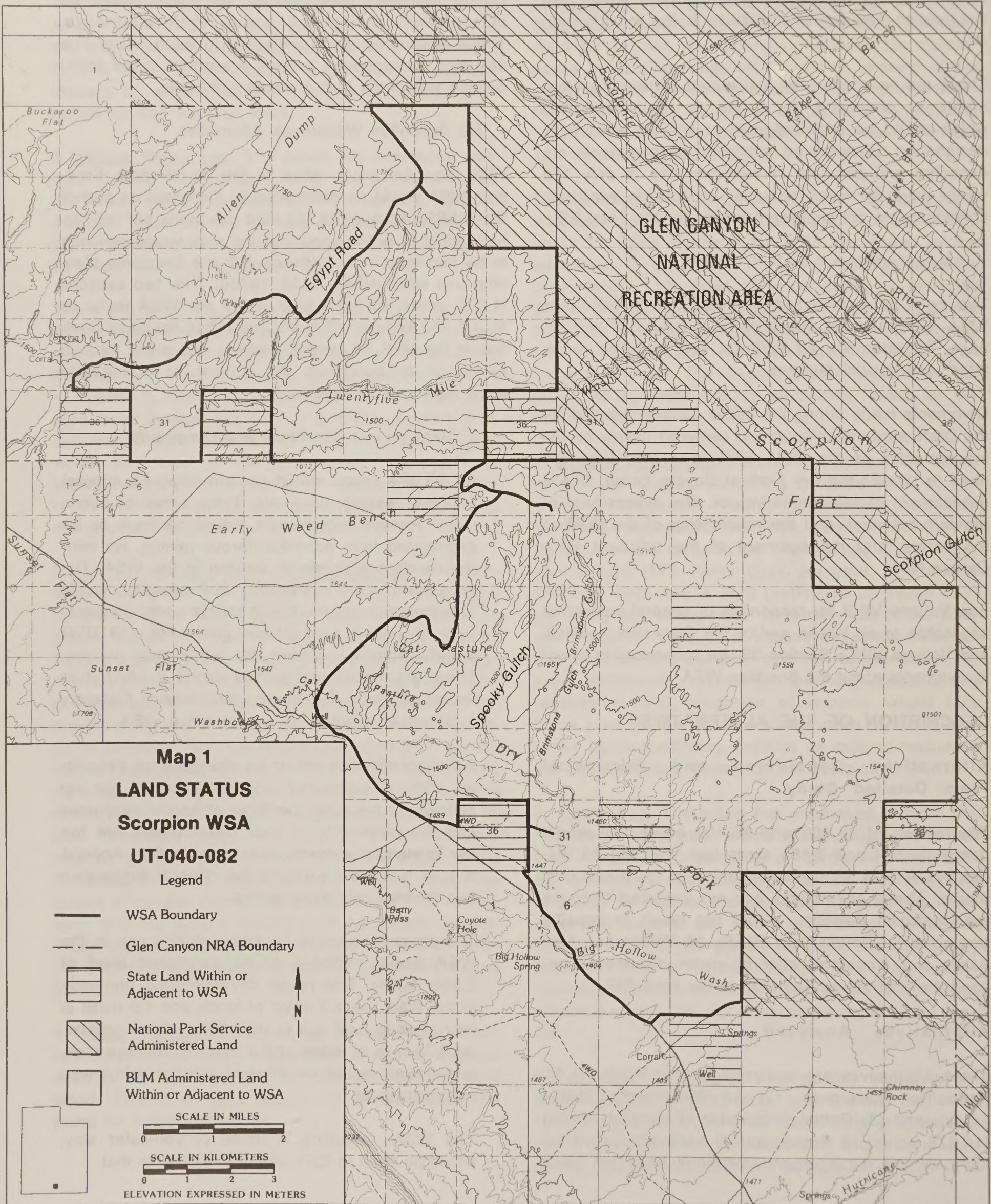
The present domestic livestock grazing use in the WSA would continue at an estimated level of 2,866 AUMs. The range developments presently in the WSA are 1.3 miles of fence and 1.5 miles of way used to haul salt to the allotments. A proposed 0.75 mile of fence and a pipeline, storage tank, and trough would be allowed without wilderness considerations.

The WSA, including 4 miles of vehicular way, would be open to ORV use until such time that

SCORPION WSA

R. 6 E.

R. 7 E.



SCORPION WSA

vehicle use becomes a problem. If necessary, 780 acres in the Dry Fork of Coyote Gulch and 960 acres in Twenty-Five Mile Wash will be closed to vehicle use in order to protect the canyons. The Scorpion Flat and canyon bottoms are accessible to vehicles; however, ORV use is presently low (25 visitor days per year) and is likely to remain low in the foreseeable future because of the remoteness of the area and the presence of more attractive use areas outside the WSA.

The entire WSA would be open to woodland product harvest; however, there is no harvest of forest products at the present time, nor is any expected because of the sparseness of trees and remoteness of the area.

The area would continue to be managed under VRM Class II on 7,700 acres, Class III on 3,200 acres, and Class IV on 24,984 acres.

- Action Scenario

It is projected that implementation of the No Action/No Wilderness Alternative would result in 4 acres of surface disturbance in the foreseeable future. This disturbance would result from the construction of rangeland projects, including a 0.75 mile of fence, up to 2 miles of pipeline, a storage tank, and a trough. These projects could be completed in 1 month of on-site work, however, they would likely be built over a period of several years. No additional rangeland, wildlife habitat, watershed projects, or other types of development are planned in the WSA in the foreseeable future.

No locatable or leasable mineral resources exploration or development is projected in the foreseeable future.

No disturbance from ORV use is projected due to the remoteness of the WSA and the presence of more attractive use areas outside the WSA and restriction on ORV use imposed by the BLM land use plan.

Recreation use is projected to increase over the current estimated use of 175 annual visitor use days at a rate of 2 to 7 percent per year. Approximately 14 percent of the use would continue to involve vehicles.

- All Wilderness Alternative

With this alternative, all 35,884 acres of the Scorpion WSA would be designated by an act of Congress as part of the NWPS (refer to Map 2). It would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) to preserve its wilderness character.

The policy of the state is to reserve its position regarding the exchange of in-held lands within any particular WSA (see Chapter 1 in Volume I). Based on this policy regarding exchange of State lands, it is assumed that State land would remain in State ownership. There are two State sections (1,280 acres) within the WSA (refer to Map 1 and Appendix 3 in Volume I). The figures and acreages given with this alternative are for Federal lands only. No private or split-estate lands are located in the WSA.

- Management Conditions and Constraints

After wilderness designation, all 35,884 acres would be withdrawn from mineral location and closed to new mineral leasing and sale. Currently, no mining claims are located in the WSA. Should any be located prior to wilderness designation, development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809) with consideration given to wilderness values. BLM does not anticipate location or development of mining claims following wilderness designation because of low resource potentials. There are no leases in the WSA and none would be issued following designation. Therefore, leasable minerals would not be explored or developed following designation.

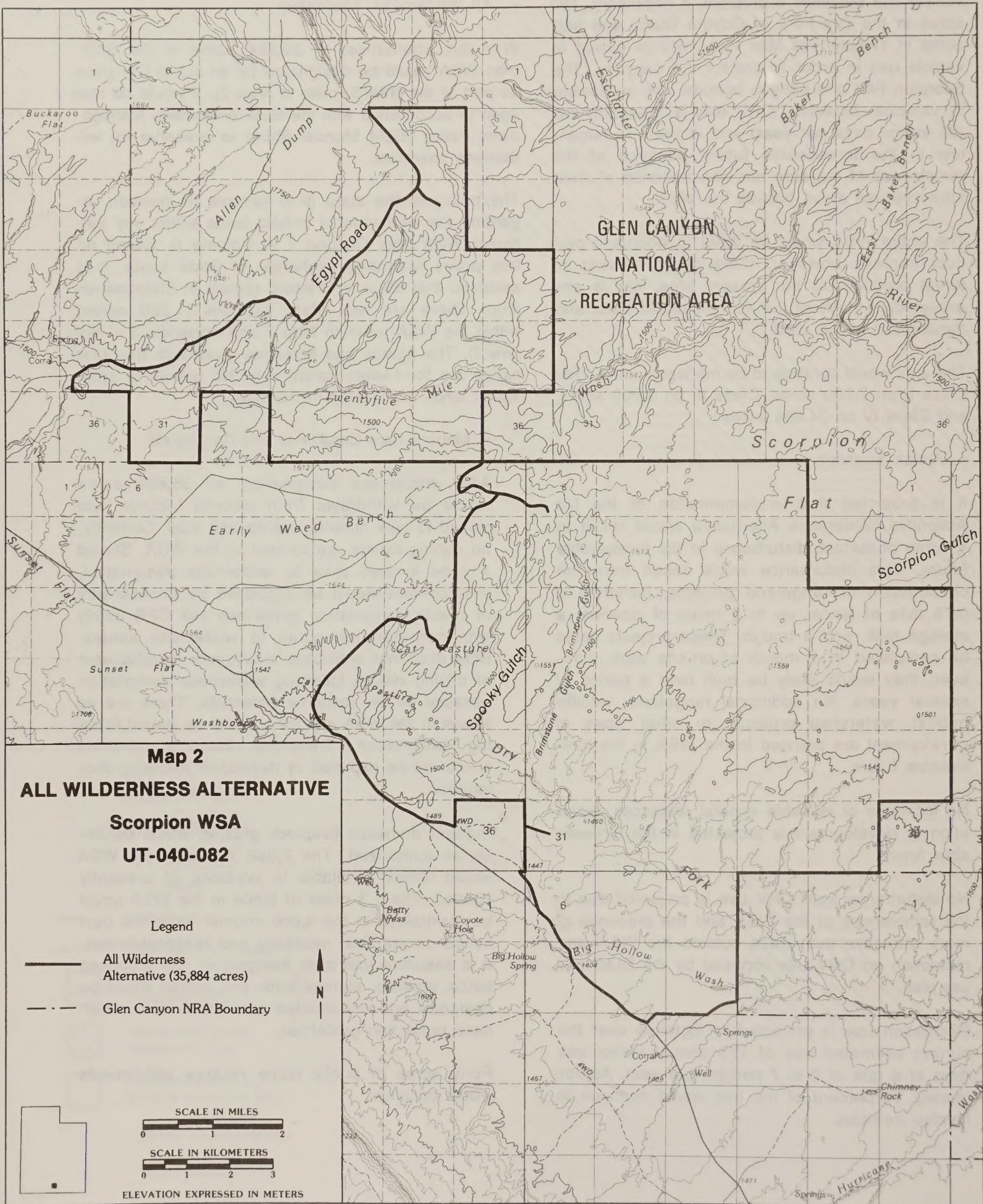
Present domestic livestock grazing would continue as authorized. The 2,866 AUMs in the WSA would remain available to livestock as presently allotted. The 1.3 miles of fence in the WSA could be maintained in the same manner as in the past based on practical necessity and reasonableness. It is assumed that after designation, the proposed fence, pipeline, storage tank, and trough would be designed and constructed consistent with wilderness protection guidelines.

Forty acres of public water reserve withdrawals would continue.

SCORPION WSA

R. 6 E.

R. 7 E.



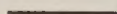

Map 2

ALL WILDERNESS ALTERNATIVE

Scorpion WSA

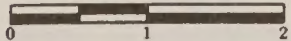
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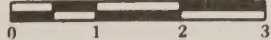
-  All Wilderness Alternative (35,884 acres)
-  Glen Canyon NRA Boundary



SCALE IN MILES



SCALE IN KILOMETERS



ELEVATION EXPRESSED IN METERS

SCORPION WSA

The entire WSA would be closed to ORV use except for: (1) users with valid existing rights if approved by BLM in accordance with 43 CFR 8560 provisions; or (2) for occasional and short-term vehicular access approved by BLM for maintenance of approved rangeland developments. About 4 miles of existing vehicular ways would not be available for vehicular use except as indicated above. The approximately 3 miles of dirt and gravel roads that border the WSA and approximately 2 miles of cherry-stemmed roads would remain open to vehicular use.

Harvest of forest products would not be allowed except for harvest of pinyon nuts or noncommercial gathering of dead-and-down wood, if accomplished by other than mechanical means for use in the wilderness.

Visual resources would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change.

- Action Scenario

In summary, a total of 4 acres of surface disturbance would occur in the WSA following wilderness designation. This disturbance would result from construction of rangeland projects as described in the No Action/No Wilderness Alternative. It is assumed that these projects would be designed and installed consistent with wilderness protection standards. No additional rangeland, wildlife habitat, watershed projects, or other developments are planned following wilderness designation.

No disturbance from ORV activity is anticipated due to wilderness management constraints.

Recreation use is projected to increase over the current estimated use of 175 annual visitor days at a rate of 2 to 7 percent per year. All of the use would be primitive in nature.

- Partial Wilderness Alternative (Proposed Action) (14,978 Acres)

With this alternative, 14,978 acres of the Scorpion WSA would be designated as wilderness (refer to Map 3). The objective of this alternative is to analyze as wilderness those portions of this WSA that have the best wilderness values. BLM believes that wilderness values are of a higher quality in areas where outstand-

ing opportunities for solitude and/or primitive recreation exist, preferably in combination with special features. In forming this alternative, the portions of the WSA with outstanding opportunities for solitude, primitive recreation, and special features were included where possible within a manageable boundary. The remaining 20,906 acres in the southern portion of the WSA would be managed in accordance with the Escalante MFP as described for the No Action/No Wilderness Alternative. The 14,978-acre area designated as wilderness would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) as described in the All Wilderness Alternative. State or private lands would not be involved because none are located in the area that would be designated wilderness. There are two State sections (1,280 acres) in the portion of the WSA that would not be designated. The figures and acreages given in the following description are for Federal lands only (refer to Appendix 3 in Volume I for further information on State in-holdings).

- Management Conditions and Constraints

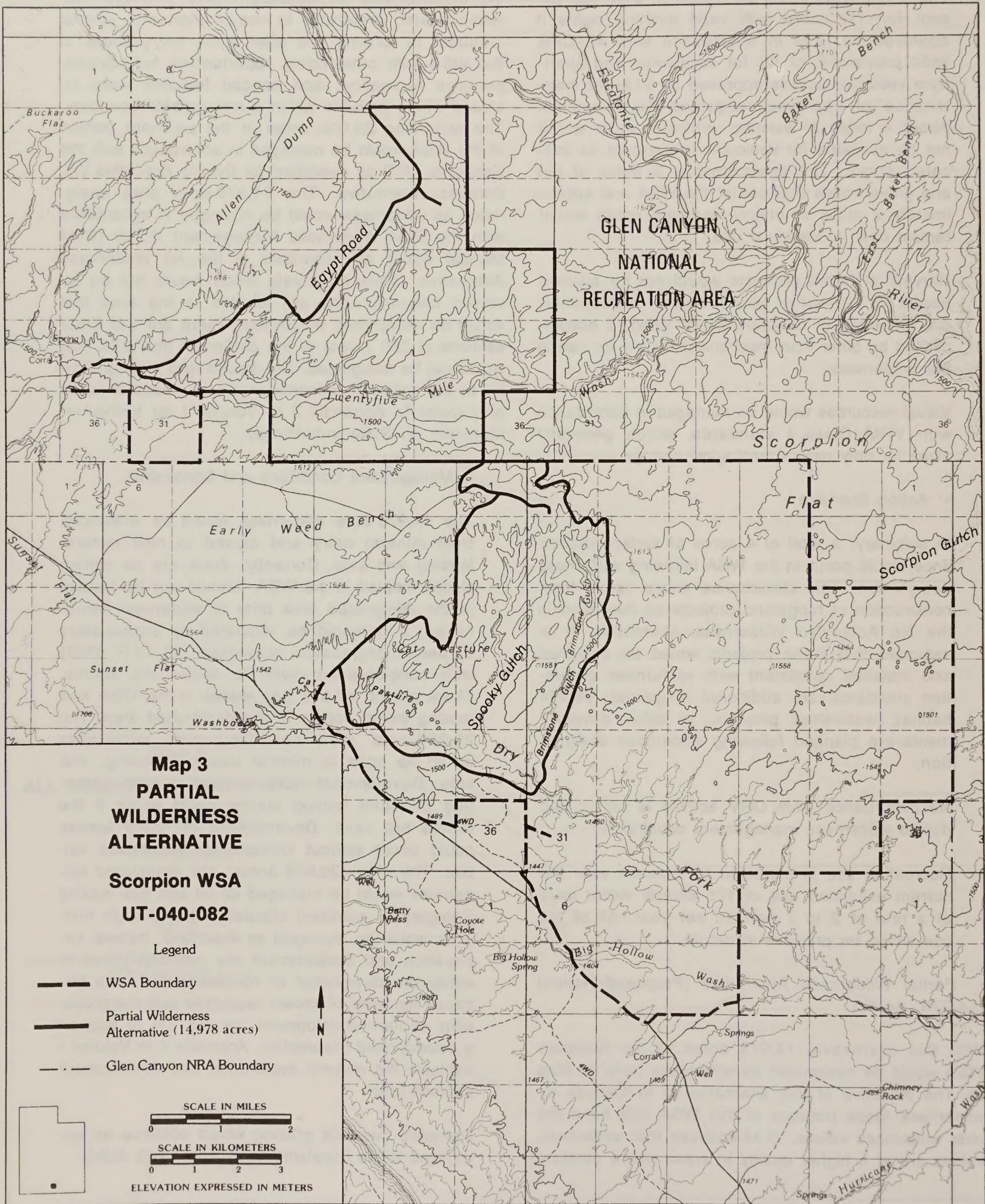
The 14,978-acre wilderness would be withdrawn from mineral entry and closed to new mineral leasing and sale. Currently, there are no mining claims located in the WSA. Should any be located in the designated area prior to wilderness designation, they would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809) with consideration given to wilderness values. There are no oil and gas leases in the WSA and leasing would not be in the designated area. The 20,906-acre area not designated wilderness would be open to mineral location, leasing, and sale. Development work, extraction, and patenting of future mining claims could occur if the claims are valid. Development of future leases could occur without concern for wilderness values. The area (20,906 acres) not designated wilderness would be managed as oil and gas leasing Category 1 (standard stipulations). Although minerals would be managed as described, mineral exploration and development are not anticipated in either the designated or nondesignated area because the level of known resources and the probability of their development are too low to support a development assumption. Appendix 6 in Volume I explains the mineral exploration and development assumptions.

Domestic livestock grazing would continue as authorized in the Escalante MFP. The 1,053 AUMs

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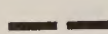

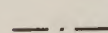
R. 6 E.

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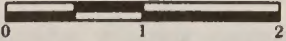
Map 3
PARTIAL
WILDERNESS
ALTERNATIVE
Scorpion WSA
UT-040-082

Legend

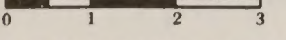
-  WSA Boundary
-  Partial Wilderness Alternative (14,978 acres)
-  Glen Canyon NRA Boundary



SCALE IN MILES



SCALE IN KILOMETERS



ELEVATION EXPRESSED IN METERS

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in the wilderness area would remain available to livestock as presently allotted. In the wilderness, the existing fences (2,000 feet in length) would continue to be used and maintained in the same manner as in the past based on practical necessity and reasonableness. The 1.5 miles of way used by livestock permittees to haul salt would be in the nondesignated area and could be used without wilderness consideration. In the 20,906-acre nonwilderness area, grazing use of 1,813 AUMs would also continue as authorized in the MFP. The proposed fence, pipeline, storage tank, and trough would be in the nondesignated area and would be constructed without wilderness considerations.

Forty acres of public water reserve withdrawals would continue in the designated area.

The 14,978-acre wilderness area would be closed to ORV use. The nondesignated portion of the WSA would be open to ORV use unless such use becomes a problem. If necessary, 780 acres in the Dry Fork of Coyote Gulch would be closed to vehicle use in order to protect the canyon. In the nondesignated area the Scorpion Flat is accessible to vehicles. However, ORV use is presently low (25 visitor days per year for the entire WSA) and is likely to remain low in the foreseeable future because of the remoteness of the area and the presence of more attractive use areas outside the WSA. Approximately 1 of 4 miles of existing vehicular ways is within the wilderness portion and would no longer be available for vehicular use except for purposes identified under the All Wilderness Alternative.

Harvest of forest products in the wilderness area would not be allowed except for the harvest of pinyon nuts or noncommercial gathering of dead-and-down wood, if accomplished by other than mechanical means for use in the wilderness. The area not designated wilderness would be open to woodland harvest, but none is expected because of the sparseness of the vegetation and the remote location of the WSA.

Visual resources in the wilderness would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change. The area not designated as wilderness would be managed as Class II on 2,342 acres, Class III on 1,940 acres, and Class IV on 16,624 acres as currently set forth in the Escalante MFP.

- Action Scenario

No surface disturbance is projected for the designated portion of the WSA following wilderness designation. No rangeland, wildlife habitat, watershed projects, or other developments are planned. No new mineral location or mineral leasing would be allowed following wilderness designation. Therefore, no exploration or development of mineral resources is projected in the designated portion of the WSA.

It is projected that 4 acres of surface disturbance would occur in the nondesignated portion of the WSA in the foreseeable future. This disturbance would result from construction of rangeland projects as described in the No Action/No Wilderness Alternative. No additional rangeland, wildlife habitat, watershed projects, or other developments are planned.

No disturbance from ORV activity is projected due to wilderness management constraints and remoteness of the WSA.

Recreation is projected to increase over the current estimated use of 175 annual visitor days at a rate of 2 to 7 percent per year. About 14 percent of the use would continue to involve vehicular activity.

Summary of Environmental Consequences

Table 1 presents the environmental impacts of alternatives analyzed in detail.

AFFECTED ENVIRONMENT

Wilderness Values

- Size

The WSA includes 35,884 acres and is approximately 13 miles wide and 13 miles long. It consists of two separate blocks of land connected at their southeast and northwest corners. They are joined, however, by a portion of the Glen Canyon NRA that is administratively endorsed for wilderness by the NPS.

- Naturalness

Imprints of man within the WSA include 4 miles of ways, a fence across Twenty-Five Mile Wash, a fence above the Dry Fork of Coyote Gulch, and a fence

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Table 1
Summary of Environmental Consequences

| Resource | Alternatives | |
|------------------------------|--|--|
| | No Action/No Wilderness | Partial Wilderness (14,978 Acres) (Proposed Action) |
| Impacts on Wilderness Values | <p>Wilderness values would not be protected by wilderness designation. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be reduced in quality on 4 acres of the WSA. Special features including scenic features, Class A scenery, endangered and sensitive species, wildlife associated with wilderness, and perennial streams would not be significantly affected. Vehicular activity (4 miles of ways) would continue to occasionally detract from opportunities for solitude and primitive recreation. This alternative would not complement NPS proposal for wilderness designation and management of contiguous NRA lands. However, development related to providing access to the contiguous proposed NPS wilderness would be allowed.</p> | <p>Wilderness values would be preserved over all in the designated area which would be approximately 42 percent of the WSA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be reduced in quality on 4 acres of the WSA. Most special features would be preserved. Vehicular activity (3 miles of ways) in the nondesignated portion would continue to be an occasional annoyance that would detract from opportunities for solitude and primitive recreation in the WSA. This alternative would complement and enhance the NPS proposal for wilderness designation and management of the contiguous NRA lands. However, developments related to providing access to contiguous proposed NPS wilderness may not be allowed.</p> |
| | <p>All Wilderness (35,884 Acres)</p> <p>Wilderness designation would preserve wilderness values overall within the WSA. In the foreseeable future, wilderness values would be reduced in quality on 4 acres by development of rangeland projects, but wilderness management criteria would be met. Special features would be preserved. This alternative would complement and enhance the NPS proposal for wilderness designation and management of contiguous NRA lands. However, developments related to providing access to contiguous proposed NPS wilderness may not be allowed.</p> | |

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in the Dry Fork below Brimstone Gulch. These imprints combined involve about 8 acres (less than 1 percent of the WSA) and are substantially unnoticeable. The entire WSA is considered to meet naturalness standards.

In the Scorpion WSA, the high naturalness quality has not changed since the BLM Intensive Wilderness Inventory (USDI, BLM, 1980b). No additional imprints have occurred in the WSA.

- Solitude

The opportunity for solitude is dependent on topographic screening and combinations of vegetation and topographic screening. Narrow and winding canyons (56 miles within the WSA) are the major topographic influences on the solitude opportunity. Twenty-Five Mile Wash and its side canyons, the Dry Fork of Coyote Gulch and especially its narrows, and the side canyons to the Dry Fork of Coyote Gulch, are narrow and winding canyons that provide opportunities for solitude. Areas containing opportunities for solitude within the WSA aggregate approximately 9,700 acres. Areas within the WSA that exhibit no opportunity for solitude include the Big Hollow Wash and Black Ridge areas southwest of the Dry Fork of Coyote Gulch, Early Weed Bench, and Allen Dump. Approximately 73 percent of the WSA (26,184 acres) lacks outstanding opportunity for solitude.

The Scorpion Flat area is a relatively flat, undifferentiated, and sparsely vegetated flat extending to the rim of the Escalante River Canyon. The other factor identified as possibly contributing to the opportunity for solitude is the broken topography of the Scorpion Flat area. The Scorpion Flat landscape consists of broken patchwork patterns of sand and slickrock. About 14,700 acres of the Scorpion Flat are within the WSA. The remainder is within the boundaries of the Glen Canyon NRA. The terrain exhibits only mediocre topographic screening situations, and provides little opportunity for solitude.

The Twenty-Five Mile Wash portion of the WSA is a large slickrock basin. This basin topographical configuration enhances the opportunity for visitors to find isolation and seclusion. The tributaries to the Twenty-Five Mile Wash and the Dry Fork of Coyote Gulch exhibit concentrations of deep slots that are not equaled elsewhere in the Escalante River drainage. The main stream channel of Twenty-Five Mile Wash is entrenched and sinuous along its entire length. Thus, all of the

Twenty-Five Mile Wash Canyon exhibits an outstanding opportunity for solitude.

- Primitive and Unconfined Recreation

The WSA offers outstanding opportunities for backpacking, horseback riding, hiking, sightseeing, and photography. The outstanding opportunities for primitive and unconfined recreation in the WSA are derivative of the individual quality of several activities rather than the presence of a wide spectrum of activities.

The dayhiking activity is often associated with the sightseeing and photography activities. The narrow tributary canyons and intervening slickrock areas of Twenty-Five Mile Wash; the tributary canyons to the Dry Fork of Coyote Gulch, such as Spooky Gulch and Brimstone Gulch; portions of upper Brimstone Gulch; and various sections of the Dry Fork exhibit some unique and highly aesthetic landscapes. These canyons are intriguing and provide challenging photographic subjects. Because they are so narrow and tortuous, they are ideal canyons for exploratory hiking.

The backpacking and horseback riding activities occur in the same areas of the WSA. In most cases, these two activities are related to overnight or longer trips into the Glen Canyon NRA where the Escalante River and Coyote Gulch Canyons are backpacking-horseback riding destinations. The Twenty-Five Mile Wash Canyon provides direct access to the Escalante River. The Egypt slickrock area provides access to the river via Fence Canyon from the roadhead at the Allen Dump promontory. In both cases, the routes through the WSA possess high quality photographic-sightseeing attributes and the routes themselves provide quality backpacking-horseback riding experiences. The tributary canyon to Twenty-Five Mile Wash near the Glen Canyon NRA in Sections 24 and 25 could be considered a destination within the WSA for overnight foot or horseback trips. The other area having outstanding backpacking-horseback riding activity opportunity in the WSA occurs in the Dry Fork of Coyote Gulch. The Dry Fork provides backpacking access to Coyote Gulch and the Escalante River. As does the Twenty-Five Mile Wash Canyon, the Dry Fork represents a quality activity experience, as well as access to destinations in the NRA.

Sightseeing and photographic activities are of outstanding quality in the Twenty-Five Mile Wash drainage in areas where the backpacking, horseback riding, and hiking opportunities lack outstanding qualities.

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The upper Twenty-Five Mile Wash drainage area exhibits the largest expanse of exposed Navajo Sandstone slickrock in the middle Escalante River drainage. The sightseeing and photographic opportunities in the Dry Fork of Coyote Gulch are of high quality.

The total acreage providing outstanding opportunities for primitive and unconfined recreation is approximately 11,400 acres, while 24,484 acres do not meet the standard.

• Special Features

The Scorpion WSA contains several landscapes that possess scenic values that were identified as special features during the BLM wilderness inventory. These are landscapes characteristic of the scenic geology of the Escalante River basin. The aggregate area of scenic special features is about 11,100 acres.

The Twenty-Five Mile Wash Canyon and one tributary canyon are entrenched and meandering. They are cut into red Navajo Sandstone and possess a riparian vegetative system. These are the ingredients of color contrast and form which contribute to one of the classic scenic amenities of the Glen Canyon-Escalante Canyon region. The canyon is a typical example of the western tributary canyons to the Escalante River from Davis Gulch to Harris Wash.

Twenty-Five Mile Wash is entrenched in a large basin or bowl below the Allen Dump cliffline and the Early Weed Bench-Scorpion cliffline. This physiographic feature is of esthetic value because it is composed almost entirely of exposed slickrock. It represents the largest rock exposure of this type on the west side of the Escalante River below Highway 12. Certain areas of this slickrock exhibit parallel cracks, small domes, and winding slots that enhance its scenic value.

The Dry Fork of Coyote Gulch Canyon is an unusual landscape feature because it is one of the few major western drainages to the Escalante River lacking riparian vegetation. The Dry Fork landscape consists of a shallow, winding canyon containing dune areas and several narrows. The scenic value of the Dry Fork of Coyote Gulch is enhanced by several extremely narrow and tortuous side canyons. Spooky Gulch and Brimstone Gulch are named examples.

The upper Brimstone Gulch-Cat Pasture area below Early Weed Bench is a small area with impressive

scenic features. These features include colorful slickrock domes, short box canyons, and small buttes.

The WSA has resource values that, although not identified as such during the wilderness inventory, could be considered special features. There are two animal species (peregrine falcon and bald eagle) listed as endangered that may occasionally use the WSA. There are seven animal species and five plant species that are considered sensitive which occur, or may occur, in the WSA. The WSA has a small population of cougar which is a wildlife species associated with wilderness (refer to the Vegetation and Wildlife Including Special Status Species sections for additional information). Approximately 1 percent of the WSA is rated Class A for scenic quality. The WSA has approximately 6 miles of perennial streams.

• Diversity

This WSA is in the Colorado Plateau Province Ecoregion and has the PNV types juniper-pinyon woodland and galleta-threawn shrub steppe (refer to the Vegetation Including Special Status Species section for more discussion on ecoregions and PNV types). The ecoregion and PNV types represented by this WSA are compared with existing and other potential National Wilderness Preservation units in the Wilderness Values section of Volume I.

This WSA is not within a 5-hour drive from any standard metropolitan statistical areas.

Air Quality

The Scorpion WSA and surrounding area, including Glen Canyon NRA, have been designated PSD Class II air quality as per the 1977 Clean Air Act amendments. Capitol Reef National Park, approximately 15 miles east of the WSA is the nearest PSD Class I area. BLM will not consider or recommend any change in air quality classification as part of the wilderness study or wilderness recommendation. Air quality reclassification is the prerogative of the State government, not of BLM (USDI, BLM, 1982b).

No measurements of air pollution or visibility levels have been made in the Escalante planning unit; however, data collected from various sites (Page, Arizona and Four Mile Bench) indicate the air is generally free of pollutants and within National Ambient Air Quality Standards and State regulations. The WSA is not visible from any high-use areas.

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Geology and Topography

The Scorpion WSA is in the Canyonlands section of the Colorado Plateau Physiographic Province (Thornbury, 1965). Deep canyons are more common in this province than any other area of the United States.

Rocks of Jurassic age totalling about 2,000 feet in thickness and thin deposits of Quaternary Age crop out in the WSA. The underlying Mesozoic and Paleozoic rocks in the region are more than 4,000 feet thick (USDI, USGS, 1981a). Crossbedded Navajo Sandstone forms the most extensive outcrop. Younger units are exposed along the western boundary of the WSA. The dominant structures consist of a north to south trending syncline and the north to south trending Collet anticline, the axes of which are located about 1 mile and 5 miles west of the WSA, respectively.

Elevations in the WSA range from approximately 5,600 feet on a bench in the extreme northern part of the tract to about 4,400 feet at the bottom of Dry Fork Coyote Gulch in the southern part of the tract.

The major drainages in the WSA are Twenty-Five Mile Wash, which extends from west to east through the northern portion of the tract, and Dry Fork Coyote Gulch, which runs northwest to southeast through the southern portion of the unit. Numerous other drainages within the area flow into these drainages which, in turn, flow into the Escalante River east of the WSA.

Long narrow winding canyons (Spooky Gulch and Brimstone Gulch), benches, and flats cutting into Mesozoic sedimentary rocks are the major landforms in the area. Twenty-Five Mile Wash is entrenched in a large basin below the Allen Dump cliffline and the Early Weed Bench-Scorpion cliffline.

Soils

The major soil associations in the WSA are the light-colored soils of valleys, terraces, and mesas. They are deep soils (fine sandy loam) which occur in the Scorpion Flat area and adjacent to the Dry Fork of Coyote Gulch. Runoff is medium to rapid and sediment production is moderate to low (USDI, BLM, 1979d).

Highly erodible soils occur on the western end of the WSA (approximately 1,450 acres) which is severely dissected with stream channels. These highly erodible

soils are silt loams that are of moderate depth and have a high surface runoff and sediment production (1.0 to 3.0 acre-feet per square mile per year). Twenty percent of the soil associations consist of badland and rock outcrop. Outcrops are mainly sandstone bedrock. Most erosion problems are due to geologic rather than man-caused erosion.

Rockland areas consist of exposures of bare bedrock, mostly sandstone and limestone, with gentle to steep slopes. Rockland areas occur north of Twenty-Five Mile Wash. The rockland grouping has very little vegetation with native vegetation growing in crevices and pockets of soil.

Sandy deep soils occur along the Dry Fork of Coyote Gulch. Runoff and sediment production from these soils are low. Erosion condition was determined by using soil surface factors as summarized in Table 2 (terms are defined in the Glossary).

Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | Acres | Percent of WSA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|--------|----------------|--------------------------------------|
| Severe | 5.4 | 0 | 0 | 0 |
| Critical | 2.7 | 1,795 | 5 | 4,850 |
| Moderate | 1.3 | 26,909 | 75 | 34,982 |
| Slight | 0.6 | 0 | 0 | 0 |
| Stable | 0.3 | 7,180 | 20 | 2,150 |
| Total | | 35,884 | 100 | 41,982 |

Sources: USDI, BLM, 1978c and 1979c; Leifeste, 1978.

Soil salinity class estimates indicate that 80 percent of the WSA is nonsaline with 20 percent moderate in salinity. Estimated average salinity production is 20 lb of salt per acre per year.

Seeding potential varies from unsuitable on 20 percent of the WSA to poor on 80 percent due to steep slopes. Areas unsuitable for seeding include rock outcrops, sandy (droughty) and shallow soils.

Vegetation Including Special Status Species

The current major vegetation type in the WSA is desert shrub (33,094 acres). Dominant species in this type are juniper, sandsage, Brigham tea, Indian ricegrass, and sand dropseed. Approximately 2,788 acres of the WSA are primarily slickrock and support very sparse vegetation. Riparian vegetation (2 acres) exists along Twenty-Five Mile Wash.

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No threatened or endangered plant species are known to occur in the WSA. However, the WSA could contain one Category 1 and six Category 2 candidate species. These are Lepidium montanum var. stellae, (the Category 1 species), Psoralea pariensis, Lepidium montanum var. neeseae, Coryphantha missouriensis var. marstonii, Heterotheca jonesii, Penstemon atwoodii, and Xylorhiza cronquistii (see Appendix 4 in Volume I). The habitat for all of these species extends beyond the WSA boundary.

The Scorpion WSA is in the Colorado Plateau Province Ecoregion as shown on the Bailey-Kuchler ecosystems map (USDI, 1978a). The PNV types of the WSA are juniper-pinyon woodland (5,884 acres) and galleta-threawn shrub steppe (30,000 acres).

Water Resources

The Scorpion WSA is within the Escalante River sub-basin of the Upper Colorado River hydrologic subregion.

The WSA contains six undeveloped springs and one perennial stream (6 miles). Other major drainages in which water flows intermittently are the Dry Fork of the Coyote Gulch and Brimstone Gulch. Flash floods are common in these washes from July through mid-September during the thunderstorm season.

The water quality standards for Escalante River and tributaries, from Lake Powell to the confluence with Boulder Creek, are as follows: Class 2B (protected for boating, waterskiing, and similar uses), and Class 3C (protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain).

Utah's 1986 305(b) water quality assessment report states streams and tributaries entering Lake Powell in the southern portions of the upper Colorado River drainage have impairments to their beneficial uses from high levels of TDS and sodium. These impairments results mainly from natural sources and low flows. The most prevalent water quality problem results from suspended sediment, a direct result of flooding. Primary water uses are for livestock and wildlife.

The Scorpion WSA is within the Escalante River Adjudication Area 97. The Escalante River and all tributaries are considered to be fully appropriated, and the underground water directly connected to the surface is closed to appropriation, with the exception of

some limited applications for 0.015 cfs which have been approved on an individual basis. The State Engineer will accept applications to appropriate water from the underground aquifer located in bedrock and consider them on the individual merits of the applications (UDNRE, DWR, 1988).

Water rights within the WSA boundaries total 103.94 acre-feet annually. This water is allocated to the BLM for livestock watering. No water rights in the WSA have been allocated to individuals or the State of Utah (UDNRE, DWR, 1969).

Mineral and Energy Resources

The energy and mineral resource rating summary for the Scorpion WSA is given in Table 3. Refer to Appendix 5 in Volume I for a description of the energy and mineral rating system.

There are no strategic or critical minerals known to occur within the WSA (USDoD, 1988).

• Leasable Minerals

There are no known deposits of any leasable minerals in the WSA. Currently, there are no active drilling, mining, or exploration activities for leasable minerals.

Table 3
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|-------------|---------------------------|------------------------|---|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f2 | c1 | Less than 10 million barrels of oil; less than 60 billion cubic-feet of gas |
| Uranium | f2 | c1 | Less than 500 metric-tons of uranium oxide |

Source: SAI, 1982; USDI, BLM, 1987.

^aFavorability of the WSA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

• Oil and Gas

Numerous oil shows (including oil-impregnated rock deposits) have been reported from Cambrian, Devonian, Mississippian, Pennsylvanian, Permian, and Triassic rocks in south-central Utah (Heylman, et al., 1965; Veal, 1976; and

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Campbell and Ritzma, 1979). The older rocks generally are only stained, whereas free oil has been recovered from Mississippian rocks at Upper Valley (Doelling, 1975). Because the most obvious structures in the area have already been explored, many investigators considered subtle stratigraphic traps in Permian and Triassic rocks to offer the best potential for future petroleum discoveries.

The only oil and gas production in south-central Utah in the vicinity of the WSA comes from the Upper Valley field located 20 miles to the northwest. This field was discovered on the Upper Valley anticline in 1964 and stimulated drilling activity on similar anticlinal structures in south-central Utah. To date, however, no commercial oil and gas potential has been identified in the WSA.

The oil reservoir is located along the prominent Upper Valley anticline, but the producing area is offset from the crest of the anticline to the west flank and the southern plunging nose. This offset is due to a regional, south-west directed hydrodynamic drive in the Kaibab Formation (Sharp, 1976). Oil accumulation in other anticlines within the region may be displaced to the south. Total production from this field is expected to approach 50 million barrels. Production is from four distinct zones in the Timpoweap Formation (Triassic age) and the Kaibab Formation (Permian age) (Sharp, 1976). Shows of oil were also reported in the Cedar Mesa (Permian) and the Redwall Formation (Mississippian).

Numerous wells have been drilled in the vicinity of the WSA on the Collet anticline to the northwest and the Rees Canyon anticline to the southwest. In all, a total of 15 wells have been drilled 4 to 12 miles from the WSA, eight of which are associated with these two structures. Two of these eight wells had slight oil stains reported in the Cedar Mesa Formation, one on each anticline. The other seven wells do not appear to be associated with obvious structural traps. Of these wells, two had dead oil stains in the Cedar Mesa and two had similar shows in the Kaibab Formation.

Based on this discussion, the WSA is assigned an oil and gas favorability rating of (f2). The size of the hydrocarbon accumulation in such an environment is anticipated to be less than 10 million barrels of oil or less than 60 billion cubic-feet of

gas. Based on the available information, the certainty of occurrence for oil and gas is rated very low (c1).

Under the current land use plan, all 35,884 acres of the WSA are in Category 1 (standard stipulations). There are presently no oil and gas leases in the WSA.

- Coal

The WSA is a few miles east of the Kaiparowits Plateau coal field. All coal-bearing rocks in this field, as well as all other fields in southern Utah, are of Cretaceous age (Doelling and Graham, 1972). Since the WSA is entirely underlain by rocks of pre-Cretaceous age, there is no potential for coal resources in the WSA.

- Locatable Minerals

There are no known deposits of locatable minerals in the WSA, and there are no mining claims in the WSA.

- Uranium

The Triassic Chinle Formation, the only rock unit underlying the WSA known to have potential for uranium, lies at depths in excess of 1,000 feet. Within the WSA, only about 1,800 acres or 5 percent of the WSA is considered favorable for "significant" uranium deposits in the vicinity of the WSA. The term significant is defined as an economically extractable uranium deposit that contains a total of at least 100 metric tons of uranium oxide at a grade of at least 0.01 percent (Peterson, et al., 1982). The criteria used to judge the favorability of the area included: (1) the distribution of potential host rocks, which is inferred from the distribution of sandstone-to-mudstone ratios; and (2) the distribution of potential uranium source rocks, the Petrified Forest Member of the Chinle Formation.

On the basis of these criteria, the Chinle Formation underlying about 1,800 acres along the eastern portion of the WSA is favorable for one or more significant uranium deposits in the Shinarump Member (Peterson, et al., 1982). These rocks are nearly always in contact with the underlying more impermeable mudstone and siltstones of the Moenkopi Formation.

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The area in which the WSA is located is not favorable for uranium mineralization and recovery (USDI, USBM, 1986c).

On the basis of the discussion above, the WSA is assigned a uranium favorability rating of (f2) (containing less than 500 metric-tons of uranium oxide). The certainty that uranium deposits occur in the Chinle Formation in the WSA is very low (c1).

- Gypsum

A small gypsum deposit of unknown quality and quantity outcrops in the northeastern portion of the WSA. This deposit is in the Carmel Formation and is inferred to occur over a large area outside the WSA.

- Salable Minerals

Stream gravel and other loose rock material that could be used for construction occur within the tract. Sandstone, suitable for industrial uses, also occurs (USDI, USBM, 1986c). These deposits are not unique or economically significant due to the presence of ample similar materials outside the WSA.

Wildlife Including Special Status Species

The Scorpion WSA has habitat that could support approximately 50 species of mammals, 170 species of birds, 17 species of reptiles, and five species of amphibians. Birds are mainly seasonal residents or migrants while the other species are primarily residents.

The WSA provides yearlong range for mule deer; however, deer populations are extremely low. Riparian areas are the most important use areas for the resident population.

Cougar are present throughout the WSA in small numbers. A few may be resident, but the majority are winter visitors. Cougars occur in the pinyon-juniper and riparian habitats, as well as rocky and cliff areas, usually in close proximity to areas occupied by mule deer.

Two endangered species, peregrine falcon (Falco peregrinus) and bald eagle (Haliaeetus leucocephalus), are rare migrants and possibly winter visitors of the WSA. A peregrine falcon was seen along the Escalante River above Harris Wash in Glen Canyon NRA during

April 1978. Bald eagles commonly winter on Lake Powell at the mouth of the Escalante River and may occasionally move up the river in the WSA.

At least seven other raptors are known to nest in the WSA, including the golden eagle (a BLM sensitive species), but only the American kestrel could be considered common. The UDWR list of sensitive species includes two species that occur occasionally within the WSA (Lewis woodpecker and western bluebird). There are also six Category 2 candidate species that could inhabit the WSA as follows: Great Basin Silver-spot butterfly, ferruginous hawk, long-billed curlew, southern spotted owl, Swainson's hawk, and white-faced ibis (see Appendix 4 in Volume I).

No critical habitat has been identified in the WSA. No wildlife habitat plans or wildlife projects have been developed within the WSA and none have been proposed.

Forest Resources

No significant forest resources occur in the WSA. The entire WSA is open to the collection of fuelwood, but, due to the remoteness of the area and sparse vegetation, current use is nonexistent and no use is expected in the foreseeable future.

Livestock and Wild Horses/Burros

The WSA encompasses portions of five livestock grazing (cattle) allotments. Table 4 summarizes livestock use and the existing and proposed range improvements in the WSA. There are no wild horses or burros within the WSA.

Visual Resources

According to the BLM visual resource inventory, approximately 400 acres of the WSA are Class A, 29,384 acres are Class B, and 6,100 acres are Class C scenery. VRM class ratings within the WSA are: Class II on 7,700 acres; Class III on 3,200 acres; and Class IV on 24,984 acres (refer to Appendix 7 in Volume I for more detail on the BLM VRM system). In the Glen Canyon NRA wilderness proposal, the NPS assigned a Value Class of I (highest) to Twenty-Five Mile Wash. A Value Class of III (next to lowest) was assigned to the NRA portion of the Scorpion. For a discussion of the scenic values in the WSA (refer to Special Features in the Wilderness Values section).

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Cultural Resources

A total of 20 archaeological sites have been recorded in the WSA (USDI, BLM, 1988a). Over half of these are pre-historic surface lithic scatters located on eolian deposits. Three of the lithic scatters also contain ceramics and the sherds in one site have been attributed to Kayenta Anasazi occupation. There are three rockshelter sites recorded in the unit. None of these contain any structural features, but one has been attributed to Fremont occupation. Most of the sites are located in the northern and southwestern portions of the WSA. Of the sites that have been evaluated for National Register of Historic Places eligibility, none are considered to be significant. No historic sites have been recorded in the unit.

Parts of four 160-acre quadrants constituting approximately 1.8 percent (646 acres) of the unit have been intensively inventoried (USDI, BLM, 1978a). A total of six sites were recorded within the boundaries of the unit. Using these data, an average site density of approximately 216 sites per 23,000 acres was computed. This is substantially lower than the site density of 397 sites per 23,000 acres computed for the region (Escalante planning unit) as a whole (USDI, BLM, 1978a). This inventory was not designed for the WSA specifically, thus, statistics based on it may be unreliable. However, the potential for finding additional sites in the unit are probably good. Most of these would probably be small lithic scatters, but additional rockshelters or Fremont and Anasazi sites are also likely to be found.

Recreation

The entire WSA is open to ORV use. Present ORV use of the WSA is essentially nonexistent (25 visitor days per year). The Escalante MFP recommends the closure of 780 acres in the Dry Fork of Coyote Gulch and 960 acres in Twenty-Five Mile Wash if it becomes necessary to protect these canyons.

The current nonmotorized use of the WSA is also low. Most of this use is associated with the Dry Fork of Coyote Gulch and Twenty-Five Mile Wash drainages which provide access to the Escalante River in the Glen Canyon NRA. Trailheads for these access routes are located at the intersection of the Dry Fork of Coyote Gulch and the Hole-in-the-Rock road and at the Coyote Gulch and the Hole-in-the-Rock Road and at the intersection of the Egypt Road and Twenty-Five Mile Wash. The NPS has indicated it would be desirable to designate these canyons as nonwilderness corridors. NPS has proposed exchanges with BLM for establishing trailheads at these canyon entrances to the Escalante River. The proposal does not envision these additions as wilderness, but rather as recreation and resource utilization zones where necessary development might take place (USDI, NPS, 1979).

Two other trailheads and access routes to the Escalante River are located at the WSA. Sites for these trailheads would be within setbacks along the normal wilderness boundary roads of cherry-stemmed roads in the WSA. A trailhead at the terminus of the Egypt Road leads to the Escalante River via Fence Canyon.

Table 4
Livestock Grazing Use Data

| Allotments | Total Acres | Acres in WSA | Total AUMs | Number of AUMs in WSA | Number and Kind of Livestock | Season of Use | Number of Operators |
|-----------------|----------------|---------------|---------------|-----------------------|------------------------------|---------------|---------------------|
| Lower Cattle | 72,611 | 25,354 | 4,101 | 2,112 | 983 Cattle | 10/01-04/15 | 7 |
| Upper Cattle | 63,658 | 2,492 | 4,734 | 196 | 631 Cattle | 11/01-06/15 | 3 |
| 40 Mile | 56,381 | 2,024 | 4,155 | 202 | 599 Cattle | 11/01-06/15 | 6 |
| Escalante River | 67,891 | 3,684 | 2,956 | 123 | 364 Cattle | 09/01-03/31 | 1 |
| Black Ridge | 9,917 | 2,330 | 845 | 233 | 141 Cattle | 10/15-04/15 | 1 |
| Total | 270,458 | 35,884 | 16,791 | 2,866 | | | 18 |

Sources: BLM File Data.

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Approximately a 0.25 mile of this route within the WSA has been cherry-stemmed. The Early Weed Bench cherry-stem also is used to provide access to Scorpion Gulch and Fools Canyon in Glen Canyon NRA. The access routes are across the Scorpion Flat area of the WSA. It is estimated that the WSA receives 175 visitor days per year. ORV use accounts for 25 visitor days and back country use accounts for 150 visitor days.

If primitive recreation use levels do increase within the WSA, most of the use would probably involve the WSA's access routes to Escalante River destinations in the Glen Canyon NRA. Some increase in day use of the short slot canyons at the head of the Dry Fork such as Spooky Gulch can also be expected. However, use of the remainder of the WSA as a destination backpacking area will probably continue to remain low.

Land Use Plans

Federal lands in the WSA are being managed according to the land use decisions of the Escalante MFP (USDI, BLM, 1981d). Principle uses are recreation and grazing. Wilderness is not addressed in the Escalante MFP. However, wilderness designation is part of the BLM multiple-use concept. The BLM land use plan is linked to the Statewide Wilderness EIS through analysis of the present plan as the No Action/No Wilderness Alternative.

Two sections of State land (1,280 acres) are enclosed within the boundaries of the WSA. There are no rights-of-way within the WSA nor are there private lands (surface or subsurface) within the WSA.

The current policy of the State is to maximize economic returns from State lands and to reserve its position regarding the exchange of in-held lands (see Chapter 1 in Volume I). In 1986, the Utah State Legislature passed S.C.R. No. 1 opposing any additional wilderness designation in Utah and urging that State lands not be exchanged out of wilderness areas. Both in-held State sections are under grazing permits, and grazing is the only current activity on these lands.

The General Management Plan for Glen Canyon NRA (USDI, NPS, 1979) identifies the area adjacent to the WSA as a natural zone. The natural zone includes the recreation area's outstanding scenic resources, relatively undisturbed areas isolated and remote from the activities of man, and areas bordering on places with established land use practices complementary to

those of the natural zone. This natural zone is precisely congruent with the NPS wilderness recommendation (USDI, NPS, 1979). The Glen Canyon NRA Management Plan also proposes a boundary adjustment with the BLM to add land in Twenty-Five Mile Wash and Coyote Gulch to the NRA for use as an access corridor. The NPS proposes this addition as a recreation and resource utilization zone where necessary development might take place.

The WSA is in Garfield and Kane Counties. The Garfield County Master Plan covers portions of this WSA. The Master Plan recognizes that the county possesses ". . . Some of the most spectacular scenery in the United States . . . The County is sparsely populated and most of it is in its original pristine condition." (Five County Association of Governments, 1984) The master plan recommends that the 38,884 acres in the WSA be retained for multiple uses. The plan's concept of multiple use includes forestry, livestock grazing, mining, wildlife, and recreation.

The Kane County Master Plan (Kane County Board of Commissioners, 1982) identifies the land in the WSA as open range. Kane County's Master Plan is opposed to all wilderness designation. Both the Kane and Garfield County Commissions have endorsed the Consolidated Local Government Response to Wilderness (Utah Counties, 1986), that opposes wilderness designation of BLM lands in Utah.

Socioeconomics

• Demographics

The Scorpion WSA is located in both Garfield and Kane Counties, Utah. The primary area of economic impact is identified as Garfield County, Utah. Within this region, expected impacts would be focused within the municipality of Escalante, which is located approximately 25 road miles north of the WSA.

Garfield and Kane are rural counties having average population densities of less than one person per square mile. This density is very low when compared to the Statewide average of 17 persons per square mile (USDC, Bureau of the Census, 1981). Much of the population in these counties is concentrated in small communities rather than being evenly distributed throughout the area.

From 1970 to 1980, the population of Garfield County grew from 3,157 to 3,700, an overall increase of about 17 percent. Table 5 presents the baseline and

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project population data for Garfield County. It is estimated that between 1980 and 1987 population increased to about 4,085. Population projections indicate that the number of people living in Garfield County in the year 2010 will be about 4,850 for about a 19-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

Table 5
Baseline and Projected Population and Employment Growth
Garfield and Kane Counties

| | 1980 | 1990 | 2000 | 2010 |
|-----------------|-------|-------|-------|-------|
| Garfield | | | | |
| Population | 3,700 | 4,250 | 4,350 | 4,850 |
| Employment | 2,156 | 2,000 | 2,200 | 3,200 |
| Kane | | | | |
| Population | 4,050 | 5,250 | 5,750 | 6,950 |
| Employment | 1,403 | 1,900 | 2,300 | 2,900 |

Source: Utah Office of Planning and Budget, 1987.

From 1970 to 1980, the population of Kane County grew from 2,421 to 4,050, an overall increase of about 67 percent. Table 5 presents the baseline and projected population data for Kane County. It is estimated that between 1980 and 1987 population increased to about 4,890. Population projections indicate that the number of people living in Kane County in the year 2010 will be about 6,950 for about a 72-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

• Employment

Table 5 shows the baseline and projected total employment for Garfield and Kane Counties to the year 2010.

Garfield and Kane Counties are part of the Southwest MCD. Table 6 shows the baseline (1980) and projected employment by source for MCD to the year 2010. In 1980 the leading employment sectors for the Southwest MCD were government (23 percent), trade (20 percent), and nonfarm proprietors (12 percent). Mining provided approximately 2 percent of the direct employment in the MCD.

It is projected that by the year 2010, employment in the MCD will more than double. Services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 5 percent, government to 18 percent, and mining to less than 1 percent of the total MCD employment.

Table 6

Southwest Multi-County District
Employment^a

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|---------------|---------------|---------------|---------------|
| Agriculture | 1,810 | 1,700 | 1,600 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,600 | 3,300 |
| Transportation, Utilities | 1,008 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 8,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 8,900 | 8,900 |
| Government | 4,618 | 5,800 | 6,500 | 8,100 |
| Nonfarm Proprietors | <u>2,386</u> | <u>3,100</u> | <u>3,500</u> | <u>4,700</u> |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

^aIncludes Beaver, Garfield, Iron, Kane, and Washington Counties.

• Sales and Revenues

Economic-related activities in the WSA include livestock production and recreation. Table 7 summarizes local sales and Federal revenues from the WSA. Appendix 9 in Volume I identifies the multipliers used to estimate sales and revenues.

Table 7
Sales and Revenues

| Source | Estimated Annual Local Sales ^a | Estimated Annual Federal Revenues |
|-------------------|--|--------------------------------------|
| Livestock Grazing | \$57,320 | \$4,414 |
| Recreational Use | <u>\$ 718</u> | <u>0</u> |
| Total | \$58,038 | \$4,414 |

Sources: BLM File Data; Appendix 9 in Volume I.

^aLocal sales represent money potentially spent. They do not account for the total income that would be generated by these expenditures.

No oil and gas or minerals have been produced in the WSA. Therefore, mineral and energy resource production from the WSA has not contributed to local employment or income.

Eighteen livestock operators have a total estimated grazing privilege of 2,866 AUMs within the WSA. If all this forage were utilized, it would account for \$57,320 of livestock sales and \$14,330 of ranchers' returns to labor and investment.

The WSA's motorized and nonmotorized recreational use is low. Related local expenditures are low and insignificant to both the local economy and individual businesses. The actual amount of income generated locally from recreational use in the WSA is unknown.

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However, an approximate range of expenditures can be deduced (Dalton, 1982). This study indicates that the Statewide average local expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for the Scorpion WSA is estimated to be about 175 visitor days per year.

The WSA generates Federal revenues from livestock grazing (refer to Table 7). There are no oil and gas leases in the WSA.

Average actual livestock use and, therefore, revenues generated from grazing in the WSA, are unknown; however, the permittees in the WSA can use up to 2,866 AUMs per year. Based on a \$1.54 per AUM grazing fee, the WSA can potentially generate \$4,414 of grazing fee revenues annually, 50 percent of which would be allocated back to the local BLM District for the construction of rangeland improvements.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This section describes the environmental consequences of implementing the alternatives. The analysis is based on the BLM management actions and anticipated activities presented in the Introduction to Volume III-B and the Description of the Alternatives for the Scorpion WSA.

No Action/No Wilderness Alternative

- Impacts on Wilderness Values

Because the WSA would not be designated wilderness with this alternative, the identified wilderness values would not receive the degree of protection afforded by application of the BLM Wilderness Management Policy (BLM Manual 8560). Wilderness values in the WSA would be somewhat protected by limitations placed on potential surface-disturbing activities (i.e., VRM Class II management on 7,700 acres).

In the foreseeable future, disturbance of approximately 4 acres from development of rangeland projects would result in a direct reduction in the quality of naturalness and opportunities for solitude and primitive, unconfined recreation in the disturbed areas until reclamation is complete. Special features including scenic features, Class A scenery, endangered and sensitive species, wildlife associated with wilderness, and perennial water would not be significantly affected because the disturbance would be minor involving

only 0.01 percent of the WSA, and the disturbance would not be located where the special features are located. In addition, appropriate measures would be taken to protect endangered and sensitive species prior to any surface-disturbing activity. Any negative impacts to these species would not be significant.

Because of the area's remoteness and because the Dry Fork of Coyote Gulch and Twenty-Five Mile Wash which are likely recipients of any such use would be closed to ORV activity if necessary to protect these canyons, no additional disturbance from ORV activity is anticipated in the future. The continued and increased use of 4 miles of existing ways would occasionally detract from opportunities for solitude and primitive recreation.

The increased visitor use that would occur over time would not be expected to significantly reduce wilderness values because the additional use would be largely primitive in nature and the WSA in conjunction with contiguous lands is large enough to incorporate the additional use adequately.

The degree that disturbance would occur over the long term and, therefore, the long-term loss of wilderness values that would occur, is not accurately known. Loss would occur as intrusions increase.

This alternative would not complement the NPS proposal for wilderness designation and management of contiguous NRA lands. However, portions of Twenty-Five Mile Wash and Coyote Gulch in the WSA could be considered for use as an access corridor to the park wilderness with development.

Conclusion: In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be reduced in quality on 4 acres of the WSA. Special features would not be significantly affected.

All Wilderness Alternative (35,884 Acres)

- Impacts on Wilderness Values

Designation and management of all 35,884 acres as wilderness would contribute to the preservation of the wilderness values in the Scorpion WSA. The potential for surface-disturbing activities would be reduced through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I which allows for only natural ecological change. Naturalness would be preserved on all 35,884 acres. Solitude would be

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preserved on approximately 9,700 acres that meet and 26,184 acres that do not meet the standards for outstanding opportunities. Primitive and unconfined recreation would be protected on approximately 11,400 acres that meet and 24,484 acres that do not meet the standards for outstanding opportunities. Resources that could be considered as special features in the WSA, including scenic features, Class A scenery, special status species, wildlife associated with wilderness, and perennial streams, would also be protected.

In the foreseeable future, disturbance of up to 4 acres is anticipated from development of rangeland projects. Wilderness values of naturalness and opportunities for solitude and primitive recreation would be reduced in quality on the disturbed areas until activities and noise cease and reclamation is complete. Special features would not be affected because the disturbance would only involve about 0.01 percent of the WSA, and the disturbance would not be located where the special features are. Appropriate measures would be taken to protect endangered and sensitive species prior to any surface-disturbing activity, and no significant negative impact would occur to these species. Rangeland projects would be designed to meet wilderness management criteria and upon completion would not be substantially noticeable in the area as a whole.

Vehicular use of existing ways would cease with ORV closure, improving opportunities for solitude and primitive recreation.

Increased visitor use that would occur with time would be primitive in nature and would be managed so as to not result in the loss of wilderness values.

This alternative would complement and enhance the NPS proposal for wilderness designation and management of contiguous NRA lands. However, development related to providing access to the proposed contiguous NPS Wilderness may not be allowed.

Conclusion: Wilderness designation would preserve wilderness values in the WSA. In the foreseeable future, wilderness values would be reduced in quality on 4 acres of the WSA, but wilderness management criteria would be met.

Partial Wilderness Alternative (Proposed Action) (14,978 Acres)

• Impacts on Wilderness Values

Wilderness designation of 14,978 acres would contribute to preservation of the area's wilderness values. Wilderness values would be preserved over the long term in the designated area. Protection in the designated area would include management under VRM Class I which generally allows for only natural ecological change, ORV closure including closure of 1 mile of way, and closure to future mineral leasing and location. Naturalness, opportunities for solitude, including 7,300 acres that meet and 7,678 acres that do not meet the standards for outstanding, primitive recreation including 7,300 acres that meet and 7,678 acres that do not meet the standards of outstanding, and most special features are in this portion of the WSA and would be protected.

In the foreseeable future, reduction in the quality of naturalness and opportunities for solitude and primitive recreation due to surface disturbance from development of rangeland projects would occur on up to 4 acres within the nondesignated portion until reclamation is complete. Special features would be unaffected because disturbance would involve only 0.01 percent (4 acres) of the WSA and development is not expected in areas where special features are located. In addition, appropriate measures would be taken to protect endangered and sensitive species prior to any surface-disturbing activity, and any negative impact that would occur to these species would not be significant.

Elimination of ORV use in the designated area would slightly improve opportunities for solitude and primitive recreation overall in the WSA, although vehicular use of 3 miles of ways in the nondesignated area would continue to detract from these opportunities during the period of activity.

The degree that disturbance would occur over the long term and, therefore, the long-term loss of wilderness values that would occur, is not accurately known.

This alternative would complement and enhance in part the NPS proposal for wilderness designation and management of the contiguous NRA lands. However, developments related to access to the proposed NPS Wilderness may not be allowed.

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Conclusion: Wilderness values would be preserved overall in the designated area which is approximately 42 percent of the WSA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be reduced in quality on 4 acres of the WSA.

Escalante Canyons Tract 5 ISA



ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

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| All Wilderness Alternative (Proposed Action) | 15 |

ESCALANTE CANYONS TRACT 5 ISA COMPLEX

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ESCALANTE CANYONS TRACT 5 ISA

INTRODUCTION

General Description of the Area

The Escalante Canyons Tract 5 ISA contains 760 acres of BLM-administered land. It is located in Kane County, approximately 41 miles from Escalante, Utah, and is adjacent to the Glen Canyon NRA. The ISA includes the entire 320 acres of the disjunct tract of the Escalante Canyons ONA and 440 acres of contiguous public land. There are no State or private lands within the boundaries of the ISA. The ISA is managed by the BLM Cedar City District, Escalante Resource Area Office.

Coyote Gulch is a major drainage that passes through the tract. It flows through the ISA from west to east and drains into the Escalante River. Sheer sandstone cliffs surround Coyote Gulch while the southern portion of the ISA has more gentle topography sloping toward Coyote Gulch. Vegetation is characterized by a variety of desert shrubs.

The climate is arid with annual precipitation averaging about 10 inches. From June through early September, convection-type thunderstorms advance from the Pacific Ocean off the coast of Mexico and southern California. Frontal-type cyclonic storms out of the northwest move over the area from October through June. The highest precipitation rates occur primarily from November through March.

Summer temperatures in Escalante, Utah, range from approximately 40 degrees Fahrenheit (F) with highs in the upper 90s and lows in the mid 50s. Winters in Escalante, Utah, have a temperature range from about 27 degrees F with highs in the low 40s and lows about 15 degrees F. Snowfall in Escalante averages 28 inches and begins in October or November and ends in March or April.

Changes for the Final EIS

In addition to the changes noted in the Introduction to Volume III-B, the surface disturbance estimate presented in the Draft EIS has changed for the Final EIS. The anticipated surface disturbance presented in the Draft EIS (20 acres) was based on the assumption that all mineral and other resources potentially within the WSA would be developed sometime in the future without consideration of technical or economic feasibility. In response to public comments relative to the

feasibility of developments, the disturbance estimates have been revised to focus on activities projected to be feasible within the foreseeable future (see Appendix 6 in Volume I). This resulted in a reduction of surface disturbance estimates from the 20 acres reported in the Draft EIS to no acres of surface disturbance for the Final EIS.

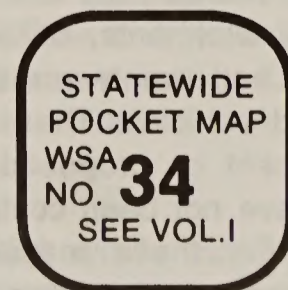
Specific Issues Identified Through Scoping and Public Comment

• Issues Considered But Not Analyzed in Detail

In addition to the issues discussed and eliminated from further consideration in the Introduction to Volume III-B (i.e., impacts on air quality, geology and topography, water rights, and land use plans and policies), impacts on soils, vegetation including special status species, wildlife habitat, and visual resources are not analyzed in detail in the Final EIS. This is because impacts to these resources would not be significant because no surface disturbance is projected in the ISA in the foreseeable future. Water resources, mineral resources, wildlife including special status species, forest resources, livestock, cultural resources, recreation, and economic conditions are also not analyzed in detail in the Final EIS. Impacts to these values have been determined to be insignificant for reasons described below.

1. Water Resources: The public is concerned that wilderness designation would interfere with water uses and quality. There are no perennial streams in the ISA. No developments are projected for the foreseeable future. Therefore, the potential effects of wilderness designation on water uses and quality are insignificant for the ISA and they are not discussed in detail in the Final EIS.

2. Mineral Resources: The public has expressed concern that wilderness designation would interfere with or prevent mineral exploration, development, and production.



ESCALANTE CANYONS TRACT 5 ISA

There are no oil and gas leases within the ISA. Potential oil and gas deposits are small with a very low certainty that they exist.

There are no mining claims in the ISA. The projected uranium and other locatable mineral deposits are small and/or could not be economically developed in the foreseeable future (see Appendix 6 in Volume I). More accessible deposits of salable minerals exist outside the ISA. For these reasons, mineral exploration or development would not occur in the foreseeable future with or without wilderness designation. Therefore, impacts on mineral and energy exploration and production are not analyzed in detail in the Final EIS.

3. Wildlife Including Special Status Species: The public is concerned that, without wilderness designation, mineral or other developments would destroy wildlife habitat and lead to reductions in wildlife populations. They are also concerned that the use of ORVs would disturb wildlife and destroy habitat for a variety of animal species. Wildlife populations are low and no one species can be described as abundant. Two endangered and one sensitive species may be found in the ISA. Because no mineral development is expected in the ISA in the foreseeable future, wildlife habitats would not be lost. Rough terrain and lack of access generally prevent the use of ORVs. Recreation use (estimated at 155 visitor days per year) is mainly primitive. Given these conditions, potential impacts on wildlife habitat and populations are not significant issues for the Final EIS.

4. Forest Resources: There are no forest resources in the ISA; therefore, impacts on forest resources are not significant issues for analysis in the Final EIS.

5. Livestock: The public is concerned that wilderness designation would interfere with livestock management by placing restrictions on access for maintenance of existing range improvements, moving of livestock, and by preventing future range improvements. Restrictions would be placed on predator control, and livestock losses could increase in both the wilderness area and on adjacent lands. The ISA comprises a portion of two grazing allotments, utilized by 11 ranchers. Three hundred and twenty acres of the area are closed to motorized vehicles. There are no ways or roads and no present or proposed range developments. Predators have not been controlled in the area for several years. For these reasons, impacts on livestock management are not significant issues for the ISA.

6. Cultural Resources: Cultural resources could be destroyed by surface-disturbing projects, use of vehicles, or vandalism. However, no cultural resource sites have been recorded in the ISA. No mineral-related surface disturbance is projected. Visitation is light (155 visitor days per year) and mainly primitive. Rough terrain and lack of access generally prevent vehicle use inside the ISA. Additionally, inventories for the purpose of site recordation and mitigation of impacts would take place prior to any surface disturbance in the future. Given these conditions, impacts on cultural resources are not significant issues for the ISA.

7. Recreation: The public has expressed concern that wilderness designation would change recreational use from motorized to primitive or, conversely, that without wilderness designation motorized recreation will eliminate or reduce opportunities for primitive recreation. Recreational use of the ISA is light (estimated at 155 visitor days per year), primitive, and would remain primitive with or without wilderness designation due to the rough terrain of the ISA and limited access. Therefore, impacts on recreation use would not be significant and they are not analyzed in detail in the Final EIS.

8. Economic Conditions: The public, including the State and local governments, is concerned that wilderness designation would preclude mineral or other economic developments and adversely affect local economic conditions. Others believe that primitive recreation use would increase following wilderness designation and would contribute to the local economy.

There are no existing or anticipated mineral developments or proposals for lands or realty activities which would be impaired with or without wilderness designation. Because no economic developments are expected and because recreational use is only 155 visitor days per year, potential impacts on economic conditions are not significant issues for the Final EIS.

• Issues Analyzed in Detail

The only issue analyzed for the ISA is impacts on the wilderness values of naturalness, opportunities for solitude and primitive recreation, and special features.

Comments made during the public comment period for the Draft EIS centered mainly on the inadequacies of the BLM wilderness inventory, support for the Wilderness Coalition Alternative, the need to protect Coyote

ESCALANTE CANYONS TRACT 5 ISA

Gulch, and BLM's assessment of wilderness values. See Volume VII-B for responses to general comments applicable to all WSAs and/or the Statewide analysis and Volume VII-C, Section 34, for responses to specific comments about the Escalante Canyons Tract 5 ISA.

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated From Detailed Study

In addition to the alternatives analyzed in detail, two alternatives were suggested during scoping. Both were considered and eliminated from detailed study.

One suggestion was for a partial alternative that would have no resource conflicts. Due to the small size of the ISA, a partial alternative would not be meaningful. A determination has been made that the entire 760-acre ISA would not be a viable independent candidate for designation as wilderness if Congress does not designate contiguous Federal land in the Glen Canyon NRA.

The other alternative suggested was the transfer of the ISA from BLM to NPS administration. Such an action would be pursued independent of the wilderness study process and, therefore, is not addressed further in this document.

An alternative of 4,400 acres that would add 3,640 acres of Federal lands south of the ISA was suggested in the public comments. This alternative is not analyzed because these lands were dropped from study during the inventory phase (refer to Volume VII-B, General Comment Response 3.1) due to a lack of mandatory wilderness characteristics.

Alternatives Analyzed

Two alternatives are analyzed for this ISA: (1) No Action/No Wilderness; and (2) All Wilderness (Proposed Action) (760 acres). A description of each alternative follows. Where management intentions have not been clearly identified, assumptions are made based on management projections under each alternative. These assumptions are indicated in each case. The assumed management actions presented in the Introduction to Volume III-B are also applicable.

• No Action/No Wilderness Alternative

With this alternative, none of the 760-acre ISA would be designated by Congress as part of the NWPS. Although BLM's land use plans are regularly updated, it is assumed, for this analysis, that the area would continue to be managed in accordance with the Escalante MFP (USDI, BLM, 1981d). There are no State or private lands within or adjacent to the ISA. The Glen Canyon NRA, administered by the NPS, borders the ISA on two sides (refer to Map 1).

• Management Conditions and Constraints

The 760 acres in the ISA would be open to mineral location, and development work, extraction, and patenting would be allowed. Development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809) without concern for wilderness values. There are no leases in the ISA. Future oil and gas leases could be issued and developed under Category 1 (standard stipulations) on all 760 acres.

Although minerals would be managed as described, mineral exploration and development are not anticipated because the level of known resources and the probability of their development are too low to support a development assumption. Appendix 6 in Volume I explains the mineral exploration and development assumptions. Also, see the Issues Considered But Not Analyzed in Detail section.

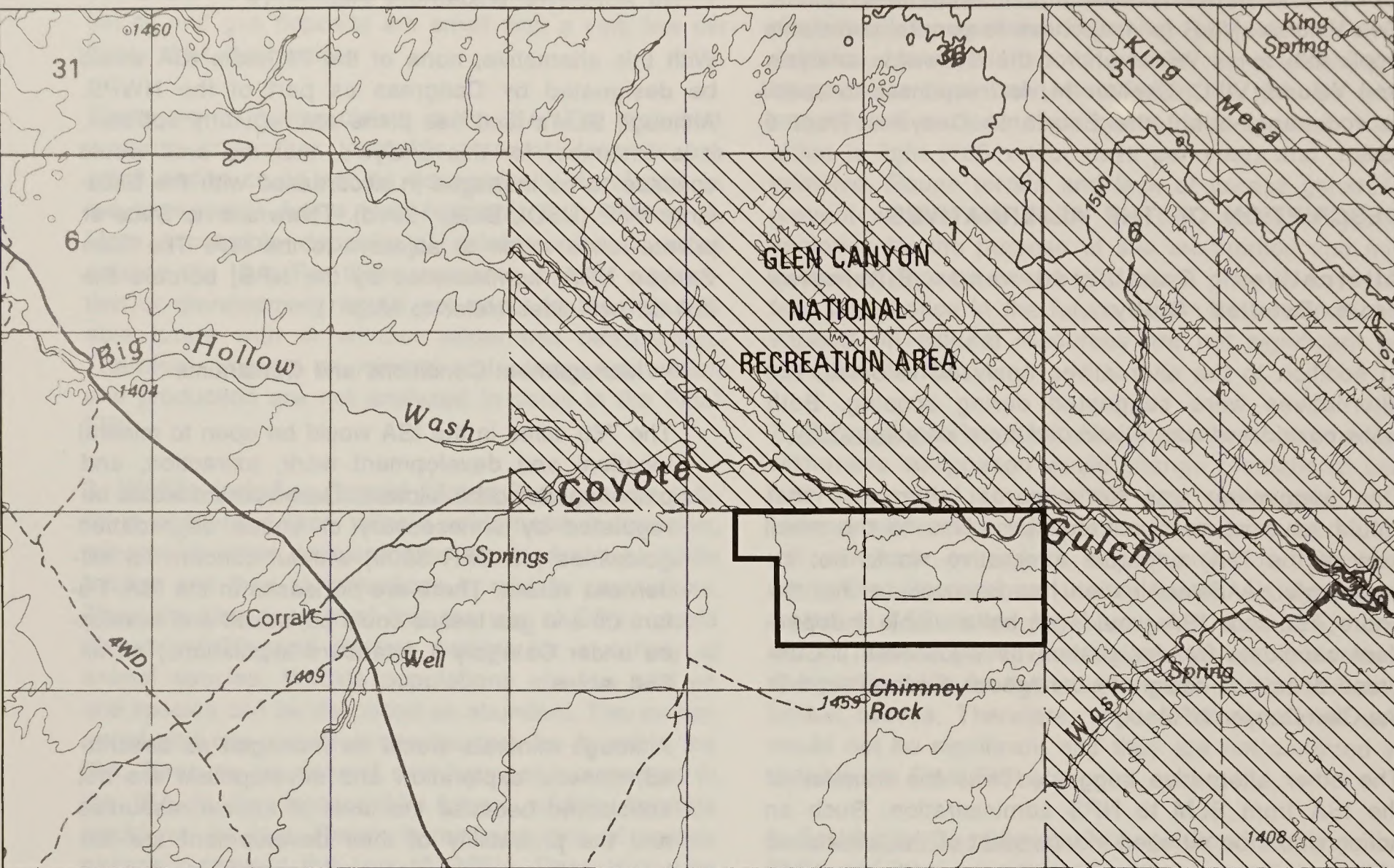
The present estimated 55 AUMs allocated for domestic livestock grazing use in the ISA would continue as authorized. There are no rangeland developments in the ISA and none are proposed.

It is assumed that because of the unique scenic values and natural wonders for which 320 acres of this area was designated as Escalante Canyons ONA, the ONA designation and accompanying management actions would continue.

The ONA portion (320 acres) would continue to be closed to ORV use and the balance of the ISA (440 acres) would remain open to ORV use. ORV use is not expected because of lack of access and rough terrain.

The entire ISA would continue to be closed to woodland product harvest because no forest resources occur in the ISA.

ESCALANTE CANYONS TRACT 5 ISA



T. 39

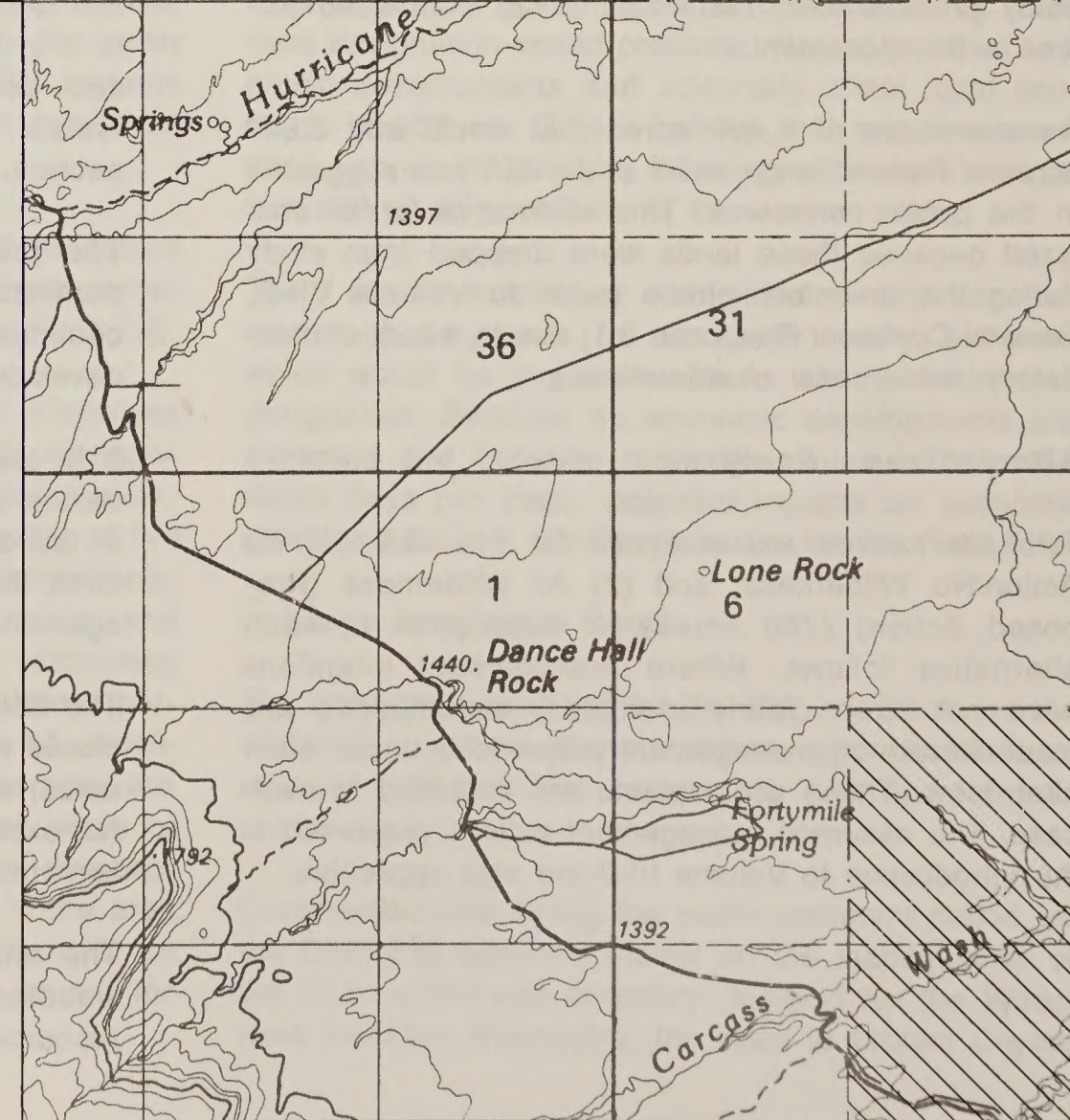
Map 1
LAND STATUS
Escalante Canyons Tract 5
Instant Study Area
UT-040-077
 Legend

- ISA Boundary
- Glen Canyon National Recreation Area
- Outstanding Natural Area Boundary
- National Park Service Administered Land
- BLM Administered Land Within or Adjacent to ISA

SCALE IN MILES

SCALE IN KILOMETERS

ELEVATION EXPRESSED IN METERS



ESCALANTE CANYONS TRACT 5 ISA

The ONA portion (320 acres) would continue to be managed as VRM Class I, while the remaining acreage would be managed as VRM Class III on 220 acres and VRM Class IV on 220 acres.

- Action Scenario

It is projected that implementation of the No Action/No Wilderness Alternative would not result in any surface-disturbing activities in the foreseeable future. No locatable or leasable mineral resource exploration or development is anticipated. No rangeland, wildlife habitat, watershed projects, or other developments are planned, nor is any ORV use projected. Recreation use in the foreseeable future would be primitive in nature and would increase over the current estimated use of 155 annual visitor days at a rate of 2 to 7 percent per year.

- All Wilderness Alternative (Proposed Action)

With the All Wilderness Alternative, all 760 acres of the ISA would be designated by an act of Congress as part of the NWPS (refer to Map 2). It would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) to preserve its wilderness character. There are no State lands within or adjacent to the ISA. The figures and acreages given are for Federal lands only. No private or split-estate lands are located in or adjacent to the ISA.

- Management Conditions and Constraints

After wilderness designation, all 760 acres would be withdrawn from mineral location and closed to new mineral leasing and sale. There are no claims or leases existing in the ISA. Mining-related development work, extraction, and patenting would be allowed on any new mining claims located prior to wilderness designation. However, because of low resource potential, new mining claims and related developments are not expected. No oil and gas leases or other mineral leases would be issued. Therefore, leasable minerals would not be developed following wilderness designation.

Present domestic livestock grazing would be allowed to continue as authorized. The estimated 55 AUMs in the ISA would remain available to livestock as presently allotted. There are no existing rangeland developments that would involve

continued use and maintenance. New rangeland developments have not been proposed.

The entire 760-acre area would be closed to ORV use except for users with valid existing rights if approved by BLM in accordance with 43 CFR 8560 provisions. A 320-acre portion of the area is currently closed to vehicular use as part of the ONA. There are no existing ways to be closed and there are no roads or ways bordering the ISA that would provide for continuing open vehicular use. The nearest vehicular access is a jeep trail about 0.25 mile southwest of and outside of the ISA; it would remain open to vehicular use.

Harvest of forest products would not be allowed.

Visual resources would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change.

- Action Scenario

No surface disturbance is projected in the foreseeable future. Implementation of the All Wilderness Alternative would preclude mining claim location and mineral leasing. Therefore, no locatable or leasable mineral resource exploration or development would occur following wilderness designation. No rangeland, wildlife habitat, watershed projects, or other developments are planned following wilderness designation. Recreation use in the foreseeable future would be primitive in nature and would increase over the current estimated use of 155 annual visitor days at a rate of 2 to 7 percent per year.

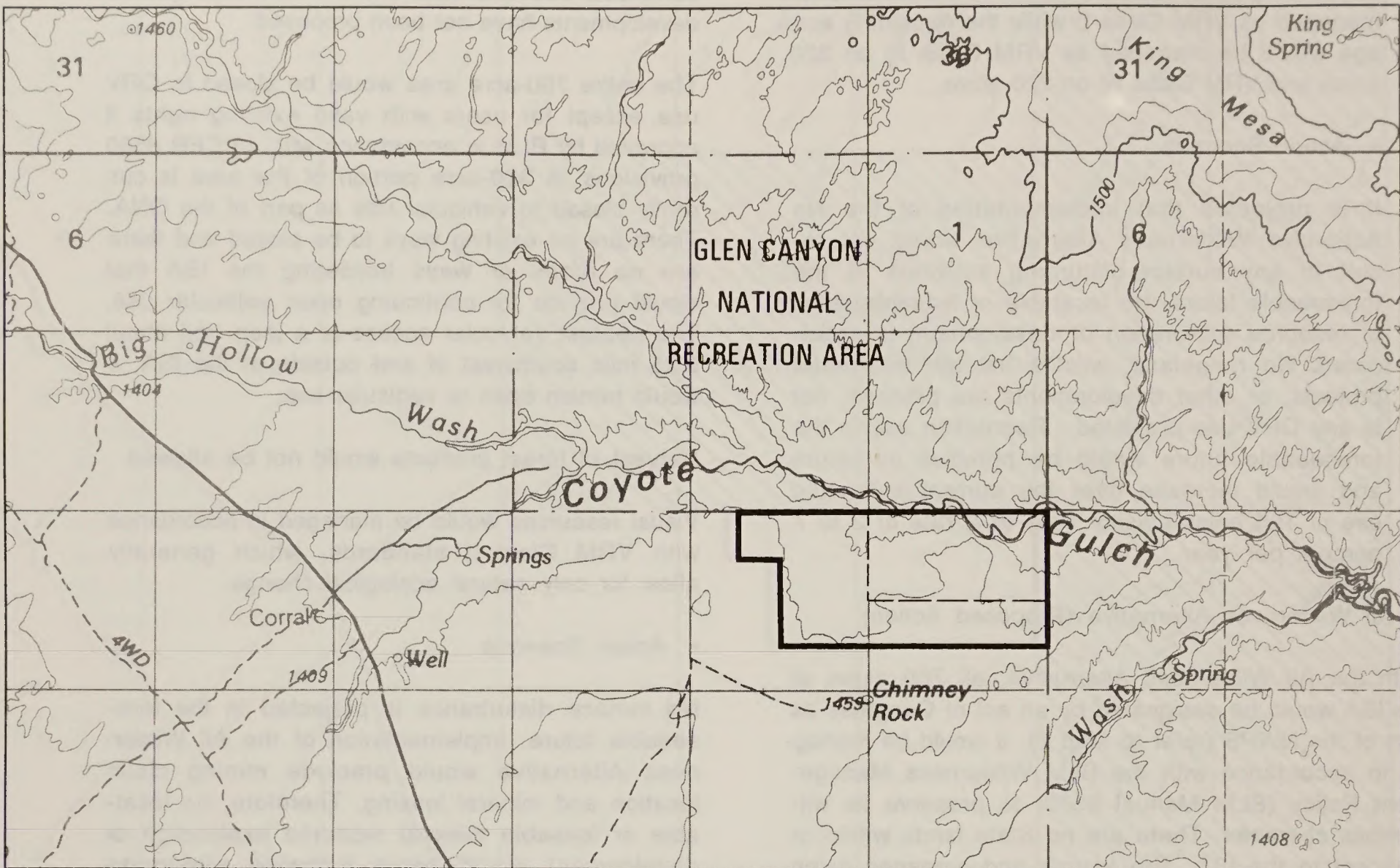
Summary of Environmental Consequences

Table 1 presents the environmental consequences of alternatives analyzed in detail.

AFFECTED ENVIRONMENT

This section describes the overall environmental setting. This information allows for independent assessment by the public as required by the CEQ guidelines and provides a data base for the cumulative State-wide analysis found in Volume I, as well as for analysis of the environmental consequences of alternatives for this ISA.

ESCALANTE CANYONS TRACT 5 ISA






Map 2

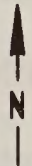
ALL WILDERNESS ALTERNATIVE

Escalante Canyons Tract 5
Instant Study Area

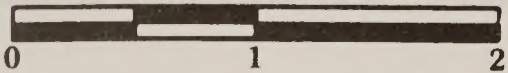
UT-040-077

Legend

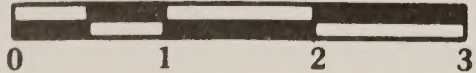
-  All Wilderness Alternative (760 acres)
-  Glen Canyon National Recreation Area
-  Outstanding Natural Area Boundary



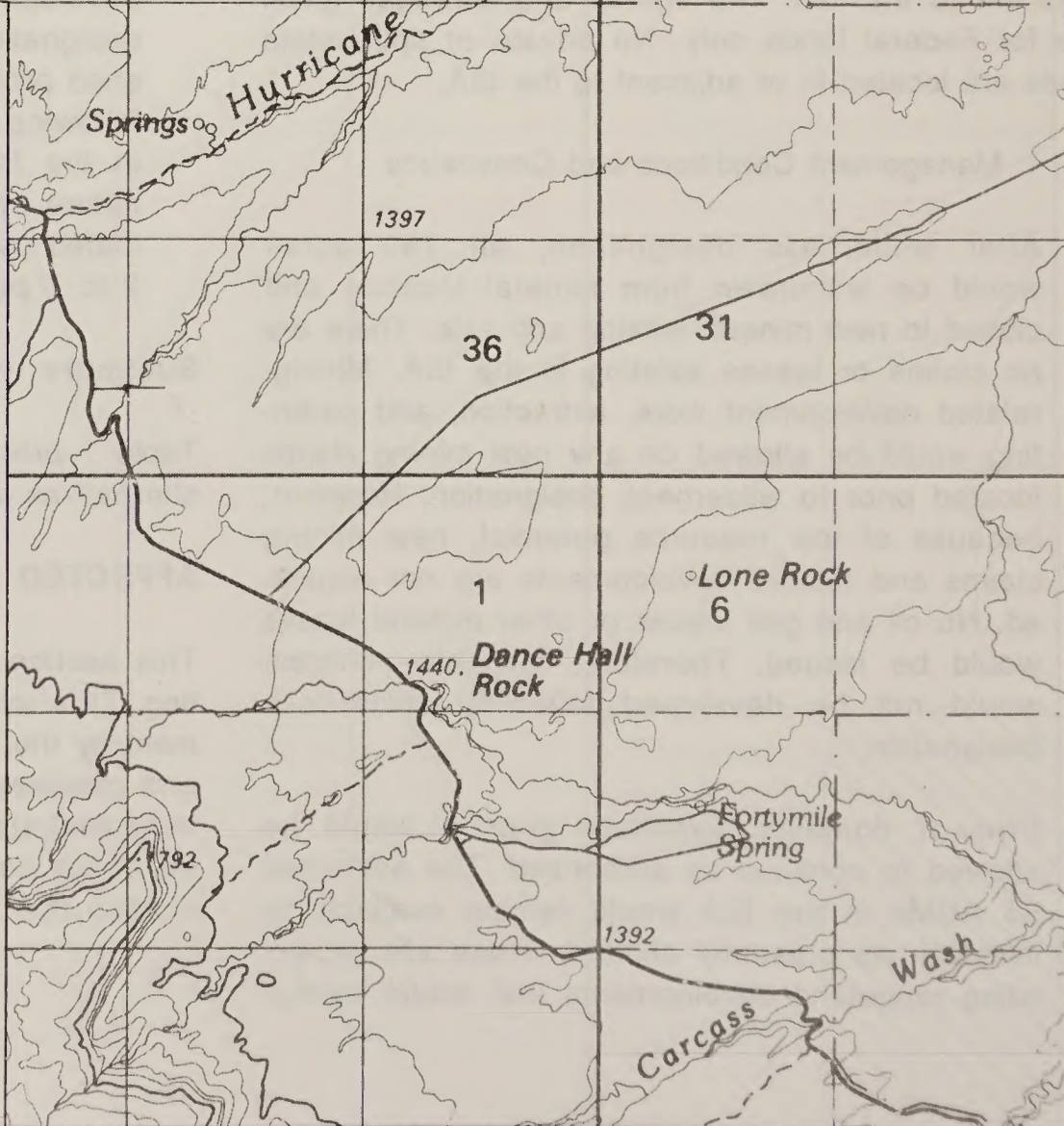
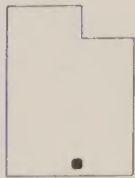
SCALE IN MILES



SCALE IN KILOMETERS



ELEVATION EXPRESSED IN METERS



ESCALANTE CANYONS TRACT 5 ISA

**Table 1
Summary of Environmental Consequences**

| | Alternatives | |
|------------------------------|---|--|
| | All Wilderness (760 Acres) (Proposed Action) | |
| Resource | No Action/No Wilderness | |
| Impacts on Wilderness Values | Wilderness values would not be protected by wilderness values. However, no disturbance is expected in the foreseeable future that would affect wilderness values. | Wilderness designation would preserve the wilderness values of naturalness, outstanding opportunities for solitude and primitive recreation, and special features including Class A scenery, other special scenic features, and endangered or sensitive species, wherever these values occur in the ISA. |

ESCALANTE CANYONS TRACT 5 ISA

Unless otherwise indicated, information for this section was taken from BLM staff specialists, technical reports, and file documents.

Wilderness Values

- Size

The ISA encompasses 760 acres. It is approximately 1.75 miles long (east to west) and a 0.75 mile wide (north to south).

- Naturalness

The entire ISA is in a natural condition with no imprints of man. The high quality of naturalness has not changed since the BLM's Intensive Wilderness Inventory (USDI, BLM, 1980b).

- Solitude

The outstanding opportunity for solitude in this ISA is directly associated with the topographic screening provided by the canyon of Coyote Gulch. The canyon is separated geographically from the remainder of the ISA by the steep canyon walls. Views within the canyon are limited to a 0.25 mile or less. The topographic screening in the canyon provides opportunities for seclusion when considered in conjunction with contiguous NPS lands in the Glen Canyon NRA that are proposed for wilderness designation. Outside sights and sounds are an insignificant influence on solitude in this ISA.

Approximately 230 acres (30 percent) of the ISA have outstanding opportunities for solitude and 530 acres (70 percent) do not meet the standards.

- Primitive and Unconfined Recreation

Opportunities for hiking, backpacking, horseback riding, and geological sightseeing are all considered outstanding in quality in Coyote Gulch when considered in conjunction with contiguous NRA lands that are proposed for wilderness designation. The ISA canyon bottom constitutes a short but integral portion of the Coyote Gulch hiking opportunity provided in the Escalante River drainage. The immediate canyon bottom and inner walls occupy approximately 33 acres of the ISA.

The primitive recreation opportunities are outstanding on 33 acres (4 percent) of the ISA. The remaining 727 acres (96 percent) do not meet the criterion.

- Special Features

Scenic features identified during the BLM wilderness inventory include the enclosed red Navajo Sandstone and sheer canyon walls associated with Coyote Gulch. An alcove-type natural arch is present in Coyote Gulch. During the inventory, approximately 230 acres were identified as possessing special scenic features.

The ISA has resource values that, although not identified as such during the wilderness inventory, could be considered special features. There are two animal species (peregrine falcon and bald eagle) listed as endangered that may occasionally use the ISA. There are seven animal species and five plant species that are considered sensitive which occur, or may occur, in the ISA. Refer to the Vegetation and Wildlife Including Special Status Species sections for additional information. Approximately 42 percent (319 acres) of the ISA is rated Class A for scenic quality.

- Diversity

This ISA is in the Colorado Plateau Province Ecoregion and has the PNV type of blackbrush. Refer to the Vegetation Including Special Status Species section for more information. The ecoregion and PNV type represented by this ISA are compared with existing and other potential National Wilderness Preservation units in the Wilderness Values section of Volume I.

This ISA is not within a 5-hour drive from any standard metropolitan statistical area.

Air Quality

The ISA and surrounding area have been designated Class II under the PSD regulations. BLM will not consider or recommend any change in air quality classification as part of the wilderness study or wilderness recommendations. Any further air quality reclassification is the prerogative of the State government, rather than BLM (USDI, BLM, 1982b). Capitol Reef National Park, located approximately 12 miles northeast of the ISA, has a Class I designation under the PSD regulations.

No measurements of air pollution or visibility levels have been made in the Escalante planning unit; however, data collected from various sites (Page, Arizona, and Four Mile Bench) approximately 35 miles southwest of the ISA indicate the air is generally free

ESCALANTE CANYONS TRACT 5 ISA

of pollutants and within National Ambient Air Quality Standards and State regulations.

Geology and Topography

The ISA is in the Canyonlands section of the Colorado Plateau Physiographic Province. Elevations in the tract range from approximately 4,715 feet at a point overlooking Coyote Gulch on the south rim, to 4,200 feet at the bottom of Coyote Gulch. An alcove-type natural arch occurs in Coyote Gulch, which is the major drainage in the tract. It is fed by northeast tributaries and flows east to the Escalante River.

The surrounding topography consists of steep-walled canyons, mesas, and plateaus. The ISA itself is primarily in the southern half of Coyote Gulch, extending from the bottom of the gulch to the top of the southern rim.

Rocks of Jurassic age, totaling about 2,000 feet in thickness, cover the northern and eastern portions of the tract. Thin Quaternary deposits, consisting chiefly of windblown silt, cover the western and southern portions of the tract. Underlying Mesozoic and Paleozoic rocks in the region are more than 4,000 feet thick (USDI, USGS, 1981a). Cross-bedded Navajo Sandstone forms the most extensive outcrop. No significant structures are known to exist within the immediate vicinity of the ISA.

Soils

Rockland areas occurring on approximately 80 percent (608 acres) of the ISA consist of exposures of bedrock, mostly sandstone and limestone. The rockland grouping has very little vegetation with native vegetation growing in crevices and pockets of soil (USDI, BLM, 1980d).

Sandy soils occupying approximately 20 percent (152 acres) of the ISA occur in the southwest corner of the unit. Runoff and sediment production from these soils are low (USDI, BLM, 1980d).

Erosion condition was determined by using soil surface factors as summarized in Table 2 (terms are defined in the Glossary).

Sediment yields vary from slight to moderate.

Soil salinity class estimates indicate that the area is nonsaline. There is an estimated average production of 15 lb of salt per acre per year.

Seeding potential varies from unsuited for seeding to poor due to steep slopes, rock outcrops, and sandy (droughty) and shallow soils.

Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | Acres | Percent of WSA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|-------|----------------|--------------------------------------|
| Severe | 5.4 | 0 | 0 | 0 |
| Critical | 2.7 | 0 | 0 | 0 |
| Moderate | 1.3 | 608 | 80 | 790 |
| Slight | 0.6 | 0 | 0 | 0 |
| Stable | 0.3 | 152 | 20 | 50 |
| Total | | 760 | 100 | 840 |

Sources: USDI, BLM, 1978c and 1979c; Leifeste, 1978.

Vegetation Including Special Status Species

Desert shrub (610 acres) is the major vegetation type in the ISA. Predominant species in this type are blackbrush, Mormon tea, sand dropseed, and Indian ricegrass. One hundred and forty-seven acres of the ISA are primarily slickrock and contain very little vegetation. Approximately 3 acres of riparian vegetation exist in the bottom of Coyote Gulch and extend about a 0.5 mile along the stream.

No threatened or endangered plant species are known to occur in the ISA. However, the ISA could contain one Category 1 candidate species and six Category 2 candidate species. These are Lepidium montanum var. stellae (Category 1), Psoralea pariensis, Lepidium montanum var. neeseae, Coryphantha missouriensis var. marstonii, Heterotheca jonesii, Penstemon atwoodii, and Xylorhiza cronquistii (see Appendix 4 in Volume I).

The Escalante Canyons Tract 5 ISA is in the Colorado Plateau Province Ecoregion as shown on the Bailey-Kuchler ecosystems map (USDI, USGS, 1978a). The PNV type of the ISA is blackbrush.

Water Resources

The Escalante Canyons Tract 5 ISA is in the Escalante River subbasin of the Upper Colorado River hydrologic subregion.

The ISA does not contain any perennial streams; however, water does flow intermittently in Coyote Gulch for approximately a 0.5 mile. Flash floods are common in the gulch from July to mid-September during the thunderstorm season. No springs occur in the ISA.

ESCALANTE CANYONS TRACT 5 ISA

The Escalante Canyons Tract 5 ISA is in the Escalante River Adjudication Area 97. The Escalante River and all tributaries are considered to be fully appropriated, and the underground water directly connected to the surface is closed to appropriation, with the exception of some limited applications for 0.015 cfs which have been approved on an individual basis. The State Engineer will accept applications to appropriate water from the underground aquifer located in bedrock and consider them on the individual merits of the applications (UDNRE, DWR, 1988).

Water rights within the ISA's boundary total 25.62 acre-feet annually from Coyote Gulch. This water is allocated to the BLM for livestock watering (UDNRE, DWR, 1969).

The water quality standards for Escalante River and tributaries, from Lake Powell to confluence with Boulder Creek, are as follows: Class 2B (protected for boating, waterskiing, and similar uses) and Class 3C (protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain).

Utah's 1986 305(b) Water Quality Assessment Report states that streams and tributaries entering Lake Powell in the southern portions of the Upper Colorado River drainage have impairments to their beneficial uses from high levels of TDS and sodium. These impairments result mainly from natural sources and low flows.

Mineral and Energy Resources

The energy and mineral resource rating summary for the Escalante Canyons Tract 5 ISA is given in Table 3. Appendix 5 in Volume I provides a detailed description of the mineral and energy resource rating system.

There are no strategic or critical minerals known to occur within the ISA (USDoD, 1988).

• Leasable Minerals

There are no known deposits of any leasable minerals in the ISA. Currently, there are no active drilling, mining, or exploration activities for leasable minerals.

• Oil and Gas

The only oil and gas production in south-central Utah in the vicinity of the ISA comes from the

Upper Valley field located about 40 miles to the northwest. This field was discovered on the Upper Valley anticline in 1964. Its discovery stimulated drilling activity on similar anticlinal structures in south-central Utah. To date, however, no commercial oil and gas potential has been identified in the ISA.

Table 3
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|-------------|---------------------------|------------------------|---|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f 2 | c 1 | Less than 10 million barrels of oil; less than 60 billion cubic-feet of gas |
| Uranium | f 2 | c 1 | Less than 500 metric-tons of uranium oxide |

Source: SAI, 1982; USDI, BLM, 1987; USDOE, 1983.

^aFavorability of the WSA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

There are no known structures within or near the ISA that might represent potential exploration targets. The favorability of the tract for oil and gas is rated (f2) (SAI, 1982). The size of the hydrocarbon accumulation in such an environment is anticipated to be less than 10 million barrels of oil or less than 60 billion cubic-feet of gas. Based on the available information, the certainty of occurrence for oil and gas is rated very low (c1).

Under the current land use plan, all 760 acres of the ISA are in Category 1 (standard stipulations). There are presently no oil and gas leases in the ISA.

• Locatable Minerals

There are no known deposits of locatable minerals in the ISA, and there are presently no mining claims.

• Uranium

The Chinle Formation is the only rock unit underlying the ISA known to have potential for uranium in the area. The Chinle generally lies at a depth of about 1,000 feet below the surface in the ISA.

It was concluded that the area encompassed by the ISA is not favorable for significant deposits of uranium (Peterson, et al., 1982). They define

ESCALANTE CANYONS TRACT 5 ISA

a significant deposit as one which contains economically extractable uranium oxide deposit that contains a total of at least 100 metric-tons of uranium oxide at a grade of at least 0.01 percent. The area in which the ISA is located is unfavorable for uranium mineralization (USDI, USBM, 1986c).

Based on the above discussion, the ISA is assigned an uranium favorability rating of (f2) (containing less than 500 metric-tons of uranium oxide). The certainty that uranium deposits occur in the Chinle Formation within the tract is very low (c1).

• Salable Minerals

Stream gravel and other loose rock material that could be used for construction occur within the ISA. These deposits are not unique or economically significant due to the presence of ample similar materials outside the ISA.

Wildlife Including Special Status Species

The Escalante Canyons Tract 5 ISA has habitat that could support approximately 50 species of mammals, 170 species of birds, 17 species of reptiles, and five species of amphibians. The birds are mainly seasonal residents or migrants while the other species are primarily residents.

The ISA provides yearlong range for mule deer; however, deer populations are extremely low.

Two endangered species, the peregrine falcon (Falco peregrinus) and bald eagle (Haliaeetus leucocephalus) are rare migrants through the ISA. The UDWR lists two sensitive species that occur occasionally through

out the ISA: western and mountain bluebirds (UDNRE, UDWR, 1982). In addition, the golden eagle (BLM sensitive species) and the following six Category 2 candidate species could inhabit the ISA: Great Basin Silverspot butterfly, ferruginous hawk, long-billed curlew, southern spotted owl, Swainson's hawk, and white-faced ibis (see Appendix 4 in Volume I). No other sensitive, threatened, or endangered species are known to occur within the ISA. There is no identified crucial or critical habitat in the ISA.

Forest Resources

No forest resources occur in the ISA. The desert-shrub vegetation type does not contain any plant species suitable for timber or fuel wood harvesting.

Livestock and Wild Horses/Burros

The ISA is within the Forty Mile Ridge and Lower Cattle grazing allotments. There are no existing or proposed range improvements in the ISA. Table 4 summarizes livestock grazing use in the ISA. There are no wild horses or burros within the ISA.

Visual Resources

VRM classes for the ISA are as follows: Class I on 320 acres, Class III on 220 acres, and Class IV on 220 acres). In the Glen Canyon NRA wilderness proposal, NPS assigned a Value Class of I (highest) to Coyote Gulch and Value Class III (next to lowest) to the area adjacent to the canyon (USDI, NPS, 1979). Approximately 320 acres are classified as Class A, 185 acres as Class B, and 255 acres as Class C scenery. Refer to Appendix 7 in Volume I for a detailed description of the BLM VRM system. Portions of the ISA contain visual resources with unique scenic values.

Table 4
Livestock Grazing Use Data

| Allotments | Total Acres | Acres in WSA | Total AUMs | Number of AUMs in WSA | Number and Kind of Livestock | Season of Use | Number of Operators |
|---------------|---------------|--------------|--------------|-----------------------|------------------------------|---------------|---------------------|
| 40 Mile Range | 39,813 | 720 | 2,214 | 52 | 599 Cattle | 11/01-06/15 | 4 |
| Lower Cattle | 55,311 | 40 | 3,523 | 3 | 1,582 Cattle | 10/14-04/15 | 7 |
| Total | 95,124 | 760 | 5,737 | 55 | | | 11 |

Sources: BLM File Data

ESCALANTE CANYONS TRACT 5 ISA

Cultural Resources

Based on a Class I and II survey, archaeological site densities in the ISA are moderate (37 to 360 sites per 23,000 acres) (USDI, BLM, 1978a). The ISA does not contain any recorded historical or archaeological sites.

Recreation

Most of the use presently occurring within the ISA is associated with primitive recreation opportunities in Coyote Gulch. Only about a 0.50 mile of Coyote Gulch is in the ISA. However, this 15.5-mile-long canyon is a major destination canyon in the Glen Canyon NRA. Coyote Gulch is also the major hiking access route to the Escalante River in this portion of the NRA.

The ISA contains 320 acres of the 129,000-acre Escalante Canyons ONA designated on December 23, 1970, for the purpose of preserving unique scenic values and natural wonders. The ISA includes 440 acres of lands contiguous to the ONA. Of the 129,000 acres designated in 1970, 127,840 acres have been transferred by public law to the Capitol Reef National Park and Glen Canyon NRA. The remaining 1,160 acres are divided among three ISAs. ORV use is closed on the 320 acres of the ISA that comprise the ONA. Recreational use is minimal on the remaining 440 acres of the ISA as there are no ways within the ISA.

Access to Coyote Gulch is via the Red Well Trailhead located outside of the ISA. In 1981, approximately 155 hikers registered at this trailhead. The ISA is primarily used as an access route to the NRA and it would be difficult to determine the magnitude of the minor use that is directed only to the ISA. It is estimated that the ISA has 155 visitor days per year.

Land Use Plans

The ISA contains 760 acres of public land administered by BLM. Public lands in the ISA are within the BLM Escalante planning unit and are being managed according to the land use decisions of the Escalante MFP (USDI, BLM, 1981d). Principal uses include recreation and grazing. There are no existing or proposed rights-of-way within the ISA. Wilderness is not addressed in the Escalante MFP. However, wilderness designation is part of the BLM multiple-use concept. The BLM land use plan is linked to the Statewide Wilderness EIS through analysis of the present plan as the No Action/No Wilderness Alternative. The ISA is located in Kane County and no State, private, or split-

estate lands are enclosed within the boundaries of the ISA.

The General Management Plan for the Glen Canyon NRA identifies the area adjacent to the ISA as a "natural zone" which is proposed for wilderness designation. The natural zone covers some 668,670 acres of the NRA. This zone includes the recreation area's outstanding scenic resources, relatively undisturbed areas isolated and remote from the activities of man, and areas bordering on places with established land use practices complementary to those of the natural zone (USDI, NPS, 1979).

The ISA is contiguous to the Escalante Wilderness Study Unit in the Glen Canyon NRA administered by the NPS. The Escalante Wilderness Study Unit containing 326,150 acres is located east of the ISA.

The Glen Canyon NRA Management Plan proposes a boundary adjustment with BLM to add land in Coyote Wash (including this tract) to the NRA for use as an access corridor. The NPS proposes this addition as a recreation and resource utilization zone where necessary development might take place (USDI, NPS, 1979).

The Kane County Master Plan identifies the land in the ISA as multiple use. The plan states, "Kane County supports the total concept of multiple use of lands. We reject exclusionary recreational forms that cannot be used by the average recreation visitor. Wilderness, as conceived by the Federal land agencies, is rejected because of the limited visitor utilization possibilities and rejection of the multiple-use concept. The Kane County wilderness policy is opposed to designation of this ISA as wilderness." (Kane County Board of Commissioners, 1982). The Kane County Commission has endorsed the Consolidated Local Government Response to Wilderness that opposes wilderness designation of BLM lands in Utah (Utah Counties, 1986).

Socioeconomics

• Demographics

The Escalante Canyons Tract 5 ISA is located entirely within Kane County. However, since most access is from the north, the primary area of economic impact is identified as Garfield County. Within this region, impacts as expected would be focused within the municipality of Escalante, located approximately 41 miles north of the ISA.

ESCALANTE CANYONS TRACT 5 ISA

The community of Escalante lies along a major access route to the ISA, Utah Highway 12. Escalante is one of the larger communities in the area, having a 1980 population of 652 persons (USDC, Bureau of the Census, 1981). Escalante is a gateway and service area for visitors to the Escalante Canyons Tract 5 ISA.

Garfield and Kane are rural counties having average population densities of less than one person per square mile. This density is very low when compared to the Statewide average of 17 persons per square mile (USDC, Bureau of the Census, 1981). Much of the population in these counties is concentrated in small communities rather than being evenly distributed throughout the area.

From 1970 to 1980, the population of Garfield County grew from 3,157 to 3,700, an overall increase of about 17 percent. Table 5 presents the baseline and projected population data for Garfield County. It is estimated that between 1980 and 1987, the population increased to about 4,085. Population projections indicate that the number of people living in Garfield County in the year 2010 will be about 4,850 for about a 19-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

Table 5
Baseline and Projected Population and Employment Growth
Garfield and Kane Counties

| | 1980 | 1990 | 2000 | 2010 |
|-----------------|-------|-------|-------|-------|
| Garfield | | | | |
| Population | 3,700 | 4,250 | 4,350 | 4,850 |
| Employment | 2,156 | 2,000 | 2,200 | 3,200 |
| Kane | | | | |
| Population | 4,050 | 5,250 | 5,750 | 6,950 |
| Employment | 1,403 | 1,900 | 2,300 | 2,900 |

Source: Utah Office of Planning and Budget, 1987.

From 1970 to 1980, the population of Kane County grew from 2,421 to 4,050, an overall increase of about 67 percent. Table 5 presents the baseline and projected population data for Kane County. It is estimated that between 1980 and 1987, the population increased to about 4,890. Population projections indicate that the number of people living in Kane County in the year 2010 will be about 6,950 for a 72-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

• Employment

Table 5 shows the baseline and projected total employment for the Garfield and Kane Counties to the year 2010.

Garfield and Kane Counties are part of the Southwest MCD. Table 6 shows the baseline (1980) and projected employment by source for the MCD to the year 2010. In 1980, the leading employment sectors for the Southwest MCD were government (23 percent), trade (20 percent), and nonfarm proprietors (12 percent). Mining provided less than 3 percent of the employment in the MCD.

Table 6
Southwest Multi-County District
Employment^a

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|--------------|--------------|--------------|--------------|
| Agriculture | 1,810 | 1,700 | 1,600 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,600 | 3,300 |
| Transportation, Utilities | 1,006 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 6,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 6,900 | 8,900 |
| Government | 4,616 | 5,800 | 6,500 | 8,100 |
| Nonfarm Proprietors | <u>2,386</u> | <u>3,100</u> | <u>3,500</u> | <u>4,700</u> |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

^aIncludes Beaver, Garfield, Iron, Kane, and Washington Counties.

It is projected that by the year 2010, employment in the MCD will more than double. Services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 5 percent, government to 18 percent, and mining to less than 1 percent of the total.

• Sales and Revenues

Economic activities in the ISA are limited and include livestock production and recreation. Table 7 summarizes the local sales and Federal revenues from the ISA. Appendix 9 in Volume I identifies the multipliers used to estimate sales and revenues.

If mining claims are located within the ISA, regulations require a \$100 annual expenditure per claim for labor and improvements, an undetermined part of which would be spent in the local economy. There are no mining claims presently in the ISA.

ESCALANTE CANYONS TRACT 5 ISA

Table 7
Sales and Revenues

| Source | Estimated Annual Local Sales ^a | Estimated Annual Federal Revenues |
|-------------------|---|-----------------------------------|
| Livestock Grazing | \$1,100 | \$85 |
| Recreational Use | \$ 636 | 0 |
| Total | \$1,736 | \$85 |

Sources: BLM File Data; Appendix 9 in Volume I.

^aLocal sales represent money potentially spent. They do not account for the total income that would be generated by these expenditures.

No oil and gas or mineral production has occurred in the ISA. Therefore, mineral and energy resource production from the ISA has not contributed to local employment or income.

Eleven livestock operators have a total grazing privilege of 55 AUMs within the ISA. If all this forage were utilized, it would account for \$1,100 of livestock sales and \$275 of ranchers' returns to labor and investment.

The ISA's nonmotorized recreational use and related local expenditures are low and are insignificant to both the local economy and individual businesses. There is no motorized recreational use being made in this ISA. The actual amount of income generated locally from recreational use in the ISA is unknown. However, an approximate range of expenditures can be deduced (Dalton, 1982). This study indicates that the Statewide average local expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for the Escalante Canyons Tract 5 ISA is estimated at about 155 visitor days per year. Only a portion of the expenditures for recreational use of the ISA contributes to the local economy of Garfield County.

The ISA generates Federal revenues from livestock sources (refer to Table 6). Livestock permittees in the ISA can use up to 55 AUMs per year. Based on a \$1.54 per AUM grazing fee, the ISA can potentially generate \$85 of grazing fee revenues annually, 50 percent of which would be allocated back to the local BLM District for the construction of rangeland improvements. There are no oil and gas leases in the ISA.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This section describes the environmental consequences of implementing the alternatives. The analysis is based on the BLM management actions and anticipated activities presented in the Introduction to Volume III-B and the Description of the Alternatives for the Escalante Canyons Tract 5 ISA.

No Action/No Wilderness Alternative

• Impacts on Wilderness Values

Because the ISA would not be designated wilderness with this alternative, the identified wilderness values would not receive the degree of protection afforded by application of the BLM Wilderness Management Policy (BLM Manual 8560). Wilderness values in the ISA would be somewhat protected by limitations placed on potential surface-disturbing activities (i.e., VRM Class I management on 320 acres) and ORV closure on 320 acres.

No development would be expected in the foreseeable future that would affect wilderness values. Also, because future vehicular use would generally be limited by ORV closure and by terrain, no disturbance from ORV activity is anticipated in the foreseeable future. Therefore, no loss of wilderness values including naturalness on 760 acres; opportunities for solitude (outstanding on 230 acres); opportunities for primitive recreation (outstanding on 33 acres); and such special features as Class A scenery, other scenic features, and endangered or sensitive species, is anticipated.

The anticipated 2 to 7 percent annual increase in visitor use would not be expected to reduce wilderness values because the additional use would be primitive in nature and the contiguous NRA lands would absorb the additional use adequately.

Although no loss of wilderness values would occur in the foreseeable future, an undetermined loss of wilderness values would occur over the long-term future. Nondesignation would not complement the NPS proposal for wilderness designation and management of contiguous Glen Canyon NRA lands.

Conclusion: Wilderness values would not be protected by wilderness designation. No disturbance that would affect wilderness values would be expected in the foreseeable future.

ESCALANTE CANYONS TRACT 5 ISA

All Wilderness Alternative (Proposed Action) (760 Acres)

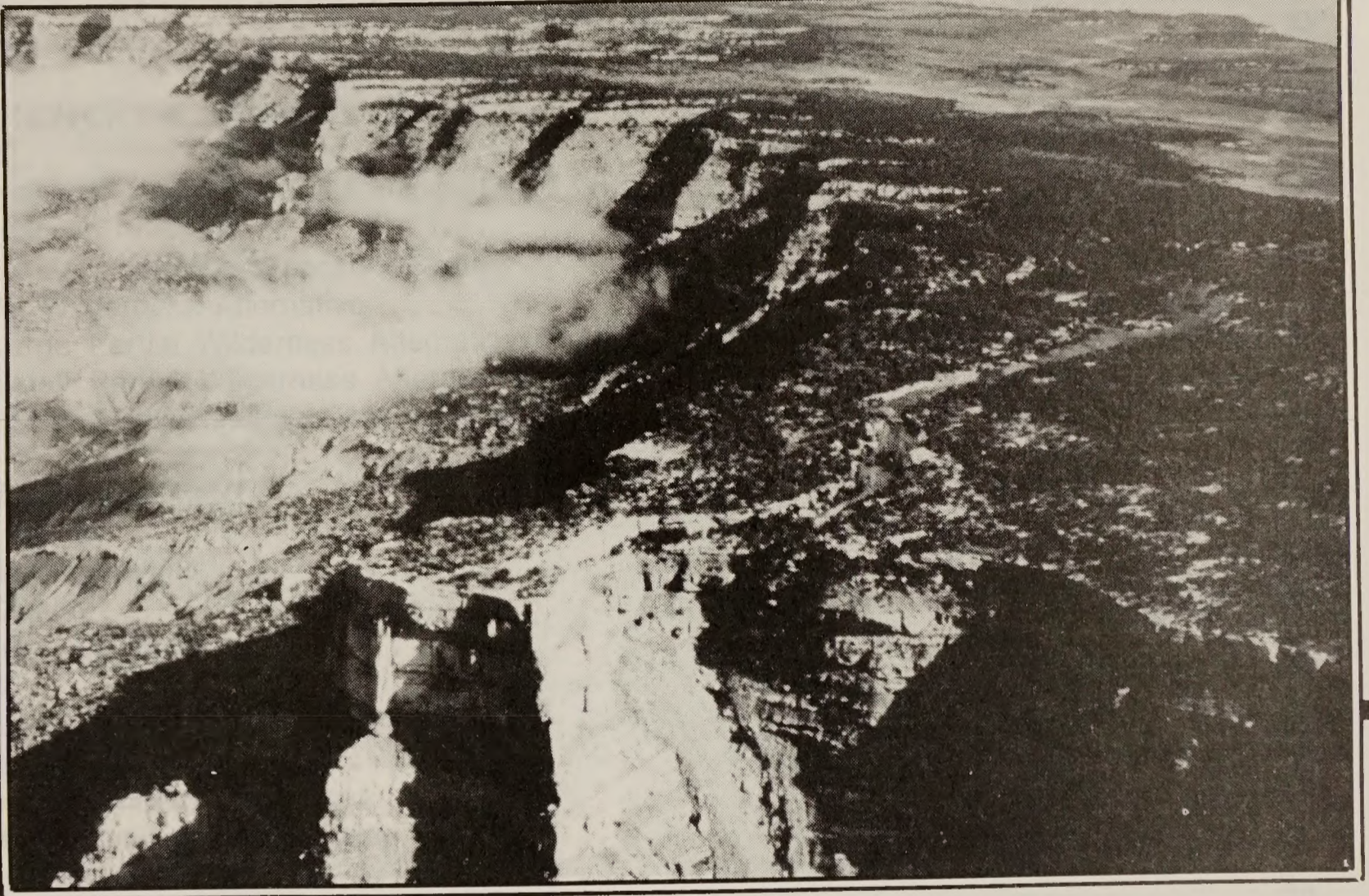
• Impacts on Wilderness Values

Designation and management of all 760 acres as wilderness would preserve the wilderness values in the Escalante Canyons Tract 5 ISA Complex. The potential for surface-disturbing activities would be eliminated through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I which allows for only natural ecological change. Naturalness would be preserved on all 760 acres. Solitude would be preserved on approximately 230 acres that meet and 530 acres that do not meet the standards for outstanding opportunities. Primitive and unconfined recreation would be preserved on approximately 33 acres that meet and 727 acres that do not meet the standards for outstanding opportunities. Resources that could be considered as special features in the ISA, including Class A scenery, special scenic features, and endangered or sensitive species, would also be preserved.

Designation of this ISA as wilderness would complement and enhance wilderness management and use of the contiguous NRA lands that are proposed by the NPS for wilderness designation.

Conclusion: Wilderness values would be preserved wherever found in the WSA.

Fifty Mile Mountain WSA



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FIFTY MILE MOUNTAIN WSA

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FIFTY MILE MOUNTAIN WSA

(UT-040-080)

INTRODUCTION

General Description of the Area

The Fifty Mile Mountain WSA is located on the eastern edge of the Kaiparowits Plateau approximately 20 miles southeast of Escalante, Utah. The WSA contains 146,143 acres of public land and encloses 12,341.4 acres of State land and 2,658.8 acres of split-estate lands (Federal surface and State minerals). It is managed by the BLM Cedar City District Kanab and Escalante Resource Areas Office. Approximately 146,053 acres of the WSA are in Kane County and 90 acres are in Garfield County. The WSA's southern boundary borders the Glen Canyon NRA.

Topography of the WSA is dominated by the Straight Cliffs and Fifty Mile Mountain. The major vegetation type is pinyon-juniper woodland. The WSA contains the Fifty Mile Mountain Archaeological District, which has been nominated to the National Register of Historic Places.

In general, the climate is temperate and arid with annual precipitation averaging about 10 inches. The highest precipitation rates occur primarily from November through March. Intensive thunderstorms are common during the summer months.

Summer temperatures in Escalante, Utah, vary with highs in the mid 90s and lows in the mid 60 degrees Fahrenheit (F) range. Winter temperatures vary with highs in the low 40s and lows about 15 degrees F. Snowfall in Escalante averages 28 inches per year and generally begins in October or November and ends in March or April.

Changes for the Final EIS

In addition to the changes noted in the Introduction to Volume III-B, the following changes specific to the Fifty Mile Mountain WSA have been made since publication of the Draft EIS.

1. Small portions of the boundary of the WSA (T. 38 S., R. 5 E., sec. 6; T. 39 S., R. 4 E., sec. 1; T. 39 S., R. 5 E., sec. 34; T. 40 S., R. 5 E., sec. 29; T. 40 S., R. 7 E., sec. 31; T. 41 S., R. 7 E., sec. 6; and T. 41 S., R. 8 E., sec. 16) have been redrawn to correct errors in the Draft EIS maps. These changes did not

require acreage adjustments because acreage calculations were based on the boundaries as shown in the Final EIS.

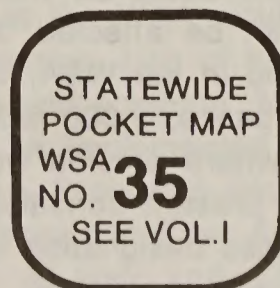
2. The Draft EIS identified a Partial Wilderness Alternative of 92,441 acres. This alternative was designed to minimize conflicts with future coal development and to focus on outstanding wilderness characteristics. In response to public comments received on the Draft EIS, the Large Partial Wilderness has been revised for the Final EIS. The new Large Partial Wilderness Alternative and BLM proposed action is 91,361 acres (refer to Map 3).

3. The anticipated surface disturbance presented in the Draft EIS (21,265 acres) was based on the assumption that all mineral and other resources potentially within the WSA would be developed sometime in the future without consideration of technical or economic feasibility. In response to public comments relative to the feasibility of developments, the disturbance estimates have been revised to focus on activities projected to be feasible within the foreseeable future (see Appendix 6 in Volume I). This resulted in a reduction of surface disturbance estimates from the 21,265 acres reported in the Draft EIS to 3,106 acres of surface disturbance for the Final EIS.

The surface disturbance reduction is broken down as follows:

The mineral-related surface disturbance has been reduced from 2,365 acres reported in the Draft EIS to 87 acres for the Final EIS. Sixty acres of the projected mineral related disturbance would be from coal development in the long-term future.

Ten acres of surface disturbance resulting from access road construction to in-held State land, and 9 acres of surface disturbance resulting from construction of rangeland developments were not considered in the Draft EIS, but are in the Final EIS.



FIFTY MILE MOUNTAIN WSA

The Draft EIS identified 18,900 acres of proposed vegetation treatments within the WSA to improve mule deer habitat. However, BLM does not anticipate sufficient funding in the foreseeable future to complete this project. As a result, the vegetation treatment estimates have been revised downward to 3,000 acres in the Final EIS to reflect more realistic funding projections. Estimates of potential increases to wildlife populations have been revised accordingly.

Specific Issues Identified Through Scoping and Public Comment

• Issues Considered But Not Analyzed in Detail

In addition to the issues discussed and eliminated from further consideration in the Introduction to Volume III-B (i.e., impacts on air quality, water rights, geology and topography, and land use plans and policies), the following issues or impacts specific to the Fifty Mile Mountain WSA were considered but are not analyzed in detail in the Final EIS for the reasons described below.

1. Soils: Soil disturbance estimates have been revised downward from 21,265 acres analyzed in the Draft EIS to 3,106 acres in the Final EIS. About 3,000 acres of the projected disturbance would result from vegetation treatments which, upon reclamation, would likely improve existing soil conditions over the long term. Further, this disturbance would take place in those portions of the WSA where reclamation potential is the highest. Mineral development in the long term could disturb up to 60 additional acres; however, no significant soil loss would be expected. At any rate, given this new scenario, the impacts of direct disturbance of soil would affect only about 2.1 percent of the WSA. Therefore, impacts on soils are not significant issues for analysis in the Final EIS.

2. Water Resources: Concern has been expressed that wilderness designation would interfere with water uses and quality. There are no perennial streams in the Fifty Mile Mountain WSA, with the exception of a small portion of a stream in Rogers Canyon. Existing water developments could be maintained as in the past and would not be affected. No water developments are proposed in the WSA. Of the 3,106 acres of projected disturbance, 3,000 would be from vegetation treatments where erosion would eventually be reduced to below present conditions. Therefore, the impacts of wilderness designation on water uses and quality are not discussed in detail.

3. Forest Resources: The forest resources in the WSA consist of approximately 87,686 acres of pinon and juniper trees and some scattered aspen stands. Opportunities for forest resource harvest in the WSA are limited. Demand for forest resources in the WSA would continue to be very low due mainly to more accessible and higher quality areas located elsewhere. Therefore, impacts on forest resources are not significant issues for analysis in the Final EIS.

4. Visual Resources: As already discussed, estimates of surface disturbance have been substantially reduced for the Final EIS. The 3,061 acres of surface disturbance projected to occur in the foreseeable would affect only about 2.1 percent of the WSA. Because some of the disturbance would occur in Scenic Class A (high quality) areas, impacts on visual resources are considered in the Final EIS as part of the discussion of naturalness and special features in the Wilderness Values section.

5. Recreation: Recreational use of the Fifty Mile Mountain WSA is light, approximately 150 visitor use days per year. About 90 percent of this use is primitive recreation. Vehicular use is generally restricted to the 17 miles of cherry-stemmed roads and 6 miles of way and dry streambeds in canyon bottoms in the WSA. Recreational changes resulting from designation or nondesignation would not be significant due to limited use now occurring and projected to occur in the future in the WSA.

7. Kaiparowits Coal Transportation Corridors: A potential coal transportation and railroad corridor passes through the WSA (ERT, 1980). Commentors on the Draft EIS expressed concern that designated wilderness areas, including the Fifty Mile Mountain WSA, could block the use of these corridors. If wilderness designation were to occur, development of a coal transportation system would not be allowed in the WSA. However, the transportation corridors described in the ERT study extend beyond the WSA boundary, therefore, coal transportation systems could be sited outside the WSA and still be within the designated corridors. Even if no wilderness designation occurred, corridor development is not projected to occur in the WSA due to topographic constraints and the presence of more favorable routes elsewhere. Therefore, impacts related to potential coal transportation systems are not analyzed further for the Fifty Mile Mountain WSA.

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• Issues Analyzed in Detail

The significant issues for the Fifty Mile Mountain WSA are:

1. Impacts on the wilderness values of naturalness, opportunities for solitude and primitive recreation, and special features.
2. Impacts on locatable and leasable mineral exploration and production.
3. Impacts on vegetation including special status species.
4. Impacts on wildlife habitat and populations including special status species.
5. Impacts on livestock management.
6. Impacts on cultural resources.
7. Impacts on local economic conditions.

Comments made during the public comment period for the Draft EIS centered mainly on the need for, and adequacy of, the rationale for the BLM proposed action; the need for further inventories of resource values; and BLM's assessment of wilderness values, visual resources, and mineral values. See Volume VII-B, for responses to general comments applicable to all WSAs and/or the Statewide analysis and Volume VII-C, Section 35, for responses to specific comments about the Fifty Mile Mountain WSA.

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated from Detailed Study

An alternative that would delete 143 acres of lands from the southwest corner of the WSA was suggested in the public comments. This alternative is not analyzed because impacts would be comparable to those of the All Wilderness Alternative of 146,143 acres.

Alternatives Analyzed

Four alternatives are analyzed for this WSA: (1) No Action/No Wilderness, (2) All Wilderness (146,143 acres), (3) Large Partial Wilderness (Proposed Action) (91,361 Acres), and (4) Small Partial Wilderness (51,540 Acres). A description of each alternative follows. Where management intentions have not

been clearly identified, assumptions are made based on management projections for each alternative. These assumptions are indicated in each case. The assumed management actions presented in the Introduction to Volume III-B are also applicable.

• No Action/No Wilderness Alternative

With this alternative, none of the 146,143-acre Fifty Mile Mountain WSA would be designated by Congress as part of the NWPS. Although BLM's land use plans are regularly updated, it is assumed for this analysis that the area would continue to be managed in accordance with the Escalante and Paria MFPs (USDI, BLM, 1981d and 1981c). There are 12,341.4 acres of State land and 2,658.8 acres of split-estate lands (Federal surface, State minerals) within the WSA (refer to Map 1). The figures and acreages given for the WSA are for Federal lands only.

• Management Conditions and Constraints

All 146,143 acres would remain open to mineral location. Development work, extraction, and patenting would be allowed on 108 existing mining claims (2,160 acres) and potential future mining claims. Development would be regulated by unnecessary or undue degradation regulations (43 CFR 3809) without concern for wilderness values. One existing post-FLPMA oil and gas lease (40 acres) could be developed under stipulations issued at the time of leasing. Future leases could be developed under leasing Category 1 (standard stipulations) on about 76,300 acres and Category 3 (no surface occupancy) on about 27,500 acres. The remaining 42,343 acres in the WSA would remain closed (Category 4) to oil and gas leasing. Some 43,300 acres of the Kaiparowits coal field (approximately 147 million metric-tons of in-place coal) are located in the WSA. Of this amount, 7,505 acres are currently under lease and could be developed with the No Action/No Wilderness Alternative. Applications for additional coal leases would be considered.

The present domestic livestock grazing use in the WSA would continue as authorized. The estimated 3,175 AUMs in the WSA would remain available to livestock grazing. Use of the existing range developments would continue. New range developments could be implemented without wilderness considerations. Proposed developments include 7.5 miles of fences and two spring developments. The 6 miles of way and 17 miles of cherry-

FIFTY MILE MOUNTAIN WSA

stemmed roads would be open to vehicular use for livestock management purposes.

Use, maintenance, and construction of developments for wildlife, water resources, etc., could be allowed if in conformance with the MFP. Approximately 3,000 acres of vegetation treatments are proposed on the bench lands northeast of Willow Gulch and Rogers Canyon to improve mule deer habitat.

Approximately 106,800 acres in the WSA would remain open to ORV use while ORV use on 39,343 acres would be limited to designated roads and trails.

The entire WSA would remain open to woodland product harvest. Currently, no harvest of forest products occurs nor is any harvest expected in the foreseeable future due to limited access and the presence of more favorable areas outside of the WSA.

The entire WSA would continue to be managed under VRM Class II.

About 1,470 acres of public water reserve withdrawals would continue to remain in effect. The withdrawn lands are segregated from public land laws and nonmetalliferous mining.

- Action Scenario

It is projected that implementation of the No Action/No Wilderness Alternative would result in about 3,106 acres of surface disturbance in the foreseeable future.

In the short term, about 3,000 acres of the projected disturbance would result from vegetation treatments (pinyon-juniper woodland chainings and seedings) to improve mule deer habitat on the bench lands north and east of Willow Gulch and Rogers Canyon. Nine acres would be disturbed due to the construction of 7.5 miles of fence and two spring developments to improve livestock management and distribution. About 12 months of actual on-the-ground work would be required to complete these projects. The chainings and seedings would be maintained over the long term. No additional rangeland, wildlife habitat, watershed projects, or other developments are projected in the foreseeable future.

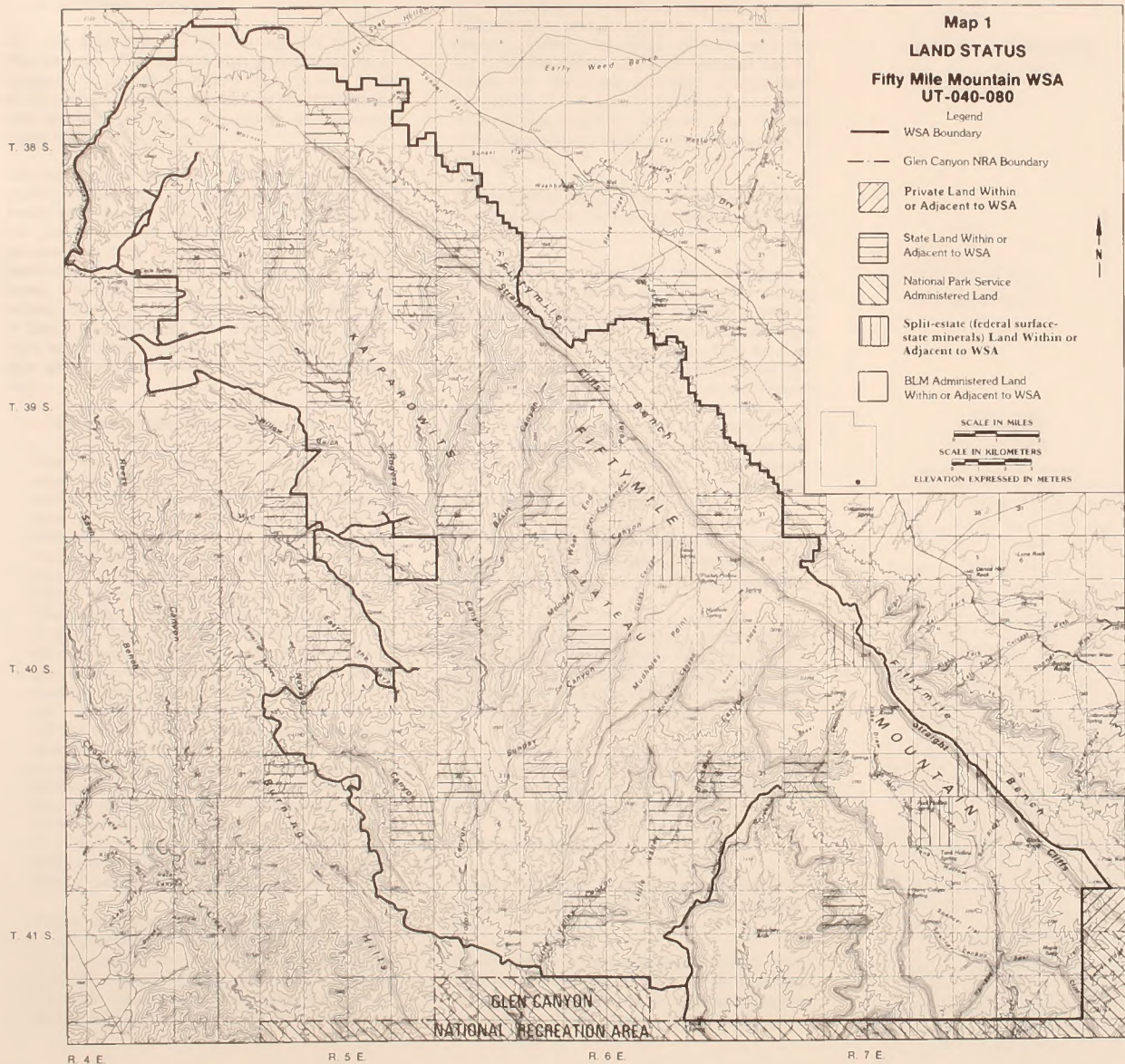
Approximately 27 acres would be disturbed by uranium exploration activities in the northern and central portions of the WSA. Exploration drilling would be conducted along up to 10 miles of access roads built in accessible areas, mostly on benches and in drainages. Based on exploration activities typical of the area, it is projected that 24 employees would be used for a total of 60 days. Exploration activities would be under the unnecessary and undue degradation guidelines of the 43 CFR 3809 regulations. Upon abandonment, drill sites and access roads would be reclaimed. Three to five years would be necessary to determine successful reclamation.

It is also projected that up to 5 miles of access roads would be constructed to State sections in the WSA, disturbing about 10 acres. The purpose of this access would be to explore for minerals, including coal, on the State lands.

In the long term, it is projected that exploration and development of the extensive coal resource in the WSA would occur. Mining would be by underground methods and access would be from drainages or at the base of the Straight Cliffs where coal could be easily accessed. The size of individual coal operations, typical for the intermountain area, differ. Each surface facility site, including up to 5 miles of access roads, would occupy up to 20 acres. Additional surface disturbance would result from exploratory drilling activities. Up to 60 acres could be occupied by surface facilities and access roads. Employees, including supervisory personnel, would number from 20 to 300 for each operation. Operations would last from 30 to 40 years. All disturbed areas would be reclaimed upon abandonment.

No disturbance from ORV use is projected in the foreseeable future. Because of rugged terrain and management restrictions, vehicular use would be limited to future roads and 6 miles of ways, or washes where disturbance would be temporary. It is projected that overall recreation use will increase over the current estimated use of 150 visitor days annually at a rate of 2 to 7 percent per year. Only 15 of the 150 visitor days are associated with ORV use, and recreation use would continue to be 90 percent primitive in nature.

FIFTY MILE MOUNTAIN WSA



FIFTY MILE MOUNTAIN WSA

- All Wilderness Alternative

With this alternative, all 146,143 acres of the Fifty Mile Mountain WSA would be designated by an act of Congress as part of the NWPS (refer to Map 2). It would be managed in accordance with the BLM Wilderness Management Policy to preserve its wilderness character (BLM Manual 8560).

The policy of the State is to reserve its position regarding the exchange of in-held lands within any particular WSA (see Chapter 1 in Volume I). Based on this policy regarding exchange of State lands, it is assumed that State lands would remain under existing ownership. There are 19 State sections (12,341.4 acres) and 2,658.8 acres of split-estate (Federal surface, State minerals) land within the WSA (refer to Map 1 and Appendix 3 in Volume I). No private lands are located in the WSA. The figures and acreages given with this alternative are for Federal lands only.

- Management Conditions and Constraints

After wilderness designation, all 146,143 acres would be withdrawn from mineral location and closed to new mineral leasing and sale. Development work, extraction, and patenting would be allowed to continue on that portion of the approximately 2,160 acres of the 108 existing mining claims that may be determined to be valid at the time of designation. Development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809) with consideration for wilderness values. An existing post-FLMPA oil and gas lease involving about 40 acres would not be reissued upon expiration unless a find of oil or gas in commercial quantities is shown. No new oil and gas leases would be issued. No exploration or development of the existing oil and gas leases is projected. No new leasing of coal would be allowed. However, the six existing coal leases in the WSA could still be developed according to measures and stipulations determined at lease issuance. If these leases are allowed to expire, they would not be renewed. No exploration or development of existing coal leases is projected.

Present domestic livestock grazing would continue as authorized. The estimated 3,175 AUMs in the WSA would remain available to livestock as presently allotted. The use and maintenance of rangeland developments existing at the time of designation could continue in the same manner as

in the past based on practical necessity and reasonableness. After designation, new developments, including 7.5 miles of fence and two spring developments, would be designed and installed with wilderness protection criteria (refer to Appendix 1 in Volume I). Vehicular use of the 6 miles of way would be restricted. The 17 miles of cherry-stemmed roads would remain open to vehicular use.

The projected 3,000 acres of vegetation treatments to improve mule deer habitat would not be allowed.

The entire 146,143-acre WSA would be closed to ORV use except for: (1) users with valid existing rights if approved by BLM in accordance with 43 CFR 8560 provisions; or (2) occasional and short-term vehicular access approved by BLM for maintenance of approved livestock developments. The various cherry-stemmed roads would remain open to vehicular travel. The approximately 6 miles of existing vehicular way in the WSA would not be available for vehicular use except as indicated above. About 27 miles of the WSA boundary follow existing gravel and dirt roads that would remain open to vehicular travel.

Visual resources in the WSA would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change.

Harvest of forest products in the wilderness would not be allowed except for harvest of pinyon nuts or noncommercial gathering of dead-and-down wood if accomplished by other than mechanical means for use in the wilderness.

The approximately 1,470 acres of public water reserve withdrawals would continue to remain in effect. The withdrawn lands are segregated from public land laws and nonmetalliferous mining.

- Action Scenario

A total of 26 acres of surface disturbance would occur in the WSA following wilderness designation.

About 8 acres of the disturbance would result from the construction of 7.5 miles of fence and two spring developments to improve livestock management. These projects would be designed

FIFTY MILE MOUNTAIN WSA

and installed consistent with wilderness protection standards. The 3,000 acres of vegetation treatments planned for wildlife habitat improvement would not be allowed. No other developments are planned following wilderness designation.

About 8 acres of the surface disturbance would result from uranium exploration activities as described in the No Action/No Wilderness Alternative. Exploration would be limited to existing, valid claims at the time of wilderness designation. It is assumed that eight employees and 20 days would be used in exploration drilling activities. Exploratory activities would be under that unnecessary and undue degradation guidelines of the 43 CFR 3809 regulations. Drill sites and up to 2 miles of access roads would be reclaimed following abandonment. It is projected that 3 to 5 years would be necessary to determine successful reclamation. No new mineral location or mineral leasing would be allowed following wilderness designation. No leasable minerals, including coal, would be explored or developed following wilderness designation.

Up to 5 miles of access roads (10 acres of surface disturbance) would be constructed to State sections in the WSA. The purpose of this access would be to explore for minerals, including coal, on State lands.

No disturbance from ORV use would occur with this alternative due to wilderness management and rugged terrain. Recreation use would be entirely primitive in nature and would increase over the current estimated use of 150 visitor days annually at a rate of 2 to 7 percent per year.

- Large Partial Wilderness Alternative (Proposed Action) (91,361 Acres)

With this alternative, 91,361 acres of the Fifty Mile Mountain WSA would be designated as wilderness (refer to Map 3). The 54,782 acres within the WSA but outside of that designated as wilderness would be managed in accordance with the Escalante and Paria MFPs as described for the No Action/No Wilderness Alternative. The 91,361 acres designated as wilderness would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) as described in the All Wilderness Alternative.

The objective of this alternative is to reduce conflicts of wilderness designation with coal development in the long-term future, while analyzing as wilderness those portions of this WSA that have the most outstanding wilderness values. BLM believes that wilderness values are of a higher quality in areas where outstanding opportunities for solitude and/or primitive recreation exist, preferably in combination with special features. In forming this alternative, the portions of the WSA with outstanding opportunities for solitude and primitive recreation were included where possible within a manageable boundary.

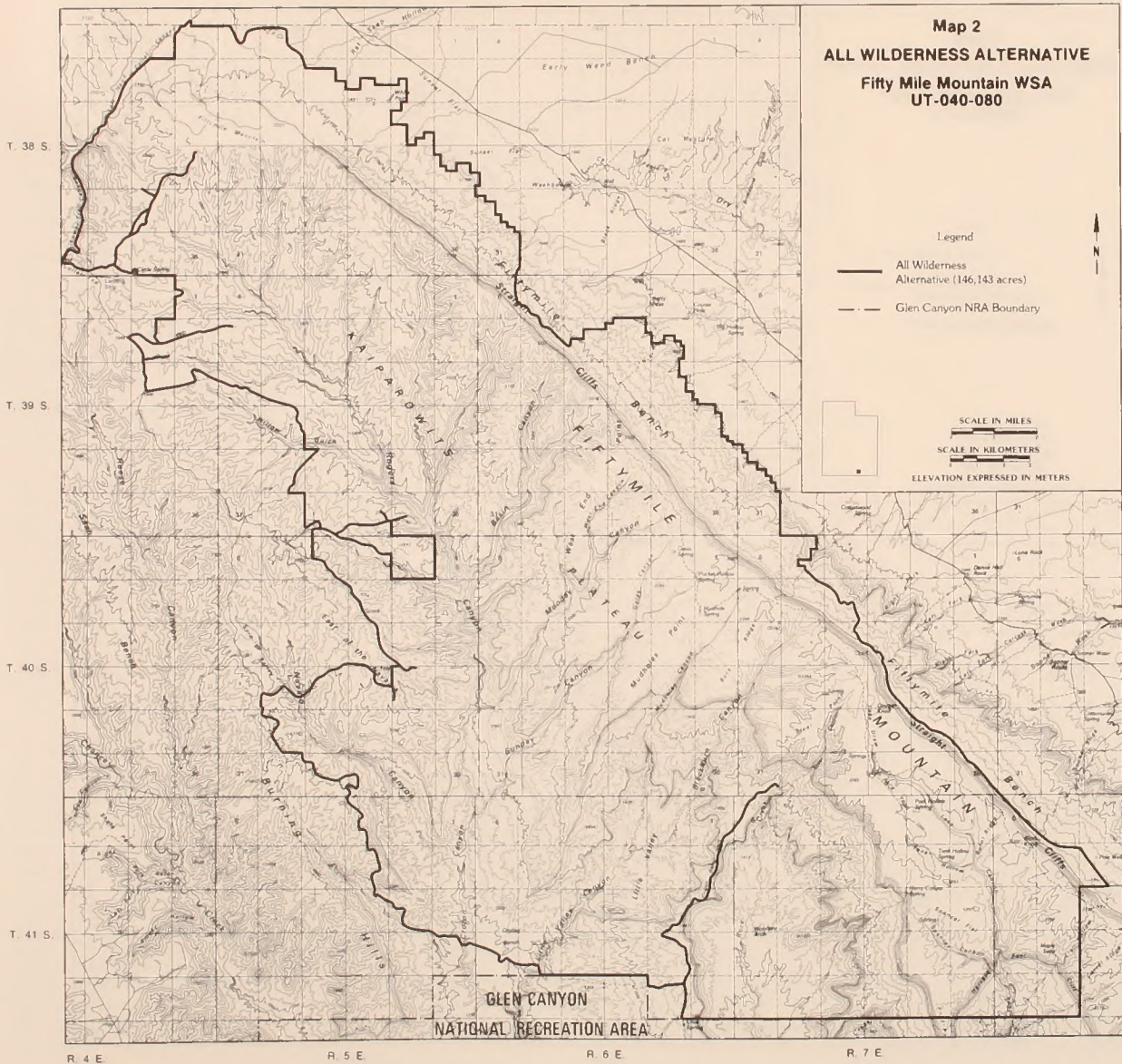
Based on the policy of the State is to reserve its position regarding the exchange of in-held lands within any particular WSA. Based on this policy, it is assumed that State and split-estate lands would remain under existing ownership. There are nine State sections (5,849.4 acres) and 1,858.78 acres of split-estate lands (Federal surface, State minerals) in the portion of the WSA that would be designated wilderness (refer to Map 1 and Appendix 3 in Volume I). There is no private land in the WSA. The figures and acreages given for this alternative are for Federal lands only.

- Management Conditions and Constraints

The 91,361-acre wilderness area would be withdrawn from mineral entry and closed to new mineral leasing and sale. Development work, extraction, and patenting would be allowed to continue on 160 acres of the eight existing mining claims, provided that they are valid. Development would be regulated by unnecessary or undue degradation guidelines with consideration given to wilderness values (43 CFR 3809). An existing post-FLPMA oil and gas lease, covering 40 acres, would not be reissued upon expiration unless a find in commercial quantities is shown. No new leasing would be allowed. No oil and gas exploration or development is projected for the designated portion of the WSA. No coal leases are located in the designated portions and no leasing of coal would be allowed following designation.

The 54,782 acres not designated wilderness would be open to mineral location, leasing, and sale. Development work, extraction, and patenting of existing mining claims on 2,000 acres and future mining claims could occur if claims are valid. Presently, there are no oil and gas leases in the nondesignated portions of the WSA.

FIFTY MILE MOUNTAIN WSA



Map 2
ALL WILDERNESS ALTERNATIVE
Fifty Mile Mountain WSA
UT-040-080

Legend

- All Wilderness Alternative (146,143 acres)
- - - Glen Canyon NRA Boundary



R 4 E

R 5 E

R 6 E

R 7 E

FIFTY MILE MOUNTAIN WSA

Development of future oil and gas leases in this area could be allowed. Oil and gas leasing would be managed as Category 1 (standard stipulations) on 50,250 acres and Category 3 (no surface occupancy) on 3,880 acres. About 652 acres would remain closed to leasing (Category 4). All of the acreage currently under lease for coal (7,505 acres) is located in the nonwilderness area and could be developed. Additional leasing of coal could also occur in the nonwilderness area. Development of the coal resource is projected only in the long-term future.

Domestic livestock grazing would continue to occur in the 91,361-acre wilderness area with approximately 2,485 AUMs remaining available to livestock as presently allotted. The existing range developments would continue to be used and maintained in the same manner as in the past based on practical necessity and reasonableness. Any future development that may be proposed would have to meet wilderness protection standards. The 7.5 miles of fence and two spring developments are located in the designated portions and could be constructed subject to wilderness protection standards. In the 54,782-acre nonwilderness area, grazing use would continue as authorized. This area contains approximately 690 AUMs. Existing facilities could be used and maintained and new range developments could be developed without concern for wilderness values. No new developments are proposed.

The approximately 1,470 acres of public water reserve withdrawals would be located in both the designated and nondesignated portions of the WSA. All of the withdrawals would continue to remain in effect. The withdrawn lands are segregated against public land laws and nonmetalliferous mining.

Approximately 1,500 acres of the projected vegetation treatments to improve mule deer habitat would be located in the area not designated wilderness and would be allowed as directed by the MFPs.

The 91,361-acre wilderness area would be closed to ORV use. There are no ways in the designated wilderness area. The Grand Bench cherry-stemmed road (approximately 7 miles in length) would be in the designated wilderness area and would remain open to vehicular travel. The 54,782 remaining acres in the unit, including 6

miles of way, 10 miles of cherry-stemmed roads, and the existing dirt roads bordering the WSA, would remain open to vehicular travel.

Harvest of forest products in the wilderness area would not be allowed in the designated area except for the harvest of pinyon nuts or noncommercial gathering of dead-and-down wood, if accomplished by other than mechanical means. The remaining area would be open to woodland harvest.

Visual resources in the wilderness area would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change. The area not designated would be managed as VRM Class II.

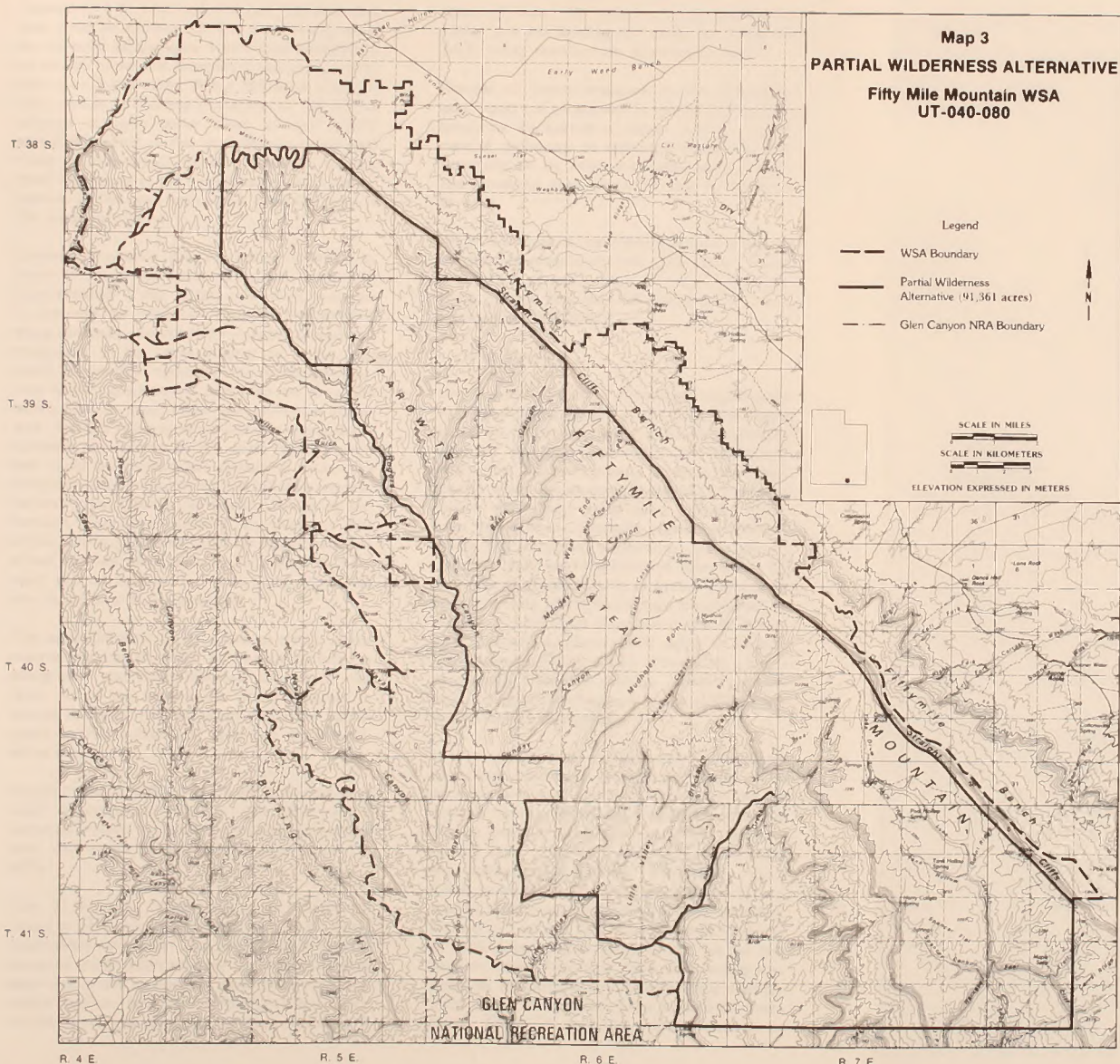
• Action Scenario

Twelve acres of surface disturbance would occur in the designated portion of the WSA. Four acres would be disturbed due to uranium exploration activities as described in the All Wilderness Alternative. No new mineral location or mineral leasing would be allowed. Therefore, no leasable mineral exploration would occur following wilderness designation. Locatable mineral exploration would be restricted to existing, valid mining claims at the time of wilderness designation. Up to 1 mile of access road is projected. Eight acres of disturbance would result from construction of rangeland projects as described in the All Wilderness Alternative. About 1,500 acres of vegetation treatments would not be allowed. No additional rangeland, wildlife habitat, watershed projects, or other developments are assumed following wilderness designation.

It is projected that approximately 1,525 acres of surface disturbance would occur in the 54,782-acre nondesignated portion of the WSA in the foreseeable future. Fifteen acres would be disturbed due to uranium exploration activities (including up to 7 miles of access roads) as described in the No Action/No Wilderness Alternative. About 1,500 acres of vegetation treatment to improve wildlife habitat would be allowed. No additional rangeland, wildlife habitat, watershed projects, or other developments are projected for the foreseeable future. Access to State lands would also occur for the purpose of exploration and development of the mineral resources located on those lands. About 10 acres of surface disturbance

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Map 3 PARTIAL WILDERNESS ALTERNATIVE Fifty Mile Mountain WSA UT-040-080



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would result due to construction of the access roads.

It is projected that the coal resources in the non-designated portion of the WSA would be explored and developed in the long-term future as discussed in the No Action/No Wilderness Alternative, resulting in approximately 60 acres of disturbance.

No disturbance from ORV activity is projected in the foreseeable future in either the designated or nondesignated area. Because of terrain and management restrictions, ORV use would not occur in the designated area and would be mainly limited to future roads and 6 miles of existing ways in the nondesignated area. It is projected that overall recreation will increase over the current estimated use of 150 total visitor days annually at a rate of 2 to 7 percent per year. Only 15 of the 150 total visitor days are associated with ORV use in the nondesignated area, the overall recreation use in the WSA would continue to be 90 percent primitive in nature.

• Small Partial Wilderness Alternative (51,540 Acres)

With this alternative, 51,540 acres of the Fifty Mile Mountain WSA would be designated as wilderness (refer to Map 4). The objective of this alternative is to identify and analyze the portion of the WSA with the most outstanding wilderness values and to further reduce or eliminate potential conflicts with coal and uranium development. The 94,603-acre area within the WSA but outside of that designated as wilderness would be managed in accordance with the Escalante and Paria MFPs as described for the No Action/No Wilderness Alternative. The area designated as wilderness would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) as described in the All Wilderness Alternative.

Since the policy of the state is to reserve its position regarding the exchange of in-held lands within any particular WSA, it is assumed that State and split-estate lands would remain under existing ownership. There are three State sections (1,920 acres) and 1,858.8 acres of split-estate lands in the portion of the WSA that would be within the designated wilderness (refer to Map 1 and Appendix 3 in Volume I). The figures and acreages given for this alternative are for Federal lands only.

• Management Conditions and Constraints

The 51,540-acre wilderness would be withdrawn from mineral entry and closed to new mineral leasing and sale. No mining claims are currently located in the designated portion. Development of any valid claims located prior to designation would be regulated by unnecessary or undue degradation regulations with consideration of wilderness values (43 CFR 3809). It is projected that a minor amount of surface disturbance (2 acres) would result from locatable mineral exploration. No oil and gas or coal leases are located in the designated portion and no new leasing would be allowed. Therefore, it is projected that no leaseable mineral exploration or development would occur in the designated portion of the WSA. The 94,603-acre area not designated wilderness would be open to mineral location, leasing, and sale. Development work, extraction, and patenting of existing (2,160 acres) and future mining claims could occur in the area if claims are valid. Development of an existing post-FLPMA oil and gas lease (40 acres) and future leases could be developed without concern for wilderness values. The area not designated would be managed as oil and gas leasing Category 1 (standard stipulations) on 64,148 acres and Category 3 (no surface occupancy) on 27,500 acres. About 2,955 acres would remain closed to leasing (Category 4). All of the acreage currently under lease for coal (7,505 acres) is located in the nonwilderness area and could be developed. New leases could be issued. It is projected that coal development would occur in the long-term future, as discussed in the No Action/ No Wilderness Alternative.

Domestic livestock grazing would continue to occur in the 51,540-acre wilderness area. The estimated 2,013 AUMs would remain available to livestock as presently allotted. The use and maintenance of range developments located in the wilderness area could continue in the same manner as in the past based on practical necessity and reasonableness. No new developments are projected. No ways or cherry-stemmed roads are located in the designated areas. In the 94,603-acre nonwilderness area, grazing use would continue as authorized (approximately 1,162 AUMs). New range developments as previously described could be developed in this area without concern for wilderness values. The 6 miles of

FIFTY MILE MOUNTAIN WSA

way and 17 miles of cherry-stemmed roads would be available for vehicular use.

None of the lands proposed for vegetation treatments would be located in the designated wilderness area. Therefore, 3,000 acres of vegetation treatments would occur. The purpose of the vegetation treatments would be to improve wildlife habitat.

The approximately 1,470 acres of public water reserve withdrawals would be located in both designated and nondesignated portions of the WSA. All of the withdrawals would continue to remain in effect. The withdrawn lands are segregated against public land laws and nonmetalliferous mining.

Visual resources in the 51,540-acre wilderness would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change. The remaining 94,603 acres would be managed as VRM Class II.

The wilderness area would be closed to ORV use. No ways or cherry-stemmed roads are located in the designated wilderness area. The remainder of the unit would remain open to vehicular travel.

Harvest of forest products in the wilderness area would not be allowed except for harvest of pinyon nuts or noncommercial gathering of dead-and-down wood for use in the wilderness, if accomplished by other than mechanical means for use in the wilderness. The remaining acres would be open to woodland harvest.

• Action Scenario

Two acres of surface disturbance would occur in the designated portion of the WSA (including less than 1 mile of access road). This would result from uranium exploration activities as described in the All Wilderness Alternative. No new mineral location or mineral leasing would be allowed. Therefore, no leasable mineral exploration would occur. Locatable mineral exploration would be restricted to existing, valid claims at the time of wilderness designation. No rangeland, wildlife habitat, watershed projects, or other developments are planned in the designated portion.

It is projected that approximately 3,039 acres of surface disturbance would occur in the 94,603-

acre nondesignated portion of the WSA in the short term. Twenty acres would be disturbed due to uranium exploration activities as described in the No Action/No Wilderness Alternative. About 3,000 acres of vegetation treatments to improve wildlife habitat as described in the No Action/No Wilderness Alternative would be allowed. Nine acres would be disturbed from the construction of rangeland projects as described in the No Action/No Wilderness Alternative. Access to State lands would occur for the purpose of exploration and development of the mineral resources. About 10 acres of surface disturbance would result due to construction of access roads in the nondesignated area.

It is assumed that the coal resources in the nondesignated portion of the WSA would be explored and developed in the long term as described in the No Action/No Wilderness Alternative, resulting in 60 acres of disturbance.

No disturbance from ORV activity is projected in the foreseeable future in either the designated or nondesignated area. Because of terrain and management restrictions, vehicular use would not occur in the designated area and would be mainly limited to 6 miles of ways and future roads in the nondesignated area. It is projected that overall recreation use will increase over the current estimated use of 150 total visitor days annually at a rate of 2 to 7 percent per year. Only 15 of the 150 visitor days are associated with ORV use in the nondesignated area, and overall recreation use in the WSA would continue to be 90 percent primitive in nature.

Summary of Environmental Consequences

Table 1 presents the environmental consequences of alternatives analyzed in detail.

AFFECTED ENVIRONMENT

This section describes the overall environmental setting. This information allows for independent assessment by the public as required by the CEQ guidelines and provides a data base for the cumulative State-wide analysis found in Volume I, as well as for the analysis of the Environmental Consequences of Alternatives for this WSA.

FIFTY MILE MOUNTAIN WSA

Table 1
Summary of Environmental Consequences

| Alternatives | |
|------------------------------|--|
| Resource | Alternatives |
| Impacts on Wilderness Values | <p>No Action/No Wilderness (146,143 Acres)</p> <p>Wilderness values would not be protected by wilderness designation and loss would occur as intrusions increase. In the short term, disturbance from uranium exploration, vegetation treatments, rangeland projects, and from providing access to State in-holdings would result in the loss of wilderness values. Naturalness and opportunities for solitude and primitive recreation would be directly lost on approximately 3,046 acres and indirectly reduced in quality on up to an additional 30,000 acres. Class A scenery would be reduced in quality in directly and indirectly impacted areas. Vehicular use of 6 miles of existing ways and future exploration and access roads would detract from opportunities for solitude and primitive recreation in the WSA. Coal development over the long term would result in a direct loss of wilderness values on 60 acres and an indirect reduction in wilderness quality on about 14,600 acres.</p> |
| | <p>All Wilderness (146,143 Acres)</p> <p>Wilderness designation would preserve wilderness values overall in the WSA. In the short term, disturbance from uranium exploration, rangeland projects, and from providing access to State in-holdings would result in a loss of wilderness values. Naturalness and opportunities for solitude and primitive recreation would be directly lost on about 26 acres and indirectly reduced in quality on up to about an additional 2,900 acres. Special features would be preserved overall, although some Class A scenery would be reduced in quality in direct an indirect disturbance areas.</p> |
| | <p>Large Partial Wilderness (91,361 Acres) (Proposed Action)</p> <p>Wilderness values would be preserved overall in the designated area which is approximately 63 percent of the WSA. In the short term, disturbance from uranium, exploration, vegetation treatments, rangeland projects, and from providing access to State in-holdings would result in a loss of wilderness values mostly in the nondesignated area. Naturalness and opportunities for solitude and primitive recreation would be directly lost on 1,537 acres and would be reduced in quality on up to an additional 14,600 acres. Some Class A scenery would be reduced in quality in directly and indirectly impacted areas. Most (99 percent) of the impact would be in the nondesignated area. Vehicular use of 6 miles of existing ways and future roads in the nondesignated portion would detract from opportunities for solitude and primitive recreation in the WSA. Long-term loss of wilderness values from coal development would be the same as described for the No Action/No Wilderness Alternative.</p> |
| | <p>Small Partial Wilderness (51,540 Acres)</p> <p>Wilderness values would be preserved overall in the designated area which is approximately 35 percent of the WSA. Loss or reduction in quality of wilderness values from uranium exploration, vegetation treatments, rangeland projects, from providing access to State in-holdings and from continued vehicular activity in the short term, and from coal development in the long term would result in the same impacts to wilderness values as the No Action/No Wilderness Alternative. About 99 percent of the impact would be in the nondesignated area</p> |

FIFTY MILE MOUNTAIN WSA

Table 1 (Continued)
Summary of Environmental Consequences

| | | Alternatives | | | |
|--|--|--|---|--|--|
| | | No Action/No Wilderness | All Wilderness | Large Partial Wilderness | Small Partial Wilderness |
| | | (51,540 Acres) | (146,143 Acres) | (91,361 Acres) | (51,540 Acres) |
| | | (Proposed Action) | (Proposed Action) | (Proposed Action) | (Proposed Action) |
| Resource | | | | | |
| Impacts on Vegetation | | Disturbance would not result in significant impacts to special status species. About 3.5 percent of the pinyon-juniper woodland type in the WSA would be converted to a grass-shrub type; therefore, there would not be significant changes in vegetation types in the WSA. | Implementation of the All Wilderness Alternative would not significantly affect the vegetation resource in the WSA. Vegetation types and special status plant species would be protected because potential disturbance would be reduced to 26 acres. | Special status plant species would not be significantly affected. About 1.8 percent (1,537 acres) of the pinyon-juniper woodland type would be converted to a grass-shrub type. | There would be the same impacts as described for the No Action/No Wilderness Alternative because the projected activities and surface disturbance would be the same. |
| Impacts on Mineral and Energy Exploration and Production | | Implementation of this alternative would not adversely affect mineral exploration or production because minerals could be claimed, leased, and developed as at present. | Wilderness designation would preclude development of about 73.5 million tons of recoverable coal development. Loss of exploration and development opportunities for other mineral and energy resources would not be significant because the probability of development is low even if the WSA is not designated wilderness. | The coal resource is located in the non-designated portion of the WSA and could be developed in the long term. Loss of development and exploration opportunities for other mineral and energy resources would not be significant because the probability of development is low even if a portion of the WSA is not designated wilderness. | There would be the same as with the No Action/No Wilderness Alternative. |
| Impacts on Wildlife Habitat and Populations | | Wildlife habitat and populations including special status species would not be significantly affected. Implementation of the water and vegetation treatment projects would benefit wildlife by providing additional water, forage, and ecotones. Overall, about 2.1 percent (3,106 acres) of the wildlife habitat in the WSA would be disturbed. | Wilderness designation would preclude 3,000 acres of vegetation treatments designed to improve wildlife habitat but would protect all species provide additional opportunities for solitude. Approximately 0.02 percent (26 acres) of the wildlife habitat in the WSA would be disturbed. | Wildlife habitat and populations including special status species would not be significantly affected. Overall development of the springs and vegetation treatments would benefit wildlife by providing additional water, forage, and ecotones. Approximately 1 percent (1,537 acres) of the wildlife habitat in the WSA would be disturbed. | There are the same impacts as described for the No Action/No Wilderness Alternative. |

FIFTY MILE MOUNTAIN WSA

Table 1 (Continued)
Summary of Environmental Consequences

| | | Alternatives | | |
|---------------------------------|--|---|--|--|
| Resource | No Action/No Wilderness | All Wilderness (146,143 Acres) | Large Partial Wilderness (91,361 Acres) (Proposed Action) | Small Partial Wilderness (51,540 Acres) |
| Impacts on Livestock Management | <p>Little affect on the management of livestock is projected with this alternative because grazing levels, access, and management practices would remain as at present.</p> | <p>Little affect on the management of livestock is projected with this alternative. Restrictions on motorized use of 6 miles of way would slightly increase management costs and inconvenience to 18 permittees.</p> | <p>Impacts on livestock management would be about the same as with the No Action/No Wilderness Alternative because existing access and grazing levels would not be affected and proposed projects would be allowed.</p> | <p>Impacts on livestock management would be about the same as with the No Action/No Wilderness Alternative because existing access and grazing levels would not be affected and proposed projects would be allowed.</p> |
| Impacts on Cultural Resources | <p>Projected short-term and long-term surface development activities may impact significant cultural resources. All sites in the unit would continue to receive protection under existing laws. The unit would continue to be open to vehicular access, but impacts to cultural resources is expected to be minimal because there is little use of ORVs in the WSA. Vandalism may increase due to the attractive nature of the resources present. Cultural resources could be managed with regard for preservation of other wilderness values.</p> | <p>Surface disturbance is expected to be minimal, therefore cultural resources including 400 recorded sites would be protected from most intentional and unintentional damage. Increased recreational use may increase certain types of vandalism. Cultural resource management may be restricted in scope and execution due to wilderness designation.</p> | <p>Cultural resources including 392 of the 400 recorded sites would be protected by wilderness designation, although certain cultural resource management practices. Some impact to sites in the nondesignated area (37 percent of the WSA) is expected, but all sites would continue to be protected under existing laws.</p> | <p>Cultural resources including 384 of the 400 recorded sites would be protected by wilderness designation, although wilderness management may restrict certain cultural resource management practices. Some impact to sites in the nondesignated area (65 percent of the WSA) is expected but all sites would continue to be protected under existing laws.</p> |

FIFTY MILE MOUNTAIN WSA

Table 1 (Continued)
Summary of Environmental Consequences

| | Alternatives | | |
|--------------------------------|---|--|--|
| Resource | No Action/No Wilderness | All Wilderness (146,143 Acres) | Large Partial Wilderness (91,361 Acres) (Proposed Action) |
| Impacts on Economic Conditions | <p>No loss of local employment or income would occur. Federal and State revenues would not be reduced. Economic opportunities could be realized through mineral and energy resource exploration and eventual development of coal in the long term. There would be major beneficial and adverse impacts in Garfield and Kane Counties.</p> | <p>Wilderness designation would not significantly affect present local or regional economic conditions. However, new leasing in the WSA would not be allowed. Therefore, potential sales and revenues from leasable minerals (coal) would be foregone. Over the long term, coal development and associated beneficial and adverse economic impacts would not occur. This would significantly change future economic conditions in Garfield and Kane Counties from what they would be without wilderness designation.</p> | <p>Impacts would be about the same as with the No Action/No Wilderness Alternative because coal development and related impacts would occur.</p> |
| | | | Small Partial Wilderness (51,540 Acres) |
| | | | Impacts would be about the same as with the No Action/No Wilderness Alternative because coal development and related impacts would occur. |

FIFTY MILE MOUNTAIN WSA

Unless otherwise indicated, information for this section was taken from BLM staff specialists, technical reports, and file documents.

Wilderness Values

- Size

The 146,143-acre WSA is one of the largest WSAs in Utah. It is approximately 24 miles in length (northwest to southeast) and 12 miles wide (east to west).

- Naturalness

Natural areas are areas where the evidences of man are substantially unnoticeable to the average visitor. Imprints of man in the WSA include: a vehicular way 6 miles long from the abandoned airstrip on Grand Bench Neck into the Rock Creek drainage, several fences (approximately 7 miles), developed spring, and three cabins (two on Fifty Mile Mountain and one in Rogers Canyon). These imprints combined involve about 100 acres or less than 0.1 percent of the WSA and are substantially unnoticeable.

Since establishment of the WSA, approximately 9 acres of the WSA have been disturbed. This disturbance is the result of an Exxon uranium drilling project on BLM and State lands during 1980. This drilling activity occurred in T. 39 S., R. 5 E., secs. 26 and 27. The disturbance amounts to approximately 8.5 acres of road development and a 0.5 acre of drill pads and mud pits. All work was completed as described in the approved Plan of Operations and as analyzed in an environmental assessment (UT-040-80-89). These areas have been reclaimed to a substantially unnoticeable condition.

Overall, the entire WSA meets the Wilderness Act criteria for naturalness.

- Solitude

The WSA affords outstanding opportunities for solitude due to the size and topographic makeup of the WSA. The configuration of the WSA neither enhances nor detracts from the outstanding opportunities present.

The Fifty Mile Mountain plateau is totally isolated from the remainder of the WSA by an encircling cliff-line that includes the Straight Cliffs; the cliffs of the Dry Rock Creek, Rock Creek, and Little Valley Creek basins; and the walls of Sunday, Monday, and Basin

Canyons. Between the upper and middle trail access points (Basin Canyon to Blackburn Canyon), the cliffs of the Fifty Mile Bench enhance the isolating effect of the upper Straight Cliffs escarpment. Because this area is a true plateau, the top is a characteristically level tableland. Topographic screening exists where canyons such as Steer, Blackburn, Mudholes and Llewellyn, Sunday-Gates-Pocket Hollow, and West End-Monday Canyons cut into the top. Topographic screening is also present on the upper end of the plateau on the points between canyons such as West End Point where numerous rock outcroppings, ledges, and draws exist.

Outstanding opportunities for solitude exist where the WSA is heavily dissected by canyons in the Rogers Canyon drainage, Little Valley Creek Basin, and Rock Creek Basin. In the Rogers Canyon drainage, the canyon dissection is extensive between Rogers Canyon and the Straight Cliffs. Here the numerous drainages have cut canyons either to or through the upper portion of the Straight Cliffs escarpment. The remnant benches possess outstanding opportunities for solitude because they are geographically isolated by the canyons and the Straight Cliffs. Many of these benches also possess topographic screening because of the extensive rock outcroppings on their surface. Immediately north and west of the Rogers Canyon-Left Hand Collet Canyon divide are several canyons that are tributaries to Left Hand Collet Canyon. Canyons in the Little Valley Creek and Rock Creek Basins provide outstanding opportunities for solitude where Navajo Sandstone is exposed. These canyons are narrow, winding slot type of canyons characteristic of Navajo Sandstone.

The Straight Cliffs possess outstanding opportunities for solitude in areas where the upper cliff face is alcoved and moist, and where the aspen and shrubby vegetation provide vegetative screening.

Sights and sounds of human activities are not present from most places within the WSA. From the top of the Straight Cliffs, vehicular activity on the Hole-in-the-Rock Road can be observed. From the western rim between Spencer Point to Mudholes Point, boating activity on Lake Powell and the plume from the Navajo Powerplant are visible. These are minor aspects of the panoramas.

Overall, approximately 69,000 acres of the WSA possess outstanding opportunities for solitude and 77,143 acres do not.

FIFTY MILE MOUNTAIN WSA

• Primitive and Unconfined Recreation

The WSA offers outstanding opportunities for hiking, backpacking, horseback riding, photography, and sightseeing.

A major destination of backpackers and riders is the Fifty Mile Mountain Plateau from West End Point south to Fifty Mile, Navajo, and Spencer Points in Glen Canyon NRA. The Fifty Mile Mountain is the highest large land mass in the lower Glen Canyon region, and it thus exhibits a landscape and climate unique to the region. The vegetation is predominantly pinyon-juniper and includes aspen and isolated stands of Ponderosa pine. Water sources are adequate for backpacking and horseback activities. The sightseeing and photography opportunities are outstanding along the Straight Cliffs rim and on the west rim, where there are unobstructed views of the Escalante River canyons, Lake Powell, and Navajo Mountain. The plateau portion of the WSA provides backpacking and sightseeing opportunities to a degree not often equalled in the lower Glen Canyon region.

Archaeological sites are numerous on the top of the Fifty Mile Mountain and in the bordering cliffline. The terrain is not difficult to traverse on top and archaeological sightseeing is an interesting activity.

The dissected region between the Straight Cliffs and Rogers Canyon offers opportunities for challenging backpacking trips because the terrain is exceedingly difficult to traverse, being broken in places by canyons such as Basin Canyon.

Another area within the WSA that offers an outstanding opportunity for primitive recreation is the bench below the Fifty Mile Mountain between Steer Canyon and Navajo Point in the Glen Canyon NRA. Here there are sightseeing and photographic opportunities. The bench has been characterized by the NPS as offering "spectacular views."

Overall, the primitive recreation opportunities on 67,000 acres of the WSA are outstanding. The remainder of the WSA (79,143 acres) has less than outstanding opportunities for primitive recreation.

• Special Features

The WSA is best known as a location for viewing the panoramas of the lower Glen Canyon region. Features that can be viewed from the Fifty Mile Mountain WSA include Lake Powell, Navajo Mountain-Rainbow Pla-

teau, Glen Canyon, and the canyonlands of Escalante River.

Ninety-three percent of the WSA acreage is rated as Class A for scenic quality.

The Rock Creek and Little Valley Basins are areas of scenic value that are viewed from the west rim of Fifty Mile Mountain. The characteristic scenery is that of colorful Navajo Sandstone basins rimmed by high cliffs. Sand dunes and slickrock are present in both basins. Woolsey Arch is located in the Rock Creek Basin.

Navajo Canyon in the extreme southwestern portion of the WSA also possesses scenic value. This canyon contains colorful yellow and grey badlands of Tropic Shale.

Fifty Mile Mountain is unique in the sense that the plateau is the only island of green in the midst of red and yellow canyonlands and Lake Powell. The presence of aspen in the Pleasant Grove, Steer Canyon, and Pinto Mare Canyons contribute to the aesthetic landscape. The garden on the west rim is a scenic area. Window Wind Arch above the middle trail has scenic value because of its location on the very edge of the Straight Cliffs. The Straight Cliffs escarpment is a major landmark in south-central Utah. The Straight Cliffs is an important scenic feature within view from the Hole-in-the-Rock road. Similarly, the west rim cliff from Spencer Point to Mudhole Point is a scenic feature as viewed from Lake Powell.

The WSA contains a 47,325-acre archaeological district that has been nominated to the National Register of Historic Places (refer to the Cultural Resources section). In addition to its historical values, this archaeological resource is also of important scientific value. Fifty Mile Mountain archaeology was a major subject of investigation during the conduct of the Glen Canyon Archaeological Salvage Project. The WSA is a prominent plateau in immediate proximity to Glen Canyon. This makes it an important area from which occupational patterns and chronologies in the greater Glen Canyon region can be determined. Because of its scientific value, the archaeological resource also possesses educational values. In the past, the scientific investigation of this resource has involved student participation from Utah institutions of higher education. Future investigations would undoubtedly involve student participation from universities in the region.

FIFTY MILE MOUNTAIN WSA

The WSA has resource values that, although not identified as such during the wilderness inventory, could be considered special features. There are two animal species (peregrine falcon and bald eagle) listed as endangered that occasionally use the WSA. There are nine animal species and seven plant species that are considered sensitive which occur, or may occur, in the WSA. The WSA has a population of cougar, which is a wildlife species associated with wilderness. Refer to the Vegetation and Wildlife Including Special Status Species sections for additional information. A short section of Rogers Canyon has perennial water. There is also a small seasonal pond of 2 acres in Lake Draw.

• Diversity

The WSA is in the Colorado Plateau Province Ecoregion and has the PNV types of juniper-pinyon woodland and saltbush-greasewood. Refer to the Vegetation Including Special Status Species section for more discussion of ecoregions and PNV types. The ecoregion and PNV types represented by this WSA are compared with existing and other potential National Wilderness Preservation units in the Wilderness Values section of Volume I.

This WSA is not within a 5-hour drive from any standard metropolitan statistical area.

Air Quality

The Fifty Mile Mountain WSA and surrounding area have a Class II PSD classification under the Clean Air Act Amendments of 1977. The nearest Class I area is Capitol Reef National Park located approximately 24 miles northeast of the WSA.

No measurements of air pollution or visibility levels have been made in the Escalante planning unit. Data collected from various nearby sites such as Page, Arizona, (approximately 24 miles southwest of the WSA) and Four Mile Bench, Kane County, Utah, indicate the air is generally free of pollutants and within National Ambient Air Quality Standards and State regulations. Visibility is excellent.

Geology and Topography

The Fifty Mile Mountain WSA is within the Canyonlands section of the Colorado Plateau Physiographic Province Ecoregion. Deep canyons characterize the region.

Rocks of Jurassic and Cretaceous ages, totalling approximately 3,000 feet in thickness, crop out in the WSA. The Cretaceous Straight Cliffs Formation forms the most extensive outcrop in the WSA, consisting predominately of interbedded yellow-gray sandstone, mudstone, and coal. Beneath that, the Cretaceous Tropic Shale and Dakota Sandstone Formations form slopes along the eastern part of the WSA. The Jurassic Morrison Formation crops out in a continuous belt along the base of the Straight Cliffs.

Three prominent structural axes (Collet, Rees Canyon, and Rock Creek anticlines) traverse portions of the WSA in a roughly north to south direction (Doelling and Graham, 1972). The southernmost 10 miles of the 40-mile long south-plunging Collet anticline are located in the northern portion of the WSA. Approximately 15 miles of the 20-mile long south-plunging Rees anticline are located along the western side of the WSA. The northernmost 10 miles of the 30-mile long doubly plunging Rock Creek anticline are located in the southern part of the WSA. No major faults are known to occur in the WSA.

The WSA consists of several canyon systems cut into the Kaiparowits Plateau, as well as a section of the Straight Cliffs. The southwest side of Fifty Mile Mountain is incised by numerous drainages, all flowing in south or southwest directions. The Straight Cliffs run in a northwest to southeast direction and form the eastern boundary of the WSA. Window Wind Arch occurs on the edge of the Straight Cliffs, and Woolsey Arch is located in Rock Creek Basin. Elevations range from less than 4,000 feet in Little Valley in the southwestern corner of the WSA to about 7,650 feet along the Straight Cliffs in the southeastern part of the WSA.

Soils

The major part of the WSA consists of rockland and badland soils. These occur in the canyons, the southwestern part of the WSA, and along the Straight Cliffs. Barren sandstone rock, shale, or interbedded sandstone and shale make up about 50 to 75 percent of these land types. Shallow to very shallow loamy soils make up about 20 to 40 percent, and 5 to 10 percent are loamy deep to moderately deep soils. Runoff is mainly rapid and very rapid. Sediment yield is high. Erosion condition was determined by using soil surface factors as summarized in Table 2 (terms are defined in the Glossary).

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Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | Acres | Percent of WSA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|---------|----------------|--------------------------------------|
| Severe | 5.4 | 0 | 0 | 0 |
| Critical | 2.7 | 21,924 | 15 | 59,190 |
| Moderate | 1.3 | 94,992 | 65 | 123,490 |
| Slight | 0.6 | 26,305 | 18 | 15,780 |
| Stable | 0.3 | 2,922 | 2 | 880 |
| Total | | 146,143 | 100 | 199,340 |

Sources: USDI, BLM, 1978c and 1979c; Lefstee, 1978.

The upland parts, benches, and ridges are mainly shallow to moderately deep loamy soils over bedrock or shale. Rock outcrop is common. Runoff is mainly medium to rapid.

According to an unpublished Kane County soil survey conducted by BLM, 45 percent of the soils within the WSA are classified as moderately saline and 55 percent as slightly saline. The estimated annual salt yield from undisturbed soils within the WSA is 70 lb per acre.

Reclamation potential is low on the majority of the area which contains rock outcrops or sandy soils. Potentials for seeding establishment is considered fair on loam soil sites scattered throughout the WSA.

Vegetation Including Special Status Species

The major existing vegetation types in the WSA are pinyon-juniper woodland, desert shrub, and sagebrush. See Table 3 for acreages and percentages within the WSA.

Table 3
Existing Vegetation Types

| Existing Vegetation Type | Acres | Percent of WSA |
|--------------------------|---------|----------------|
| Desert Shrub | 36,536 | 25 |
| Pinyon-juniper woodland | 87,686 | 60 |
| Sagebrush | 21,921 | 15 |
| Total | 146,143 | 100 |

Source: USDI, BLM, 1980a

Pinyon-juniper woodland is the most common vegetation type in the WSA (87,686 acres). This type occurs primarily on Fifty Mile Mountain with the major species being pinyon pine and juniper.

Desert-shrub type vegetation occurs in the southwest corner of the WSA (Rock Creek, Little Valley, Croton, and Lower Rogers Canyon). Major species in the desert-shrub type include juniper, sandsage, and Brigham tea. West-End Point and Steer Point Benches are primarily sagebrush type (21,921 acres). Small areas of riparian vegetation are found in Roger's Canyon. Communities of aspen, maple, and oak occur in some of the canyons. Stands of aspen also occur on top of Fifty Mile Mountain (Steer Point and Buck Ridge).

No threatened or endangered plant species are known to occur in the WSA. However, the WSA may contain one Category 1 and six Category 2 candidate species. These are Lepidium montanum var. stellae, (Category 1), Psoralea pariensis, Lepidium montanum var. neeseae, Coryphantha missouriensis var. marstonii, Heterotheca jonesii, Penstemon atwoodii, and Xylorhiza cronquistii (see Appendix 4 in Volume I). Distribution of Lepidium montanum var. stellae and Heterotheca jonesii is restricted to minor plant communities in canyons and upper elevations of the WSA, while the remaining five species are found in the extensive pinyon-juniper woodland.

The Fifty Mile Mountain WSA is in the Colorado Plateau Province Ecoregion as shown on the Bailey-Kuchler ecosystems map (USDI, USGS, 1978a). The PNV types of the WSA are juniper-pinyon woodland (102,343 acres) and saltbush-greasewood (43,800 acres).

Water Resources

The Fifty Mile Mountain WSA is located in the Croton Creek subbasin of the Upper Colorado River hydrologic subregion. The WSA does not contain any perennial streams, except in a portion of Rogers Canyon. One small, seasonal pond (approximately 2 acres) occurs in Lake Draw. Major drainages in the WSA include Rogers Canyon, Croton Canyon, Basin Canyon, Monday Canyon, Little Valley, and Rock Creek. These washes may flow from July through mid-September in response to summer thunderstorms.

The Fifty Mile Mountain WSA is located in Paria River Adjudication Area 89. The waters within this adjudication area are considered to be fully appropriated both for surface water and for any directly connected underground aquifer (UDNRE, DWR 1988).

The water quality standards for Croton Creek, a tributary of Lake Powell, are as follows: Class 2B

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(protected for boating, waterskiing, and similar uses), Class 3B (protected for warm water species of game fish and other warm water aquatic life), and Class 4 (protected for agriculture uses).

Utah's 1986 305(b) water quality assessment report notes that streams and tributaries entering Lake Powell in the southern portions of the Upper Colorado River drainage have impairments to their beneficial uses from high levels of TDS and sodium. These impairments result mainly from natural sources and low flows. The quality of runoff from Croton Canyon is very poor due to high TDS, notably sulfates, arsenic, lead, and manganese.

Thirty-four small seeps/springs exist in the WSA. Groundwater throughout the WSA is considered slightly saline (500 to 3,000 milligrams of TDS per liter). It is not known if this water is potable for human consumption. The only current water use is for livestock.

Mineral and Energy Resources

The energy and mineral resource rating summary for the Fifty Mile Mountain WSA is given in Table 4. Appendix 5 in Volume I describes the mineral and energy resource rating system.

Table 4
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|-------------|---------------------------|------------------------|--|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f3 | c1 | Less than 50 million barrels of oil; less than 300 billion cubic feet of gas |
| Coal | f4 | c4 | 147 million metric tons |
| Uranium | f3 | c2 | Less than 1,000 metric tons of uranium oxide |
| Gold | f2 | c1 | Little to none |
| Silver | f2 | c1 | Little to none |
| Titanium | f2 | c2 | Less than 1,000 metric tons of titanium oxide |

Source: SAI, 1982; USDI, BLM, 1987.

^aFavorability of the WSA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

The WSA may contain deposits of titanium that is currently listed as a strategic and critical mineral (USDoD, 1988).

• Leasable Minerals

Currently, there are no active drilling, mining, or exploration activities for leasable minerals.

• Oil and Gas

Numerous oil shows (including oil-impregnated rock deposits) have been reported from Cambrian, Devonian, Mississippian, Pennsylvanian, Permian, and Triassic rocks in south-central Utah (Heylman, et al., 1965; Veal, 1976; and Campbell and Ritzma, 1979). The older rocks generally are only stained, whereas free oil has been recovered from Mississippian rocks at Upper Valley (Doelling, 1975). Because the most obvious structures in the area have already been explored, many investigators considered subtle stratigraphic traps in Permian and Triassic rocks to offer the best potential for future petroleum discoveries.

The only oil and gas production in south-central Utah in the vicinity of the WSA comes from the Upper Valley field located approximately 15 miles to the northwest. This field was discovered on the Upper Valley anticline in 1964 and stimulated drilling activity on similar anticlinal structures in south-central Utah. To date, however, no commercial oil and gas potential has been identified in the WSA.

The oil reservoir is located along the prominent Upper Valley anticline, but the producing area is offset from the crest of the anticline to the west flank and the southern plunging nose. This offset is due to a regional, southwest directed hydrodynamic drive in the Kaibab Formation (Sharp, 1976). Oil accumulation in other anticlines within the region may be displaced to the south. Total production from this field is expected to approach 50 million barrels. Production is from four distinct zones in the Timpoweap Formation (Triassic age) and the Kaibab Formation (Permian age) (Sharp, 1976). Shows of oil were also reported in the Cedar Mesa (Permian) and the Redwall Formation (Mississippian).

Geologically favorable structures for oil and gas within the WSA include the Rees and Rock Creek anticlines and the southern-plunging part of the Collet anticline. Three wells have tested the Rees anticline immediately west of the WSA. One of

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these wells (#1 Byrd drilled in 1954), penetrated Devonian rocks and bottomed at a total depth of 10,045 feet. BLM well file data indicates that no oil shows were reported. The other two wells (#2 Unit drilled in 1955, and #1-16 State drilled in 1968) penetrated Mississippian and Permian Formations, respectively. No oil shows were reported from either well.

The Collet anticline was tested 16 miles north of the WSA (Kunkel, 1965). The well (#1-A Gates) penetrated the Molas Formation (Lower Pennsylvanian) with oil shows reported in the Kaibab, Toroweap, and Molas Formations. The Rock Creek anticline was tested in the southern part of the WSA. The well (#1 Federal-Rock Creek) had shows in the Upper Kaibab Formation.

The WSA is assigned an oil and gas favorability rating of (f3). The size of the hydrocarbon accumulation in such an environment is anticipated to be between 10 and 50 million barrels of oil or between 60 and 300 billion cubic-feet of gas. Based on the available information, the certainty of occurrence for oil and gas is rated very low (c1).

Under the current land use plan, 76,300 acres of the WSA are in Category 1 (standard stipulations); 27,500 acres are in Category 3 (no surface occupancy); and 42,343 acres are in Category 4 (closed to leasing). There is presently one post-FLPMA lease, covering 40 acres in the WSA.

• Coal

The WSA is on the eastern side of the Kaiparowits Plateau coal field, and most of the WSA is underlain by the coal-bearing Cretaceous Straight Cliffs Formation. Other minor coal-bearing rocks occur in the Dakota Sandstone and Tropic Shale that crop out in the southern part of the WSA.

Estimated coal reserves within the entire Kaiparowits Plateau coal field total 15.2 billion tons (Doelling and Graham, 1972). A total of approximately 43,300 acres, containing an estimated 147 million tons of minable coal (based on coal seams greater than 4 feet thick) occur within the WSA. Approximately one-third to one-half of the coal is recoverable. All of these coal seams are within the Straight Cliffs Formation and include, from oldest to youngest, the Christensen, Rees, and Alvey coal zones. In the western part of the WSA, individual coalbeds more than 14 feet thick

have been measured in the Christensen and Alvey zones (Doelling and Graham, 1972). All of the coal zones thin to the east across the WSA.

Part of the WSA is in the Kaiparowits Plateau KRCRA, which includes the minable coal area. In accordance with the underground mining exemption from the unsuitability criteria (43 CFR 3401.2[a]), none of the areas in the KRCRA within the WSA were determined to be unsuitable for mining as a result of the application of the unsuitability criteria (USDI, BLM, 1981d).

Based on the above discussion, the coal in the WSA is assigned a favorability rating of (f4) (potential for large tonnages of coal) with a high (c4) certainty of occurrence. The presence of vast resources of higher quality coal outside the WSA minimizes the economic potential value of coal within the WSA (USDI, USBM, 1988). There are presently six coal leases covering 7,505 acres in the WSA.

Analysis of heat value and ash and sulphur content from coalbeds in the study area compare unfavorably with Kaiparowits Plateau averages (USDI, USBM, 1986a).

• Locatable Minerals

There are presently 108 mining claims covering 2,160 acres in the WSA.

• Uranium

The Triassic Chinle Formation and the Jurassic Morrison Formation are the only rock units considered favorable for uranium in south-central Utah (USDOE, 1979). The Chinle lies at depths exceeding 3,500 feet through the WSA and uranium deposits found in this formation nearby, such as the Henry and Carrizo Mountains, tend to be small and highly localized (Hintze, 1973; and Bendix, 1976).

The Morrison Formation is, therefore, the only formation considered to be favorable for "significant" uranium deposits in the vicinity of the WSA. It lies at a depth of about 700 feet throughout most of the WSA (Hintze, 1973). The term significant is defined by as an economically extractable uranium deposit that contains a total of at least 100 metric-tons of uranium oxide at a grade of at least 0.01 percent (Peterson, et al.,

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1982). The criteria used to judge the favorability of the Morrison Formation for significant uranium deposits included: (1) low fluvial energy regimes during Morrison time, (2) active folding at the time of sedimentation, (3) orientation of fold axes at large angles to the direction of transport of paleostreams, and (4) the presence of gray mudstone beds. On the basis of these criteria, it was concluded that the Morrison Formation underlying the central portion of the WSA is favorable for one or more significant uranium deposits in the Salt Wash Member (Peterson, et al., 1982).

On the basis of the discussion above, the WSA is assigned an uranium favorability rating of (f3) (containing between 500 and 1,000 metric-tons of uranium oxide). The certainty that uranium deposits occur in the WSA is low (c2).

• Titanium

Large deposits of primary titanium ore have not been reported in Utah, but sedimentary deposits of titanium-bearing black sandstones, similar to those found in other western states, occur in several places (Adams, 1964). The known titaniferous black sandstone deposits in Utah are contained in the Straight Cliffs Formation and the Mancos Shale, both of Late Cretaceous age. The deposits represent fossil beach placers that contain very fine-grained ilmenite, zircon, and monazite. The heavy metals were eroded from older rocks to the west and then transported by streams into eastward-retreating Late Cretaceous seas where they were winnowed and concentrated by waves and winds into large sandstone lenses along northwest-trending beaches (Adams, 1964). Because these deposits are slightly radioactive, many were discovered during the uranium exploration boom on the Colorado Plateau in the 1950s.

Although titaniferous black sandstones are known to occur in south-central Utah, all the deposits discovered to date contain only small tonnages of titanium (Adams, 1964; and Doelling, 1975). Two titaniferous placer deposits occur in the upper part of the John Henry Member of the Straight Cliffs Formation, a few miles north of the WSA in T. 36 S., R. 3 E., secs. 7 and 17 (Zeller, 1973b). The deposit in section 17 occurs as part of a channel in a massive white sandstone between the Alvey and Christensen coal zones (Doelling, 1975). The ore body is about 12 feet thick, 600 feet

long, and 200 feet wide, although part of the deposit has undoubtedly been removed by erosion (Doelling, 1975). The upper 6 feet of this deposit contains 13.4 percent titanium oxide, 6.5 percent zirconium oxide, 11.7 percent iron, and 0.09 percent equivalent thorium oxide. The lower 6 feet contains 24.1 percent titanium oxide, 18.1 percent zirconium oxide, 17.8 percent iron, and 0.15 percent equivalent thorium oxide (Dow and Batty 1961).

It is likely that similar, although covered, titaniferous sandstone deposits occur sporadically in Late Cretaceous rocks throughout this region. Because of the apparent widespread distribution of these deposits and because of the small amount of titanium contained deposits already discovered, profitable mining of these deposits (especially those covered by younger strata) seems unlikely. Partly on this basis and in view of the preceding discussion, the WSA has been assigned a titanium favorability rating of (f2) (favorable for less than 1 million metric-tons). Because of the proximity of titanium deposits to the tract and because the titanium-bearing formations underlie the WSA, the certainty of occurrence of titanium deposits within the tract is low (c2).

• Salable Minerals

Stream gravel and other loose rock material that could be used for construction occur within the tract. These deposits are not unique or economically significant due to the presence of ample similar materials outside the WSA.

Wildlife Including Special Status Species

The Fifty Mile Mountain area supports approximately 45 species of mammals, 125 species of birds, 17 species of reptiles, and three amphibians. Thirteen species of raptors are known or suspected of nesting in the WSA. No fish exist in the WSA. No Federally designated or other crucial or critical habitat has been identified in the WSA. Game species in the WSA are mule deer, cougar, cottontail rabbits, and mourning doves. Mule deer are common yearlong residents, and altitudinal migrations of deer from higher bench areas to canyons occur during the winter. Small numbers of cougar also are yearlong residents of the WSA. Cottontails occur throughout the area and mourning doves are fairly common throughout the area from May to September. Water is a limiting factor on wildlife population throughout most of the WSA.

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Approximately 32 desert bighorn sheep were transplanted into the Rock Creek area of Glen Canyon NRA in 1981 and 1982 by the UDWR. As the herd size increases, it is likely that a few sheep will move into the southern end of the WSA.

Two endangered species, the peregrine falcon and bald eagle, have been recorded within the WSA as migrants. Both species are present along Lake Powell and can be expected to migrate through the WSA. In addition, the golden eagle (BLM sensitive species) and six Category 2 candidate species could inhabit the WSA: Great Basin Silverspot butterfly, ferruginous hawk, long-billed curlew, southern spotted owl, Swainson's hawk, and white-faced ibis (see Appendix 4 in Volume I). If present, most of these species would be associated with riparian and wet meadow areas or cliff faces and deep canyons, except for the ferruginous hawk and Swainson's hawk. The ferruginous hawk inhabits pinyon-juniper woodland areas where there are ecotones or edges that provide opportunities for nesting, cover, and hunting activities. The Swainson's hawk inhabits open plains, grasslands, and prairies and preys upon species associated with these communities, such as rodents and insects. The UDWR list of sensitive species includes two species that occur in the WSA: Lewis woodpecker and the western bluebird.

No wildlife facilities exist within the WSA. However, approximately 3,000 acres of vegetation treatments

have been proposed in the Escalante and Paria MFPs for the benches north and east of Willow Gulch and Rogers Canyon to improve mule deer habitat. There are two small areas with riparian vegetation in Rogers Canyon and a small pond in Lake Draw.

Forest Resources

Forest resources in the WSA are mainly limited to 87,686 acres of pinyon and juniper trees. The entire WSA is open to woodland harvest but, due to limited access and the remoteness of the area, use has been minimal and undoubtedly will continue to be so for the foreseeable future. Small aspen stands are located in canyon areas and on Fifty Mile Mountain. No harvest of aspen has occurred in the WSA.

Livestock and Wild Horses/Burros

The WSA contains portions of six livestock grazing allotments. Table 5 summarizes livestock (cattle) use in the WSA. Table 6 identifies existing and proposed range developments in the WSA.

Predator control was not conducted during the 1986 to 1987 period in the grazing allotments that comprise the Fifty Mile Mountain WSA (USDA, APHIS, 1988).

There are no wild horses or burros in the WSA.

Table 5
Livestock Grazing Use Data

| Allotments | Total Acres | Acres in WSA | Total AUMs | Number of AUMs in WSA | Number and Kind of Livestock | Season of Use | Number of Operators |
|---------------------|----------------|----------------|---------------|-----------------------|------------------------------|---------------|---------------------|
| Forty-Mile Ridge | 59,931 | 7,325 | 4,155 | 208 | 599 Cattle | 09/01-03/31 | 4 |
| Last Chance | 229,224 | 71,552 | 3,708 | 407 | 283 Cattle | yearlong | 1 |
| Lake | 18,596 | 18,596 | 1,308 | 1,151 | 332 Cattle | 06/01-09/30 | 3 |
| Lower Cattle | 72,611 | 7,855 | 6,877 | 171 | 1,151 Cattle | 10/15-04/15 | 7 |
| Rock Creek-Mudholes | 107,975 | 32,956 | 2,100 | 1,196 | 175 Cattle | 03/10-02/28 | 1 |
| Black Ridge | 11,156 | 1,308 | 845 | 42 | 141 Cattle | 10/15-04/15 | 2 |
| Unallotted | | 6,551 | | | | | |
| Total | 499,493 | 146,143 | 18,993 | 3,175 | | | 18 |

Sources: BLM File Data

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Table 6
Existing and Proposed Range Improvements

| Allotment | Existing Range Improvement | Proposed Improvement |
|---------------------|--|--|
| Forty-Mile Ridge | None | None |
| Last Chance | 1 Cabin, 1 Mile of Fence | None |
| Lake | 3 Spring Developments, 1 Cabin, 1 Corral, 1 Reservoir, 2 Miles of Fence 2 Miles of Trails | 5.0 Miles of fence 2 Spring Developments |
| Lower Cattle | None | None |
| Rock Creek-Mudholes | 1 Spring Development, 1 Cabin, 10 Miles of Trail, 1 Corral, 4 Miles of Fence | 2.5 Miles of Fence |
| Black Ridge | None | None |

Source: USDI, BLM, 1980a.

Visual Resources

The WSA possesses a variety of landscape characters and features. Approximately 135,343 acres are classified as exceptional quality (Class A) and 10,800 acres as high to moderate quality (Class B) scenery. The entire WSA is a VRM Class II area (USDI, BLM, 1981c and 1981d). In the Glen Canyon NRA Wilderness Proposal, the NPS evaluated the various areas of landscape character and assigned a Value Class of II (superior) to the Straight Cliffs and Rock Creek Basin clifflines, which extend across the WSA/NPS boundary (USDI, NPS, 1979). The top of the Fifty Mile Mountain, the Rock Creek peninsula, and Croton Bench, basically pinyon-juniper woodland covered plateaus, are Value Class IV. The Fifty Mile Bench and Rock Creek Basin are Value Class III. Refer to Appendix 7 in Volume I for a description of the BLM VRM rating system)

Cultural Resources

The Fifty Mile Mountain WSA contains a 47,325-acre archaeological district that has been nominated to the National Register of Historic Places. The district contains approximately 400 recorded prehistoric sites and is estimated to contain hundreds of additional sites (USDI, BLM, 1988a). The archaeological sites considered as a whole in the WSA comprise some of the most significant cultural resources in the Four Corners area. Vandalism and illegal artifact collecting has been minimal and sites are largely in pristine condition. This is probably due to the isolated nature of the WSA.

A majority of the recorded sites are masonry structures consisting of one to ten rooms. Most of these are located on the mesa tops overlooking sagebrush flats that may have been prehistoric fields used by the village inhabitants. Other masonry sites are located in alcoves in the Straight Cliffs area. The remaining sites are lithic scatters located on mesa or ridge tops that may represent temporary or extended camps or hunting sites and other limited activity sites. The earliest sites in the unit may be represented by slab lined pit houses.

Most of the sites in the WSA are of Virgin Anasazi cultural affiliation (USDI, BLM, 1988a). Other sites in the unit are attributed to Fremont, Hopi, and Paiute origin based on ceramic assemblages. The Navajo are reported to have occupied the area, but no Navajo sites have yet been recorded. The presence of several archaeologically represented groups may facilitate research on occupational patterns using the cultural resources present in the unit.

Archaeological survey first began on the Kaiparowits Plateau in the 1920s. However, the first substantive inventories were conducted in the region as a result of the Glen Canyon Project (Gunnerson, 1959; and Aikens, 1962). These inventories resulted in the recording of approximately 300 sites in the Fifty Mile Mountain WSA. Eleven of these sites were excavated in 1961. Completion of the Southern Coal Project resulted in the systematic survey of six 160 quadrants within the boundaries of the WSA comprising 0.65 percent of the unit (USDI, BLM, 1978a). A total of 25 sites were recorded. Using these data, an average site density of approximately 600 sites per 23,000 acres was computed. Thus, nearly 4,000 sites may be located within the boundaries of the WSA. Additional sites would probably be similar to those already recorded in the unit: Anasazi masonry sites, lithic and ceramic scatters, and possibly some pit house sites.

Recreation

The Fifty Mile Mountain WSA offers outstanding opportunities for backcountry recreation activities such as hiking, backpacking, and sightseeing. There is no visitor use attributed to hunting. Although there is great potential for horseback riding opportunities, current use is low.

Current use is limited to groups and individuals taking extended backcountry trips on Fifty Mile Mountain, and probably amounts to three or four trips per year. At the present time, the Kanab and Escalante

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resource areas receive only a few inquiries each year concerning the WSA's recreation potential. No data are available on visitor use. Estimates are 50 visits and 150 visitor days per year. Ninety percent (135 visitor days) of the use is for primitive recreation and the other 10 percent (15 visitor days) could be associated with ORV use.

Exploration and sightseeing of the archaeological sites on Fifty Mile Mountain and the Straight Cliffs are potential recreation pursuits.

The WSA use is open to ORV use on approximately 106,800 acres. Vehicular use in the remaining 39,343 acres is limited to designated roads and trails. Due to the topography, remote location of the WSA, and the lack of roads and trails, ORV use is practically nonexistent in the WSA.

Land Use Plans

The WSA is located in the BLM Escalante and Paria planning units which are being managed under the land use decisions of the Escalante and Paria MFPs (USDI, BLM, 1981d and 1981c). The present principal use within the WSA is livestock grazing.

Wilderness is not addressed in the MFPs. Wilderness designation is part of the BLM multiple-use concept and the BLM land use plans are linked to the Statewide Wilderness EIS through analysis of the present plan as the No Action/No Wilderness Alternative.

The WSA is BLM-administered public land except for 19 State sections (12,341.4 acres) and 2,658.8 acres of split-estate lands (Federal surface and State minerals). The current policy of the State is to maximize economic returns from State lands and to reserve its position regarding the exchange of in-held lands (see Chapter 1 in Volume I). In 1986, the Utah State Legislature passed S.C.R. No. 1 opposing any additional wilderness designation in Utah and urging that State lands not be exchanged out of wilderness areas. Of the 12,341.4 acres of in-held State land, 1,920 acres are under lease for coal, and 9,781.4 acres are under lease for grazing. The only current activity on these lands is livestock grazing.

The Kane County Master Plan states, "Kane County supports the total concept of multiple use of lands . . . We reject exclusionary recreational forms that can not be used by the average recreation visitor. Wilderness, as conceived by the Federal land agencies, is rejected because of the limited visitor utilization possi-

bilities and rejection of the multiple-use concept." (Kane County Board of Commissioners, 1982).

In addition, the Consolidated Local Government Response to Wilderness indicates that Kane County opposes wilderness designation of BLM lands in Utah (Utah Counties, 1986).

The Garfield County Master Plan covers portions of this WSA (Five County Association of Governments, 1984). The master plan recognizes that the county possesses ". . . Some of the most spectacular scenery in the United States . . . The County is sparsely populated and most of it is in its original pristine condition." The county plan recommends that the area comprising the Fifty Mile Mountain WSA be retained for multiple uses. The plan's concept of multiple use includes forestry, livestock grazing, mining, wildlife, and recreation.

The Garfield County Commission has endorsed the Consolidated Local Government Response to Wilderness that opposes wilderness designation of BLM lands in Utah (Utah Counties, 1986).

The Kaiparowits Coal Development and Transportation Study (ERT, 1980) has identified a number of potential transportation corridors and truck haul routes considered necessary for the future development of the Kaiparowits coal resource. The objective of the study was to identify possible areas for construction and operation of future coal transportation systems within the restrictions of general environmental and engineering constraints. Corridor segments were required to contain at least one potential route for a railroad or coal slurry pipeline. Specific routes, however, were not identified. By selecting corridors between 2 and 15 miles in width, maximum flexibility for future location of specific routes was maintained. Corridor C 17 extends into the extreme northwest portion of the Fifty Mile Mountain WSA for a short distance. However, the majority of the corridor remains outside the WSA.

The Glen Canyon NRA forms 14 miles of the southern boundary of the unit. In the Glen Canyon Management Plan, a portion of the area adjacent to this unit making up 10.5 miles of the common boundary was recommended for wilderness designation (USDI, NPS, 1979). Section 8 of the Glen Canyon Enabling Legislation directed the NPS to study routes for a potential road from Glen Canyon City to Bullfrog Basin. One of four studied routes crosses the Fifty Mile Mountain

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WSA (USDI, NPS, 1979). The NPS has not proposed that the road be built.

Socioeconomics

• Demographics

Garfield and Kane Counties are rural, having an average population density of less than one person per square mile. This density is very low when compared to the Statewide average of 17 persons per square mile (USDC, Bureau of the Census, 1981). Much of the population in these counties is concentrated in small communities rather than being evenly distributed throughout the area.

From 1970 to 1980, the population of Kane County grew from 2,421 to 4,050, an overall increase of about 67 percent. Table 7 presents the baseline and projected population data for Kane County. It is estimated that between 1980 and 1987, population increased to about 4,890. Population projections indicate that the number of people living in Kane County in the year 2010 will be about 6,950 for about a 72-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

Table 7
Baseline and Projected Population and Employment Growth
Garfield and Kane Counties

| | 1980 | 1990 | 2000 | 2010 |
|-----------------|-------|-------|-------|-------|
| Garfield | | | | |
| Population | 3,700 | 4,250 | 4,350 | 4,850 |
| Employment | 2,156 | 2,000 | 2,200 | 3,200 |
| Kane | | | | |
| Population | 4,050 | 5,250 | 5,750 | 6,950 |
| Employment | 1,403 | 1,900 | 2,300 | 2,900 |

Source: Utah Office of Planning and Budget, 1987.

From 1970 to 1980, the population of Garfield County grew from 3,157 to 3,700, an overall increase of about 17 percent. Table 7 presents the baseline and projected population data for Garfield County. It is estimated that between 1980 and 1987, population increased to about 4,085. Population projections indicate that the number of people living in Garfield County in the year 2010 will be about 4,850 for about a 19-percent increase of 1980 levels (Utah Office of Planning and Budget, 1987).

The community of Escalante lies along a major access route to the Fifty Mile Mountain WSA, Utah Highway 12. Escalante is one of the larger communities in the

area having a 1980 population of 652 persons (USDC, Bureau of the Census, 1981). Escalante is the main gateway and service area for visitors to the Fifty Mile Mountain WSA.

• Employment

The economies of Kane and Garfield Counties are somewhat similar in structure, both being dominated by the government sector and having strong service sectors in terms of employment (USDC, Bureau of Economic Analysis, 1982). Table 7 shows the baseline and projected total employment for Kane and Garfield Counties to the year 2010. Garfield and Kane Counties are part of the Southwest MCD. Table 8 shows the baseline (1980) and projected employment by source for the MCD to the year 2010. In 1980, the leading employment sectors for the Southwest MCD were government (23 percent), trade (20 percent), and nonfarm proprietors (12 percent) of the direct employment. Mining provided less than 3 percent of the direct employment in the MCD.

Table 8
Southwest Multi-County District
Employment ^a

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|--------------|--------------|--------------|--------------|
| Agriculture | 1,810 | 1,700 | 1,600 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,600 | 3,300 |
| Transportation, Utilities | 1,006 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 6,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 6,900 | 8,900 |
| Government | 4,616 | 5,800 | 6,500 | 8,100 |
| Nonfarm Proprietors | <u>2,386</u> | <u>3,100</u> | <u>3,500</u> | <u>4,700</u> |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

^aIncludes Beaver, Garfield, Iron, Kane, and Washington Counties.

It is projected that by the year 2010, employment in the MCD will more than double. Services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 3 percent, mining to less than 1 percent, and government to 18 percent of the total.

• Sales and Revenues

Economic-related activities in the WSA include mineral leasing and livestock production. Table 9 summarizes local sales and Federal revenues from the WSA.

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Appendix 9 in Volume I identifies the multipliers used to estimate sales and revenues.

Table 9
Sales and Revenues

| Source | Estimated Annual Local Sales ^a | Estimated Annual Federal Revenues |
|-------------------------|--|--------------------------------------|
| Oil and Gas Leases | 0 | \$80 |
| Coal Leases | 0 | \$22,515 |
| Mining Claim Assessment | \$10,800 | 0 |
| Livestock Grazing | \$63,500 | \$4,890 |
| Recreational Use | <u>\$ 615</u> | <u>0</u> |
| Total | \$74,915 | \$27,485 |

Sources: BLM File Data; Appendix 9 in Volume I.

^aLocal sales represent money potentially spent. They do not account for the total income that would be generated by these expenditures.

The WSA has 108 mining claims. Regulations require a \$100 annual expenditure per claim for labor and improvements, an undetermined part of which is spent in the local economy.

Eighteen livestock operators have a total grazing privilege of approximately 3,175 AUMs within the WSA. If all this forage were utilized, it would account for \$63,500 of livestock sales and \$15,875 of ranchers' returns to labor and investment.

The WSA's nonmotorized and motorized recreational use is low. Consequently, related local expenditures are low. The actual amount of income generated locally from recreational use in the WSA is unknown. However, an approximate range of expenditures can be deduced (Dalton, 1982). This study indicates that the Statewide average local expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for Fifty Mile Mountain WSA is estimated to be about 150 visitor days per year.

The WSA generates Federal revenues from mineral leasing and livestock grazing (refer to Table 9).

Mineral leases in the WSA cover approximately 40 acres for oil and gas and 7,505 acres for coal. Lease rental fees, at \$2 an acre for oil and gas and \$3 an acre for coal, generate up to \$22,595 of Federal revenues annually. Half of these monies are allocated to the State, which then reallocates these revenues to various funds, the majority of which are related to energy development and mitigation of local impacts of energy and mineral development.

Average actual livestock use and, therefore, revenues generated from grazing in the WSA are unknown; however, the permittees in the WSA can use up to 3,175 AUMs per year. Based on \$1.54 per AUM grazing fee, the WSA can potentially generate \$4,890 of grazing fee revenues annually, 50 percent of which would be allocated back to the local BLM District for the construction of rangeland developments.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This section describes the environmental consequences of implementing the alternatives. The analysis is based on the BLM management actions and anticipated activities presented in the Introduction to Volume III-B and the Description of the Alternatives for the Fifty Mile Mountain WSA.

A major long-term consideration in impact analysis for this WSA is development of the Kaiparowits coal field. For a detailed analysis of potential impacts of coal development in southern Utah, the reader is referred to the Final EIS for "Development of Coal Resources in Southern Utah" (USDI, USGS, 1979).

No Action/No Wilderness Alternative

- Impacts on Wilderness Values

Because the WSA would not be designated wilderness with this alternative, the identified wilderness values would not receive the degree of protection afforded by application of the BLM Wilderness Management Policy (BLM Manual 8560). Wilderness values in the WSA would be somewhat protected by limitations placed on potential surface-disturbing activities (i.e., VRM Class II management on all 146,143 acres, management under oil and gas leasing Category 4 [closed to leasing] on 42,343 acres and under oil and gas leasing Category 3 [no surface occupancy] on 27,500 acres, and ORV limitations on 39,343 acres).

In the short term, direct disturbance of approximately 3,046 acres from uranium exploration, vegetation treatments, rangeland projects, and from providing access to State in-holdings would result in a loss of naturalness and opportunities for solitude and primitive, unconfined recreation in the disturbed areas. Most special features, including scenic vistas, endangered and sensitive species, wildlife associated with wilderness, perennial streams, and archaeological values, would not be significantly affected because the disturbance would involve only about 2.1 percent

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of the WSA and generally, the disturbance would not be located where the special features are located. Some Class A scenery would be reduced in quality in the disturbed areas. Proposed spring developments and vegetation treatments would benefit wildlife special features associated with wilderness because of increased forage and water. In addition, appropriate measures would be taken to protect endangered and sensitive species and cultural values prior to any surface-disturbing activity. Refer to the Cultural Resources; and Vegetation and Wildlife Including Special Status Species sections for more information.

During the period of activity, the visual and audible disturbance from mineral exploration, vegetation treatments, rangeland developments, and from development of roads to State in-holdings would reduce the quality of opportunities for solitude and primitive recreation and scenic quality not only on directly disturbed areas, but also indirectly on adjacent portions of the WSA. As much as 20 percent (30,000 acres) of the WSA could be so affected in the foreseeable future.

Because future vehicular use would generally be limited by terrain to existing vehicular ways, future roads, or washes where tracks would be temporary, no additional disturbance from ORV activity is anticipated in the future. The continued and increased vehicular use of 6 miles of existing way and use of future exploration and access roads would occasionally detract from opportunities for solitude and primitive recreation.

The 2 to 7 percent annual increase of visitor use that is anticipated to occur would not be expected to significantly reduce wilderness values because the additional use is expected to be small and the WSA is large enough to incorporate the additional use adequately.

The extent that disturbance would occur over the long term and, therefore, the long-term loss of wilderness values that would result is not accurately known, but loss would occur as intrusions increase. Coal development over the long term would result in a direct loss of wilderness values, including naturalness and opportunities for solitude and primitive recreation, Class A scenery, and scenic vistas on up to 0.04 percent (60 acres) in the vicinity of the Straight Cliffs. Indirect reduction in quality of these wilderness values from sights, sounds, and dust would occur on up to an additional 10 percent

(14,600 acres) of the WSA in the vicinity of the Straight Cliffs for a period of 30 to 40 years.

This alternative would not complement or enhance wilderness values, uses, and management of the contiguous NRA lands that are proposed by the NPS for wilderness designation.

Conclusion: Wilderness values would not be protected by wilderness designation, and loss would occur as intrusions increase. In the short term, naturalness and opportunities for solitude and primitive recreation would be directly lost on 3,046 acres of the WSA and opportunities for solitude and primitive recreation would be indirectly reduced on up to an additional 30,000 acres. Class A scenery would be reduced in quality in disturbed areas and in areas adjacent to the disturbance. Other special features would not be significantly affected. Over the long term, direct loss of wilderness values, including naturalness and opportunities for solitude and primitive recreation, Class A scenery, and scenic vistas, would occur on an additional 60 acres of the WSA. Indirect reduction in the quality of these wilderness values would occur on up to an additional 14,600 acres of the WSA.

• Impacts on Vegetation Including Special Status Species

The 3,046 acres of surface disturbance projected for the No Action/No Wilderness Alternative would mainly occur in the pinion-juniper woodland. On the 3,000 acres of projected vegetation treatments, vegetation composition would change from woodland to grass-shrub. It is assumed that the grass-shrub vegetation would be maintained over the long term. However, once active maintenance ceased, the area would eventually revert back to pinyon-juniper woodland. The projected surface disturbance would affect only about 2.1 percent of the WSA or 3.5 percent of the pinyon-juniper woodland in the WSA, therefore, the overall change would not be significant. The 9 acres of surface disturbance resulting from the construction of rangeland projects would be reclaimed within a 3 to 5 year period. The 27 acres disturbed by uranium exploration would be reclaimed following completion of the exploration activities. In the long term, anticipated coal development could disturb up to 60 acres as a result of surface facility and access road construction. While no significant impacts to any vegetation type is anticipated, this disturbance would remain for the 30 to 40 year life of the operations.

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Four of the special status species that may occur in the WSA are located in the pinyon-juniper woodland. The habitats of all of the special status species extends beyond the WSA boundary. Before authorizing any surface-disturbing activities, BLM would conduct site-specific clearances of the potentially disturbed areas. If any threatened or endangered species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (refer to Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Therefore, while surface-disturbing activities could result in the inadvertent loss of some individual plants of these species, threats to the continued existence of any of the species would not occur. Because necessary measures would be taken to protect these species, the viability of populations of special status plant species would be preserved with the No Action/No Wilderness Alternative.

Conclusion: Special status plant species would not be significantly impacted. About 3.5 percent of the pinyon-juniper woodland type in the WSA would be converted to a grass shrub type. No other vegetation types would be altered.

• Impacts on Mineral and Energy Exploration and Production

The WSA would remain open to exploration and development of mineral and energy resources without consideration of wilderness values. Therefore, mineral and energy resources would not be affected by the No Action/No Wilderness Alternative

Conclusion: Implementation of the No Action/No Wilderness Alternative would not adversely affect mineral exploration or production.

• Impacts on Wildlife Habitat and Population Including Special Status Species

Wildlife habitat would be improved by an increase in the availability of water through the construction of two spring developments. Also, wildlife habitat would be improved by 3,000 acres of vegetation treatments (pinyon-juniper woodland chaining and subsequent seeding). Mule deer would especially benefit from the vegetation treatments with the resulting increase in browse.

Deer, cougar, mobile game, and nongame species would be dispersed from the rangeland, wildlife, and energy and mineral disturbed areas during the construction phase of projects. Less mobile wildlife would either perish or co-exist with these disturbances at smaller or less viable population rates. The proposed vegetation treatment projects would create additional ecotones and edges which should improve ferruginous hawk habitat. Also, Swainson's hawk habitat should improve since vegetation treatment would create additional grasslands.

The extent and use of the WSA by the bald eagle, peregrine falcon, or the six Category 2 candidate species and other sensitive species that may occur there is unknown. Vegetation treatment proposals would not affect most of these species because activities would be in the flat pinyon-juniper woodland area, and if present, these species would inhabit the riparian and cliff-face areas in the canyons.

BLM would conduct site-specific clearances of the potentially disturbed areas. If any threatened or endangered species are located, BLM would initiate consultation with FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (refer to Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Because necessary measures would be taken to protect these species, it can be reasonably concluded that potential populations of special status animal species would be preserved with the No Action/No Wilderness Alternative.

Conclusion: Wildlife habitat and populations including special status animal species would not be significantly affected. Overall, implementation of the water and vegetation treatment projects would benefit wildlife by providing additional water, forage, and ecotones. About 1.2 percent (3,106 acres) of the wildlife habitat in the WSA would be disturbed.

• Impacts on Livestock Management

Domestic livestock grazing would continue as authorized. The estimated 3,175 AUMs currently allocated in the WSA are controlled by 18 livestock permittees. Few changes in livestock management practices are expected. Motorized vehicles are currently used on a limited basis to manage livestock in the WSA and is generally restricted to the 6 miles of way and 17 miles of cherry-stemmed road. The proposed 7.5 miles of fence and two spring developments would be

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developed and would result in improved livestock distribution. Even though the 3,000 acres of vegetation treatments would primarily benefit wildlife, additional forage would also be made available for livestock.

Conclusion: Livestock management and grazing levels would not be adversely affected by implementation of the No Action/No Wilderness Alternative.

• Impacts on Cultural Resources

The 3,000 acres of vegetation treatments would be located in the northwestern portion of the WSA on flat mesa tops. Few sites have been recorded in this area, however, little formal inventory work has been conducted. Some sites are likely to be present and could be inadvertently damaged or destroyed by the vegetation treatment projects. Exploration activities that would disturb about 27 acres in the short term, would probably have little impact on cultural resources. The entire 146,143 acres would remain open to mineral location and leasing in the future. Some minable coal is present in the WSA and would eventually be extracted. The nature and extent of potential impacts to cultural resources due to these activities is presently unknown. However, all sites in the WSA would continue to be protected under existing State and Federal antiquities laws and appropriate inventory and mitigation procedures would precede any surface disturbance. Some inadvertent damage to archaeological sites, especially those that cannot be detected by surface inspection, may occur despite all management efforts. In addition, increased access due to road construction and increased human presence would provide opportunities for intentional vandalism and illegal artifact collection (Nickens, et al., 1981).

The entire WSA would remain open to ORV use and vehicular access. In general, the WSA is quite inaccessible and all types of motorized traffic are currently restricted to existing roads and ways. Most of the archaeological sites in the unit are protected from both intentional and unintentional damage from vehicular traffic due to topographic constraints.

Although vandalism has not been a significant problem at the Fifty Mile Mountain sites, incidence could increase in the future due to the general population increase. Many of the sites in the WSA would attract vandals seeking salable artifacts or additions to personal collections.

With this alternative, archaeological sites would be subject to standard cultural resource management

procedures (Neumann and Reinburg, 1988). Stabilization of vandalized sites, inventory, interpretation of significant sites or resources, and research-orientated excavation could proceed without the restrictions of wilderness values maintenance.

Conclusion: Some impacts to cultural resources are expected with this alternative, but all sites in the unit would continue to receive protection under existing laws. The unit would continue to be open to vehicular access, but impacts to cultural resources are expected to be minimal. As population increases, vandalism may increase due to the attractive nature of the resources present. Cultural resource management would continue without regard to wilderness management.

• Impacts on Economic Conditions

There would not be a loss of local employment or income as a result of implementing the No Action/No Wilderness Alternative. The opportunity to explore and develop mineral resources would continue. A portion of the \$100 per year assessment fee required for each mining claim would reach the local economy. The employment of 900 people (three mines) would represent only 2 percent of the projected Southwest MCD for the year 2010. However, it would be about 28 percent of the Garfield County or 31 percent of the Kane County projected employment in the year 2010 and nearby local communities would be significantly affected. There would be both beneficial and adverse impacts. Beneficial impact would include increases in employment and income while adverse impacts would include increased demands for housing and infrastructure such as schools, law enforcement, ect. The probability of economic development of coal within the WSA is high in the long term (refer to the Mineral and Energy Resources section for a description of minerals and development potentials).

There would be no livestock-related economic losses because the existing grazing use (3,175 AUMs) would remain as at present. The forage use in the allotment would continue to produce \$63,500 annually in livestock sales and \$15,875 of ranchers' return to labor and investment.

It is projected that recreational use and, therefore, recreation-related local expenditures, would increase at a rate of 2 to 7 percent per year over the next 20 years (from 49 to 285 percent increase over 20 years). At this rate, recreational use in the area is estimated to increase from 74 to 428 visitor days

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per year over the next 20 years. With overall recreation related expenditures averaging \$4.10 per visitor day, recreation-related expenditures attributable to the WSA would likely not be significant to the local economy.

Federal and State revenues would not be reduced by the alternative. No mineral leasing would be allowed in the 42,843 acres classified as Category 4 (closed to leasing). However, the leasing of coal and oil and gas on presently unleased areas in the remainder of the WSA would increase annual Federal leasing revenues by up to \$496,405 annually, in addition to new royalties from lease production and bonus bids. Half of these monies would be allocated to the State, a portion of which could reach the local economy.

Collection of livestock grazing fees (\$4,890 per year) would continue. About 50 percent of the revenues would be returned to the local BLM office for use in range development projects.

Overall, the local economic impact would be considered insignificant for the short term. Long-term impacts could increase if the coal resource in the WSA were developed.

Conclusion: No loss of local employment or income would occur. Federal and State revenues would not be reduced. Economic opportunities could be realized through mineral and energy resource exploration and eventual development in the long term. There would be major beneficial and adverse economic impacts in Garfield and Kane Counties.

All Wilderness Alternative (146,143 Acres)

• Impacts on Wilderness Values

Designation and management of all 146,143 acres as wilderness would contribute to the preservation of the wilderness values in the Fifty Mile Mountain WSA. The potential for surface-disturbing activities would be reduced through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I which allows for only natural ecological change. Naturalness would be protected on all 146,143 acres. Solitude would be protected on approximately 69,000 acres that meet and 77,143 acres that do not meet the standards for outstanding opportunities. Primitive and unconfined recreation would be protected on approximately 67,000 acres that meet and 79,143 acres that do not meet the standards for outstanding

opportunities. Resources that could be considered as special features in the WSA, including Class A scenery, scenic vistas, endangered and sensitive species, wildlife associated with wilderness, perennial water, and archaeological values, would also be protected.

Although protected, complete preservation of wilderness values would not be assured because of the existence of valid existing rights. In the foreseeable future, disturbance of up to 26 acres is anticipated from exploration of valid mining claims, rangeland projects, and from providing access to State in-holdings. Wilderness values of naturalness and opportunities for solitude and primitive recreation would be directly lost on the disturbed 26 acres (at least until activities and noise cease and reclamation is complete). During the period of activity, opportunities for solitude and primitive recreation would also be reduced in quality on adjacent portions of the WSA. As much as 2 percent (about 2,900 acres) of the WSA could be so affected. Special features would not be significantly affected because the direct disturbance would be minor (involving about 0.02 percent) and would generally not be located where the special features are located. Some Class A Scenery would be reduced in quality in areas of both direct and indirect disturbance. Spring developments would benefit wildlife special features associated with wilderness because of increased water sources. In addition, appropriate measures would be taken to protect special status species and cultural values prior to any surface-disturbing activity, and no significant negative impact would occur to these values (refer to the Vegetation and Wildlife Including Special Status Species, and Cultural Resource sections for more information). In all cases, mitigation to protect wilderness values would be applied. Loss of wilderness values would be allowed if development involving valid existing rights could not be otherwise achieved. Rangeland projects, on the other hand, would be designed to meet wilderness management criteria and, upon completion, would not be substantially noticeable in the area as a whole. All in all, the disturbance would probably not be substantially noticeable in the area as a whole.

Vehicular use of existing ways would generally cease with ORV closure, improving opportunities for solitude and primitive recreation and naturalness.

Over the long term, there would be no potential for loss of wilderness values due to development of new leases and mining claims. The potential for long-term development is not currently known, but would be less with this alternative than with the No Action/No

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Wilderness Alternative due to application of mitigation that would protect wilderness values subject to valid existing rights. The coal resources would not be developed, so no loss of wilderness values would be incurred from that.

Increased visitor use that would occur with time would be primitive in nature and would be managed so as to not result in loss of wilderness values.

Designation of the WSA as wilderness would complement and enhance wilderness values, uses, and management of the contiguous portion of Glen Canyon NRA which is proposed for wilderness designation by NPS. These areas share a common watershed, canyon system, recreation trails, and archaeological and scenic values.

Conclusion: Overall, wilderness designation would preserve the wilderness values in the WSA. Because of valid existing rights, naturalness and opportunities for solitude and primitive recreation would be directly lost in the foreseeable future on about 26 acres, and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to 2,900 acres. Special features, would be preserved overall, although Class A scenery would be reduced in quality in disturbed areas and areas adjacent to the disturbance.

- Impacts on Vegetation Including Special Status Species

Implementation of the All Wilderness Alternative would not directly affect any vegetation type in the WSA. The projected 3,000 acres of vegetation treatments would not be allowed. Only 8 acres of surface disturbance from mineral and energy resource exploration or development is assumed. Wilderness designation would provide additional protection for special status plant species.

Conclusion: Implementation of the All Wilderness Alternative would protect the vegetation resource, including special status species in the WSA because potential disturbance would be reduced to 26 acres.

- Impacts on Mineral and Energy Exploration and Production

- Leasable Minerals

Approximately 40 acres are under oil and gas lease. However, no exploration or development of

oil and gas is presently occurring within the WSA. It is unlikely that this existing lease will be developed or a showing of commercial quantities made prior to its expiration date. Once expired, the lease would not be reissued with this alternative. Due to the small size of the potential deposits, the low certainty that these exist, and the low likelihood of exploration and development activities, it is projected that this alternative would not result in a significant loss of oil and gas resource recovery.

The northwest side of the WSA has potential for coal development. Approximately 7,505 acres of the WSA are presently leased. It is projected that diligent development requirements will not be met before the leases expire because of poor accessibility, lack of water, high cost of underground mining, and competition from other coal areas. With this alternative, new leases would not be issued after expiration.

Therefore, it is concluded that the potential for development of up to 73.5 million tons of recoverable coal in the WSA would be foregone.

- Locatable Minerals

Approximately 2,160 acres are under mining claim within the WSA, principally for uranium. Development work, extraction, and patenting would be allowed to continue on valid claims after wilderness designation under unnecessary or undue degradation guidelines. If the potentially recoverable minerals are not located within mining claims filed before designation, the potential for recovery of titanium and uranium oxide would be foregone.

Because production of these metals is not currently occurring and because economic considerations (e.g., transportation, low potential, etc.) are unfavorable, it is unlikely that development would occur following exploration. Therefore, this alternative would not result in any significant loss of recoverable uranium and titanium resources.

- Salable Minerals

No exploration or development is anticipated. Because of low potential of the deposit and the availability of better sources of material outside of the WSA, any loss of salable mineral products would be insignificant.

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Conclusion: Wilderness designation would preclude potential exploration and development of up to 73.5 million tons of recoverable coal. Loss of exploration and development opportunities for other mineral and energy resources would not be significant.

- Impact on Wildlife Habitat and Populations Including Special Status Species

With this alternative, some wildlife could benefit due to the preservation of solitude. However, the loss of 3,000 acres of vegetation treatments would have a negative impact on wildlife (loss of additional sources of water, ecotones, and edges). The development of two springs would provide additional water for wildlife.

Potential disturbance (26 acres) due to exploration and development of locatable mineral resources would not significantly disrupt wildlife populations or result in species leaving the area.

The wildlife including special status animal species that may occur would be provided additional protection and solitude with wilderness designation.

Conclusion: Vegetation treatments on 3,000 acres could be precluded, but all species would be protected. The 26 acres of potential mining activities would not adversely affect species diversity or populations.

- Impacts on Livestock Management

Present domestic livestock grazing would continue as authorized. The estimated 3,175 AUMs currently allocated in the WSA are controlled by 18 livestock permittees. There is limited use of motorized vehicles on the 6 miles of way in the WSA for management of livestock. Restriction on access would be an inconvenience to the 18 permittees and would result in slight increases in management costs. The 17 miles of cherry-stemmed roads could continue to be available for vehicular use.

Existing rangeland developments would be maintained as in the past, based on practical necessity and reasonableness. The proposed new rangeland developments (7.5 miles of fences and two spring developments) would be allowed subject to wilderness protection standards.

Conclusion: Wilderness designation would not significantly affect current livestock management prac-

tices. Restricting motorized use of the 6 miles of way could slightly increase management costs and inconvenience to 18 permittees.

- Impacts on Cultural Resources

Surface disturbance, estimated at 26 acres, would have little impact on cultural resources in the WSA. Restrictions on vehicular traffic would help protect the sites from intentional and unintentional damage resulting from continued vehicular use.

As recreational use of the unit increases, site vandalism and collection of small transportable objects may also increase. Due to the lack of vehicular access, collection of large artifacts and illegal excavation of sites could decrease. However, sites containing valuable artifacts or specific features may experience large scale commercial lootings. Many of the alcove and masonry sites in the unit may meet these requirements (Wylie, 1988). The benefit of protection of cultural resources from all ORV activity, vehicular access, and surface development would, however, probably outweigh any negative effects from increases in vandalism due to increased recreational use.

Standard education and protection measures such as warning and interpretive signs may be disallowed with wilderness management. In addition, it may be difficult to stabilize sites already vandalized while maintaining wilderness values. Research potential in the WSA is high, however, wilderness designation may restrict access to the unit for inventory and excavation of specific sites.

Conclusion: Surface disturbance with this alternative is expected to be minimal, therefore, cultural resources including 400 recorded sites would be protected from most intentional and unintentional damage. Increased recreational use may increase certain types of vandalism. Cultural resource management may be restricted in scope and execution due to wilderness designation.

- Impacts on Economic Conditions

Overall, there would not be significant changes in current trends of population, employment, and local income distribution.

Because wilderness designation would restrict the use of resources, there would be slight losses in local income and Federal revenues currently provided by

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resource uses in the WSA (refer to Table 9). There would also be a loss of potential increases in income and Federal revenues that could occur with coal development under the No Action/No Wilderness Alternative.

No development of the existing oil and gas lease is projected. Exploration of existing, valid mining claims could occur, but no development is expected. Precluding exploration and development of minerals would not alter existing economic conditions, but would alter future economic conditions from what they would be with mineral development under the No Action/No Wilderness Alternative. Because the potential for coal development is high in the long term, it is estimated that potential mineral-related local income would be significantly reduced by wilderness designation. Major beneficial and adverse economic impacts in Garfield and Kane Counties from coal development in the WSA would not occur.

Livestock use and ranchers' income would continue as at present with \$63,500 of livestock sales and \$15,875 of ranchers' return to labor and investment.

Nonmotorized recreational use would increase, however, motorized use would decline. Related local expenditures would be small (average of \$4.10 per visitor day).

The loss of 40 acres currently leased for oil and gas and 7,505 acres now leased for coal would cause an eventual loss of up to \$22,625 per year of lease fees to the Federal Treasury. There would also be a potential loss of \$399,591 annually in Federal revenues from the 146,103 acres that could be leased for oil and gas and 35,795 acres that could be leased for coal without designation.

Conclusion: Wilderness designation would not significantly affect present local or regional economic conditions. However, new leasing in the WSA would not be allowed; therefore, potential sales and revenues from coal development would be foregone.

Large Partial Wilderness Alternative (Proposed Action) (91,361 Acres)

• Impacts on Wilderness Values

Wilderness designation of 91,361 acres would contribute to the preservation of the area's wilderness values. In the short term, impacts to wilderness values would be about half as much as was identified for the

No Action/No Wilderness Alternative. Protection in the designated area would include management under VRM Class I (which generally allows for only natural ecological change), ORV closure (the 6 miles of way are in the nondesignated portion and would remain open), and closure to future mineral leasing and location. Naturalness, outstanding opportunities for solitude (including approximately 64,792 acres that meet and 26,569 acres that do not meet the standards for outstanding), primitive recreation (including approximately 62,795 acres that meet and 28,566 acres that do not meet the standards of outstanding), special features (including 60 percent of Class A scenery), most scenic overlooks, water, and most archaeological values would be protected. Endangered or sensitive species and wildlife associated with wilderness would also benefit from protection provided in the designated area.

In the short term, loss of naturalness and opportunities for solitude and primitive recreation due to allowable surface disturbance from uranium exploration, rangeland projects, vegetation treatments, and from providing access to State in-holdings would occur on up to 12 acres within the designated portion and on up to 1,525 acres within the nondesignated portion. Special features would be preserved because disturbance would directly involve only about 1.1 percent of the WSA. In addition, appropriate measures would be taken to protect endangered and sensitive species and cultural values prior to any surface-disturbing activity, no significant negative impact would occur to these values. Refer to the Vegetation and Wildlife Including Special Status Species, and Cultural Resources sections).

Sights and sounds from short-term development would reduce opportunities for solitude and primitive recreation on areas adjacent to the disturbed areas, including up to 10 percent (about 14,600 acres) of the WSA. Most of this type of impact would be in the nondesignated area.

Elimination of ORV use in the designated area would help preserve opportunities for solitude and primitive recreation in that portion of the WSA, vehicular use of 6 miles of way and future access roads and exploration roads in the nondesignated area would detract from these opportunities during the period of activity.

The extent that disturbance would occur over the long term and, therefore, the long-term loss of wilderness values that would occur in the WSA, is not

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accurately known, but would be less than with the No Action/No Wilderness Alternative due to application of mitigation in the designated area that would limit development subject to valid existing rights. Coal development would occur in the nondesignated area to the same degree identified in the No Action/No Wilderness Alternative. Wilderness values, including naturalness, opportunities for solitude and primitive and unconfined recreation, and Class A scenery, would be lost on about 60 acres because of direct disturbance. These values including scenic vistas would be reduced in quality on up to an additional 10 percent (about 14,600 acres) of the WSA due to indirect sights, sounds, and emissions from coal development. These impacts would continue for 30 to 40 years.

This alternative would complement and enhance wilderness uses, values, and management of the contiguous Glen Canyon NRA which is proposed by the NPS for wilderness designation.

Conclusion: Wilderness values would be preserved overall in the designated area which is approximately 63 percent of the WSA. In the short term, naturalness and opportunities for solitude and primitive recreation would be directly lost on 1,537 acres, and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to an additional 14,600 acres of the WSA. Class A scenery would be reduced in quality in both the directly and indirectly impacted areas. Long-term development in the nondesignated area would result in loss or reduction of wilderness values to the same degree as the No Action/No Wilderness Alternative.

- Impacts on Vegetation Including Special Status Species

Approximately 1,525 acres of surface-disturbing activities would occur in the nondesignated portion of the WSA. About 1,500 acres would be disturbed as a result of vegetation treatments. Projected impacts to the vegetation resource would be essentially the same as described in the No Action/No Wilderness Alternative. Only 12 acres of surface disturbance is projected for the designated portion of the WSA. The total area disturbed would be about 1.1 percent (1,537 acres) of the WSA or 1.8 percent of the pinyon-juniper woodland in the WSA. No significant impacts to vegetation types are anticipated in either the designated or nondesignated portions of the WSA.

The seven special status species that may occur in the WSA would not be affected in the area designated

wilderness. Before authorizing any surface-disturbing activities in the nondesignated portion of the WSA, BLM would conduct site-specific clearances of the potentially disturbed areas as described for the No Action/No Wilderness Alternative. If any threatened or endangered species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (see Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Because necessary measures would be taken to protect these species, the viability of populations of special status plant species would be preserved with the Large Partial Wilderness Alternative.

The 60 acres of surface disturbance associated with long-term coal development would occur in the nondesignated portion of the WSA. While no significant impacts to any vegetation type are projected, this disturbance would remain for the 30 to 40 year life of the operations.

Conclusion: Special status plant species would not be significantly impacted. Approximately 1.8 percent (1,537 acres) of the pinyon-juniper woodland in the WSA would be altered.

- Impacts on Mineral and Energy Exploration and Production

- Leasable Minerals

The nondesignated portion of the WSA would remain open to exploration and development of mineral and energy resources without consideration of wilderness values as discussed in the No Action/No Wilderness Alternative. Therefore, mineral and energy resources located in the nondesignated portion would not be affected by implementation of the Large Partial Wilderness Alternative.

That portion of the coal resource most likely to be recovered is located in the nondesignated portion of the WSA and could be mainly developed in the long term, as projected in the No Action/No Wilderness Alternative. Therefore, implementation of the Large Partial Wilderness Alternative would not result in a significant loss of development opportunities for coal.

The designated portion of the WSA would be placed in Category 4 status (no leasing). About 40

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acres are under oil and gas lease. It is projected that this lease would expire without any exploration or development occurring. No new leasing would be allowed. Therefore, no oil and gas development would occur. However, no oil and gas exploration or development is not projected for this WSA even for the No Action/No Wilderness Alternative. Therefore, implementation of the Large Partial Wilderness Alternative would not result in the loss of a significant oil and gas resource development opportunity.

- Locatable Minerals

Approximately 160 acres of mining claims are located within the area that would be designated wilderness. Development work, extraction, and patenting could continue on valid claims after wilderness designation under unnecessary or undue degradation guidelines. After designation, all other lands (including claims not determined valid) would be closed to mineral location. BLM projects that a small amount of exploration would take place in the designated portion but that locatable mineral resources are not sufficient for development. The nondesignated portion of the WSA would remain open to mineral location as discussed in the No Action/No Wilderness Alternative.

Because locatable minerals are not being recovered at present within the WSA and because economic considerations (e.g., transportation, low potential, etc.) are unfavorable, it is projected that development would not occur in the foreseeable future in any case. Therefore, implementation of this alternative would not prevent recovery of significant amounts of uranium or titanium.

- Salable Minerals

No exploration or development is anticipated in either the designated or nondesignated portions of the WSA. Because of low potential of the deposit and the availability of better sources of material outside of the WSA, loss of development potential for salable mineral products would not be insignificant.

Conclusion: The coal resource is located in the nondesignated portion of the WSA and could be developed in the long term. Loss of exploration and development opportunities for other mineral and energy resources would not be significant.

- Impacts on Wildlife Habitat and Populations Including Special Status Species

Approximately 12 acres of surface disturbance is projected to occur in the designated portion of the WSA. This surface disturbance would not adversely affect wildlife species or wildlife habitat. The proposed spring developments would be allowed and would benefit wildlife, especially mule deer and desert bighorn sheep. Approximately 1,500 acres of proposed wildlife land treatments would not be allowed.

It is projected that approximately 1,525 acres of surface disturbance would occur in the nondesignated portion of the WSA. Overall, wildlife species would benefit from the 1,500 acres of vegetation treatments, especially mule deer and possibly desert bighorn sheep. The vegetation treatments would provide additional forage and improve habitat for these species.

The affects upon less mobile nongame species and any threatened, endangered, or other special status species would be essentially the same as discussed for the No Action/No Wilderness Alternative.

Conclusion: Wildlife habitat and populations including special status animal species would not be significantly affected. Overall, development of two springs and vegetation treatments would benefit wildlife by providing additional water, forage, and ecotones.

- Impacts on Livestock Management

The effect of designation of 91,361 acres of the WSA as wilderness on domestic livestock grazing would be essentially the same as discussed for the No Action/No Wilderness Alternative. Of the estimated 3,175 AUMs allocated, 2,485 AUMs would be within the designated portion of the WSA and 690 AUMs within the nondesignated portion. Grazing would continue in both areas. The proposed 7.5 miles of fence and two spring developments would be located in the designated portion, but could be constructed subject to wilderness protection standards. Motorized vehicles are used on a limited basis for livestock management. The 6 miles of way and 17 miles of cherry-stemmed road are located in the nondesignated portion of the WSA and would be available for vehicular use. Little effect on the management of livestock is projected through implementation of this alternative.

Conclusion: Implementation of the Large Partial Wilderness Alternative would not result in a change in the level of livestock use. Restricting motorized use

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in the designated portion would not adversely affect management practices because the areas where vehicular use primarily occurs is located in the nondesignated portion of the WSA.

• Impacts on Cultural Resources

Three hundred and ninety-two of the 400 recorded cultural sites are located within the designated portion of the WSA. These cultural resources would be managed as described for the All Wilderness Alternative. Only 12 acres of surface disturbance is projected. The entire designated area would be closed to future mineral location and leasing. Therefore, wilderness designation would protect cultural resources from surface-disturbing activities.

Visitor use would increase due in part to the presence of significant archaeological sites (USDI, BLM, 1988a). Standard education and protection measures such as warning and interpretive signs may be disallowed under wilderness management. In addition, it may be difficult to stabilize sites already vandalized while maintaining wilderness values. Research potential in the designated portion is high and wilderness designation may restrict access to the area for general inventory and excavation of specific sites.

Little inventory has been conducted in the nondesignated portion and very few sites have been recorded. About 1,500 acres of vegetation treatments are projected in the northwestern portion of the unit. The nondesignated portion would remain open to mineral location and leasing and vehicular access. All sites would continue to be protected by existing State and Federal antiquities laws and appropriate inventory and mitigation procedures would precede any surface development. Nevertheless, inadvertent damage to cultural sites could result from surface-disturbing activities.

Conclusion: Cultural resources, including 392 of the 400 recorded sites in the unit, would be protected by wilderness designation, although wilderness management may restrict certain cultural resource management practices. Some impact to sites in the nondesignated portion is expected but all sites would continue to be protected under existing laws.

• Impacts on Economic Conditions

Partial wilderness designation is not expected to result in any changes in existing patterns and trends of population, employment, and local income distribu-

tion. Coal development would take place as discussed in the No Action/No Wilderness Alternative, as the resource is in the nondesignated portion of the WSA. This would lead to increased income and revenue as well as other major beneficial and adverse economic impacts in Garfield and Kane Counties. The estimated 3,175 AUMs would remain available to cattle in the six allotments. Revenue, sales, and returns to ranchers would be the same as discussed in the No Action/No Wilderness Alternative. Approximately \$80 per year in Federal oil and gas leasing revenue that would continue under the No Action/No Wilderness Alternative would be lost as the 40 acres under lease in the designated portion expires. Existing coal lease revenues would not change. No new leasing would be allowed in the designated portion, resulting in an undetermined loss of potential revenues. Overall, the local economic impacts from this alternative would be similar to the impacts of the No Action/No Wilderness Alternative.

Conclusion: No loss of local employment or income would occur. Federal and State revenues would not be significantly reduced. Economic opportunities could be realized through mineral and energy resource exploration and eventual development of the nondesignated portion of the WSA in the long term. There would be major beneficial and adverse economic impacts in Garfield and Kane Counties.

Small Partial Wilderness Alternative (51,540 Acres)

• Impacts on Wilderness Values

Wilderness designation of 51,540 acres would contribute to the preservation of the area's wilderness values. Although overall impacts would be about the same as identified for the No Action/No Wilderness Alternative, the Small Partial Wilderness Alternative would protect wilderness values in the designated area. Protection in the designated area would include management under VRM Class I (which generally allows for only natural ecological change), ORV closure (the 6 miles of way are in the nondesignated portion and would remain open), and closure to future mineral leasing and location. Naturalness, outstanding opportunities for solitude (including 38,200 acres that meet and 13,340 acres that do not meet the standards for outstanding), primitive recreation (including 43,000 acres that meet and 8,540 acres that do not meet the standards of outstanding), and special features (including approximately 30 percent of the Class A scenery), the perennial pond but not the

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stream, 50 percent of the scenic overviews, and the majority of archaeological sites, would be protected. Wildlife associated with wilderness and endangered and sensitive species would also receive protection in the designated area.

In the short term, loss of naturalness and opportunities for solitude and primitive recreation due to allowable surface disturbance from uranium exploration, rangeland projects, and vegetation treatments would occur from direct disturbance on up to 2 acres (uranium exploration) within the designated portion and on up to 3,039 acres within the nondesignated portion. Special features would be largely unaffected because disturbance would involve only about 2.1 percent of the WSA. In addition, appropriate measures would be taken to protect endangered and sensitive species and cultural values prior to any surface-disturbing activity, and no significant negative impact would occur to these values. Refer to the Vegetation and Wildlife Including Special Status Species, and Cultural Resource sections. Class A scenery would be reduced in quality in the disturbed areas.

Sights and sounds from short-term development would reduce opportunities for solitude and primitive recreation on areas adjacent to the disturbed areas, including up to 20 percent (30,000 acres) of the WSA. Most (99 percent) of this type of impact would be in the nondesignated area.

Elimination of ORV use in the designated area would help preserve opportunities for solitude and primitive recreation in the designated area, although vehicular use of 6 miles of way and of future exploration and access roads in the nondesignated area would detract from these opportunities during the period of activity.

The extent that disturbance would occur over the long term and, therefore, the long-term loss of wilderness values that would occur, is not accurately known, but would be less than with the No Action/No Wilderness Alternative due to application of mitigation in the designated area that would limit development subject to valid existing rights. Coal development would occur over the long term in the nondesignated area to the same degree identified for the No Action/No Wilderness Alternative. Wilderness values, including naturalness, opportunities for solitude and primitive and unconfined recreation, and Class A scenery, would be lost on 0.04 percent (60 acres) of the WSA due to direct disturbance. These values, plus scenic vistas, would be reduced in quality on up to 10

percent (14,600 acres) of the WSA due to indirect sights, sounds, and emissions from coal development. These impacts would continue for 30 to 40 years.

This alternative would complement and enhance wilderness uses, values, and management of the contiguous Glen Canyon NRA which is proposed by the NPS for wilderness designation.

Conclusion: Wilderness values would be preserved overall in the designated area which is approximately 35 percent of the WSA. The short-term and long-term loss of wilderness values would be about the same as identified for the No Action/No Wilderness Alternative.

• Impacts on Vegetation Including Special Status Species

Approximately 3,099 acres of surface-disturbing activities would occur in the nondesignated portion of the WSA. About 3,000 acres would be disturbed as a result of vegetation treatments. Projected impacts to the vegetation resource would be essentially the same as described in the No Action/No Wilderness Alternative. Only 2 acres of surface disturbance are projected for the designated portion of the WSA. The total area disturbed would be about 2.1 percent of the WSA or 3.5 percent of the pinyon-juniper woodland in the WSA. No significant impacts to vegetation types are anticipated in either the designated or nondesignated portions of the WSA.

The seven special status species that may occur in the WSA would not be affected in the area designated wilderness. Before authorizing any surface-disturbing activities in the nondesignated portion of the WSA, BLM would conduct site-specific clearances of the potentially disturbed areas as described for the No Action/No Wilderness Alternative. If any threatened or endangered species are located, BLM would initiate consultation with the FWS as required by the Endangered Species Act and BLM policy. BLM would request a biological opinion when appropriate (see Appendix 4 in Volume I). Appropriate mitigation measures, such as avoidance of sensitive areas, would be implemented. Because necessary measures would be taken to protect these species, the viability of populations of special status plant species would be preserved with the Small Partial Wilderness Alternative.

The 60 acres of surface disturbance associated with long-term coal development would occur in the nondesignated portion of the WSA. While no significant

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impacts to any vegetation type are anticipated, this disturbance would remain for the 30 to 40 year life of the operations.

Conclusion: Special status species would not be significantly impacted. Approximately 3.5 percent (3,101 acres) of the pinyon-juniper woodland in the WSA would be altered.

• Impacts on Mineral and Energy Exploration and Production

• Leasable Minerals

The nondesignated portion of the WSA would remain open to exploration and development of mineral and energy resources without consideration of wilderness values, as discussed in the No Action/No Wilderness Alternative. Therefore, mineral and energy resources located in the nondesignated portion would not be affected by implementation of the Small Partial Wilderness Alternative.

The coal resource is located in the nondesignated portion of the WSA and could be developed in the long term, as projected in the No Action/No Wilderness Alternative. Therefore, implementation of the Small Partial Wilderness Alternative would not result in the loss of development opportunities for coal.

The designated portion of the WSA would be placed in Category 4 status (no leasing). There are no leases located in the designated portion of the WSA. No new leasing would be allowed. Therefore, oil and gas development would occur. However, no oil and gas exploration or development is projected for this WSA even for the No Action/No Wilderness Alternative. Therefore, implementation of the Small Partial Wilderness Alternative would not result in the loss of a significant oil and gas resource development opportunity.

• Locatable Minerals

No mining claims are located within the area that would be designated wilderness. Development work, extraction, and patenting could continue on valid claims after wilderness designation under unnecessary or undue degradation guidelines. After designation, all other lands (including claims not determined valid) would be closed to mineral location. BLM projects that a small

amount of exploration would take place in the designated portions, but that locatable mineral resources are not sufficient for development.

The nondesignated portion of the WSA would remain open to mineral location as discussed in the No Action/No Wilderness Alternative. Because locatable minerals are not being recovered at present within the WSA and because economic considerations (e.g., transportation, low potential, etc.) are unfavorable, it is not assumed that development would occur in the foreseeable future. Therefore, implementation of this alternative would not prevent recovery of significant amounts of uranium or titanium.

• Salable Minerals

No exploration or development is anticipated in either the designated or nondesignated portions of the WSA. Because of low potential of the deposit and the availability of better sources of material outside of the WSA, loss of development potential for salable mineral products would not be significant.

Conclusion: The coal resource is located in the nondesignated portion of the WSA and could be developed in the long term. Loss of exploration and development opportunities for other mineral and energy resources would not be significant.

• Impacts on Wildlife Habitat and Populations Including Special Status Species

The 2 acres of surface disturbance that would occur in the designated portion of the WSA from uranium exploration activities would not adversely affect wildlife species. No rangeland, wildlife habitat, watershed projects, or other developments are projected for the designated portion.

It is projected that approximately 3,099 acres of surface disturbance would occur in the 94,603 acres that would not be designated wilderness. The majority of wildlife species, especially mule deer and desert bighorn sheep, should benefit from the projected vegetation treatments and springs development projects as discussed in the No Action/No Wilderness Alternative.

The affects upon less mobile nongame species and any threatened, endangered, or other special status

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species would be essentially the same as discussed for the No Action/No Wilderness Alternative.

Conclusion: Wildlife habitat and populations including special status animal species would not be significantly affected. Overall, development of two springs and 3,000 acres of vegetation treatments would benefit wildlife by providing additional water, forage, and ecotones.

• Impacts on Livestock Management

The effects of designation of 51,540 acres of the WSA as wilderness on domestic livestock grazing would be essentially the same as with the No Action/No Wilderness Alternative. Of the estimated 3,175 AUMs allocated, 1,162 would be within the designated portion of the WSA and 2,013 within the non-designated portion. Grazing would continue in both areas. The two spring developments and 7.5 miles of fence would be located in the non-designated portion of the WSA. Motorized vehicles are used on a limited basis for livestock management. The 6 miles of way and 17 miles of cherry-stemmed road are located in the non-designated portion of the WSA and would continue to be available for vehicular use. Little effect on the management of livestock is projected by implementation of this alternative.

Conclusion: Implementation of the Small Partial Wilderness Alternative would not result in a change in the level of livestock use. Restricting motorized use in the designated portion would not adversely affect management practices as the areas where vehicular use primarily occurs is located in the non-designated portion of the WSA.

• Impacts on Cultural Resources

Three hundred and eighty-four of the 400 recorded cultural sites are located within the designated portion of the WSA. These cultural resources would be managed as described under the All Wilderness Alternative. Only 2 acres of surface disturbance is projected. The entire designated area would be closed to future mineral location and leasing. Therefore, wilderness designation would protect cultural resources from surface-disturbing activities.

Visitor use would increase, due in part to the significant archaeological sites (USDI, BLM, 1988a). Standard education and protection measures such as warning and interpretive signs may be disallowed under wilderness management. In addition, it may be diffi-

cult to stabilize sites already vandalized while maintaining wilderness values. Research potential in the designated portion is high and wilderness designation may restrict access to the area for general inventory and excavation of specific sites.

Little inventory has been conducted in this area and few sites have been recorded in the non-designated portion. About 3,000 acres of vegetation treatments are projected in the northwestern portion of the unit. The non-designated portion would remain open to mineral location and leasing and vehicular access. All sites would continue to be protected by existing State and Federal antiquities laws and appropriate inventory and mitigation procedures would precede any surface development. Nevertheless, inadvertent damage to cultural sites could result from surface-disturbing activities.

Conclusion: Cultural resources, including 384 of the 400 recorded sites in the unit, would be protected by wilderness designation, although wilderness management may restrict certain cultural resource management practices. Some impact to sites in the non-designated portion is expected but all sites would continue to be protected under existing laws.

• Impacts on Economic Conditions

Partial wilderness designation is not expected to result in any changes in existing patterns or trends in population, employment, and local income distribution. The estimated 3,175 AUMs would remain available to cattle in the six allotments. The revenues, sales, and returns to ranchers continue as discussed in the No Action/No Wilderness Alternative.

No mineral leases are located in the designated portion, therefore, no revenue loss from expiration of existing leases would occur. However, revenues from potential future leases would be foregone. Approximately 94,563 acres currently not leased would be in the non-designated area and could be leased for oil and gas at up to \$189,126 per year. Revenues from existing coal leases would continue and 35,795 additional acres could be leased for coal to bring up to \$107,385 per year in Federal revenues plus royalties and bonus bids. Coal development is projected to occur in the WSA in the long term. This would lead to increased income and revenue as well as other major beneficial and adverse economic impacts in Kane and Garfield Counties.

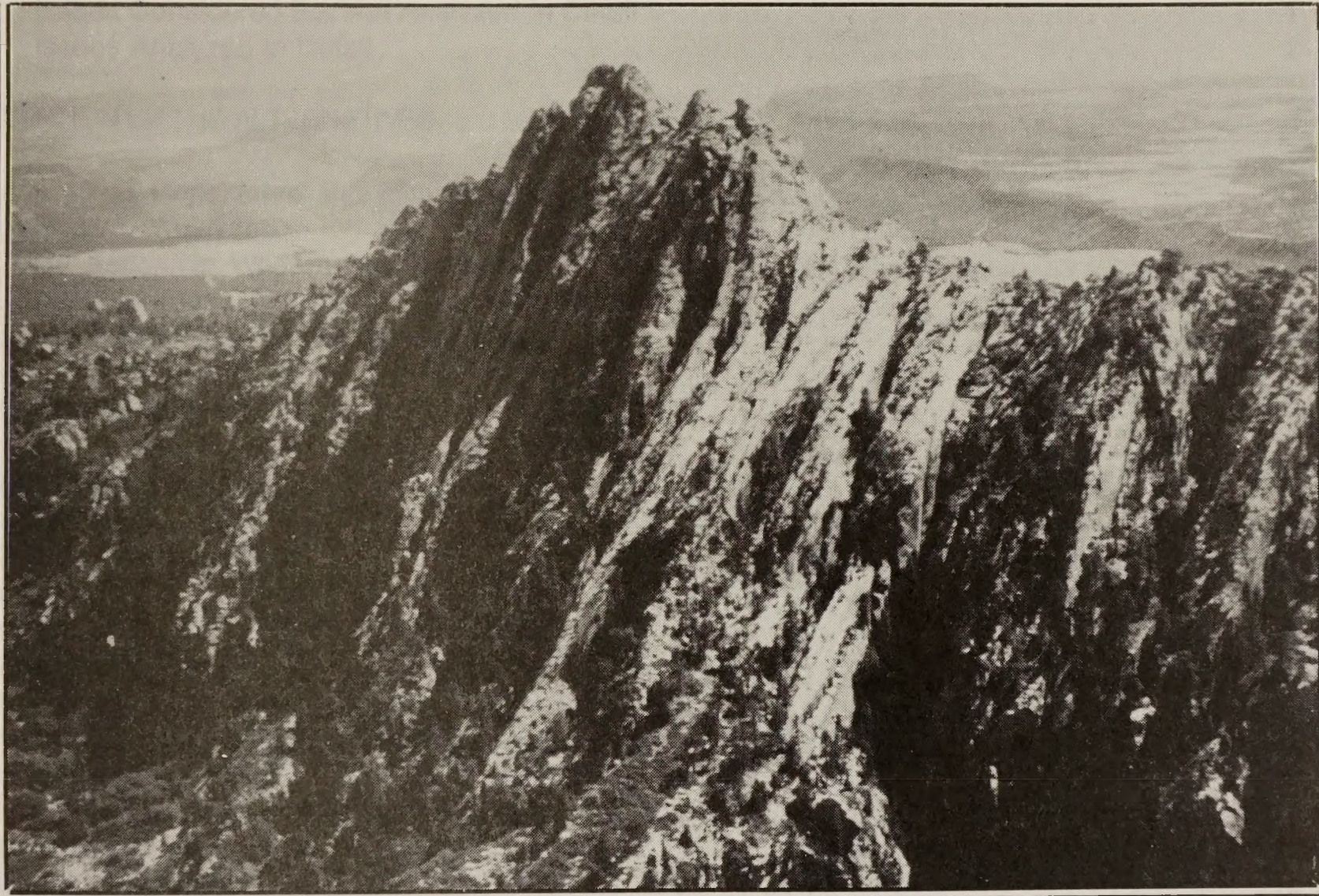
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Conclusion: No loss of local employment or income would occur. Federal and State revenues would not be significantly reduced. Economic opportunities could be realized through mineral and energy resource exploration and eventual development of the nondesignated portion of the WSA in the long term. There would be major beneficial and adverse economic impacts in Garfield and Kane Counties.

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Red Butte WSA

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1.2 LOCATION OF THE PLAN AREA



1.3 LAND USE PLAN
1.4 TECHNICALS

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

2.1 NO ACTION/WILDERNESS ALTERNATIVE
2.2 WILDERNESS ALTERNATIVE (PREPARED ACTION)

RED BUTTE WSA

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RED BUTTE WSA

(UT-040-150)

INTRODUCTION

General Description of the Area

The Red Butte WSA, containing 804 acres, is in Washington County. The WSA adjoins the boundary of Zion National Park for approximately 1 mile along its northern side. The portion of the NPS land it is contiguous with is administratively endorsed for wilderness. The NPS proposal encompasses about 120,620 acres. The WSA is approximately 15 road miles from Virgin, Utah, and is administered by the BLM Cedar City District.

The area's topography is dominated by a red sandstone butte in the southeast part of the unit. Elevations vary from 7,400 feet above sea level to 5,400 feet.

Average annual precipitation is approximately 15 inches. Approximately half of the precipitation falls from December through March in the form of snow. Intense thunderstorms from the southwest are common during the summer months.

Temperatures vary greatly with aspect and altitude, but are generally mild. July and January are the warmest and coldest months, respectively. Temperatures range from extremes of 0 degrees to 105 degrees Fahrenheit.

This WSA was dropped from wilderness study status by the Secretary of the Interior on December 30, 1982, due to its small size. As a result of a decision of the Eastern District Court of California (Sierra Club vs. Watt, Civil No. 5-83-035 LKR, dated April 18, 1985), and because of the WSA's wilderness values, it is included in the EIS for analysis. This is in line with the general land use planning provisions of Section 202 of the FLPMA and in accordance with BLM guidance that allows for wilderness consideration of areas less than 5,000 acres in size if they are adjacent to land with wilderness potential administered by other Federal agencies.

There are no private, State, or split-estate lands located within the WSA.

Changes for the Final EIS

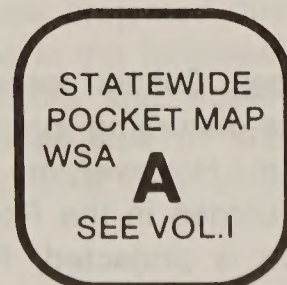
The changes noted in the Introduction to Volume III-B are applicable to this WSA. In addition, the surface disturbance estimate presented in the Draft EIS has changed. The anticipated surface disturbance presented in the Draft EIS (180 acres) was based on the assumption that all mineral and other resources potentially within the WSA would be developed sometime in the future without consideration of technical or economic feasibility. In response to public comments relative to the feasibility of developments, the disturbance estimates have been revised to focus on activities projected to be feasible within the foreseeable future (see Appendix 6 in Volume I). This resulted in a reduction of surface disturbance estimates from the 180 acres reported in the Draft EIS to no surface disturbance for the Final EIS.

Specific Issues Identified Through Scoping and Public Comment

• Issues Considered But Not Analyzed in Detail

In addition to the issues discussed and eliminated from further consideration in the Introduction to Volume III-B (i.e., impacts on air quality, water rights, geology and topography, and land use plans and policies), impacts on soils, vegetation and wildlife including special status species, forest resources, and visual resources are not issues in this Final EIS. This is because estimates of surface disturbance without wilderness designation have been revised downward from the 180 acres reported in the Draft EIS to none. Given this new scenario, impacts to these resources would not occur in the foreseeable future. Also, there are no proposals for improvements, harvests, or other uses which would be precluded for these resource values by wilderness designation.

Impacts on water resources, mineral resources, livestock, cultural resources, recreation, and economic



RED BUTTE WSA

conditions are also not analyzed in the Final EIS. Impacts on these values have been determined to be insignificant for the reasons described below.

1. Water Resources: The public is concerned that wilderness designation would interfere with water uses or that without designation future surface disturbance would increase erosion and reduce water quality. There are no perennial streams or proposed water developments in the Red Butte WSA. Therefore, the impacts of wilderness designation on water uses and quality are not discussed in detail.

2. Mineral Resources: The public has expressed concern that wilderness designation would interfere with or prevent mineral exploration, development, and production.

There are no existing oil and gas leases within the WSA. Potential oil and gas deposits are small with a low certainty that they exist. Uranium and other locatable mineral deposits are thought to be small with a low certainty of occurrence. More accessible deposits of sandstone and limestone and other salable minerals exist outside the WSA. For these reasons, mineral exploration or development would not occur in the foreseeable future with or without wilderness designation (see Appendix 6 in Volume I). Therefore, impacts on mineral and energy exploration and production are not analyzed in detail in the Final EIS.

3. Livestock: Concerns were raised that wilderness designation would cause prohibitions in grazing or reduce levels of grazing, restrict access and development of rangeland projects, and interfere with predator control. Under the BLM Wilderness Management Policy (BLM Manual 8560), there shall be no curtailments in grazing simply because an area is designated as wilderness. No changes in the grazing level of 25 AUMs are proposed in planning documents. There are no ways where vehicle use would be precluded by wilderness designation and there are no present or proposed range developments. Predator control has not been required or conducted in the area for several years. For these reasons, impacts on livestock management are not significant issues for the Red Butte WSA.

4. Cultural Resources: Cultural resources could be destroyed by surface-disturbing projects, use of vehicles, or vandalism. However, no cultural resource sites have been recorded in the Red Butte WSA. No surface disturbance is projected. Recreation use is primitive. Terrain limits vehicle use inside the WSA.

Additionally, inventories for the purpose of site recordation and mitigation of impacts would take place prior to any surface disturbance in the future. Given these conditions, impacts on cultural resources are not significant issues for the Red Butte WSA.

5. Recreation: The public has expressed concern that wilderness designation would change recreational use from motorized to primitive or, conversely, that without wilderness designation motorized recreation will eliminate or reduce opportunities for primitive recreation. The recreational use occurring in the Red Butte WSA is light (estimated at less than 100 visitor days annually), is primitive, and would remain primitive with or without wilderness designation due to the terrain of the WSA and limited access. Therefore, impacts on recreation use would not be significant and are not analyzed in detail in the Final EIS.

6. Economic Conditions: The public, including the State and local government, is concerned that wilderness designation would preclude mineral or other economic developments and adversely affect local economic conditions. Others believe that primitive recreation use would increase following wilderness designation and would contribute to the local economy.

There are no existing or anticipated mineral developments or proposals for lands or realty activities which would be impaired with or without wilderness designation. Because no economic developments are expected and because recreational use would remain primitive, potential impacts on economic conditions for the Red Butte WSA are not significant issues for the Final EIS.

• Issues Analyzed in Detail

The only significant issue for the Red Butte WSA is impacts on the wilderness values of naturalness, opportunities for solitude and primitive recreation, and special features.

Comments made during the public comment period for the Draft EIS centered mainly on the inventory phase of the wilderness review, BLM's assessment of the value of wilderness vs. other resource values, and relationship to NPS management. See Volume VII-C, Section A for responses to specific comments about the Red Butte Canyon WSA, and see Volume VII-B for responses to comments applicable to all WSAs and/or the Statewide analysis.)

RED BUTTE WSA

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated from Detailed Study

One alternative considered was to transfer the WSA to the NPS administration. Such a transfer could occur in the future regardless of wilderness status and is not analyzed as an alternative in this EIS.

The question of which agency should manage the WSA to achieve overall management effectiveness will be addressed in the Wilderness Study Report. This decision will be based primarily on factors affecting both BLM and NPS jurisdictions (i.e., relative amounts of the total wilderness area administered by each agency, principal public ingress and exit points, agency staffing and workload in the region, and similar non-environmental items). Environmental differences, if any, would be due to variations in BLM and NPS mandates and policy (e.g., national parks are closed to hunting while public lands are not) rather than from wilderness designation. These differences would exist with or without wilderness designation and, therefore, are not relevant to the analyses of the impacts from wilderness designation.

A partial alternative was not considered reasonable because of the area's small size and lack of resource conflicts. The Red Butte WSA would not be a viable independent wilderness if adjacent NPS land is not also designated as wilderness.

Alternatives Analyzed

Two alternatives are analyzed for this WSA: (1) No Action/No Wilderness; and (2) All Wilderness (Proposed Action) (804 Acres). A description of each alternative follows. Where management intentions have not been clearly identified, assumptions are made based on management projections under each alternative. These assumptions are indicated in each case. The assumed BLM management actions presented in the Introduction to Volume III-B are also applicable.

• No Action/No Wilderness Alternative

With this alternative, none of the 804-acre Red Butte WSA would be designated by Congress as part of the NWPS. Although BLM's land use plans are regularly updated, it is assumed for this analysis that the area would be managed in accordance with the Virgin River MFP (USDI, BLM, 1979a). There are no State lands

within the WSA (refer to Map 1). Figures and acreages in this analysis are for Federal lands only.

• Management Conditions and Constraints

All 804 acres would remain open to mineral location, leasing, and sale. There are no mining claims in the WSA. Development work, extraction, and patenting would be allowed on any future mining claims. Development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809). Future oil and gas leases could be developed under standard stipulations (Category 1) on all 804 acres. There are presently no leases in the WSA. Although mineral resources would be managed as described above, no locatable or leasable exploration or developments are projected in the WSA because the level of known resources and the probability of their development are too low to support a development assumption. Appendix 6 in Volume 1 explains the mineral exploration and development projections.

The present domestic livestock grazing use of 25 AUMs would continue as authorized in the Virgin River planning unit MFP and Hot Desert Grazing Management EIS (USDI, BLM, 1978b). There are no existing range developments in the WSA.

The WSA would be open to vehicular use. However, vehicular use is not expected to occur due to rugged terrain and because there are no vehicular ways in the WSA.

The area would continue to be managed under VRM Class II on 804 acres.

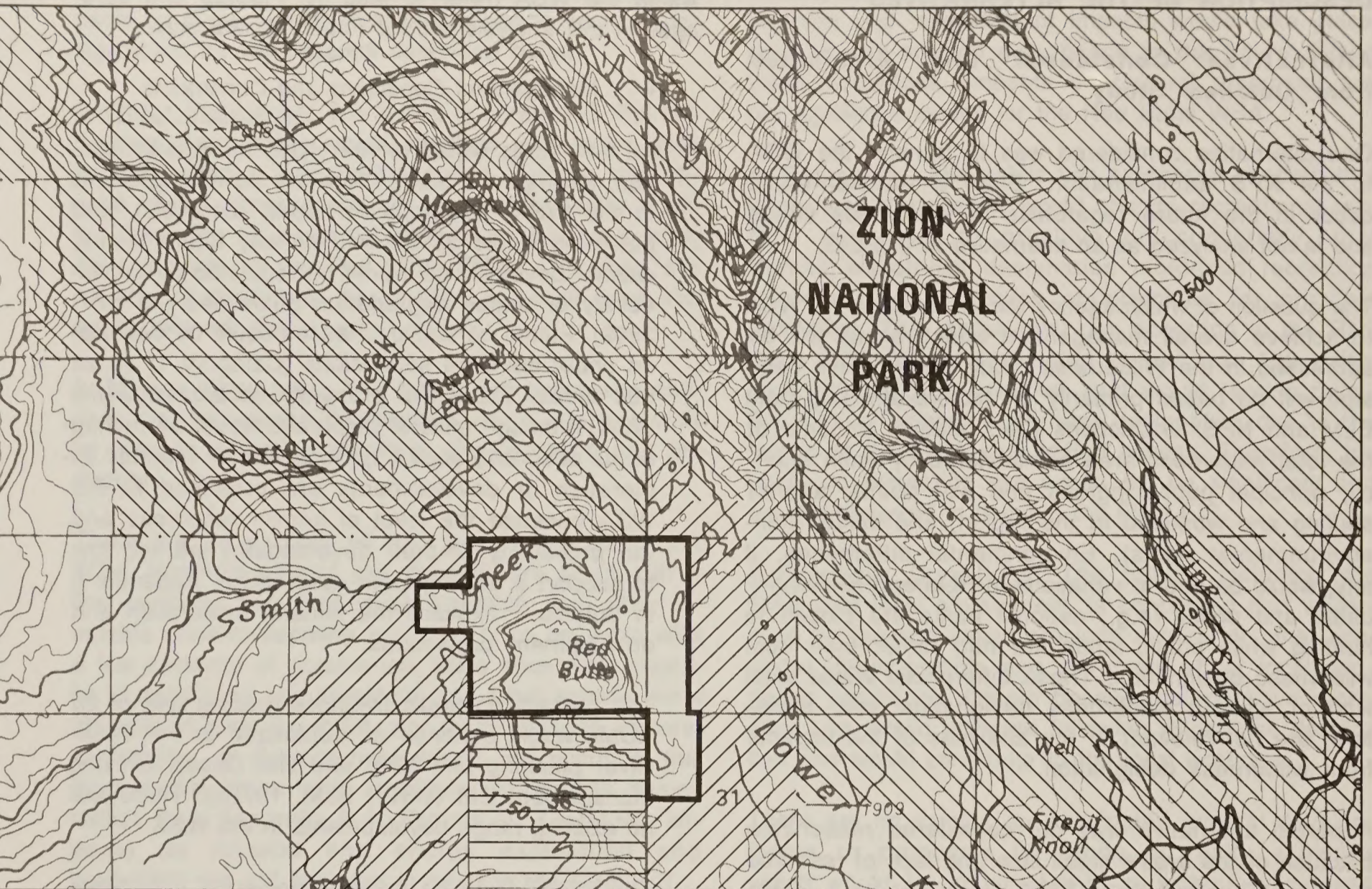
• Action Scenario

BLM projects that implementation of the No Action/No Wilderness Alternative would not result in any surface-disturbing activities in the foreseeable future. No locatable or leasable mineral resource exploration or development is anticipated. No rangeland, wildlife habitat, watershed projects, or other developments are planned, nor is any ORV use projected due to rugged terrain. Recreation use in the foreseeable future would be primitive in nature and would increase over the current estimated use of less than 100 visitor days annually at a rate of 2 to 7 percent per year.

RED BUTTE WSA

R. 12 W.







R. 11 W.

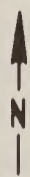


T. 39

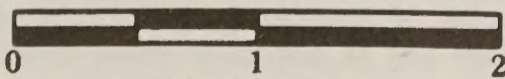
Map 1
LAND STATUS
Red Butte WSA
UT-040-147

Legend

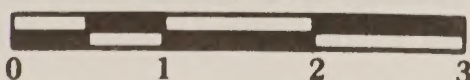
-  WSA Boundary
-  Zion National Park Boundary
-  State Land Within or Adjacent to WSA
-  National Park Service Administered Land
-  Private Land Within or Adjacent to WSA
-  BLM Administered Land Within or Adjacent to WSA



SCALE IN MILES



SCALE IN KILOMETERS



ELEVATION EXPRESSED IN METERS

T. 40

RED BUTTE WSA

- All Wilderness Alternative (Proposed Action)

With this alternative, all 804 acres of the Red Butte WSA would be designated by an act of Congress as part of the NWPS (refer to Map 2). This WSA lies adjacent to Zion National Park and is contiguous with a 120,620-acre NPS-proposed wilderness. Because this WSA lacks the necessary size to constitute a wilderness area by itself, it would be managed in conjunction with the NPS-proposed wilderness. As a result, the Red Butte WSA could be retained by BLM or transferred to the NPS along with nine other small WSAs (refer to Map 3) who would then assume management responsibilities. For the purposes of this analysis, it is assumed that BLM would retain the Red Butte WSA and would manage it in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) to preserve its wilderness character. No State lands are located in the WSA (refer to Map 1). The figures and acreages given under this alternative are for Federal lands only. No private or split-estate lands are located in the WSA.

- Management Conditions and Constraints

After wilderness designation, all 804 acres would be withdrawn from mineral location and closed to new mineral leasing and sale. There are no oil and gas leases in the WSA and the area would be closed to leasing. Therefore, no oil and gas or other leasable minerals would be developed.

Present domestic livestock grazing would be allowed to continue as authorized in the Virgin River MFP and Hot Desert Grazing Management EIS. The 25 AUMs in the WSA would remain available to livestock as presently allotted.

Visual resources in the wilderness would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change.

The entire 804-acre area would be closed to ORV use except for: (1) users with valid existing rights if approved by BLM in accordance with 43 CFR 8560 provisions; or (2) for occasional and short-term vehicular access approved by BLM for maintenance of approved livestock developments.

- Action Scenario

BLM does not project any surface disturbance in the foreseeable future. Implementation of the All Wilderness Alternative would preclude mining claim location and mineral leasing. Therefore, no locatable or leasable mineral resource exploration or development would occur following wilderness designation. No rangeland, wildlife habitat, watershed projects, or other developments are planned nor would ORV use be allowed following wilderness designation. Recreation use in the foreseeable future would be primitive in nature and would increase over the current estimated use of less than 100 annual visitor days at a rate of 2 to 7 percent per year.

Summary of Environmental Consequences

Table 1 summarizes the environmental consequences of the alternatives analyzed in detail.

AFFECTED ENVIRONMENT

This section describes the overall environmental setting. This information allows for independent assessment by the public as required by the CEQ guidelines and provides a data base for the cumulative State-wide analysis found in Volume I, as well as for the analysis of the environmental consequences of alternatives for this WSA.

Unless otherwise indicated, information for this section was taken from BLM staff specialists, technical reports, and file documents.

Wilderness Values

- Size

The Red Butte WSA is approximately 1.7 miles wide (east to west), 1.5 miles long (north to south), and encompasses 804 acres.

- Naturalness

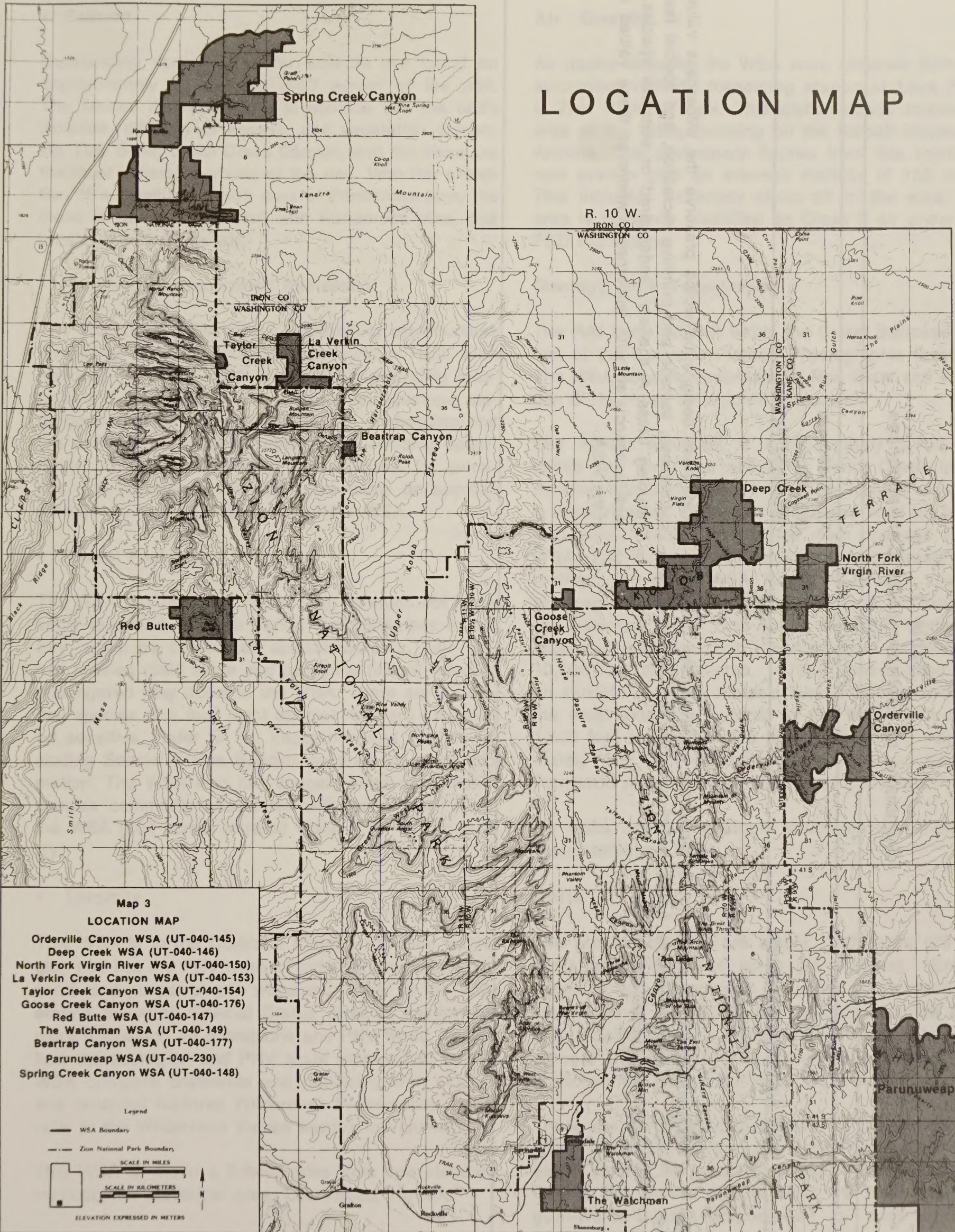
The WSA is in a natural condition with no known intrusions. The high quality of naturalness has not changed since BLM's intensive wilderness inventory (USDI, BLM, 1980b).

RED BUTTE WSA

R. 12 W.

R. 11 W.

LOCATION MAP



T. 39

T. 40

T. 41

**Map 3
LOCATION MAP**

- Orderville Canyon WSA (UT-040-145)
- Deep Creek WSA (UT-040-146)
- North Fork Virgin River WSA (UT-040-150)
- La Verkin Creek Canyon WSA (UT-040-153)
- Taylor Creek Canyon WSA (UT-040-154)
- Goose Creek Canyon WSA (UT-040-176)
- Red Butte WSA (UT-040-147)
- The Watchman WSA (UT-040-149)
- Beartrap Canyon WSA (UT-040-177)
- Parunuweap WSA (UT-040-230)
- Spring Creek Canyon WSA (UT-040-148)

Legend

— WSA Boundary

- - - Zion National Park Boundary

SCALE IN MILES

SCALE IN KILOMETERS

ELEVATION EXPRESSED IN METERS

RED BUTTE WSA

Table 1
Summary of Environmental Consequences

| Alternatives | |
|------------------------------|--|
| Resource | No Action/No Wilderness |
| Impacts on Wilderness Values | <p>All Wilderness (804 Acres (Proposed Action))</p> <p>Wilderness values would not be protected by wilderness designation. In the foreseeable future, no disturbance that would affect wilderness values is anticipated.</p> <p>Wilderness designation would preserve the wilderness values of naturalness, solitude and primitive recreation, and special features including Class A scenery, endangered or sensitive species, and wildlife associated with wilderness, wherever these values occur in the WSA.</p> |

RED BUTTE WSA

- Solitude

Outstanding opportunities for solitude are found on approximately 75 percent (603 acres) of the unit. The factors that contribute to solitude are the unit's isolation, difficulty of access, and vegetation screening. Red Butte, Smith Creek Canyon, and the mesa are the most isolated portions of the unit. With the exception of a small open park area of Ponderosa pine, the mesa is heavily vegetated with Ponderosa pine, oak brush, and other shrubs.

- Primitive and Unconfined Recreation

The Red Butte WSA offers outstanding opportunities for hiking and backpacking in conjunction with Zion National Park. The WSA also offers outstanding technical and nontechnical rock climbing and geologic study opportunities. Technical routes are challenging and the entire butte offers an outstanding climbing opportunity. Overall, outstanding opportunities for primitive and unconfined recreation are found on approximately 180 acres (22 percent) of the WSA.

- Special Features

The WSA has resource values that, although not necessarily identified as such during the wilderness inventory, could be considered special features. Two animal species (bald eagle and peregrine falcon) listed as endangered may occur in the WSA. There are 13 animal species and four plant species that are considered sensitive. Refer to the Vegetation and Wildlife Including Special Status Species sections for more information. The WSA also has cougar, which is a wildlife species commonly associated with wilderness. All of the WSA (804 acres) is rated Class A for scenic quality.

- Diversity

This WSA is in the Colorado Plateau Province Ecoregion and has the PNV types of mountain mahogany-oak scrub and juniper-pinyon woodland. Refer to the Vegetation Including Special Status Species section for more discussion on ecoregions and PNV types. To see how the ecoregion and PNV types represented by this WSA compare Statewide and nationally with existing and potential National Wilderness Preservation Units, refer to the Wilderness Values section in Volume I.

This WSA is within a 5-hour drive from one standard metropolitan statistical area, Las Vegas, Nevada.

Air Quality

Air quality data for the WSA were obtained from the automated visibility measuring station at Lava Point in Zion National Park. This station scans across the area of the WSA, focusing on the Kaibab Plateau in Arizona. The preliminary figures from this relatively new system give an average visibility of 155 miles. This indicates extremely clean air in the area. The area is presently classified as Class II air under the PSD regulations.

Geology and Topography

The Red Butte WSA is within the Grand Staircase section of the Colorado Plateau Physiographic Province. The WSA consists essentially of Red Butte and a portion of the mesa on which it is located.

The lowest elevation is approximately 5,400 feet above sea level and occurs at Smith Creek in the northwestern part of the WSA. The highest elevation is approximately 7,400 feet above sea level on top of Red Butte. Smith Creek is the main drainage in the WSA, and it flows from east to west through the northern part of the WSA. Rocks of Jurassic and Triassic ages totaling about 2,000 feet and thin deposits of Quaternary basalt crop out in the WSA. Underlying Mesozoic and Paleozoic rocks may be as much as 10,000 feet thick (Hintze, 1973). Cross-bedded eolian sandstone of the Jurassic Navajo Formation forms the most extensive outcrop in the WSA, with about 1,400 feet exposed in the higher elevations. Approximately 600 feet of the Jurassic-Triassic Kayenta Formation are exposed in the lower elevations.

No faults or other geologic structures are known to occur within the WSA.

Soils

The erosion classes are stable, 200 acres (25 percent), and slight, 604 acres (75 percent). Erosion condition was determined by using soil surface factors. Refer to Table 2 (terms are defined in the Glossary). Salinity in the WSA ranges from slight in 70 percent (568 acres) of the area to nonsaline. Estimated annual loss of salt is 19 lb per acre.

There are some isolated pockets of productive soils within the WSA, but they are very small and undelineated. Most of the soils are mapped by the Washington County Soil Survey (USDA, SCS, 1977) as Paunsaugunt-Kolob-Dalcan association or rock outcrop-

RED BUTTE WSA

rockland association. These are excessively drained, nearly level to very steep, shallow to deep graveling silt loams, fine sandy loams, cobbly loams, and bare bedrock. These soil types are used for range, wild-life, and recreation and are unsuitable for agriculture. Seeding potential is rated unsuitable due to rock outcrop, steep slopes, and low annual precipitation.

Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | | Percent of WSA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|-------|----------------|--------------------------------------|
| | Loss (cubic yards/acre) | Acres | | |
| Severe | 5.4 | 0 | 0 | 0 |
| Critical | 2.7 | 0 | 0 | 0 |
| Moderate | 1.3 | 0 | 0 | 0 |
| Slight | 0.6 | 604 | 75 | 362 |
| Stable | 0.3 | 200 | 25 | 60 |
| Total | | 804 | 100 | 422 |

Sources: USDI, BLM, 1979c; Leifeste, 1978.

Vegetation Including Special Status Species

The vegetation in the WSA is the mountain-shrub type. The dominant species in this type are Gambel's oak, Ponderosa pine, big sagebrush, serviceberry, pinyon, juniper, and manzanita. The understory consists of bitterbrush, rabbitbrush, and bunch grasses.

No threatened or endangered plant species are known to occur in the WSA. However, the WSA could contain four Category 2 candidate species. These are Asplenium andrewsii, Erigeron sionis, Heterotheca jonesii, and Sphaeromeria ruthiae (see Appendix 4 in Volume I).

The Red Butte WSA is in the Colorado Plateau Province Ecoregion as shown on the Bailey-Kuchler ecosystems map (USDI, USGS, 1978a). The PNV types of the WSA is mountain mahogany-oak scrub on 536 acres and juniper-pinyon woodland on 268 acres.

Water Resources

The Red Butte WSA is located in the Virgin River sub-basin of the Lower Colorado River Basin hydrologic subregion. There are no perennial surface waters of streams or springs within the WSA. Smith Creek, an ephemeral stream, is the main drainage of the WSA. It flows from east to west through the northern part of the WSA and enters LaVerkin Creek outside of the WSA. The unit does have potential for well development due to the underlying Navajo Sandstone Formation. This formation is known to be a good ground-

water producer. There is no present demand for well development in the area.

The WSA water right status is fully appropriated (UDNRE, DWR 1988). Surface and groundwater sources are closed to further water right applications. There are no withdrawals present in the WSA. There is an ongoing water right adjudication being conducted by the Fifth Judicial District Court for the Virgin River drainage for the general determination of rights to the use of both surface and underground water.

The waters from this WSA drain into the LaVerkin Creek. The water quality standards for it are the same as for the Virgin River. The State water quality standards for the Virgin River and tributaries from the State line to Quail Creek diversion are: Class 2B (protected for boating, water skiing, and similar uses, excluding recreation bathing [swimming]), Class 3B (protected for warm water species of game fish and other warm water aquatic life), and Class 4 (protected for agricultural uses including irrigation of crops and stockwatering).

Mineral and Energy Resources

The energy and mineral resource rating summary for the Red Butte WSA is given in Table 3. Appendix 5 in Volume I explains the mineral and energy rating system.

Table 3
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|-------------|---------------------------|------------------------|--|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f2 | c1 | Less than 10 million barrels of oil; less than 60 billion cubic-feet of gas. |
| Uranium | f2 | c2 | Less than 500 metric-tons of uranium oxide |

Source: SAI, 1982; USDI, BLM, 1987.

^aFavorability of the WSA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

There are no strategic or critical minerals known to occur within the WSA (USDoD, 1988).

RED BUTTE WSA

• Leasable Minerals

There are no known deposits of any leasable minerals in the WSA. Currently, there are no active drilling, mining, or exploration activities for leasable minerals.

• Oil and Gas

Based on similarities between the WSA and the nearby Anderson Junction oil field (8 miles southwest) and the Virgin oil field (10 miles south), the WSA has potential for small accumulations of hydrocarbons. An exploration well, drilled in 1986 about 5 miles south of the WSA, had good oil shows in several formations. To date, however, no commercial oil and gas potential has been identified in the WSA.

The favorability of the tract for oil and gas is rated (f2) (SAI, 1982). The size of the hydrocarbon accumulation in such an environment is anticipated to be less than 10 million barrels of oil or less than 60 billion cubic-feet of gas. Based on the available information, the certainty of occurrence for oil and gas is rated very low (c1).

Under the current land use plan, all 804 acres of the WSA are in Category 1 (standard stipulations). There are presently no oil and gas leases in the WSA.

• Locatable Minerals

There are no known deposits of locatable minerals in the WSA. There are presently no mining claims.

• Uranium

The WSA is approximately 15 miles northeast of the Silver Reef Mining District, a known uranium-producing area. Although known primarily for its past silver production, uranium has been found there in the Springdale Sandstone Member of the Moenave Formation. The Moenave Formation crops out about a 0.50 mile west of the WSA, and in the WSA is estimated to be at an average depth of 1,000 feet below the surface. The WSA has been assigned a uranium favorability rating of (f2) (containing less than 500 metric-tons of uranium oxide). Based on available information, the certainty that uranium deposits occur in the WSA is low (c2) (SAI, 1982).

• Salable Minerals

Stream gravel and other loose rock material that could be used for construction occur within the WSA. These deposits are not unique or economically significant due to the presence of ample similar materials outside the WSA.

Wildlife Including Special Status Species

The WSA supports a variety of animal species. There are approximately 300 vertebrate animal species that could inhabit the WSA. These include 60 mammal species, 208 bird species, 20 reptile species, six amphibian species, and three fish species (USDI, BLM, 1979a).

Raptors may include bald eagle, peregrine falcon, prairie falcon, American kestrel, red-tailed hawk, and Cooper's hawk. The red-tailed and Cooper's hawks are the most common species. The bald eagle (Haliaeetus leucocephalus) and peregrine falcon (Falcon peregrinus), are included on the Federal endangered species list. Bald eagles winter in the Virgin River drainage south of the WSA and also in the Kanarrville and New Harmony valleys west of the WSA. Occasional sightings of these birds have been made with most reports occurring in the Deep Creek-Goose Creek area. Nesting or roosting sites are not known to occur in the WSA. The golden eagle which inhabits the WSA is a BLM sensitive species.

There is an active peregrine falcon nest in nearby Zion National Park. Peregrine falcons have been reported in the Deep Creek-Goose Creek area and in Taylor Creek Canyon, but nesting is not confirmed.

No other threatened or endangered species are known to occur within the WSA. However, the Great Basin Silverspot butterfly (Speyeria nokomis nokomis) and Virgin River montane vole (Microtus montanus rivularis) are Category 2 candidate species that may occur in the WSA (see Appendix 4 in Volume I).

Big game animals include mule deer and cougar. The Red Butte WSA contains cougar habitat and is within Utah Cougar Management Unit 30, Cedar Mountain. Cougar populations and harvest by sport hunters and by the Animal Damage Control Program has been higher in this management unit than in any other location in Utah. During the 11-year period (1977 through 1987) a total of 217 cougars were taken from the Cedar Mountain Management Unit. This harvest averaged nearly 20 animals per year (UDNRE, DWR,

RED BUTTE WSA

1988). It has not been determined how many of these may have been taken from within the WSA. The WSA is within the boundaries of Deer Herd Unit 58 and provides winter forage. Hunting pressure is light because access is blocked by private and NPS lands.

No critical or crucial ranges are found within the WSA. There are no existing or proposed improvements for wildlife in this area.

Forest Resources

The major forest resources found in the WSA consist of pinyon-juniper woodland and scattered Ponderosa pine. The WSA has forest resources suitable for firewood, fenceposts, pine nuts, and Christmas tree cutting. However, because of the area's lack of access and the same resources being available in abundance elsewhere, there is currently no demand for these resources in the WSA, and none is projected for the foreseeable future.

Livestock and Wild Horses/Burros

The Red Butte WSA covers parts of two allotments (Red Butte and Lamoreaux) (see Table 4). The Red Butte Allotment has 14 AUMs within the WSA. The Lamoreaux Allotment has 11 AUMs in the WSA. Two permittees are allowed to graze cattle on these allotments. There are no existing or proposed range improvements in the WSA.

Predator control was not conducted during the 1986 to 1987 period in the grazing allotments that include the Red Butte WSA (USDA, APHIS, 1988).

No wild horses or burros use the WSA.

Visual Resources

The entire Red Butte WSA is rated as VRM Class II. All 804 acres are rated as Class A scenery. The topography in the Red Butte WSA is steep and rugged, making for interesting scenery. Refer to Appendix 7 in Volume I for an explanation of the BLM VRM system.)

Cultural Resources

No archaeological, paleontological, or cultural resources have been recorded in the Red Butte WSA. Inventories have not been conducted within the WSA; thus, the cultural resource potential of the WSA is unknown.

Recreation

Recreational use of the Red Butte WSA is very limited. The WSA is isolated from the Zion National Park by open terrain and is not a major use area. Recreational use would be associated with deer hunting and rock climbing. Use of vehicles inside the WSA is extremely unlikely due to terrain. It is estimated that there are less than 100 visitor days annually. There are no developed recreation facilities or vehicular ways in the WSA.

Land Use Plans

The U.S. Government has surface and subsurface ownership of all 804 acres of public land within the WSA. There are no private or State in-holdings or valid existing rights. The BLM is managing the lands through general guidance of the Virgin River MFP which allows multiple uses as noted in the description of the No Action/No Wilderness Alternative.

Table 4
Livestock Grazing Use Data

| Allotments | Total Acres | Acres in WSA | Total AUMs | Number of AUMs in WSA | Number and Kind of Livestock | Season of Use | Number of Operators |
|------------|-------------|--------------|------------|-----------------------|------------------------------|---------------|---------------------|
| Lamoreaux | 160 | 160 | 11 | 11 | 2 Cattle | 05/01-10/15 | 1 |
| Red Butte | 894 | 644 | 14 | 14 | 2 Cattle | 03/01-02/28 | 1 |
| Total | 1,054 | 804 | 25 | 25 | | | 2 |

Sources: BLM File Data.

RED BUTTE WSA

The Red Butte WSA is contiguous with 120,620 acres in Zion National Park that are recommended for wilderness by the NPS. In response to H.R. 1214, (Ninety-Eighth Congress of the U.S., 1983), the NPS assessed the value of the Red Butte WSA, for potential addition to the adjacent NPS unit (USDI, NPS, 1984c).

The NPS concluded that the WSA would add a minor buffer to the park boundary but would not be significant in terms of its value and contribution to the NPS area. The Red Butte WSA was recommended for inclusion into the adjacent unit of the national park system (U.S. Secretary of the Interior, 1985a). Although the WSA did not meet all the NPS criteria for inclusion into the park, there was no objection for transferring the WSA from BLM to NPS because the WSA is isolated by park and private lands and is uneconomical for BLM to manage. No Congressional action has been taken on that recommendation.

The Washington County Master Plan (Planning and Research Associates, 1971) identifies the WSA as an open space zone, and the Washington County Commission policy does not support wilderness designation for this WSA. The Washington County Commission has endorsed the Consolidated Local Government Response to Wilderness (Utah Counties, 1986) that opposes wilderness designation of BLM lands in Utah.

Socioeconomics

• Demographics

The WSA is in Washington County. From 1970 to 1980, the population of Washington County grew from 13,699 to 24,600, an overall increase of about 93 percent. Table 5 presents the baseline and projected population data for Washington County. It is estimated that between 1980 and 1987, the population increased to about 39,720.

Table 5
Baseline and Projected Population and Employment Growth
Washington County

| | 1980 | 1990 | 2000 | 2010 |
|------------|--------|--------|--------|--------|
| Population | 26,400 | 45,500 | 51,000 | 65,600 |
| Employment | 8,100 | 14,400 | 18,400 | 24,100 |

Source: Utah Office of Planning and Budget, 1987.

Population projections indicate that the number of people living in Washington County in the year 2010 will be about 65,600 for about a 148-percent

increase over 1980 levels (Utah Office of Planning and Budget, 1987).

• Employment

Table 5 shows the baseline and projected total employment for the Southwest MCD to the year 2010.

Washington County is part of the Southwest MCD. Table 6 shows the baseline (1980) and projected employment by source for the MCD to the year 2010. In 1980 the leading employment sectors for the Southwest MCD were government (23 percent), trade (20 percent), and nonfarm proprietors (12 percent). Mining provided less than 3 percent of the employment in the MCD.

Table 6
Southwest Multi-County District
Employment^a

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|--------------|--------------|--------------|--------------|
| Agriculture | 1,810 | 1,700 | 1,600 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,600 | 3,300 |
| Transportation, Utilities | 1,006 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 6,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 6,900 | 8,900 |
| Government | 4,616 | 5,800 | 6,500 | 8,100 |
| Nonfarm Proprietors | <u>2,386</u> | <u>3,100</u> | <u>3,500</u> | <u>4,700</u> |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

^aIncludes Beaver, Garfield, Iron, Kane, and Washington Counties.

It is projected that by the year 2010, employment in the MCD will more than double. Services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 3 percent, mining to less than 1 percent, and government to 18 percent of the total.

• Sales and Revenues

Economic-related activities in the WSA include livestock production and recreation. Table 7 summarizes the local sales and Federal revenues from the WSA. Appendix 9 identifies the multipliers used to estimate sales and revenues.

Mineral and energy resource production from the WSA has not contributed to local employment or income.

RED BUTTE WSA

Table 7
Sales and Revenues

| Source | Estimated Annual Local Sales ^a | Estimated Annual Federal Revenues |
|-------------------|---|-----------------------------------|
| Livestock Grazing | \$500 | \$39 |
| Recreational Use | \$ 410 | —0 |
| Total | \$910 | \$39 |

Sources: USDI, BLM, file data ; Appendix 9 In Volume I.

^aLocal sales represent money potentially spent. They do not account for the total income that would be generated by these expenditures.

Two livestock operators have a total grazing privilege of 25 AUMs within the WSA. If all this forage were utilized, it would account for \$500 of livestock sales and \$125 of ranchers' returns to labor and investment.

The WSA's recreational use and related local expenditures are low. They are insignificant to both the local economy and individual businesses. The actual amount of income generated locally from recreational use in the WSA is unknown. However, an approximate range of expenditures can be deduced (Dalton, 1982). This study indicates that the Statewide average local expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for the Red Butte WSA is estimated to be about 100 visitor days per year.

Average actual livestock use and, therefore, revenues generated from grazing in the WSA are unknown; however, the permittee in the WSA can use up to 25 AUMs per year. Based on a \$1.54 per AUM grazing fee, the WSA can potentially generate \$39 of grazing fee revenues annually, 50 percent of which would be allocated back to the local BLM District for the construction of rangeland improvements.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This section describes the environmental consequences of implementing the alternatives. The analysis is based on the BLM management actions and anticipated activities presented in the Introduction to Volume III-B and the Description of the Alternatives for the Red Butte WSA.

No Action/No Wilderness Alternative

• Impacts on Wilderness Values

Because the WSA would not be designated wilderness with this alternative, the identified wilderness values would not receive the degree of protection afforded by application of the BLM Wilderness Management Policy (BLM Manual 8560). Wilderness values in the WSA would be somewhat protected by limitations placed on potential surface-disturbing activities (i.e., VRM Class II management on all 804 acres).

No development would be expected in the foreseeable future that would affect wilderness values, including 804 acres of naturalness, 603 acres of outstanding solitude, 180 acres of outstanding opportunities for primitive recreation, and such special features as Class A scenery, endangered or sensitive species, and wildlife associated with wilderness. Also, because future vehicular use would generally be limited by terrain, no disturbance from ORV activity is anticipated.

Although little change in wilderness values is anticipated in the foreseeable future, an undetermined loss of wilderness values would occur from disturbance over the long-term future.

The anticipated 2 to 7 percent annual increase in visitor use would not be expected to reduce wilderness values because the use would be in conjunction with use of the contiguous NPS lands and would be primitive in nature. This alternative would not, however, complement the NPS proposal for wilderness designation of the contiguous portion of Zion National Park.

Conclusion: Wilderness values would not be protected by wilderness designation. In the foreseeable future, no disturbance that would affect wilderness values is anticipated.

All Wilderness Alternative (Proposed Action) (804 Acres)

• Impacts on Wilderness Values

Designation and management of all 804 acres as wilderness would preserve the wilderness values in the Red Butte WSA. The potential for surface-disturbing activities would be eliminated through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I which allows for only natural ecological

RED BUTTE WSA

change. Naturalness would be preserved on all 804 acres. Solitude would be preserved on approximately 603 acres that meet and 201 acres that do not meet the standards for outstanding opportunities. Primitive and unconfined recreation would be preserved on approximately 180 acres that meet and 624 acres that do not meet standards for outstanding opportunities. Resources that could be considered as special features in the WSA, including Class A scenery, endangered or sensitive plants and animals, and wildlife associated with wilderness, would also be preserved.

The anticipated 2 to 7 percent annual increase in visitor use would be primitive in nature and would be managed so as to not result in loss of wilderness values.

Wilderness designation of this WSA would enhance and complement the wilderness management of contiguous lands in Zion National Park as proposed by the NPS.

Conclusion: All wilderness values would be preserved where found in the WSA.

Spring Creek Canyon WSA



Introduction
General Description of the Area
Climate
Vegetation

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

No Action Alternative
No Withdrawal Alternative
Partial Withdrawal Alternative (Proposed Action)

SPRING CREEK CANYON WSA

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SPRING CREEK CANYON WSA

(UT-040-148)

INTRODUCTION

General Description of the Area

The Spring Creek Canyon WSA contains 4,433 acres of land administered by the BLM Cedar City District. The WSA is adjacent to the boundary of Zion National Park in the southeast corner of Iron County. The portion of the NPS lands it is contiguous with are administratively endorsed for wilderness. The NPS proposal encompasses about 120,620 acres.

The WSA's topography is dominated by Spring Creek and Kanarra Creek drainages and the Hurricane Cliffs. The top of the Hurricane Cliffs is 2,000 to 3,000 feet above the valley floor. The climate within the WSA is mild with average temperatures ranging from the low 40s during the winter months to the high 80s during mid-summer. Temperature extremes can vary from 18 degrees Fahrenheit (F) to 100 degrees F. Average annual precipitation is 17 inches with about half occurring in the form of winter snow and half in the form of rain during summer thunderstorms. Winds usually prevail from the southwest with the strongest winds occurring in March and April.

This WSA was dropped from wilderness study status by the Secretary of the Interior on December 30, 1982, due to its small size. As a result of a decision of the Eastern District Court of California (Sierra Club vs. Watt, Civil No. 5-83-035 LKR, dated April 18, 1985) and because of the WSA's wilderness values, it is included in the EIS for analysis. This is in line with general land use planning provisions of Section 202 of the FLPMA and with BLM guidance that allows for wilderness consideration of areas less than 5,000 acres in size if they are adjacent to land with wilderness potential administered by other Federal agencies.

There are no private or State lands located within the WSA; however, two adjacent State sections almost cut the WSA in half.

Changes for the Final EIS

In addition to the changes noted in the Introduction to Volume III-B, the following changes specific to the WSA have been made since publication of the Draft EIS.

The anticipated surface disturbance presented in the Draft EIS (180 acres) was based on the assumption that all mineral and other resources potentially within the WSA would be developed sometime in the future without consideration of technical or economic feasibility. In response to public comments relative to the feasibility of developments, the disturbance estimates have been revised to focus on activities projected to be feasible within the foreseeable future (see Appendix 6 in Volume I). This resulted in a reduction of surface disturbance estimates from the 180 acres reported in the Draft EIS to 21 acres of surface disturbance for the Final EIS. The analysis of environmental consequences has been revised accordingly.

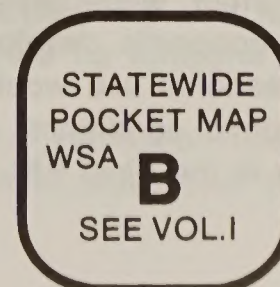
The proposed action in the Draft EIS was the All Wilderness Alternative. A new Partial Wilderness Alternative of 1,607 acres has been analyzed in the Final EIS and is the BLM proposed action.

Specific Issues Identified Through Scoping and Public Comment

• Issues Considered But Not Analyzed in Detail

In addition to the issues discussed and eliminated from further consideration in the Introduction to Volume III-B (i.e., impacts on air quality, water rights, geology and topography, and land use plans), impacts on soils, forest resources, and vegetation and wildlife including special status species are not issues in the Final EIS. This is because estimates of surface disturbance without wilderness designation have been revised downward from the 180 acres reported in the Draft EIS to 21 acres. Given this new scenario, significant impacts to these resources would not occur in the foreseeable future. Conversely, there are no proposals for improvements, harvests, or other uses which would be precluded for these resource values by wilderness designation.

Impacts to livestock, visual resources, cultural resources, recreation, and economic conditions are also not analyzed in the Final EIS. Impacts to these values have been determined to be insignificant for the reasons stated below.



SPRING CREEK CANYON WSA

1. Livestock: Concerns were raised that wilderness designation would cause prohibitions in grazing or resource levels of grazing permitted. However, the WSA is presently unallotted for livestock grazing.

2. Visual Resources: As discussed above, only minor surface disturbance is projected for the WSA in the Final EIS. Therefore, visual resources would not be significantly affected. Visual resources are not addressed in the Final EIS as a separate topic, but are addressed in relation to naturalness and special features in the Wilderness Values section.

3. Cultural Resources: Cultural resources could be destroyed by surface-disturbing projects, use of ORVs, or vandalism. However, no cultural resource sites have been recorded in the Spring Creek Canyon WSA. Minor (20 acres) mineral-related surface disturbance is projected. Recreation use is low. Rugged terrain limits ORV use inside the WSA. Additionally, inventories for the purpose of site recordation and mitigation of impacts would take place prior to any surface disturbance in the future. Given these conditions, impacts on cultural resources are not significant issues for the Spring Creek Canyon WSA.

4. Recreation: The public has expressed concern that wilderness designation would change recreational use from motorized to primitive or, conversely, that without wilderness designation motorized recreation will eliminate or reduce opportunities for primitive recreation. Ninety percent of the recreational use occurring in the Spring Creek Canyon WSA would remain primitive with or without wilderness designation due to the terrain of the WSA and limited access. Therefore, impacts on recreation use would not be significant.

5. Economic Conditions: The public, including the State and local government, is concerned that wilderness designation would preclude mineral or other economic developments and adversely affect local economic conditions. Others believe that primitive recreation use would increase following wilderness designation and would contribute to the local economy.

There are no existing mineral developments, nor are these proposals for lands or realty activities in the WSA. It is unlikely that mineral development would occur with or without wilderness designation. Because little or no economic development is expected and because recreational use would remain primitive, impacts on economic conditions are not significant issues for analysis in the Final EIS.

• Issues Analyzed in Detail

The significant issues for the Spring Creek Canyon WSA are:

1. Impacts on the wilderness values of naturalness, opportunities for solitude and primitive recreation, and special features.

2. Impacts on water resources including municipal water for the town of Kanarraville.

3. Impacts on mineral resources.

Comments made during the public comment period for the Draft EIS centered mainly on the inventory phase of the wilderness review, BLM's assessment of the value of wilderness vs. other resource values, and relationship to NPS management. See Volume VII-C, Section B for responses to specific comments about the Spring Creek Canyon WSA; and Volume VII-B for responses to general comments applicable to all WSAs and/or the Statewide analysis.

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated from Detailed Study

One alternative considered was to transfer the WSA to the NPS administration. Such a transfer could occur in the future regardless of wilderness status, and is not analyzed as an alternative in the Final EIS. BLM has determined that the Spring Creek Canyon WSA would not be a viable independent wilderness if adjacent NPS land is not also designated as wilderness. The question of which agency should manage the WSA to achieve overall management effectiveness will be addressed in the wilderness study report. It will be based primarily on factors affecting both BLM and NPS jurisdictions, such as relative amounts of the total wilderness area administered by each agency, principal public ingress and exit points, agency staffing and workload in the region, and similar non-environmental items. Environmental differences, if any, would be due to variations in BLM and NPS mandates and policy (for example national parks are closed to hunting while public lands are not) rather than from wilderness designation. These differences would exist with or without wilderness designation and, therefore, are not relevant to the analyses of the impacts from wilderness designation.

SPRING CREEK CANYON WSA

Alternatives Analyzed

Three alternatives are analyzed for this WSA: (1) No Action/No Wilderness, (2) All Wilderness (4,433 acres), and (3) Partial Wilderness (Proposed Action) (1,607 acres). A description of BLM's management practices for each alternative follows. Where management intentions have not been clearly identified, assumptions are made based on management projections under each alternative. These assumptions are indicated in each case. The assumed BLM management actions presented in the Introduction to Volume III-B are also applicable.

- No Action/No Wilderness Alternative

With this alternative, none of the 4,433-acre Spring Creek Canyon WSA would be designated by Congress as part of the NWPS. Although BLM's land use plans are regularly updated, it is assumed that the area would be managed in accordance with the Cedar Beaver Garfield Antimony Resource Management Plan (CBGA RMP) (USDI, BLM, 1986b). Two State sections are adjacent to the WSA but none are within the WSA (refer to Map 1). Figures and acreages in this analysis are for Federal lands only.

- Management Conditions and Constraints

All 4,433 acres would remain open to mineral location, leasing, and sale. There are 21 mining claims (420 acres) in the WSA at the present time. Development work, extraction, and patenting would be allowed on existing and future mining claims. Development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809). There are no mineral leases in the WSA. Future oil and gas leases could be developed under special stipulations (Category 2) on the 4,433-acre area. It is anticipated that about 20 acres in the WSA could be affected by exploration associated with future leases. Mineral development is not projected following exploration because the level of known resources and the probability of their development are too low to support a development assumption. Appendix 6 in Volume I explains the mineral exploration and development projections.

Currently there is no domestic livestock grazing in the WSA. Grazing of up to 33 AUMs could be authorized according to the CBGA RMP. There are no existing range developments in the WSA. About a 0.5 mile of a water pipeline is within the WSA,

but no water from the pipeline is available inside the WSA.

Although no applications have been filed, Kanarraville has proposed construction of a water pipeline in the WSA to pipe water from Spring Creek for municipal purposes. It is assumed that this pipeline would be constructed in the foreseeable future.

The entire WSA acreage would be open to ORV use. There is approximately a 0.5 mile of vehicular way in the WSA. ORV use is slight (probably no more than 70 visitor days annually) and is expected to remain low because of rough terrain and limited access.

The entire area would continue to be managed under VRM Class II.

- Action Scenario

BLM projects that implementation of the No Action/No Wilderness Alternative would result in approximately 21 acres of surface disturbance in the foreseeable future. Twenty of these acres would be disturbed by oil and gas exploration activities. Geophysical operations conducted throughout the WSA and surrounding area would determine where to locate exploration wells. It is assumed that two wells would be drilled to determine the potential of structures and traps that may lie beneath the WSA. Up to 10 acres would be disturbed for each well and access road. Access roads would not exceed 3 miles in length. It is assumed that an average of 10 employees would operate each well for a period of 3 to 6 months. It is assumed that both drill sites and access roads would be reclaimed following abandonment. About 2 years would be necessary to determine successful reclamation.

It is further assumed that about 1 acre would be disturbed in Spring Creek for construction of a water pipeline to carry municipal water to Kanarraville.

No disturbance from ORV use is projected because rough terrain would restrict vehicle use to the 0.5 mile of vehicular way and to drainage areas where tracks would be temporary.


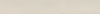




It is assumed that recreation use in the foreseeable future would increase over the current

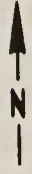
SPRING CREEK CANYON WSA

Map 1 LAND STATUS Spring Creek Canyon WSA

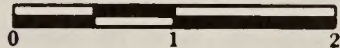
UT-040-148

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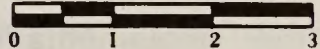
-  WSA Boundary
-  Zion National Park Boundary
-  State Land Within or Adjacent to WSA
-  National Park Service Administered Land
-  Private Land Within or Adjacent to WSA
-  BLM Administered Land Within or Adjacent to WSA



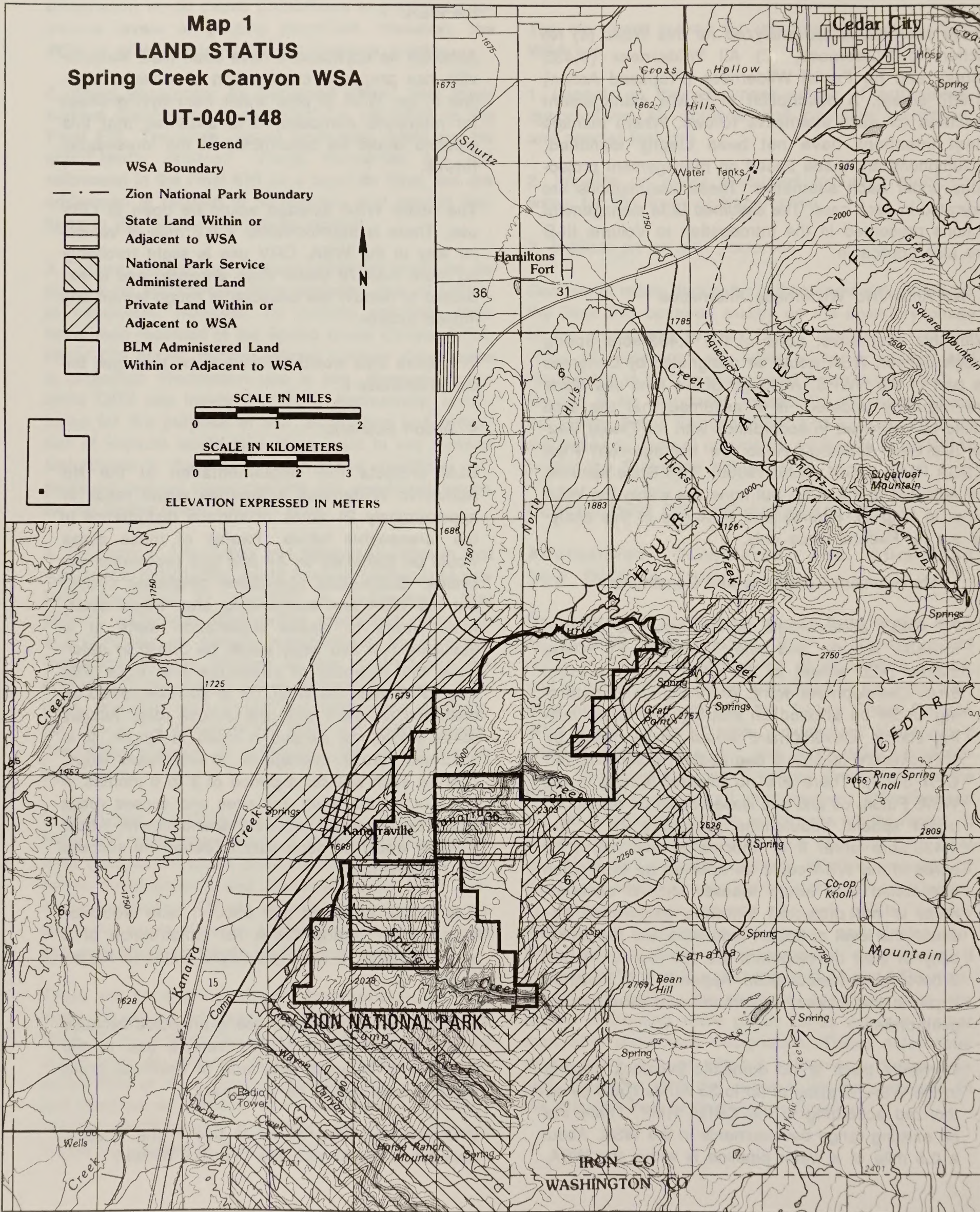
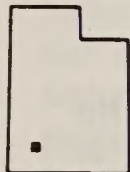
SCALE IN MILES



SCALE IN KILOMETERS



ELEVATION EXPRESSED IN METERS



SPRING CREEK CANYON WSA

estimated use of approximately 700 visitor days annually, at a rate of 2 to 7 percent per year. Ninety percent of the use would continue to be primitive in nature.

Approximately 10 percent of the use (70 visitor days) would be vehicular in nature.

- All Wilderness Alternative

With this alternative, all 4,433 acres of the Spring Creek Canyon WSA would be designated by an act of Congress as part of the NWPS (refer to Map 2). This WSA lies adjacent to Zion National Park and is contiguous with a 120,620-acre NPS-proposed wilderness. Because this WSA lacks the necessary size to constitute a wilderness area by itself, it could only be managed in part with the NPS-proposed wilderness. As a result, the Spring Creek Canyon WSA could be retained by BLM or transferred along with nine other small WSAs (refer to Map 3). NPS would then assume management responsibilities. For the purposes of this analysis, it is assumed that BLM would retain management of the Spring Creek Canyon WSA and would manage it in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) to preserve its wilderness character. Two State sections are located adjacent to the WSA (refer to Map 1). No private, State, or split-estate lands are located in the WSA.

- Management Conditions and Constraints

After wilderness designation, all 4,433 acres would be withdrawn from mineral location and closed to new mineral leasing and sale. Exploration or development could occur on that portion of 21 existing mining claims (420 acres) that may be determined to be valid. Neither exploration nor development are expected in the foreseeable future because of low reserve potential. There are no existing oil and gas leases and new leases would not be issued.

Domestic livestock grazing (33 AUMs) could be allowed.

The 0.5 mile of water pipelines in the WSA could be maintained.

A proposed water pipeline in Spring Creek would not be allowed.

The entire 4,433-acre area would be closed to ORV use except for: (1) users with valid existing

rights if approved by BLM in accordance with 43 CFR 8560 provisions; or (2) for occasional and short-term vehicular access approved by BLM for maintenance of approved livestock developments. There is a 0.5 mile of way in the WSA that would be closed to use. Roads that form the boundary of the WSA for approximately 2 miles would remain open to use.

Visual resources in the wilderness would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change.

- Action Scenario

No surface disturbance is projected in the foreseeable future. No mineral exploration or development is projected on existing leases in the WSA. Implementation of the All Wilderness Alternative would preclude new mining claim location and mineral leasing. Therefore, no locatable or leasable mineral resources exploration or development would occur following wilderness designation. No rangeland, wildlife habitat, watershed projects, or other developments are planned following wilderness designation, nor would ORV use be allowed. Recreation use in the foreseeable future would be primitive in nature and would increase over the current estimated primitive use of approximately 630 annual visitor days at a rate of 2 to 7 percent per year.

- Partial Wilderness Alternative (Proposed Action) (1,607 Acres)

With this alternative, 1,607 acres in the southern part of the Spring Creek Canyon WSA would be designated as wilderness (refer to Map 4). The objective of this alternative is to analyze as wilderness that portion of the WSA that is contiguous with the proposed wilderness in Zion National Park, while eliminating the northern part (2,826 acres) that is separated basically from the southern part by State and private lands. The northern part is tied to the 1,607-acre southern part by only a section corner.

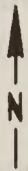
The 2,826 acres within the WSA but outside of that designated as wilderness would be managed in accordance with the CBGA RMP as described for the No Action/No Wilderness Alternative. The 1,607-acre area designated as wilderness would be managed in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) as described in the All

SPRING CREEK CANYON WSA

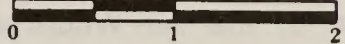
Map 2 ALL WILDERNESS ALTERNATIVE Spring Creek Canyon WSA UT-040-148

Legend

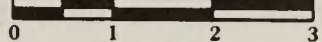
- All Wilderness Alternative (4,433 acres)
- - - Zion National Park Boundary



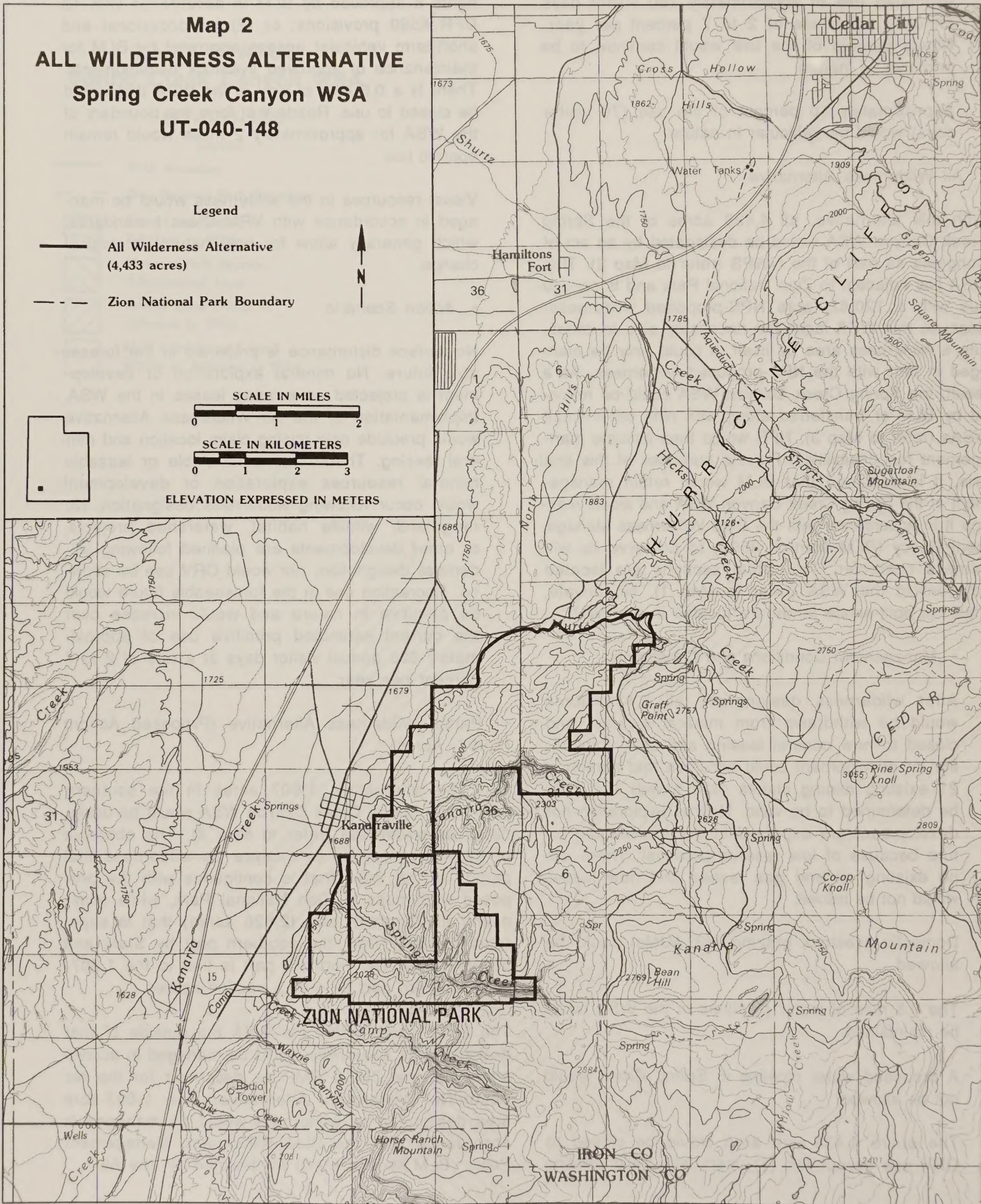
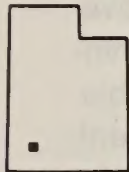
SCALE IN MILES



SCALE IN KILOMETERS



ELEVATION EXPRESSED IN METERS



T. 36 S.

T. 37 S.

T. 38 S.

R. 12 W.

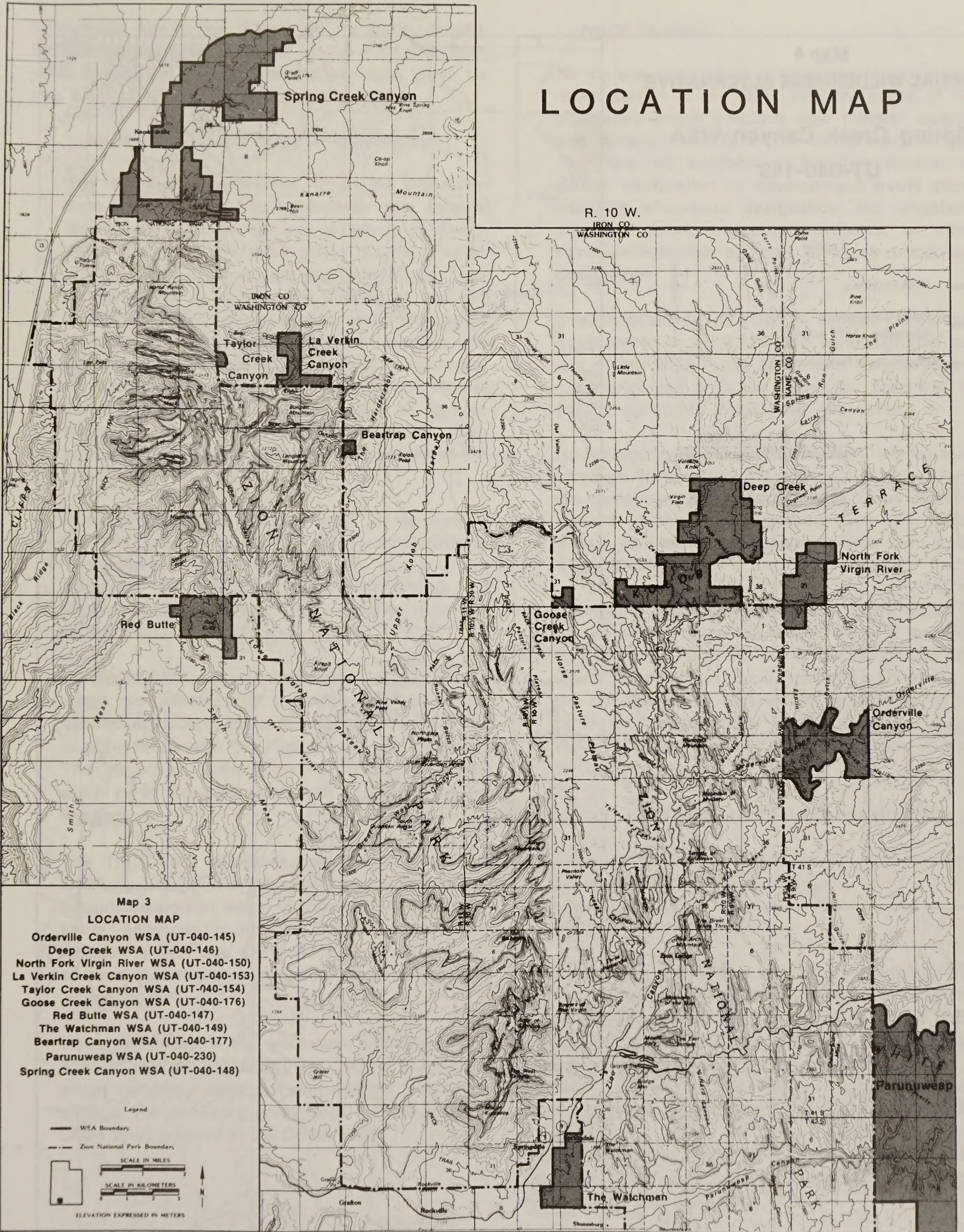
R. 11 W.

SPRING CREEK CANYON WSA

R. 12 W.

R. 11 W.

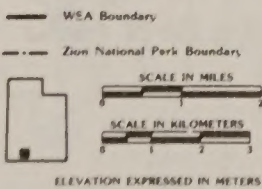
LOCATION MAP



Map 3
LOCATION MAP

- Orderville Canyon WSA (UT-040-145)
- Deep Creek WSA (UT-040-146)
- North Fork Virgin River WSA (UT-040-150)
- La Verkin Creek Canyon WSA (UT-040-153)
- Taylor Creek Canyon WSA (UT-040-154)
- Goose Creek Canyon WSA (UT-040-176)
- Red Butte WSA (UT-040-147)
- The Watchman WSA (UT-040-149)
- Beartrap Canyon WSA (UT-040-177)
- Parunuweap WSA (UT-040-230)
- Spring Creek Canyon WSA (UT-040-148)

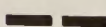
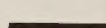
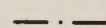
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SPRING CREEK CANYON WSA

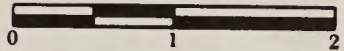
Map 4 PARTIAL WILDERNESS ALTERNATIVE Spring Creek Canyon WSA UT-040-148

Legend

-  WSA Boundary
-  Partial Wilderness Alternative (1607 acres)
-  Zion National Park Boundary



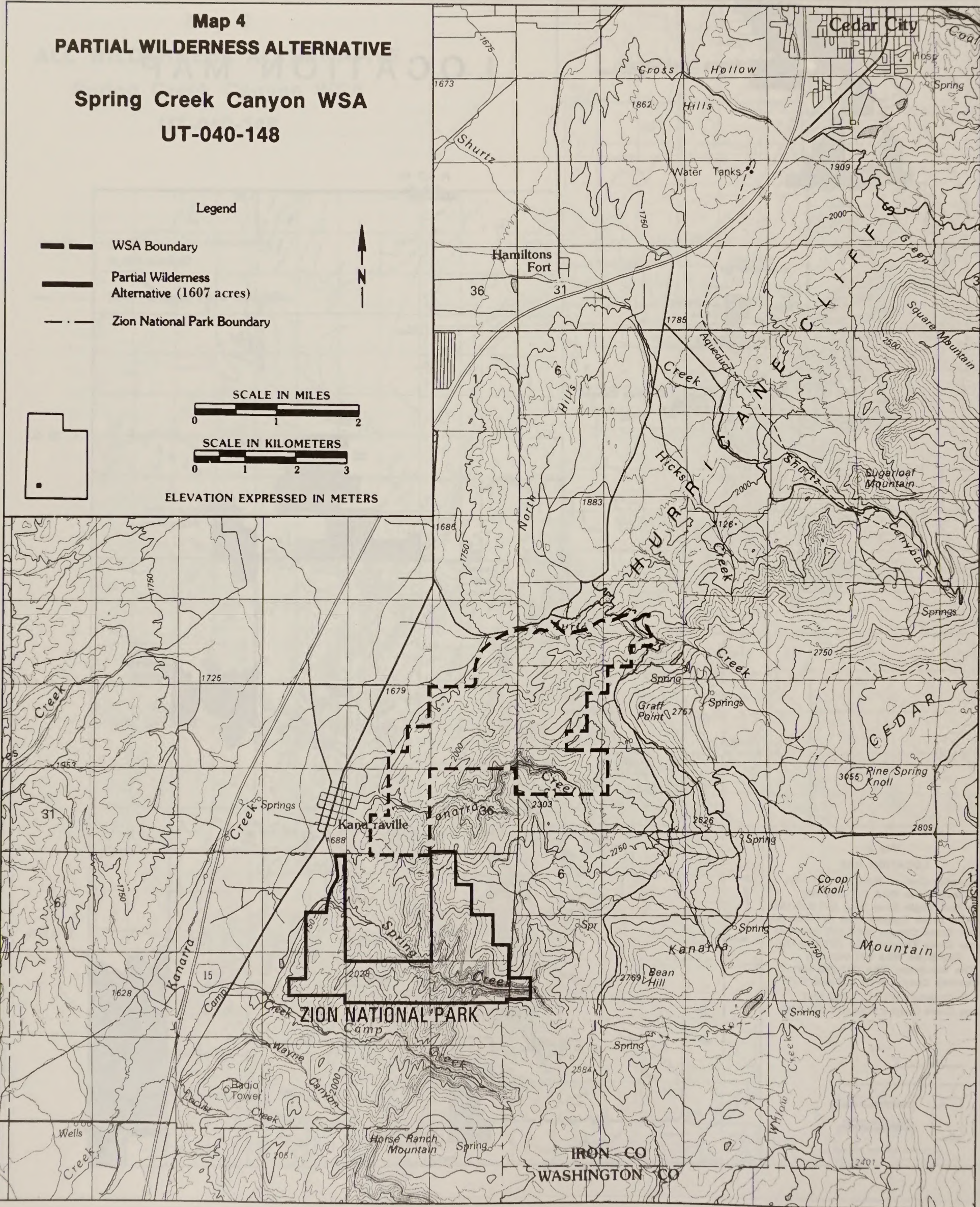
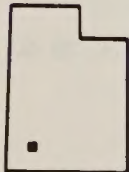
SCALE IN MILES



SCALE IN KILOMETERS



ELEVATION EXPRESSED IN METERS



T. 36 S.

T. 37 S.

T. 38 S.

R. 12 W.

R. 11 W.

SPRING CREEK CANYON WSA

Wilderness Alternative. There are no State, private, or split-estate lands involved in the Partial Wilderness Alternative. The figures and acreages given for this alternative are for Federal lands only.

- Management Conditions and Constraints

The 1,607-acre wilderness would be withdrawn from mineral entry and closed to new mineral leasing and sale. Oil and gas leases in the designated portion of the WSA would not be reissued unless a find of oil or gas resources in commercial quantities is shown. The 2,826-acre northern part of the WSA not designated wilderness would be open to future mineral location, leasing, and sale. The area not designated would be managed as leasing Category 2 (open with special stipulations). Future leases in this area could be developed without concern for wilderness values. Two acres of surface disturbance is projected in the foreseeable future.

Domestic livestock grazing would be allowed in the wilderness area and the nondesignated area. Thirty-three AUMs would remain available for livestock. No additional livestock, wildlife, or watershed developments are planned or expected in the foreseeable future.

In the 2,826-acre nonwilderness area, future water resource facility developments would be allowed without concern for wilderness values, if in accordance with the RMP. None are expected. The proposed water pipeline in Spring Creek would be in the designated area and would not be allowed.

The 1,607-acre wilderness would be closed to ORV use. Part of the 0.5 mile of way is in the nondesignated portion would remain open to vehicular travel. Although the nondesignated portion would be open to ORV use, ORV use is slight and expected to stay that way because of rough terrain and limited access.

Visual resources in the wilderness would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change. The remaining acres would be managed as Class II, as outlined in the CBGA RMP.

- Action Scenario

No surface disturbance is projected for the designated portion of the WSA. Implementation of this alternative would preclude new mineral location and mineral leasing in the designated portion. Therefore, no locatable or leasable mineral resource exploration or development would occur following wilderness designation. No rangeland, wildlife habitat, watershed projects, or other developments are planned following wilderness designation.

It is projected that 2 acres of surface disturbance would occur in the 2,826-acre nondesignated portion of the WSA in the short term due to oil and gas exploration on future leases as described for the No Action/No Wilderness Alternative.

No disturbance is projected from ORV use because of rough terrain and management constraints in the designated area and because of terrain constraints in the nondesignated area that would mostly limit vehicular activity to less than a 0.5 mile of way.

Recreation use in the foreseeable future would increase overall in the WSA at a rate of 2 to 7 percent annually. All of the use in the designated area would be primitive and 90 percent of the use in the nondesignated area would be primitive in nature. The current ORV use in the portion that would not be designated is approximately 35 visitor days per year.

Summary of Environmental Consequences

Table 1 summarizes the environmental consequences of the alternatives analyzed in detail.

AFFECTED ENVIRONMENT

This section describes the overall environmental setting for the Spring Creek Canyon WSA. This information allows for independent assessment by the public as required by the CEQ guidelines and provides a data base for the cumulative Statewide analysis found in Volume I, as well as for the Environmental Consequences of Alternatives section of this WSA analysis.

Unless otherwise indicated, information for this section was taken from BLM staff specialists, technical reports, and file documents.

SPRING CREEK CANYON WSA

Table 1
Summary of Environmental Consequences

| | | Alternatives | |
|--|---|---|--|
| Resource | No Action/No Wilderness | All Wilderness (4,433 Acres) | Partial Wilderness (1,607 Acres) (Proposed Action) |
| Impacts on Wilderness Values | Wilderness values would not be protected by wilderness designation and loss would occur as intrusions increase. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 21 acres and indirectly reduced in quality on up to an additional 180 acres due to disturbance from mineral exploration and water development. Special features would not be significantly affected except for loss of scenic quality in disturbed and adjacent areas. Vehicular use of 0.5 mile of ways in two areas would occasionally detract from opportunities for solitude and primitive recreation. | Wilderness designation would preserve the wilderness values of naturalness, outstanding opportunities for solitude and primitive recreation, and special features, including Class A scenery, endangered or sensitive species, and wildlife associated with wilderness, wherever these values are found in the WSA. | Wilderness values would be preserved in the designated portion which is approximately 36 percent of the WSA. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 2 acres and indirectly reduced in quality on up to an additional 18 adjacent acres in the nondesignated portion due to disturbance from mineral exploration. Class A scenery would be reduced in quality on disturbed and adjacent acres in the nondesignated area. Vehicular use of less than 0.5 mile of way in the nondesignated portion would occasionally detract from opportunities for solitude and primitive recreation. |
| Impacts on Water Resources | Existing and future uses of the water resources in the WSA by the town of Kanarraville would not be affected because construction of a pipeline would be allowable. | Wilderness designation would not affect current uses of Kanarra Creek, but development of a pipeline to deliver water from Spring Creek Canyon to Kanarraville would not occur. | Wilderness designation would not affect current uses of Kanarra Creek, but development of a pipeline to deliver water from Spring Creek Canyon to Kanarraville would not occur. |
| Impacts on Mineral and Energy Exploration and Production | Mineral exploration would not be affected because future leasing and location of mining claims and development could occur without constraints for preservation of wilderness values. | Wilderness designation would eliminate potential exploration opportunities for mineral resources in the WSA. Due to the small size of potential mineral deposits in the WSA and because development is unlikely even without wilderness designation, it is concluded that this alternative would not significantly affect mineral resource development. | Opportunities for mineral exploration would be eliminated in the designated area, but not in the nondesignated area. Due to the small size of potential mineral deposits in the WSA, and because development is unlikely even without wilderness designation, it is concluded that this alternative would not significantly affect mineral resource development. |

SPRING CREEK CANYON WSA

Wilderness Values

• Size

The Spring Creek Canyon WSA is approximately 6 miles long and 3 miles wide, encompassing 4,433 acres.

• Naturalness

Short ways are found in the mouths of Spring Creek and Kanarra Canyon. Combined they are about a 0.5 mile long. There is also a water pipeline in Kanarra Canyon that crosses about a 0.5 mile of the WSA. A fenced community dump site near the mouth of Spring Creek Canyon is outside the WSA boundaries.

• Solitude

The WSA is an extremely rugged area. Topographic screening is the major factor contributing to the opportunity for solitude in the WSA. Forests and dense riparian vegetation in Kanarra and Spring Creek Canyons enhance the topographic screening in the WSA.

Kanarra and Spring Creek Canyons occupy over 66 percent of the WSA. The Spring Creek Canyon system is extremely dissected. The upper elevations and upper portions of the canyon possess a moderately dense spruce-fir cover. The northern area which includes Kanarra Canyon exhibits features similar to those contributing to solitude in the Spring Creek Canyon area.

An elevation drop of almost 3,000 feet in 1 mile is maintained throughout the unit. At the base of the WSA, the flats and the face of the initial ridge do not provide an opportunity for solitude. In the upper portion of the WSA the opportunity is also lacking where Woods Hollow and Oak Spring Flat extend into the WSA.

Overall, approximately 3,728 acres (84 percent) of the WSA possess outstanding opportunities for solitude.

• Primitive and Unconfined Recreation

The Spring Creek and Kanarra Canyon systems offer outstanding hiking, exploring, and backpacking opportunities. Almost 50 percent of the 6.5-mile Spring Creek Canyon system is within the unit, including the most entrenched portion of the canyon system.

The sandstone ridge and cliffs that extend north of Kanarra Canyon also provide numerous options for hiking and backpacking. Much of this rugged area lacks well-defined routes, but is conducive to exploration. Woods Hollow, the Saucer, and Oak Springs Flat in the WSA are excellent hiking areas. Some of the lower ridges in this area would offer only mediocre foot travel experiences.

Overall, outstanding opportunities for primitive and unconfined recreation are present on approximately 3,568 acres (81 percent) of the WSA.

• Special Features

The WSA has resource values that, although not identified as such during the wilderness inventory, could be considered special features. Two animal species (bald eagle and peregrine falcon) listed as endangered may occur in the WSA. There are 14 animal species and 4 plant species that are considered sensitive (refer to the Vegetation and Wildlife Including Special Status Species sections for more information). The WSA also has cougar, which is a wildlife species commonly associated with wilderness. Approximately 73 percent (3,233 acres) of the WSA is rated Class A for scenic quality. The WSA has scenic values similar to those found in contiguous Zion National Park.

• Diversity

This WSA is in the transition zone of the Intermountain Sagebrush and Rocky Mountain Forest Province ecoregions with the PNV type of juniper-pinyon woodland (refer to the Vegetation Including Special Status Species section for more discussion on ecoregions and PNV types). To see how the ecoregion and PNV types represented by this WSA compare Statewide and nationally with existing and potential National Wilderness Preservation Units, refer to the Wilderness Values section in Volume I.

The WSA is within a 5-hour drive from two standard metropolitan statistical areas, Las Vegas, Nevada; and Provo-Orem, Utah.

Air Quality

The air quality is excellent (PSD Class II). Visual ranges in excess of 100 miles occur 75 percent of the time, and ranges in excess of 155 miles occur 10 percent of the time (USDI, BLM, 1980c). Zion National Park is designated as Class I under the PSD regulations.

SPRING CREEK CANYON WSA

Geology and Topography

The Spring Creek Canyon WSA is within the Grand Staircase section of the Colorado Plateau Physiographic Province. Flat uplands, dissected by deep narrow canyons with vertical walls as much as several hundred feet high, are common.

Sedimentary rocks of Permian, Triassic, and Jurassic ages are exposed in the WSA. These include strata of the Kaibab, Moenkopi, Chinle, Moenave, Kayenta, Navajo, and Carmel Formations. Most of the WSA is very steep terrain, dissected by the east to west Hurricane Fault which has a 2,300-foot escarpment.

Cedar Valley forms the western edge of the unit at an elevation of 5,500 feet. Intermittent and perennial drainages dissipate as they emerge onto the valley floor forming alluvial valley fans.

Soils

The erosion condition, as determined by using soil surface factors, is summarized in Table 2 (terms are defined in the Glossary).

Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | Acres | Percent of WSA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|-------|----------------|--------------------------------------|
| Severe | 5.4 | 0 | 0 | 0 |
| Critical | 2.7 | 0 | 0 | 0 |
| Moderate | 1.3 | 700 | 16 | 910 |
| Slight | 0.6 | 533 | 12 | 320 |
| Stable | 0.3 | 3,200 | 72 | 960 |
| Total | | 4,433 | 100 | 2,190 |

Sources: USDI, BLM, 1978c and 1979c; Leifeste, 1978.

Erosion classes are stable, 3,200 acres (72 percent); slight, 533 acres (12 percent); and moderate, 700 acres (16 percent). The salinity class is rated as slight. Salt production may be up to 66 lb per acre under undisturbed conditions.

The soils on this unit are highly erodible, shallow, rocky, gravelly loams derived from sedimentary parent material. Bedrock (often limestone) lies at a depth of 10 to 20 inches. Slopes are steep to very steep. These soils are among the poorest classes and are highly susceptible to erosion. They are unsuitable for seeding because of steep slopes, rockland, and rock outcrop with no soil.

Vegetation Including Special Status Species

This WSA is located in a vegetation transition zone. Plant species representative of the high elevations include aspen, Douglas fir, Ponderosa pine, and Gambel's oak with an understory of mountain mahogany, snowberry, chokecherry, manzanita, currant, and elderberry. Associated grasses include bluebunch wheatgrass, slender wheatgrass, mountain brome, orchard-grass, and needle-and-thread grass. There is seldom a dense cover of vegetation. Plants are spaced to take advantage of available moisture; therefore, vegetation is more dense on the more moist north- and west-facing slopes. The lower elevations are characterized by dry slopes hosting pinyon pine, Utah juniper, Gambel's oak, Utah serviceberry, curl-leaf mountain mahogany, cliffrose, single-leaf ash, and sagebrush with associated grasses, such as, galleta, Indian ricegrass, squirreltail, threeawn, mutton-grass, and cheatgrass. These open exposures have 10 to 20 percent cover resulting in a scrubby landscape with much exposed rock.

Dissecting the WSA are drainages where limited amounts of riparian vegetation can be found. Sedges, rushes, willows, cottonwoods, velvet ash, maples, blackberry, chokecherry, birch, and associated grasses are found in the riparian area.

No threatened or endangered plant species are known to occur in the WSA. However, the WSA may contain four Category 2 candidate species. These are Asplenium andrewsii, Erigeron sionis, Heterotheca jonesii, and Sphaeromeria ruthiae (see Appendix 4 in Volume I).

This WSA is in the transition of the Intermountain Sagebrush and Rocky Mountain Forest Province Ecoregions, as shown on the Bailey-Kuchler ecosystems map (USDI, USGS, 1978a). The PNV type of the WSA is juniper-pinyon woodland.

Water Resources

The Spring Creek Canyon WSA is located in the Virgin River subbasin of the Lower Colorado River Basin hydrologic subregion. There are two main perennial water drainages (2.5 miles) in the WSA, Kanarra Creek and Spring Creek. They are tributaries of Ash Creek.

The unit has potential for well development due to the underlying Navajo Sandstone Formation. This formation is known to be a good groundwater producer.

SPRING CREEK CANYON WSA

There are no known wells within the WSA and there is no present demand for well development in the area.

The water rights in the WSA are fully appropriated. Surface and groundwater sources are closed to further water right applications (UDNRE, DWR 1988). There is an ongoing water right adjudication being conducted by the Fifth Judicial District Court for the Virgin River Drainage for the general determination of rights to the use of water both surface and underground.

The town of Kanarraville (population of 250) pipes its culinary water from Kanarra Creek within the WSA. An additional pipeline has been proposed. One individual has rights on a spring within the unit.

The water quality classification for Ash Creek and tributaries, from confluence with the Virgin River to headwaters are: Class 1C (protected for domestic purposes with prior treatment by treatment processes as required by the Utah Department of Health), Class 3A (protected for cold water species of game fish and other cold water aquatic life), and Class 4 (protected for agricultural uses including irrigation of crops and stock watering). The water quality is suitable for these uses and there are no point sources of pollution within the WSA.

Mineral and Energy Resources

The energy and mineral resource rating summary for the Spring Creek Canyon WSA is given in Table 3. The mineral and energy rating system is explained in Appendix 5 in Volume I.

Table 3
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|---------------|---------------------------|------------------------|---|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f2 | c1 | Less than 10 million barrels of oil; less than 60 billion cubic-feet of gas |
| Uranium | f2 | c2 | Less than 500 metric-tons of uranium oxide |
| Hydroelectric | f2 | c4 | From 0.05 to 15 megawatts |

Source: SAI, 1982; USDI, BLM, 1987.

^aFavorability of the WSA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

There are no strategic or critical minerals known to occur within the WSA (USDoD, 1988).

• Leasable Minerals

There are no known deposits of any leasable minerals in the WSA. Currently, there are no active drilling, mining, or exploration activities for leasable minerals.

• Oil and Gas

Based on similarities between the WSA and the nearby Anderson Junction oil field (located approximately 18 miles south), the WSA has potential for small accumulations of hydrocarbons. Three exploration wells have been drilled north of the tract, and good oil shows have been reported from two of these wells. To date, however, no commercial oil and gas potential has been identified in the WSA.

The favorability of the tract for oil and gas is rated (f2) (SAI, 1982). The size of the hydrocarbon accumulation in such an environment is anticipated to be less than 10 million barrels of oil or less than 60 billion cubic-feet of gas. Based on the available information, the certainty of occurrence for oil and gas is rated low (c2).

Under the current land use plan, all 4,433 acres of the WSA are in Category 2 (special stipulations). There are presently no oil and gas leases in the WSA.

• Locatable Minerals

There are no known deposits of locatable minerals in the WSA. There are presently 21 mining claims, covering 420 acres.

• Uranium

Uranium-bearing veins are found in carbonate and plastic sedimentary rocks in the Permian Kaibab Limestone, in an area along the Hurricane Fault. Minor production may have occurred at the Kolob Mine, located approximately 6 miles southwest of the WSA. At the Silver Reef District, located about 23 miles south of the WSA, minor amounts of uranium have been obtained from the Springdale Sandstone Member of the Moenave Formation. The Kaibab, the Moenave, and the Chinle (also somewhat favorable for uranium) crop out

SPRING CREEK CANYON WSA

in the WSA. SAI has assigned the WSA an uranium favorability rating of (f2) (containing less than 500 metric-tons of uranium oxide) (SAI, 1982). Based on available information, the certainty that uranium deposits occur in the WSA is very low (c1).

- Salable Minerals

Stream gravel and other loose rock material that could be used for construction occur within the WSA. These deposits are not unique or economically significant due to the presence of ample similar materials outside the WSA.

Wildlife Including Special Status Species

The WSA is an unusual area for wildlife. Near Kanarraville is the southernmost extension of the Great Basin, with the eastern boundary being the Hurricane Cliffs. These cliffs are also a dramatic divider between the Basin and Range and the Colorado Plateau to the east. Therefore, these two regions allow some overlap of species distribution common to each.

Approximately 198 vertebrate animal species inhabit in the WSA. These include 45 mammal species, 130 bird species, five amphibian species, and 18 reptile species.

One active peregrine falcon (Falco peregrinus) nest is known to exist in the WSA in Spring Creek Canyon. One other Federally endangered wildlife species, bald eagle (Haliaeetus leucocephalus), is also suspected to be using the WSA. Bald eagles winter in the Cedar and Kanarraville valleys and can be regularly sighted from late October through mid-April. These birds are suspected of nesting or roosting in some of the steep canyons of the WSA. Bald eagles perch in the cottonwood trees along the western boundary and the peregrine falcon has been sighted near Quichapa Lake west of the WSA. However, these birds are considered migrants. The adjacent Zion National Park is supporting a breeding pair of peregrine falcons. The habitat in Spring Canyon and Kanarra Creek supports a terrestrial prey-based prairie falcon population and contains nesting terrain. Numerous active and inactive golden eagle nests have been located in Spring Creek and Kanarra Creek drainages outside the WSA. Other sensitive wildlife species that could exist in this WSA are: spotted bat, long-tailed pocket mouse, short-tailed weasel, Utah tiger salamander, Utah milk snake, Utah mountain king snake, merlin, road run-

ner, spotted owl, Lewis woodpecker, and western and mountain bluebirds.

The Category 2 candidate threatened or endangered species which may be present in the WSA include the Great Basin Silverspot butterfly and Virgin River montane vole (see Appendix 4 in Volume I).

Mule deer and cougar are the important big game species. The western and northern foothills and slopes of the WSA are considered crucial winter range for mule deer. The remainder of the unit is generally yearlong range. The Spring Creek Canyon WSA contains cougar habitat and is within Utah Cougar Management Unit 30, Cedar Mountain. Cougar populations and harvest by sport hunters and by the Animal Damage Control Program has been higher in this management unit than in any other location in Utah. During the 11-year period (1977 through 1987), a total of 217 cougars were taken from the Cedar Mountain Management Unit. This harvest averaged nearly 20 animals per year (UNDRE, DWR, 1988). It has not been determined how many of these may have been taken from within the WSA.

No acres are planned for vegetation treatment nor are any wildlife facilities proposed.

Forest Resources

The forest resources found in the WSA consist of scattered pinyon-juniper woodland, aspen, Douglas fir, Ponderosa pine, and Gambel's oak. However, because of the WSA's lack of access and the availability of these resources in abundance elsewhere, there is no current demand for forest products in the WSA and no demand is projected in the foreseeable future.

Livestock and Wild Horses/Burros

Most of this WSA is not conducive to livestock grazing because of steep terrain, fragile soils, low forage production, and no potential for range improvement.

A total of 33 AUMS of forage per year are available for livestock. One permittee on the Kanarra Mountain allotment has not utilized grazing privileges in recent years. The Graff Point allotment is currently unallotted.

There are no range improvement structures and none are planned.

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Predator control was not conducted during the 1986 to 1987 period in the grazing allotments that comprise the Spring Creek Canyon WSA (USDA, APHIS, 1988).

There are no wild horses or burros within the WSA.

Visual Resources

The entire WSA is rated as VRM Class II for management.

Approximately 3,233 acres are Class A scenery because of predominant relief features, exceptionally striking color contrasts, variety of vegetation types, cascading water, unusual canyons, and no discordant sites and influences of man. Approximately 1,200 acres in the northern portion of the unit are rated as Class B scenery because, although there are some outstanding features similar to those found in the Class A area, most of the unit is fairly common to the physiographic region. Refer to Appendix 7 in Volume I for a description of the BLM VRM rating system.

Cultural Resources

No archaeological inventory exists for this specific WSA and no cultural values have been identified.

Recreation

Access from the west side is via primitive dirt ways up Kanarra Creek and Spring Creek. The county-maintained road from Cedar Mountain to Kolob Reservoir parallels the east boundary. This road is commonly used by wheeled vehicles for 8 months and snowmobiles for 4 months per year. Many people wander over to the ridges to view the scenery, hunt, picnic, and hike into the WSA, but use figures are not available. Some limited ORV use occurs in Spring Creek Canyon, mostly outside the WSA. Use usually terminates in State Section 2 because of rough terrain. There is approximately a 0.5 mile of vehicular way in the WSA.

The colorful canyons offer excellent hiking, photography, backpacking, ice climbing, rock climbing, horseback riding, and hunting. The latter two are somewhat restricted due to the rough topography. Ice climbing was added to the list of recreational opportunities as a result of public comments during the Intensive Wilderness Inventory (USDI, BLM, 1980b). Apparently, this activity is enjoyed at Kanarra Creek

during winter months, but the extent of use is not known.

Overall, it is estimated that recreational use does not exceed 700 visitor days annually. No more than 10 percent of the use would be vehicular in nature.

Land Use Plans

The WSA is managed under the CBGA RMP (USDI, BLM, 1986b) as discussed in the description of the No Action/No Wilderness Alternative. Wilderness is not addressed in the RMP. However, wilderness is part of the BLM multiple-use concept and the BLM land use plan is linked to the Statewide Wilderness EIS through analysis of the present plan as the No Action/No Wilderness Alternative.

There are no State or private in-holdings or subsurface rights in the WSA.

Presently, the WSA is being used as open space. There are no significant specific land uses in progress. There is a short easement (approximately a 0.5 mile) for crossing of a water pipeline at the southwest corner of the unit. This was issued to the Kanarrville Town Corporation on July 29, 1969. There is a proposal for another water pipeline down Spring Creek (within the WSA boundary) to Kanarrville and a proposed rights-of-way outside the east boundary for a water line from Kolob Reservoir to Cedar City. However, there are no pending applications.

The Spring Creek Canyon WSA is contiguous with 120,620 acres in Zion National Park that are recommended for wilderness by NPS. In response to H.R. 1214 (Ninety-Eighth Congress of the U.S., 1983), the NPS assessed the WSA to determine its value for potential addition to the adjacent NPS unit (USDI, NPS, 1984c). The NPS concluded that the WSA would add a minor buffer to the park boundary, but would be insignificant in terms of its value and contribution to the NPS area.

Part of Spring Creek Canyon WSA (1,607 acres) was recommended as suitable for inclusion into the adjacent unit of the national park system (U.S. Secretary of the Interior, 1985b). Although the WSA did not meet all the NPS criteria for inclusion into the park, there was no objection to transferring the WSA from BLM to NPS because the WSA is isolated by park and private lands and is uneconomical for BLM to manage. No Congressional action has been taken on that recommendation.

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The Iron County Planning Commission appears to have no land use plans for this unit. The Iron County Land Management Code identifies the WSA as an open space zone, and the Iron County Commission has indicated that they do not support wilderness designation for this area. The Commission has endorsed the Consolidated Local Government Response to Wilderness that opposes wilderness designation of BLM lands in Utah (Utah Counties, 1986).

Socioeconomics

• Demographics

The WSA is in Iron County. From 1970 to 1980, the population of Iron County grew from 12,177 to 17,500, an overall increase of about 44 percent. Table 4 presents the baseline and projected population data for Iron County. Population projections indicate that the number of people living in Iron County in the year 2010 will be about 26,400 for about a 51-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

Table 4
Baseline and Projected Population and Employment Growth
Iron County

| | 1980 | 1990 | 2000 | 2010 |
|------------|--------|--------|--------|--------|
| Population | 17,500 | 21,000 | 22,500 | 26,400 |
| Employment | 6,968 | 8,600 | 10,500 | 12,300 |

Source: Utah Office of Planning and Budget, 1987.

• Employment

Table 4 shows the baseline and projected total employment for Iron County to the year 2010.

Iron County is part of the Southwest MCD. Table 5 shows the baseline (1980) and projected employment by source for the MCD to the year 2010.

In 1980 the leading employment sectors for the Southwest MCD were government (23 percent), trade (20 percent), and nonfarm proprietors (12 percent). Mining provided less than 3 percent of the employment in the MCD.

It is projected that by the year 2010, employment in the MCD will more than double, and services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 3 percent, mining to less than 1 percent, and government to 18 percent of the total.

Table 5
Southwest Multi-County District
Employment*

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|--------------|--------------|--------------|--------------|
| Agriculture | 1,810 | 1,700 | 1,600 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,600 | 3,300 |
| Transportation, Utilities | 1,008 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 8,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 8,900 | 8,900 |
| Government | 4,818 | 5,800 | 8,500 | 8,100 |
| Nonfarm Proprietors | <u>2,386</u> | <u>3,100</u> | <u>3,500</u> | <u>4,700</u> |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

*Includes Beaver, Garfield, Iron, Kane, and Washington Counties.

• Sales and Revenues

Economic-related activities in the WSA include mining claim assessment and recreation. Table 6 summarizes the local sales and Federal revenues from the WSA. Appendix 9 in Volume I identifies the multipliers used to estimate sales and revenues.

Table 6
Sales and Revenues

| Source | Estimated Annual Local Sales* | Estimated Annual Federal Revenues |
|-------------------------|----------------------------------|--------------------------------------|
| Mining Claim Assessment | \$2,100 | 0 |
| Recreational Use | <u>\$2,870</u> | <u>0</u> |
| Total | \$4,970 | 0 |

Sources: BLM File Data; Appendix 9 in Volume I.

*Local sales represent money potentially spent. They do not account for the total income that would be generated by these expenditures.

No oil and gas or mineral production has occurred in the WSA. Therefore, mineral and energy resource production from the WSA has not contributed to local employment or income. The WSA has 21 mining claims. Regulations require a \$100 annual expenditure per claim for labor and improvements, an undetermined part of which is spent in the local economy.

There is no livestock grazing of the 33 AUMS in the WSA, and therefore, no sales or revenues from this source are attributed to the WSA.

The WSA's nonmotorized recreational use and related local expenditures are low. These expenditures are insignificant to the local economy. The actual amount

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of income generated locally from recreational use in the WSA is unknown. However, an approximate range of expenditures can be deduced (Dalton, 1982). This study indicates that the Statewide average local expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for the Spring Creek Canyon WSA is estimated to be about 700 visitor days per year.

The WSA does not generate any Federal revenues from leasable minerals at the present time.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This section describes the environmental consequences of implementing the alternatives. The analysis is based on the BLM management actions and anticipated activities presented in the Introduction to Volume III-B and the Description of the Alternatives for the Spring Creek Canyon WSA.

No Action/No Wilderness Alternative

• Impacts on Wilderness Values

Because the WSA would not be designated wilderness with this alternative, the identified wilderness values would not receive the degree of protection afforded by application of the BLM Wilderness Management Policy (BLM Manual 8560). Wilderness values in the WSA would be somewhat protected by limitations placed on potential surface-disturbing activities (i.e., VRM Class II management on all 4,433 acres).

Disturbance of approximately 21 acres from a water pipeline and oil and gas exploration and access roads is likely in the foreseeable future and would result in a loss of naturalness, solitude, and opportunities for primitive, unconfined recreation in the disturbed areas involving less than 1 percent (21 acres) of the WSA, but not in the area as a whole. During the period of activity, the visual and audible disturbance from these activities would reduce opportunities for solitude and primitive recreation not only on directly disturbed areas, but also on adjacent portions of the WSA. As much as 4 percent (180 acres) of the WSA could be so affected in the foreseeable future.

Because vehicle use would continue to be mainly restricted by terrain to the 0.5 mile of existing way where it is currently occurring, and to any new access roads developed for mineral exploration, no

increased loss of naturalness is anticipated from this activity.

Because projected disturbance is minimal, the only special feature that would be affected is the area's high quality scenery, which would be reduced in quality in disturbed and adjacent areas. Appropriate measures would be taken to protect endangered and sensitive species prior to any surface-disturbing activity, and it can be assumed that no significant negative impact would occur to these species.

The 2 to 7 percent annual increase in visitor use that would occur over time would not be expected to significantly reduce wilderness values because the use would be mostly (90 percent) primitive in nature. Vehicular use of ways would occasionally distract from the quality of solitude and opportunity for primitive recreation.

The extent that disturbance would occur over the long term and, therefore, the long-term loss of wilderness values that would occur, is not accurately known, but loss would occur as intrusions increase.

This alternative would not complement the NPS proposal for wilderness management of the contiguous portion of Zion National Park.

Conclusion: Wilderness values would not be protected by wilderness designation, and loss would occur as intrusions increase. In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 21 acres and opportunities for solitude and primitive recreation would be indirectly reduced in quality on up to an additional 180 acres. Special features would not be significantly affected except for loss of scenic quality in disturbed and adjacent areas.

• Impacts on Water Resources

This alternative would have no affect on the continued use of Kanarra Creek as a municipal water source. A proposed water pipeline in Spring Creek Canyon could be constructed to supply additional water to Kanarraville.

Conclusion: Existing and future use of the water resources in the WSA by the town of Kanarraville would not be affected by implementation of the No Action/No Wilderness Alternative.

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- Impacts on Mineral and Energy Exploration and Production

This alternative would not affect exploration of mineral and energy resources in the WSA, because mineral leasing, location of mining claims, and development of mineral would occur without the restrictions of wilderness management.

Conclusion: Implementation of the No Action/No Wilderness Alternative would not affect mineral exploration in the WSA.

All Wilderness Alternative

- Impacts on Wilderness Values

Designation and management of all 4,433 acres as wilderness would preserve the wilderness values in the Spring Creek Canyon WSA. The potential for surface-disturbing activities would be eliminated through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I which allows for only natural ecological change. Naturalness would be preserved on all 4,433 acres. Solitude would be preserved on approximately 3,728 acres that meet and 705 acres that do not meet the standards for outstanding opportunities. Primitive and unconfined recreation would be preserved on 3,568 acres that meet and 865 acres that do not meet the standards for outstanding opportunities. Resources that could be considered special features in the WSA, including scenic values, endangered or sensitive species, and wildlife species associated with wilderness, would also be preserved.

Vehicular use of the existing 0.5 mile of way would cease, improving opportunities for solitude and primitive recreation.

The 2 to 7 percent annual increase in visitor use would be primitive in nature and would be managed so as to not result in loss of wilderness values.

This alternative would complement the NPS proposal to manage the contiguous portion of Zion National Park as wilderness.

Conclusion: All wilderness values would be preserved where found in the WSA.

- Impact on Water Resources

The town of Kanarraville's current use of Kanarra Creek for culinary purposes would not be affected. Future development of water would be curtailed including a proposed water pipeline to deliver water from Spring Creek Canyon to Kanarraville.

Conclusion: Implementation of this alternative would not affect current use of Kanarra Creek. Future development of a pipeline to deliver water from Spring Creek Canyon to Kanarraville would not occur.

- Impact on Mineral and Energy Exploration and Production

- Leasable Minerals

Opportunities to explore for oil and gas in an area with good oil shows would be foregone. However, due to the small size of the potential deposits, and the low certainty that these exist, it is unlikely that the resource would be developed even without wilderness designation.

- Locatable Minerals

Recovery of less than 500 metric tons of uranium oxide located in the WSA could be foregone. However, no development of locatable minerals is projected in the foreseeable future regardless of wilderness designation.

- Salable Minerals

No impacts are projected for salable minerals as no deposits are known to occur in the WSA.

Conclusion: Opportunities for oil and gas exploration in the WSA would be eliminated. However, development is not anticipated even without wilderness designation.

Partial Wilderness Alternative (Proposed Action) (1607 Acres)

- Impacts on Wilderness Values

Designation and management of 1,607 acres at wilderness would contribute to the preservation of wilderness values in the Spring Creek Canyon WSA. The potential for surface-disturbing activities would be eliminated in the designated portion through closure of the designated area to future mineral leasing and

SPRING CREEK CANYON WSA

location and to ORV use, and through management of the designated area as VRM Class I which allows for only natural ecological change. Naturalness and outstanding opportunities for solitude would be preserved on all 1,607 designated acres. Primitive and unconfined recreation would be preserved in the designated area on 1,167 acres that meet and 440 acres that do not meet standards for outstanding opportunities. All 1,607 acres have high quality scenic values that would be preserved. Endangered or sensitive species and wildlife associated with wilderness would receive additional protection through designation of at least part of the WSA.

In the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 2 acres and indirectly reduced in quality on up to an additional 18 adjacent acres in the non-designated area due to disturbance from oil and gas exploration. Class A scenery would be reduced in quality in disturbed and adjacent areas.

The 2 to 7 percent annual increase in visitor use would be mostly primitive in nature, and in the wilderness area visitor use could be managed so as not to result in the loss of wilderness values. Vehicular use of less than a 0.5 mile of way in the nondesignated area would continue to occasionally detract from opportunities for solitude and primitive recreation.

This alternative would complement the NPS proposal to manage the contiguous portion of Zion National Park as wilderness.

Conclusion: Wilderness values would be preserved in the designated portion which is approximately 36 percent of the WSA in the foreseeable future, naturalness and opportunities for solitude and primitive recreation would be directly lost on 2 acres and indirectly reduced in quality on up to 18 adjacent acres in the nondesignated portion. Class A scenery would be disturbed in the nondesignated area, but only minimally.

• Impacts on Water Resources

The town of Kanarraville's present source of culinary water in Kanarra Creek would not be affected. Future development of water and construction of a water pipeline in Spring Creek Canyon would not be allowed.

Conclusion: Present water use would not be affected by this alternative. Future development of water and construction of a water pipeline in Spring Creek Canyon would not be allowed.

• Impacts on Mineral and Energy Exploration and Production

• Leasable Minerals

It cannot be determined how much of the existing potential resource of less than 10 million barrels of oil and less than 60 billion cubic feet of natural gas is within the area that would be designated as wilderness under this alternative. No new leasing would be allowed in the designated portion following wilderness designation. The nondesignated portion would remain open to leasable mineral exploration and development. However, due to the small size of the deposits, only exploration is projected in the foreseeable future regardless of wilderness designation.

Due to the small size of the potential deposits, the low certainty that these exist, and the low likelihood for development activities, this alternative would not result in a significant loss in production of the oil and gas resource.

• Locatable Minerals

There is very low potential for locatable mineral deposits and no locatable mineral-related activity is expected regardless of wilderness designation.

• Salable Minerals

No impacts are projected as no salable mineral resource occurs.

Conclusion: Opportunities for mineral exploration would be eliminated in the designated portion. However, no mineral production is anticipated in the WSA, even with wilderness designation. Mineral resources could be explored in the nondesignated portion of the WSA.

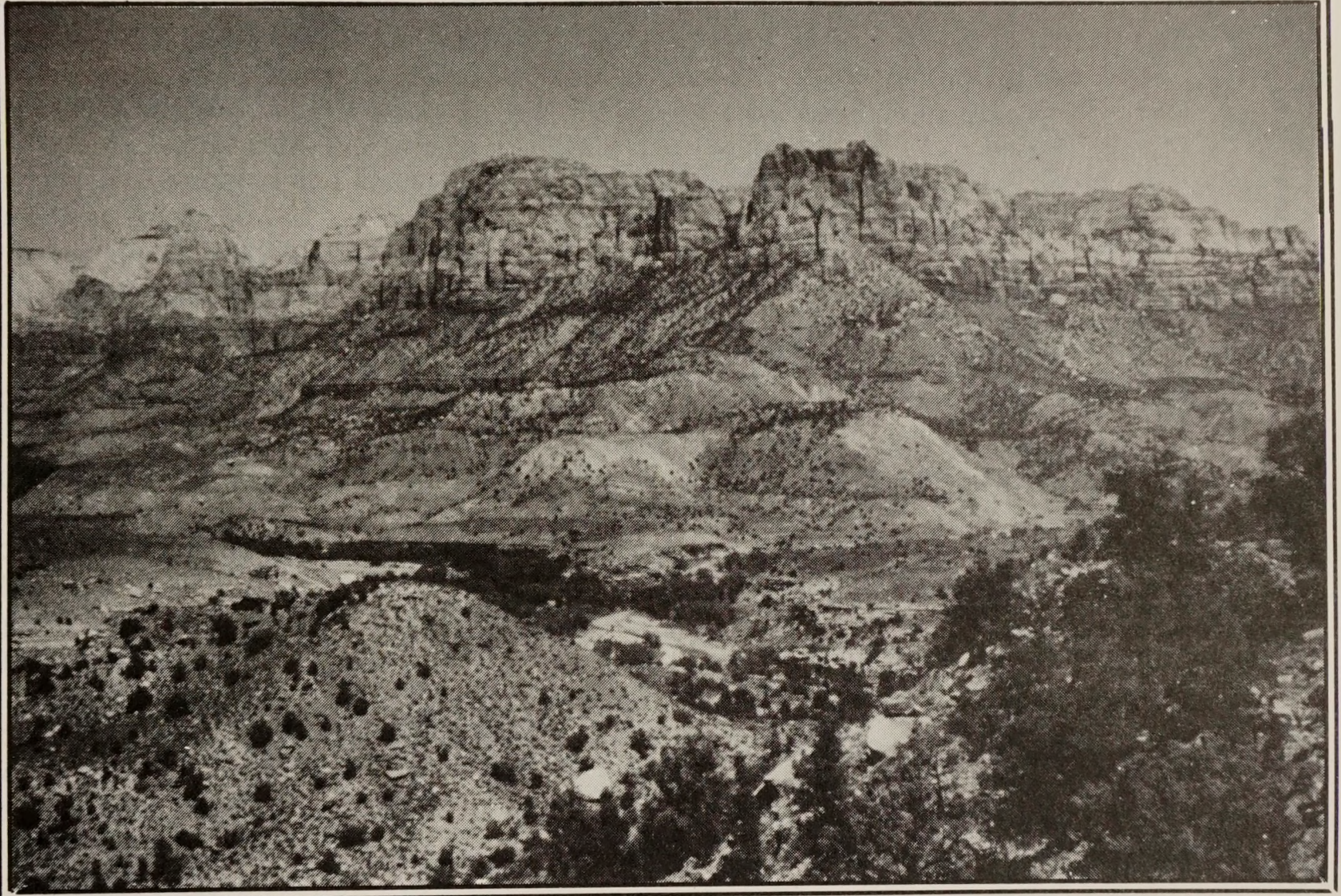
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The Watchman WSA



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All Wilderness Alternative (Proposed Action)

THE WATCHMAN WSA

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THE WATCHMAN WSA

(UT-040-149)

INTRODUCTION

General Description of the Area

The Watchman WSA, containing 600 acres, is in Washington County, less than 1 mile east of Springdale. It is administered by the BLM Cedar City District. The unit adjoins Zion National Park for approximately 1.5 miles along the east side of the WSA. The portion of the NPS lands it is contiguous with is an administratively endorsed wilderness proposal encompassing about 120,620 acres.

The area's topography is dominated by Johnston Mountain, The Watchman, and the East and North Forks of the Virgin River. The unit is located on a talus slope between the two mountains and river drainages. Elevations vary from 3,700 to 5,200 feet above sea level.

Average annual precipitation is approximately 15 inches. Approximately half of the precipitation falls from December through March, in the form of snow. Intense thunderstorms from the southwest are common during the summer months.

Temperatures vary greatly with aspect and altitude, but are generally mild. July and January are the warmest and coldest months, respectively. Temperatures range from extremes of 0 to 105 degrees Fahrenheit.

This WSA was dropped from wilderness study status by the Secretary of the Interior on December 30, 1982, due to its small size. As a result of a decision of the Eastern District Court of California (Sierra Club vs. Watt, Civil No. 5-83-05 LKR, dated April 18, 1985) and because of the WSA's wilderness values, it is included in the EIS for analysis. This is in line with general land use planning provisions of Section 202 of the FLPMA and in accordance with BLM guidance that allows for wilderness consideration of areas less than 5,000 acres in size if they are adjacent to land with wilderness potential administered by other Federal agencies.

There are no private, State, or split-estate lands located within the WSA.

Changes for the Final EIS

The changes noted in the Introduction to Volume III-B are applicable to the WSA. In addition, impacts to wilderness values has been analyzed as an issue in the Final EIS. No other changes have been made since publication of the Draft EIS.

Specific Issues Identified Through Scoping and Public Comment

- Issues Considered But Not Analyzed in Detail

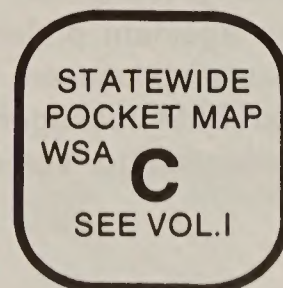
No issues were analyzed in detail in the Draft EIS for The Watchman WSA. The WSA is located on the talus slopes of Johnston Mountain and The Watchman. The terrain is very steep, rough, and broken. The WSA encompasses only 600 acres. The potential for any development of the WSA is practically nonexistent because of its site characteristics and its extremely low mineral potential.

No change in use of the WSA's environment is foreseen in either the No Action/No Wilderness or the All Wilderness Alternatives. Therefore, no environmental impacts would result from wilderness designation or nondesignation.

- Issues Analyzed in Detail

Although not analyzed as an issue in the Draft EIS, impacts on wilderness values including naturalness, opportunities for solitude and primitive recreation, and special features is analyzed as the only issue in the Final EIS.

Comments made during the public comment period for the Draft EIS centered mainly on the inventory phase of the wilderness review, BLM's assessment of the value of wilderness vs. other resource values, and the relationship to NPS management. See Volume VII-C



THE WATCHMAN WSA

Section C for responses to specific comments about The Watchman WSA, and Volume VII-B for responses to general comments applicable to all WSAs and/or the Statewide analysis.

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated from Detailed Study

One alternative considered was to transfer the WSA to NPS administration. Such a transfer could occur in the future regardless of wilderness status, and is not analyzed as an alternative in this EIS.

The question of which agency should manage the WSA to achieve overall management effectiveness will be addressed in the wilderness study report, but it will be based primarily on factors affecting both BLM and NPS jurisdictions, such as relative amounts of the total wilderness area administered by each agency, principal public ingress and exit points, agency staffing and workload in the region, and similar nonenvironmental items. Environmental differences, if any, would be due to variations in BLM and NPS mandates and policy (for example national parks are closed to hunting while public lands are not) rather than from wilderness designation. These differences would exist with or without wilderness designation, and, therefore, are not relevant to the analyses of the impacts from wilderness designation.

A partial wilderness alternative was not considered reasonable because of the area's small size and because of a lack of resource conflicts. BLM has determined that The Watchman WSA would not be a viable independent wilderness if adjacent NPS land is not also designated as wilderness.

Alternatives Analyzed

Two alternatives are analyzed for this WSA: (1) No Action/No Wilderness; and (2) All Wilderness (Proposed Action) (600 acres). A description of each alternative follows. Where management intentions have not been clearly identified, assumptions are made based on management projections under each alternative. These assumptions are indicated in each case. The assumed BLM management actions presented in the Introduction to Volume III-B are also applicable.

• No Action/No Wilderness Alternative

With this alternative, none of the 600-acre WSA would be designated by Congress as part of the NWPS. Although BLM land use plans are regularly updated, it is assumed for this analysis that the area would continue to be managed in accordance with the Virgin River MFP (USDI, BLM, 1979a). No State, private, or split-estate lands are within the WSA (refer to Map 1). Figures and acreages in this analysis are for Federal lands only.

• Management Conditions and Constraints

All 600 acres would remain open to mineral location, leasing, and sale. Development work, extraction, and patenting would be allowed on future mining claims. Development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809). Future oil and gas leases could be developed under standard stipulations (Category 1) on 480 acres and no surface occupancy stipulations (Category 3) on 120 acres. There are presently no leases or mining claims in the WSA.

Although mineral resources would be managed as described, mineral exploration or development are not anticipated because the level of known resources and the probability of their development are too low to support that assumption. Appendix 6 in Volume I explains the mineral exploration and development assumptions.

The present domestic livestock grazing use of 24 AUMs would continue as authorized in the Virgin River MFP and Hot Desert Grazing Management EIS (USDI, BLM, 1978b). The 0.25 mile of existing fence could be maintained.

The WSA would be open to ORV use. However, none is anticipated because of rugged terrain and lack of vehicular ways or cherry-stemmed roads.

The WSA would continue to be managed under VRM Class II on 600 acres.

• Action Scenario

It is projected that implementation of the No Action/No Wilderness Alternative would not result in any surface-disturbing activities in the foreseeable future. No locatable or leasable

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mineral resource exploration or development is anticipated. No rangeland, wildlife habitat, watershed projects, or other developments are planned, nor is any ORV use projected due to the rugged terrain of the WSA. Recreation use in the foreseeable future would be primitive in nature and would increase over the current estimated use of less than 100 visitor days annually at a rate of 2 to 7 percent per year.

- All Wilderness Alternative (Proposed Action)

With this alternative, all 600 acres of the WSA would be designated by an act of Congress as part of the NWPS (refer to Map 2). This WSA is adjacent to Zion National Park and is contiguous with a 120,620-acre NPS-proposed wilderness. Because this WSA lacks the necessary size to constitute a wilderness area by itself, it could only be managed in conjunction with the NPS-proposed wilderness. As a result, the WSA could be retained by BLM or transferred to the NPS along with nine other small WSAs (refer to Map 3), who would then assume management responsibilities. For the purposes of this analysis, it is assumed that BLM would retain the WSA and would manage it in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) to preserve its wilderness character. No State, private, or split-estate lands are located in the WSA.

- Management Conditions and Constraints

After wilderness designation, all 600 acres would be withdrawn from mineral location and closed to new mineral leasing and sale. Currently, there are no mining claims or leases in the WSA.

Present domestic livestock grazing would be allowed to continue as authorized in the Virgin River MFP and Hot Desert Grazing Management EIS. The 24 AUMs in the WSA would remain available to livestock as presently allotted. The 0.25 mile of fence would be maintained.

Visual resources in the wilderness would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change.

The entire 600-acre area would be closed to ORV use except for: (1) users with valid existing rights if approved by BLM in accordance with 43 CFR 8560 provisions; or (2) for occasional and short-term vehicular access approved by BLM

for maintenance of approved livestock developments.

- Action Scenario

No surface disturbance is projected in the foreseeable future. Implementation of the All Wilderness Alternative would preclude new mining claim location and mineral leasing. Therefore, no locatable or leasable mineral resource exploration or development would occur following wilderness designation. No rangeland, wildlife habitat, watershed projects, or other developments are planned nor would ORV use occur following wilderness designation. Recreation use would be primitive in nature and would increase over the current estimated use of less than 100 annual visitor days at a rate of 2 to 7 percent per year.

Summary of Environmental Consequences

Only impacts on wilderness values are analyzed in detail. Refer to Table 1 for a summary of impacts.

AFFECTED ENVIRONMENT

This section describes the overall environmental setting. This information allows for independent assessment by the public as required by the CEQ guidelines and provides a data base for the cumulative State-wide analysis found in Volume I, as well as for the analysis of the Environmental Consequences of Alternatives section for this WSA.

Unless otherwise indicated, information for this section was taken from BLM staff specialists, technical reports, and file documents.

Wilderness Values

- Size

The Watchman WSA is approximately 1.50 mile long (north to south), 1 mile wide (east to west), and encompasses 600 acres.

- Naturalness

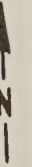
The WSA is in a natural condition. A microwave transmitter site was installed at the base of Johnston Mountain in the WSA in 1975. There is little surface disturbance because this transmitter was installed and is maintained by helicopter.

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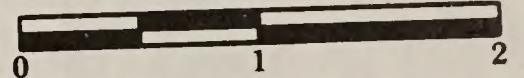
Map 2 ALL WILDERNESS ALTERNATIVE The Watchman WSA UT-040-149

Legend

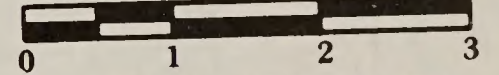
- All Wilderness Alternative (600 acres)
- - - Zion National Park Boundary



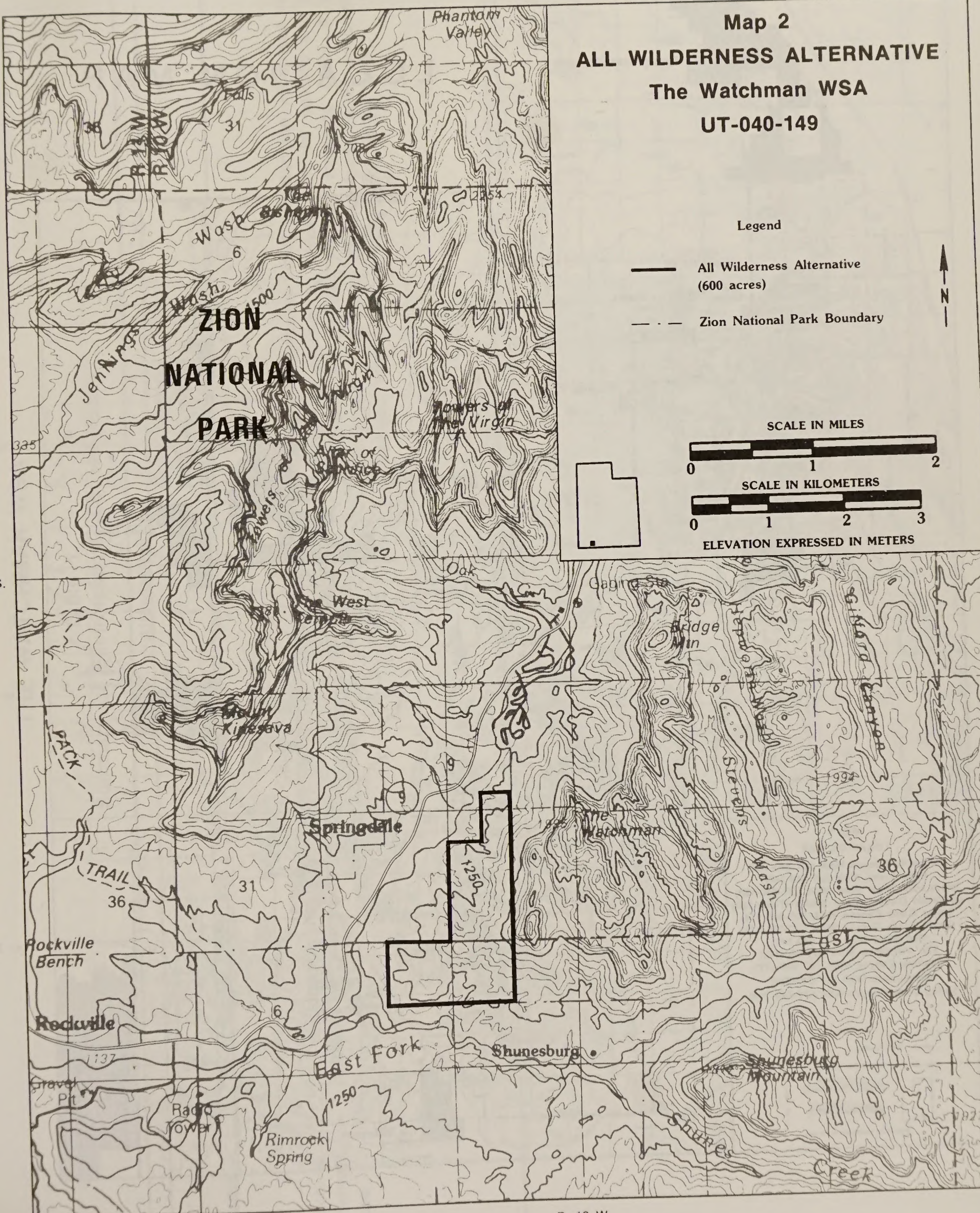
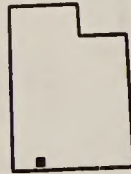
SCALE IN MILES



SCALE IN KILOMETERS



ELEVATION EXPRESSED IN METERS

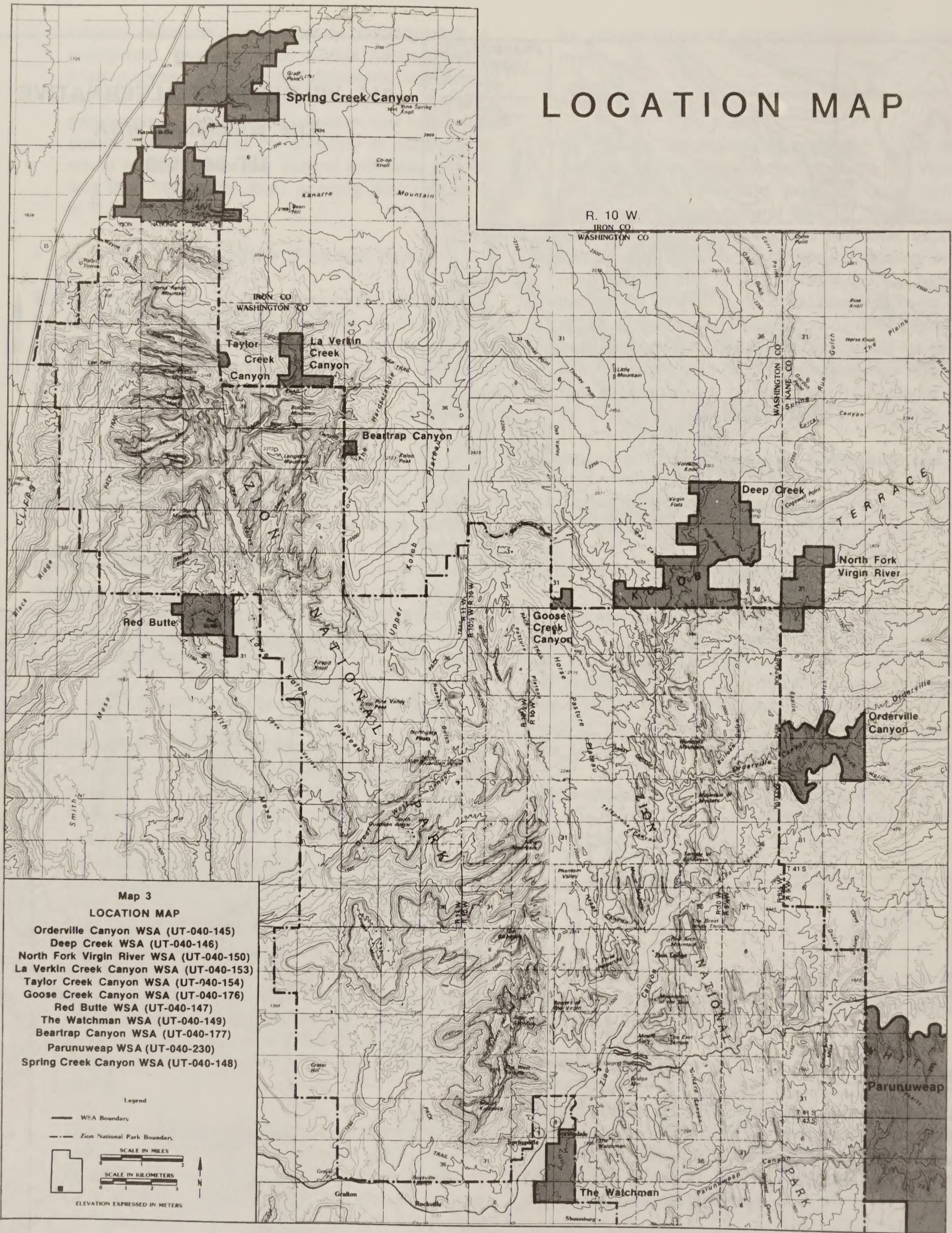


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R. 12 W.

R. 11 W.

LOCATION MAP



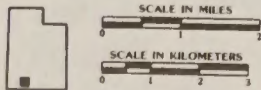
Map 3
LOCATION MAP

- Orderville Canyon WSA (UT-040-145)
- Deep Creek WSA (UT-040-146)
- North Fork Virgin River WSA (UT-040-150)
- La Verkin Creek Canyon WSA (UT-040-153)
- Taylor Creek Canyon WSA (UT-040-154)
- Goose Creek Canyon WSA (UT-040-176)
- Red Butte WSA (UT-040-147)
- The Watchman WSA (UT-040-149)
- Beartrap Canyon WSA (UT-040-177)
- Parunuweap WSA (UT-040-230)
- Spring Creek Canyon WSA (UT-040-148)

Legend

— WSA Boundary

- - - Zion National Park Boundary



ELEVATION EXPRESSED IN METERS

T. 39 S.

T. 40 S.

T. 41 S.

THE WATCHMAN WSA

Table 1
Summary of Environmental Consequences

| | Alternatives | |
|------------------------------------|---|--|
| | All Wilderness (600 Acres) (Proposed Action) | |
| Resource | No Action/No Wilderness | |
| Impacts on Wilderness Values | No disturbance that would affect wilderness values would be expected in the foreseeable future. | Wilderness designation would preserve the wilderness values of naturalness, outstanding opportunities for solitude and primitive recreation, and special features including Class A scenery, endangered or sensitive species, and wildlife associated with wilderness, wherever these values occur in the WSA. |

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- Solitude

Opportunities for solitude are found in the WSA because of topographic screening. The unit contains the lower slopes and rugged foothills below Johnston Mountain and The Watchman. The area is only sparsely vegetated, but the rough topography provides outstanding opportunities for solitude on about 450 of the 600 acres.

- Primitive and Unconfined Recreation

The Watchman WSA offers outstanding opportunities for hiking, exploring, rock climbing, and geologic study. These activities are enhanced by the adjacent Zion National Park. Outstanding opportunities for primitive and unconfined recreation are found on approximately 450 of the 600 acres.

- Special Features

The WSA has resource values that, although not identified as such during the wilderness inventory, could be considered special features. Two animal species (bald eagle and peregrine falcon) listed as endangered may occur in the WSA. There are four animal species and four plant species that are considered sensitive (refer to the Vegetation and Wildlife Including Special Status Species sections for more information). Desert bighorn sheep occasionally inhabit the WSA during the summer. The WSA also is in an area with cougar, which is a wildlife species commonly associated with wilderness. All of the WSA (600 acres) is rated Class A for scenic quality.

- Diversity

This WSA is in the Colorado Plateau Province Ecoregion and has the PNV type of juniper-pinyon woodland. Refer to the Vegetation Including Special Status Species section for more discussion on ecoregions and PNV types. To see how the ecoregion and PNV types represented by this WSA compare Statewide and nationally with existing and potential National Wilderness Preservation Units, refer to the Wilderness Values section in Volume I.

The WSA is within a 5-hour drive from one standard metropolitan statistical area, Las Vegas, Nevada.

Air Quality

Air quality data for the WSA were obtained from the automated visibility measuring station at Lava Point

in Zion National Park. This station scans across the area of the WSA, focusing on the Kaibab Plateau in Arizona. The preliminary figures from this relatively new system give an average visibility of 155 miles. This indicates extremely clean air in the area. The area is presently classified as Class II air under the PSD regulations. Zion National Park, contiguous to the WSA, has a PSD Class I designation under existing regulations.

Geology and Topography

The Watchman WSA is in the Grand Staircase section of the Colorado Plateau Physiographic Province. The WSA consists essentially of the foothills and lower slopes of Johnston Mountain and The Watchman.

Rocks of the Triassic age, totaling about 1,400 feet, and minor amounts of Quaternary deposits crop out in the WSA. Underlying Mesozoic and Paleozoic rocks may be as much as 10,000 feet thick (Hintze, 1973). Sandstones and strata of the Triassic, Moenave, and Chinle Formations form the most extensive outcrops in the WSA. The Quaternary deposits occur in the extreme northern and southern portions of the WSA. No faults or other geologic structures are known to occur in the WSA.

Elevations range from approximately 3,800 feet above sea level along the East Fork of the Virgin River in the southwestern corner of the WSA to a little more than 5,200 feet above sea level on the western slope of Johnston Mountain. Drainage is north, south, and west into the North Fork and East Fork of the Virgin River.

Soils

Erosion classes are slight, 200 acres (34 percent); and moderate, 400 acres (66 percent). Erosion condition was determined by using soil surface factors as summarized in Table 2 (terms are defined in the Glossary).

Most of the soils are mapped by the Washington County Soil Survey (USDA, SCS, 1977) as Paunsaugunt-Kolob-Dalcan Association or rock outcrop-rockland association. These are excessively drained, nearly level to very steep, shallow to deep gravelly silt loams, fine sandy loams, cobbly loams, and bare bedrock. The erosion potential is moderate to severe. These soils are used for range, wildlife, and recreation, and are unsuitable for agriculture. Seeding potential is rated as unsuitable due to rock outcrop, steep

THE WATCHMAN WSA

slopes ranging from 20 to 50 percent, and very stony, loamy, sandy soils.

Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | Acres | Percent of WSA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|------------|----------------|--------------------------------------|
| Severe | 5.4 | 0 | 0 | 0 |
| Critical | 2.7 | 0 | 0 | 0 |
| Moderate | 1.3 | 400 | 66 | 520 |
| Slight | 0.6 | 200 | 34 | 120 |
| Stable | 0.3 | 0 | 0 | 0 |
| Total | | 600 | 100 | 640 |

Sources: USDI, BLM, 1978c and 1979c; Leifeste, 1978.

The salinity class is estimated as moderate. Up to 40 lb of salt per acre may be lost annually.

Vegetation Including Special Status Species

The Watchman WSA is located in a transition zone between the hot desert and the cold desert ecosystems. The existing vegetation is primarily characterized as desert shrub. Many of these plants have woody stems, deep roots, and extremely small or spiny leaves. The dominating vegetation is creosote bush, blackbrush, and saltbush. A few pinyon pine and juniper trees are scattered across the unit. Less than 15 percent of the vegetation is herbaceous, with Indian ricegrass, galleta grass, eriogonum, and penstemon being the dominant herbaceous plants. This herbaceous zone has a cover of 10 to 20 percent, resulting in a scrubby landscape with much exposed rock.

No threatened or endangered plant species are known to occur in the WSA. However, the WSA may contain four Category 2 candidate species. These are Asplenium andrewsii, Erigeron sionis, Heterotheca jonesii, and Sphaeromeria ruthiae (see Appendix 4 in Volume I).

The Watchman WSA is in the Colorado Plateau Province Ecoregion as shown on the Bailey-Kuchler ecosystems map (USDI, USGS, 1978a). The PNV type of the WSA is juniper-pinyon woodland.

Water Resources

This WSA is located in the Virgin River subbasin of the Colorado River Basin hydrologic region. There are no existing water rights and the area is presently closed to applications, although the Utah State Water Engineer has stated that some applications could be

considered depending on water use and location. There are no withdrawals in the unit. No perennial surface water occurs in the WSA.

The WSA water right status is considered to be fully appropriated (UDNRE, DWR, 1988). Surface and groundwater sources are closed to further water right applications. There are no withdrawals present in the WSA. The Fifth Judicial District Court is currently adjudicating underground and surface water rights for the Virgin River drainage.

Water Quality Standards for the North Fork of the Virgin River as established by the State of Utah are: Class 1C (protected for domestic purposes with treatment), Class 2B (protected for recreational uses excluding swimming), Class 3A (protected for cold water fisheries), and Class 4 (protected for agriculture and livestock). In addition to assigned use classes, an Anti-Degradation Segment has been assigned the East Fork of the Virgin River to headwaters. Water quality within this drainage is mostly affected by the natural geology of the area. Sedimentary sandstones and limestones contribute to dissolved and suspended solids primarily during runoff periods and storm events. Utah's 1986 305(b) Water Quality Assessment Report shows the North Fork of the Virgin River to have water quality problems for public water supply, secondary contact, and cold water fishery.

Mineral and Energy Resources

The energy and mineral resource rating summary for the WSA is given in Table 3. Refer to Appendix 5 in Volume I for a description of the energy and mineral resource rating system.

Table 3
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|-------------|---------------------------|------------------------|---|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f 2 | c 1 | Less than 10 million barrels of oil; less than 60 billion cubic feet of gas |
| Uranium | f 2 | c 2 | Less than 500 metric-tons of uranium oxide |

Source: SAI, 1982; USDI, BLM, 1987.

^aFavorability of the WSA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

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There are no strategic or critical minerals known to occur within the WSA (USDoD, 1988).

- Leasable Minerals

There are no known deposits of any leasable minerals in the WSA. Currently, there are no active drilling, mining, or exploration activities for leasable minerals.

- Oil and Gas

Based on similarities between the WSA and the nearby Virgin oil field (8 miles northwest), the WSA has potential for small accumulations of hydrocarbons. The Virgin field has produced small amounts of oil intermittently since 1907. To date, however, no commercial oil and gas potential has been identified in the WSA.

The favorability of the tract for oil and gas is rated (f2) (SAI, 1982). The size of the hydrocarbon accumulation in such an environment is anticipated to be less than 10 million barrels of oil or less than 60 billion cubic-feet of gas. Based on the available information, the certainty of occurrence for oil and gas is rated very low (c1).

Under the current land use plan, 120 acres of the WSA are in Category 1 (standard stipulations) and 480 acres are in Category 3 (no surface occupancy). There are presently no oil and gas leases in the WSA.

- Locatable Minerals

There are no known deposits of locatable minerals in the WSA. There are presently no mining claims.

- Uranium

The WSA is approximately 22 miles east of the Silver Reef Mining District, a known uranium-producing area. Although known primarily for its past silver production, uranium has been found there in the Springdale Sandstone Member of the Moenave Formation. The Moenave Formation crops out in a wide belt throughout the WSA. SAI has assigned the WSA an uranium favorability rating of (f2) (containing less than 500 metric-tons of uranium oxide) (SAI, 1982). Based on available information, the certainty that uranium deposits occur in the WSA is low (c2).

- Salable Minerals

Stream gravel and other loose rock material that could be used for construction occur within the WSA. These deposits are not unique or economically significant due to the presence of ample similar materials outside the WSA.

Wildlife Including Special Status Species

The WSA supports a variety of animal species. There are approximately 300 vertebrate animal species that could inhabit the WSA. These include 60 mammal species, 208 bird species, 20 reptile species, six amphibian species, and three fish species (USDI, BLM, 1979a). No critical or crucial wildlife habitat areas have been identified in the WSA.

Raptors may include the bald eagle, peregrine falcon, prairie falcon, American kestrel, red-tailed hawk, and Cooper's hawk. The red-tailed and Cooper's hawks are the most common species. The bald eagle (Haliaeetus leucocephalus) and peregrine falcon (Falcon peregrinus) are on the Federal endangered species list. Bald eagles winter in the Virgin River drainage adjacent to the WSA and also in Kanarrville and New Harmony valleys northwest of the WSA. The golden eagle is a sensitive species that may inhabit the WSA. No other threatened or endangered species are known to occur within the WSA. Candidate threatened or endangered species that may be present in the WSA include the Great Basin Silverspot butterfly and the Virgin River montane vole (See Appendix 4 in Volume I).

There is an active peregrine falcon nest in nearby Zion National Park. Peregrine falcons have been reported in the Deep Creek-Goose Creek area and in Taylor Creek Canyon, but nesting is not confirmed.

The Watchman WSA contains cougar habitat and is within the Utah Cougar Management Unit 30, Cedar Mountain. Cougar populations and harvest by sport hunters and by the Animal Damage Control Program has been higher in this management unit than in any other location in Utah. During the 11-year period (1977 through 1987), a total of 217 cougars were taken from the Cedar Mountain Management Unit. This harvest averaged nearly 20 animals per year (UDNRE, UDWR, 1988). It has not been determined how many of these may have been taken from within the WSA.

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Forest Resources

The only forest resources found in the WSA consist of scattered pinyon pine and juniper trees. The WSA has almost no forest resources suitable for firewood, fenceposts, pine nuts, or Christmas tree cutting. No harvest is occurring in the WSA and none is projected for the foreseeable future.

Livestock and Wild Horses/Burros

Table 4 summarizes livestock grazing use data. The Watchman WSA contains part of one custodial grazing allotment (Zion Park Allotment). There are 24 AUMs within the WSA. One permittee is allowed to graze cattle on this allotment. The only range improvement is a 0.25 mile of fence. No additional livestock developments are proposed.

Predator control was not conducted during the 1986 to 1987 period within The Watchman WSA (USDA, APHIS, 1988).

There are no wild horses or burros within the WSA.

Visual Resources

Under the VRM system, the entire WSA is rated VRM Class II. Refer to Appendix 7 in Volume I for an explanation of the BLM VRM rating system. The scenery quality rating for The Watchman WSA is Scenic Class A. This designation indicates outstanding or dominating features. The unit exhibits the same type of features as Zion National Park.

Cultural Resources

No sampling inventory for archaeological and other cultural resources has been conducted in the WSA. There are no known sites.

Recreation

Recreational use of The Watchman WSA is very limited. The WSA is isolated from Zion National Park by rough terrain around Johnston Mountain and The Watchman. Most recreational use would be associated with The Watchman campground inside the park. Visitors walk down the river and cross into the WSA. It is estimated that there are less than 100 visitor days annually. There are no developed recreation facilities in the WSA.

Land Use Plans

The WSA is managed under the BLM Virgin River MFP which allows the uses discussed in the description of the No Action/No Wilderness Alternative. The MFP does not address wilderness. However, wilderness designation is part of the BLM multiple-use concept and the BLM land use plan is linked to the Statewide Wilderness EIS through analysis of the present plan as the No Action/No Wilderness Alternative.

In response to H.R. 1214 (Ninety Eighth Congress of the U.S., 1983), the NPS assessed the WSA to determine its value for potential addition to the adjacent NPS unit (USDI, NPS, 1984c). The NPS found that The Watchman WSA contains significant recreational values that provide an important supplement to those within the Zion National Park. The Watchman WSA was recommended as suitable for inclusion into the adjacent unit of the National Park System. No Congressional action has been taken on that recommendation.

There are no existing or proposed rights-of-way within this WSA.

The Washington County Master Plan (Planning and Research Associates, 1971) identifies the WSA as an

Table 4
Livestock Grazing Use Data

| Allotments | Total Acres | Acres in WSA | Total AUMs | Number of AUMs in WSA | Number and Kind of Livestock | Season of Use | Number of Operators |
|------------|-------------|--------------|------------|-----------------------|------------------------------|---------------|---------------------|
| Zion Park | 600 | 600 | 24 | 24 | 2 Cattle | yearlong | 1 |

Sources: BLM File Data

THE WATCHMAN WSA

open space zone and Washington County does not support wilderness designation for this WSA. The Washington County Commission has endorsed the Consolidated Local Government Response to Wilderness (Utah Counties, 1986) that opposes wilderness designation of BLM lands in Utah.

There are no State of Utah, private, or split-estate owned lands in the WSA.

Socioeconomics

• Demographics

The WSA is in Washington County. From 1970 to 1980, the population of Washington County grew from 13,699 to 24,600, an overall increase of about 93 percent. Table 5 presents the baseline and projected population data for Washington County. It is estimated that between 1980 and 1987, the population increased to about 39,720. Population projections indicate that the number of people living in Washington County in the year 2010 will be about 65,600 for about a 148-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

Table 5
Baseline and Projected Population and Employment Growth
Washington County

| | 1980 | 1990 | 2000 | 2010 |
|------------|--------|--------|--------|--------|
| Population | 26,400 | 45,500 | 51,000 | 65,600 |
| Employment | 8,100 | 14,400 | 18,400 | 24,100 |

Source: Utah Office of Planning and Budget, 1987.

• Employment

Table 5 shows the baseline and projected total employment for Washington County to the year 2010.

Washington County is part of the Southwest MCD. Table 6 shows the baseline (1980) and projected employment by source for the MCD to the year 2010. In 1980 the leading employment sectors for the Southwest MCD were government (23 percent), trade (20 percent), and nonfarm proprietors (12 percent). Mining provided less than 3 percent of the employment in the MCD.

It is projected that by the year 2010, employment in the MCD will more than double. Services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 3 percent, mining to less

than 1 percent, and government to 18 percent of the total.

Table 6
Southwest Multi-County District
Employment^a

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|--------------|--------------|--------------|--------------|
| Agriculture | 1,810 | 1,700 | 1,600 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,600 | 3,300 |
| Transportation, Utilities | 1,006 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 6,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 6,900 | 8,900 |
| Government | 4,616 | 5,800 | 6,500 | 8,100 |
| Nonfarm Proprietors | <u>2,386</u> | <u>3,100</u> | <u>3,500</u> | <u>4,700</u> |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

^aIncludes Beaver, Garfield, Iron, Kane, and Washington Counties.

• Sales and Revenues

Economic-related activities in the WSA include livestock production and recreation. Table 7 summarizes the local sales and Federal revenues from the WSA. Appendix 9 in Volume I identifies the multipliers used to estimate sales and revenues.

Table 7
Sales and Revenues

| Source | Estimated Annual Local Sales ^a | Estimated Annual Federal Revenues |
|-------------------|--|--------------------------------------|
| Livestock Grazing | \$480 | \$37 |
| Recreational Use | <u>\$420</u> | <u>0</u> |
| Total | \$900 | \$37 |

Sources: USDI, BLM, file data; Appendix 9 in Volume I.

^aLocal sales represent money potentially spent. They do not account for the total income that would be generated by these expenditures.

Mineral and energy resource production from the WSA has not contributed to local employment or income.

One livestock operator has a total grazing privilege of 24 AUMs within the WSA. If all this forage were utilized, it would account for \$480 of livestock sales and \$120 of ranchers' returns to labor and investment.

The actual amount of income generated locally from recreational use in the WSA is unknown. However, an

THE WATCHMAN WSA

approximate range of expenditures can be deduced (Dalton, 1982). This study indicates that the State-wide average local expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for The Watchman WSA is estimated to be about 100 visitor days per year. Only a portion of the expenditures for recreational use of the WSA contributes to the local economy of Washington County.

Average actual livestock use and, therefore, revenues generated from grazing in the WSA are unknown; however, the permittee in the WSA can use up to four AUMs per year. Based on a \$1.54 per AUM grazing fee, the WSA can potentially generate \$37 of grazing fee revenues annually, 50 percent of which would be allocated back to the local BLM District for the construction of rangeland improvements.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This section describes the environmental consequences of implementing the alternatives. Impacts on wilderness values is the only resource analyzed in detail. The analysis is based on implementation of the Action Scenarios presented in the Description of Alternatives section.

No Action/No Wilderness Alternative

- Impacts on Wilderness Values

Because the WSA would not be designated wilderness with this alternative, the identified wilderness values would not receive the degree of protection afforded by application of the BLM Wilderness Management Policy (BLM Manual 8560). Wilderness values in the WSA would be somewhat protected by limitations placed on potential surface-disturbing activities, i.e., VRM Class II management on 600 acres and management under oil and gas leasing Category 3 (no surface occupancy) on 120 acres.

No development would be expected in the foreseeable future that would affect wilderness values.

Because future ORV use would generally be limited by terrain, no disturbance from ORV activity is anticipated.

The 2 to 7 percent annual increase in visitor use would not be expected to reduce wilderness values because the additional use is expected to be small,

primitive in nature, and it would be related to use in the contiguous Zion National Park.

Overall, no disturbance of the WSA's wilderness values, including 600 acres of naturalness, 450 acres having outstanding opportunities for solitude and primitive recreation and such special features as Class A scenery, endangered or sensitive species, and wildlife associated with wilderness, would be expected in the foreseeable future.

The degree to which wilderness values would be reduced in quality from disturbance over the long term is not accurately known.

This alternative would not complement the NPS proposal to manage the contiguous portion of Zion National Park as wilderness.

Conclusion: Wilderness values would not be protected by wilderness disturbance. No disturbance that would affect wilderness values would be expected in the foreseeable future.

All Wilderness Alternative (Proposed Action)

- Impacts on Wilderness Values

Designation and management of all 600 acres as wilderness would preserve the wilderness values in The Watchman WSA. The potential for surface-disturbing activities would be eliminated through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I (which allows for only natural ecological change). Naturalness would be preserved on all 600 acres. Solitude would be protected on approximately 450 acres that meet and 150 acres that do not meet the standards for outstanding opportunities. Resources that could be considered as special features in the WSA, including Class A scenery, endangered or sensitive species, and wildlife associated with wilderness, would also be preserved.

The 2 to 7 percent annual increase in visitor use would be primitive in nature and would be managed so as to not result in loss of wilderness values.

Wilderness designation of the WSA would complement the NPS proposal to manage the contiguous portion of Zion National Park as wilderness.

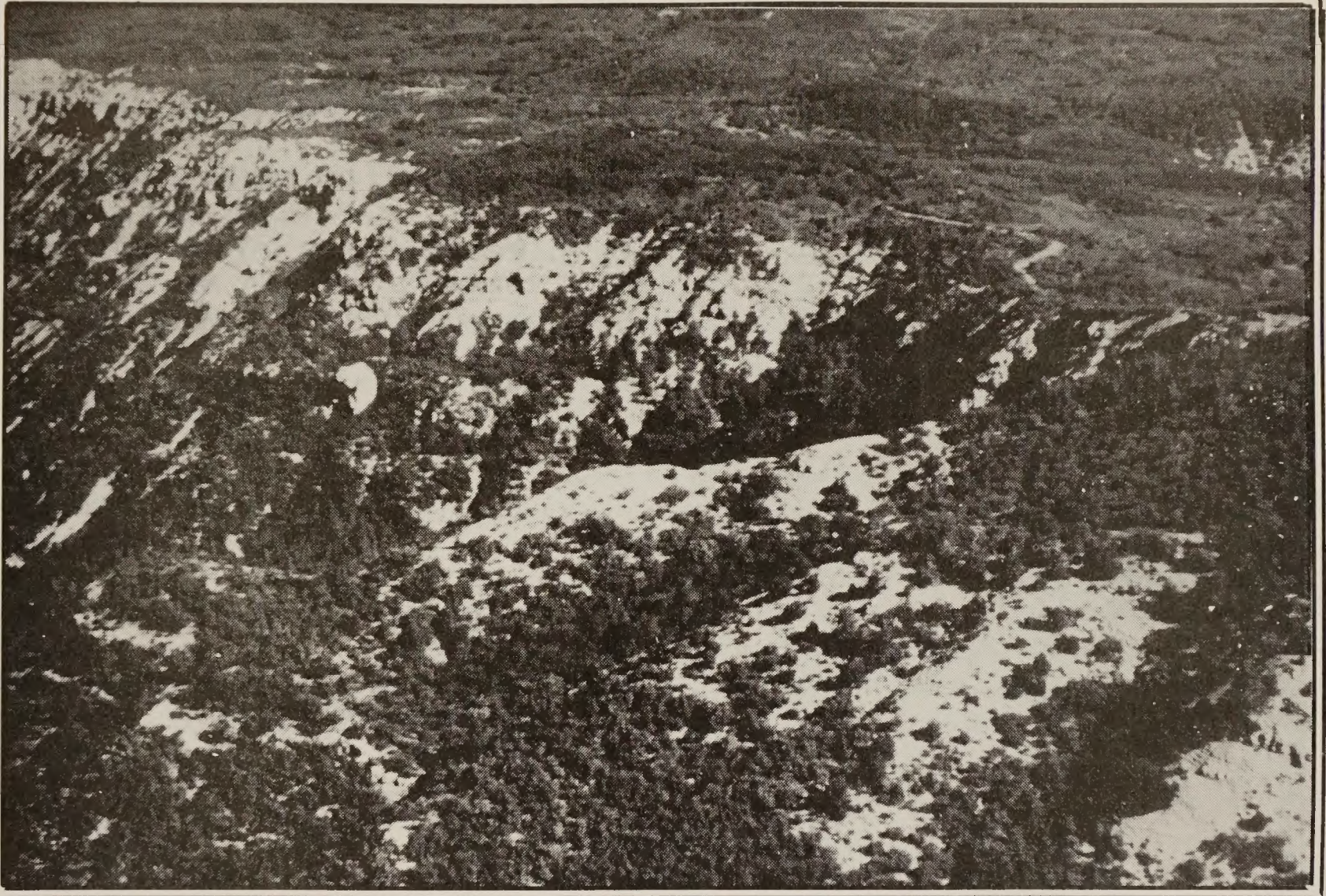
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Project Description and Environmental Setting

Taylor Creek Canyon WSA



Land Use

Conclusion

ENVIRONMENTAL CONSEQUENCES AND ALTERNATIVES

No Action Alternative

All Wetlands Alternative

TAYLOR CREEK CANYON WSA

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TAYLOR CREEK CANYON WSA

(UT-040-154)

INTRODUCTION

General Description of the Area

The Taylor Creek Canyon WSA contains 35 acres. Taylor Creek is located along the boundary of Zion National Park in the northeast corner of Washington County. It is contiguous with a NPS administratively endorsed wilderness proposal encompassing 120,620 acres. It is administered by the BLM Cedar City District.

The WSA's topography is dominated by the Middle Fork of Taylor Creek. The canyon rim is 1,000 feet above the creek bottom exposing various rock formations. The climate within the WSA is considered mild with average temperatures ranging from the low 40s during the winter months to the high 80s during mid-summer. Temperature extremes can vary from 0 to 105 degrees Fahrenheit. Average annual precipitation in Zion National Park is 14.5 inches with about half occurring in the form of winter snow and half in the form of rain during summer thunderstorms. Winds usually prevail from the southwest with the strongest winds occurring in March and April.

This WSA was dropped from wilderness study status by the Secretary of the Interior on December 30, 1982, due to its small size. As a result of a decision of the Eastern District Court of California (Sierra Club vs. Watt, Civil No. 5-83-035 LKR, dated April 18, 1985) and because of the WSA's wilderness values, it is included in the EIS for analysis. This is in line with general land use planning provisions of Section 202 of the FLPMA and in accordance with BLM guidance that allows for wilderness consideration of areas less than 5,000 acres in size if they are adjacent to land with wilderness potential administered by other Federal agencies.

There are no private, State, or split-estate lands located within the WSA.

Changes for the Final EIS

The changes noted in the Introduction to Volume III-B are applicable to the WSA. In addition, impacts to wilderness values have been analyzed in the Final EIS. No other changes have been made since publication of the Draft EIS.

Specific Issues Identified Through Scoping and Public Comment

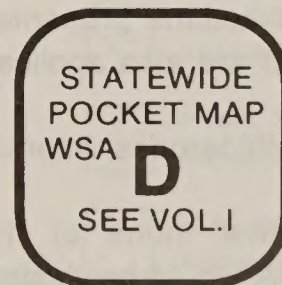
• Issues Considered But Not Analyzed in Detail

No issues were analyzed in detail in the Draft EIS for the Taylor Creek Canyon WSA. The WSA is located at the very extreme upper end of the Middle Fork of Taylor Creek. The WSA encompasses only 35 acres confined into a steep narrow canyon, most of which is barren rock outcrop. Vertical walls and narrow canyon bottoms make the unit impassable. The potential for any development of the WSA is practically nonexistent because of its site characteristics and extremely low mineral potential. No change in use of the WSA's environment is foreseen under the No Action/No Wilderness Alternative or the All Wilderness Alternative. Therefore, no environmental impacts would result from wilderness designation or nondesignation.

• Issues Analyzed in Detail

Although not analyzed as an issue in the Draft EIS, impacts on the wilderness values of naturalness, opportunities for solitude and primitive and unconfined recreation, and special features is analyzed as an issue in the Final EIS.

Comments made during the public comment period for the Draft EIS centered mainly on the inventory phase of the wilderness review, BLM's assessment of the value of wilderness vs. other resource values, the size of the WSA, and the relationship to NPS management. (See Volume VII-C, Section D for responses to specific comments about the Taylor Creek Canyon WSA, and Volume VII-B for responses to general comments applicable to all WSAs and/or the Statewide analysis.)



TAYLOR CREEK CANYON WSA

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated from Detailed Study

One alternative considered was to transfer the WSA to the NPS administration. Such a transfer could occur in the future regardless of wilderness status, and it is not analyzed as an alternative in this EIS. The question of which agency should manage the WSA to achieve overall management effectiveness will be addressed in the wilderness study report, but it will be based primarily on factors affecting both BLM and NPS jurisdictions, such as relative amounts of the total wilderness area administered by each agency, principal public ingress and exit points, agency staffing and workload in the region, and similar nonenvironmental items. Environmental differences, if any, would be due to variations in BLM and NPS mandates and policy (for example national parks are closed to hunting while public lands are not) rather than from wilderness designation. These differences would exist with or without wilderness designation, and, therefore, are not relevant to the analyses of the impacts from wilderness designation.

A partial wilderness alternative was not considered reasonable because of the area's small size and because of a lack of resource conflicts. BLM has determined that the Taylor Creek Canyon WSA would not be a viable independent wilderness if adjacent NPS land is not also designated as wilderness.

Alternatives Analyzed

Two alternatives are analyzed for this WSA: (1) No Action/No Wilderness; and (2) All Wilderness (Proposed Action) (35 acres). A description of each alternative follows. Where management intentions have not been clearly identified, assumptions are made based on projections under each alternative. These assumptions are indicated in each case. The assumed BLM management actions presented in the Introduction to Volume III-B are also applicable.

- No Action/No Wilderness Alternative

With this alternative, none of the 35-acre Taylor Creek Canyon WSA would be designated by Congress as part of the NWPS. Although BLM land use plans are regularly updated, it is assumed that the area would continue to be managed in accordance with the Virgin River Planning Unit MFP (USDI, BLM, 1979a). No pri-

vate, State, or split-estate lands are within the WSA (refer to Map 1).

- Management Conditions and Constraints

All 35 acres would remain open to mineral location, leasing, and sale. There are no mining claims in the WSA at the present time. Development work, extraction, and patenting would be allowed on future mining claims. Development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809). There are no oil and gas leases in the WSA. Future oil and gas leases could be developed under Category 1 (standard stipulations) on the 35-acre area. Although minerals would be managed as described, mineral exploration and development are not anticipated because the level of known resources and the probability of their development are too low to support a development assumption. Appendix 6 in Volume I explains the mineral exploration and development assumptions. The WSA is part of a grazing allotment but, due to the steep terrain, no grazing occurs on the WSA.

The entire WSA acreage would be open to ORV use but none is expected because of the steep terrain.

The entire area would continue to be managed under VRM Class II.

- Action Scenario

It is projected that implementation of the No Action/No Wilderness Alternative would not result in any surface-disturbing activities in the foreseeable future. No locatable or leasable mineral resource exploration or development is anticipated. No rangeland, wildlife habitat, watershed projects, or other developments are planned, nor is any ORV use projected due to steep terrain. Recreation use in the foreseeable future would be primitive in nature and would increase over the current estimated use of less than 50 visitor days annually at a rate of 2 to 7 percent per year.

- All Wilderness Alternative (Proposed Action)

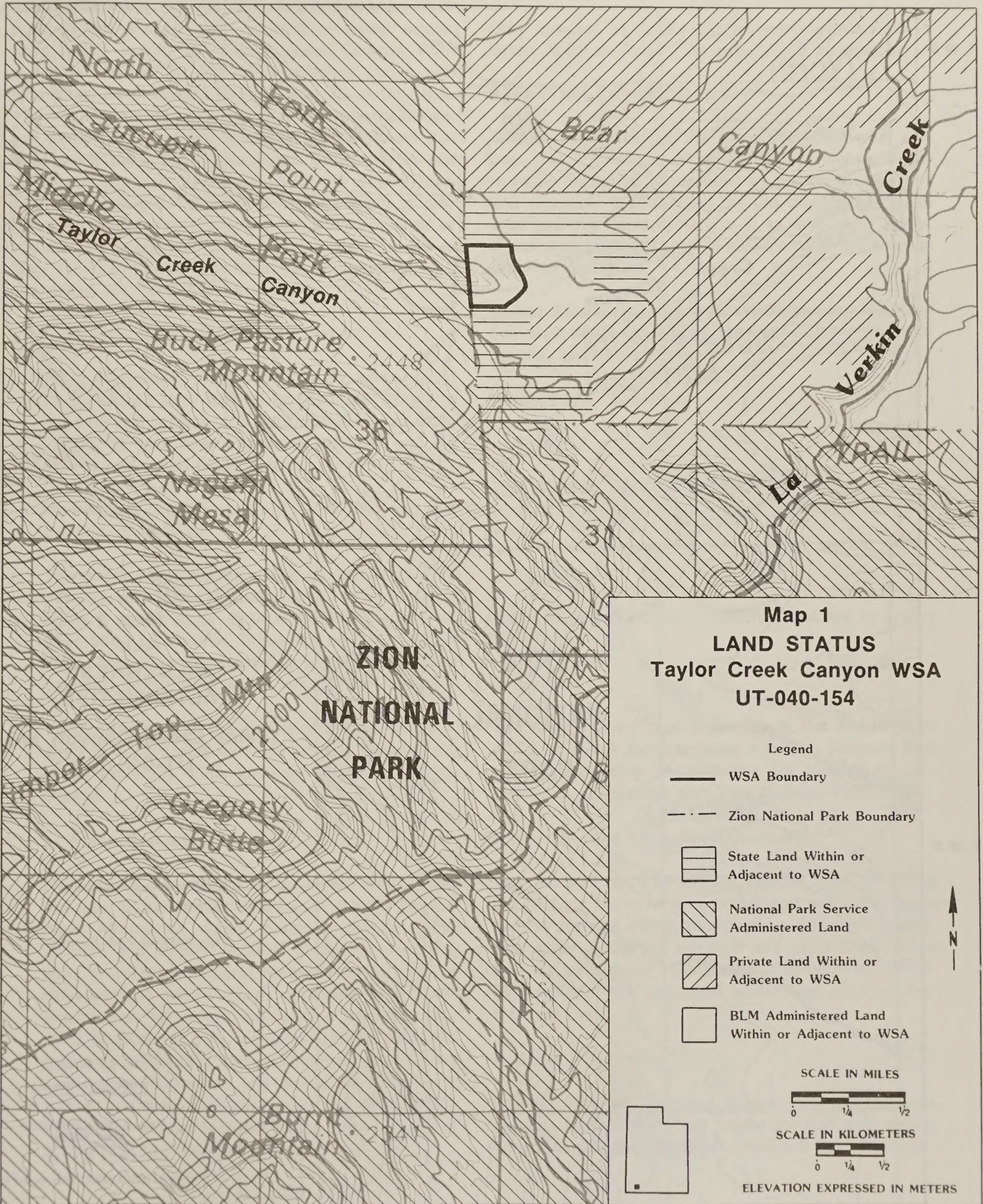
With this alternative, all 35 acres of the Taylor Creek Canyon WSA would be designated by an act of Congress as part of the NWPS (refer to Map 2). This WSA is adjacent to Zion National Park and is contiguous with a 120,620-acre NPS-proposed wilderness.

TAYLOR CREEK CANYON WSA

R. 12 W.

R. 11 W.







T. 38 S.



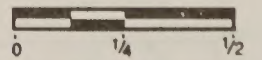
T. 39 S.

Map 1
LAND STATUS
Taylor Creek Canyon WSA
UT-040-154

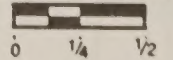
Legend

-  WSA Boundary
-  Zion National Park Boundary
-  State Land Within or Adjacent to WSA
-  National Park Service Administered Land
-  Private Land Within or Adjacent to WSA
-  BLM Administered Land Within or Adjacent to WSA

SCALE IN MILES



SCALE IN KILOMETERS



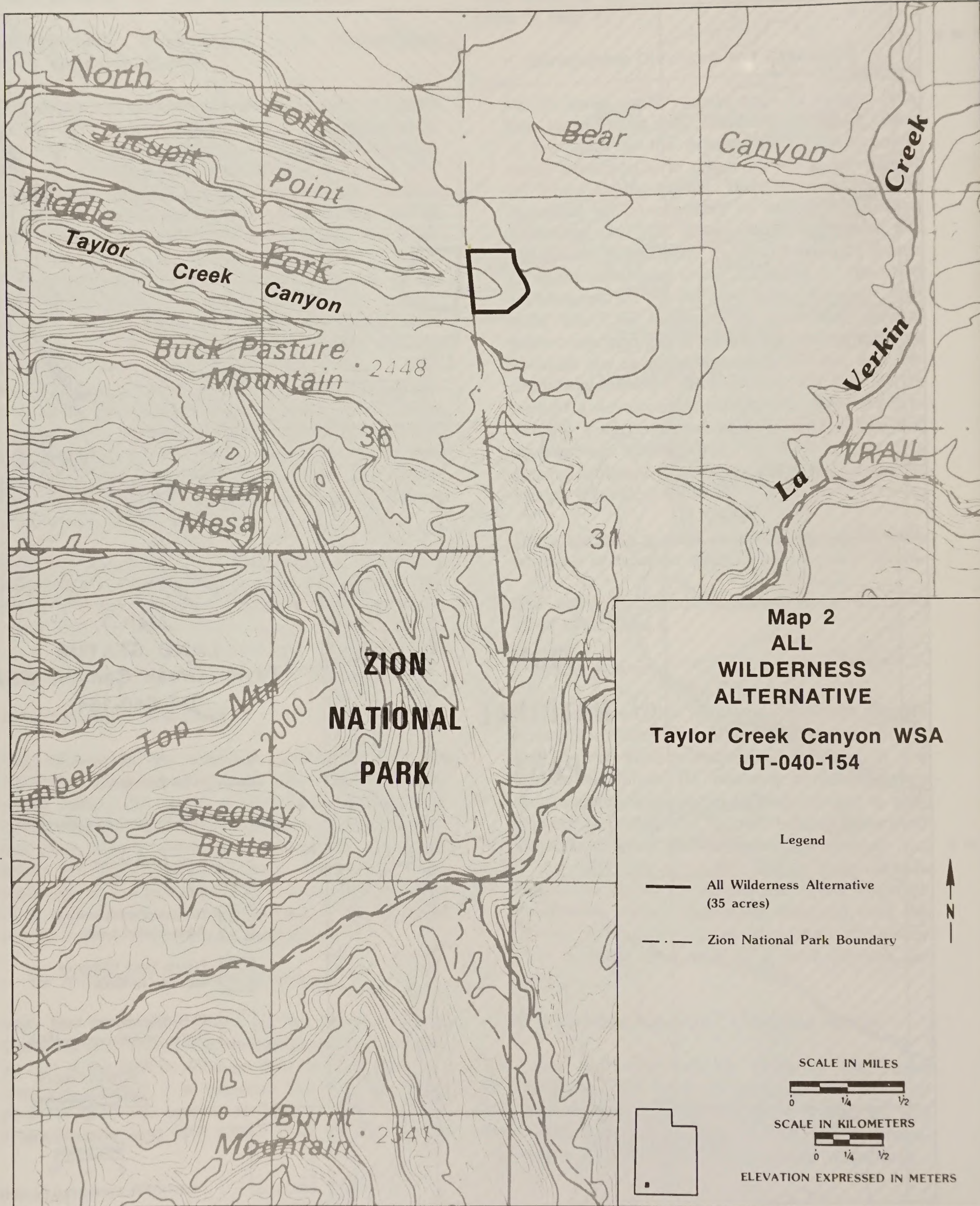
ELEVATION EXPRESSED IN METERS

TAYLOR CREEK CANYON WSA

R. 12 W.

R. 11 W.



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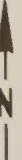


Map 2 ALL WILDERNESS ALTERNATIVE

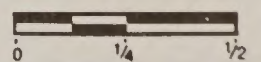
Taylor Creek Canyon WSA
UT-040-154

Legend

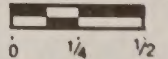
-  All Wilderness Alternative (35 acres)
-  Zion National Park Boundary



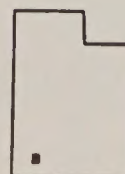
SCALE IN MILES



SCALE IN KILOMETERS



ELEVATION EXPRESSED IN METERS



T. 39 S.

TAYLOR CREEK CANYON WSA

Because this WSA lacks the necessary size to constitute a wilderness area by itself, it could only be managed in conjunction with the NPS-proposed wilderness. As a result, the Taylor Creek Canyon WSA could be retained by BLM or transferred (along with nine other small WSAs [refer to Map 3]) to the NPS, who would then assume management responsibilities. For the purposes of this analysis, it is assumed that BLM would retain the Taylor Creek Canyon WSA and would manage it in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) to preserve its wilderness character. No State, private, or split-estate lands are located in the WSA (refer to Map 1). The figures and acreages given under this alternative are for Federal lands only.

- Management Conditions and Constraints

After wilderness designation, all 35 acres would be withdrawn from mineral location and closed to new mineral leasing and sale. Currently, no mining claims have been located in the WSA and the area is not leased for oil and gas.

No livestock use has occurred in the WSA and non-use would continue.

The entire 35-acre area would be closed to ORV use except for: (1) users with valid existing rights if approved by BLM in accordance with 43 CFR 8560 provisions. There are no ways in the WSA. The dirt road that forms part of the eastern boundary of the WSA would remain open for use.

Visual resources in the wilderness would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change.

- Action Scenario

No surface disturbance is projected in the foreseeable future. Implementation of the All Wilderness Alternative would preclude mining claim location and mineral leasing. Therefore, no locatable or leasable mineral resource exploration or development would occur following wilderness designation. No rangeland, wildlife habitat, watershed projects, or other developments are planned following wilderness designation nor would ORV use occur. Recreation use would be primitive in nature and would increase over the current estimated use of less than 50 visitor days annually at a rate of 2 to 7 percent per year.

Summary of Environmental Consequences

Only impacts on wilderness values are analyzed in detail. Refer to Table 1 for a summary of impacts.

AFFECTED ENVIRONMENT

This section describes the overall environmental setting. This information allows for independent assessment by the public as required by the CEQ guidelines and provides a data base for the cumulative State-wide analysis found in Volume I, as well as for analysis of the Environmental Consequences of Alternatives for this WSA.

Unless otherwise indicated, information for this section was taken from BLM staff specialists, technical reports, and file documents.

Wilderness Values

- Size

The 35-acre Taylor Creek Canyon WSA is in the shape of a square, approximately 0.25 miles wide and long.

- Naturalness

The WSA is in a natural condition. There are no known intrusions.

- Solitude

The narrow sheer-walled canyon of the Middle Fork of Taylor Creek that continues into Zion National Park offers outstanding opportunities for solitude if considered in conjunction with Zion National Park.

- Primitive and Unconfined Recreation

The canyon bottoms of the Middle Fork of Taylor Creek offer primitive and unconfined recreation opportunities such as hiking, backpacking, and photography. The opportunities for primitive and unconfined recreation are considered outstanding if considered in conjunction with the proposed wilderness area in Zion National Park.

- Special Features

Special features identified during the wilderness inventory include excellent raptor habitat and exceptional scenic values similar to those of Zion National

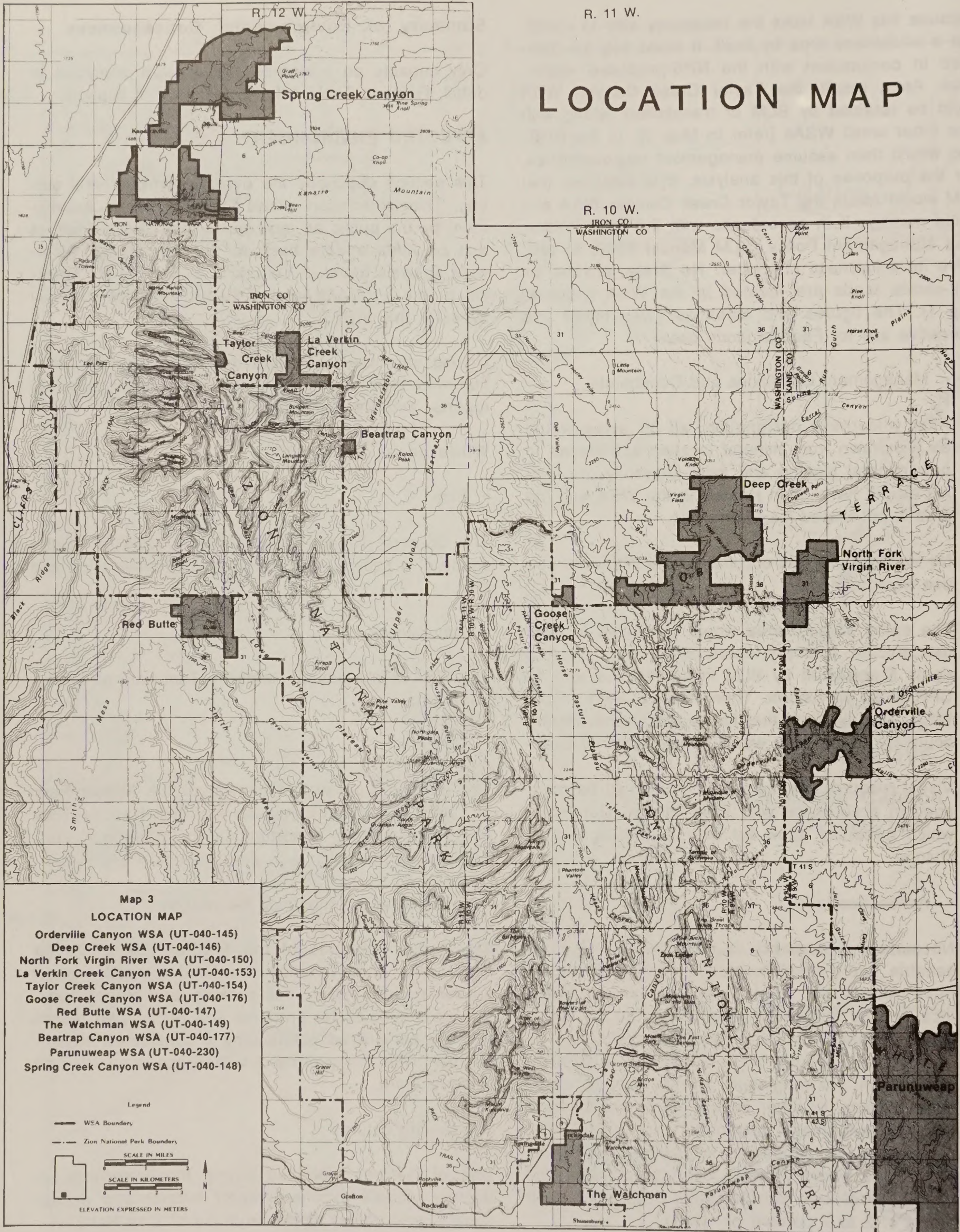
TAYLOR CREEK CANYON WSA

R. 12 W.

R. 11 W.

R. 10 W.

LOCATION MAP



T. 39 S.

T. 40 S.

T. 41 S.

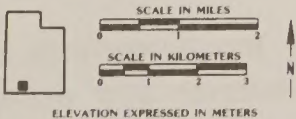
Map 3

LOCATION MAP

- Orderville Canyon WSA (UT-040-145)
- Deep Creek WSA (UT-040-146)
- North Fork Virgin River WSA (UT-040-150)
- La Verkin Creek Canyon WSA (UT-040-153)
- Taylor Creek Canyon WSA (UT-040-154)
- Goose Creek Canyon WSA (UT-040-176)
- Red Butte WSA (UT-040-147)
- The Watchman WSA (UT-040-149)
- Beartrap Canyon WSA (UT-040-177)
- Parunuweap WSA (UT-040-230)
- Spring Creek Canyon WSA (UT-040-148)

Legend

- WSA Boundary
- - - Zion National Park Boundaries



TAYLOR CREEK CANYON WSA

**Table 1
Summary of Environmental Consequences**

| Alternatives | |
|------------------------------|--|
| Resource | All Wilderness (35 Acres) (Proposed Action) |
| Impacts on Wilderness Values | <p>No Action/No Wilderness</p> <p>Wilderness values would be protected by wilderness designation. No disturbance is projected in the foreseeable future that would affect wilderness values.</p> <p>Wilderness designation would preserve the wilderness values of naturalness, outstanding opportunities for solitude and primitive recreation, and special features including Class A scenery, endangered or sensitive species, and wildlife associated with wilderness, wherever these values occur in the WSA.</p> |

TAYLOR CREEK CANYON WSA

Park. The entire WSA is rated Class A for scenic quality.

The WSA has resource values that, although not identified as such during the wilderness inventory, could be considered special features. There are two animal species (peregrine falcon and bald eagle) listed as endangered that may occasionally use the WSA. There are 13 animal species and four plant species that are considered sensitive that may occur in the WSA.

Cougar, which is a wildlife species associated with wilderness, use the WSA. Refer to the Vegetation and Wildlife Including Special Status Species sections for additional information.)

• Diversity

This WSA is in a transition zone between the Colorado Plateau and Rocky Mountain Forest Province Ecoregions and has the PNV type of Arizona pine forest. Refer to the Vegetation Including Special Status Species section for more discussion on ecoregions and PNV types. To see how the ecoregion and PNV types represented by this WSA compare Statewide and nationally with existing and potential National Wilderness Preservation Units, refer to the Wilderness Values section in Volume I.

This WSA is within a 5-hour drive from one standard metropolitan statistical area, Las Vegas, Nevada.

Air Quality

The Taylor Creek Canyon WSA is located in a PSD Class II area as defined in the Clean Air Act, as amended. Air quality is considered excellent. The adjacent Zion National Park is designated as PSD Class I. Visual ranges in excess of 100 miles occur 75 percent of the time, and ranges in excess of 155 miles occur 10 percent of the time.

Geology and Topography

The Taylor Creek Canyon WSA is within the Grand Staircase section of the Colorado Plateau Physiographic Province. The WSA is adjacent to Zion National Park and consists essentially of the head of the Middle Fork of Taylor Creek.

Rocks of Jurassic age totaling about 1,000 feet crop out in the WSA. Underlying Mesozoic and Paleozoic rocks may be as much as 10,000 feet thick (Hintze,

1973). Marine sediments of the Carmel Formation form the most extensive outcrops in the WSA, with about 400 feet exposed on the higher elevations. Approximately 600 feet of cross-bedded eolian sandstone of the Navajo Formation is exposed within the canyon.

No faults or other structures are known to occur within the WSA. However, the north-south trending Hurricane Fault is located 4 miles west of the WSA.

The lowest elevation is approximately 6,800 feet and is found along the western boundary of the WSA at the bottom of the Middle Fork of Taylor Creek Canyon. The highest elevation is approximately 7,700 feet and is found along the eastern boundary of the WSA on the ridge above the Middle Fork of Taylor Creek Canyon.

Soils

The soils are mapped by the Washington County Soil Survey as Paunsaugunt-Kolob-Dalcan Association or rock outcrop-rockland association (USDA, SCS, 1977). These are excessively drained, nearly level to very steep, shallow to deep gravelly silt loams, fine sandy loams, cobbly loams, and bare bedrock. The erosion potential is moderate to severe, and the erosion condition classification is slight. Erosion condition as determined by using soil surface factors is summarized in Table 2 (terms are defined in the Glossary). Salinity class is estimated as nonsaline. Because of the moderately high sediment production, up to 33 lb of salt per acre may be lost annually. Seeding suitability is estimated to be fair.

Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | Acres | Percent of WSA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|-------|----------------|--------------------------------------|
| Severe | 5.4 | 0 | 0 | 0 |
| Critical | 2.7 | 0 | 0 | 0 |
| Moderate | 1.3 | 0 | 0 | 0 |
| Slight | 0.6 | 35 | 100 | 21 |
| Stable | 0.3 | 0 | 0 | 0 |
| Total | | 35 | 100 | 21 |

Sources: USDI, BLM, 1978c and 1979c; Leifeste, 1978.

Vegetation Including Special Status Species

Existing vegetation in the WSA is comprised of two types, coniferous forest (6 acres) and mountain shrub (8 acres). Over 60 percent (21 acres) of the WSA is barren rock outcrops.

TAYLOR CREEK CANYON WSA

No threatened or endangered plant species are known to occur in the WSA. However, the WSA could contain four Category 2 candidate species. These are Asplenium andrewsii, Erigeron sionis, Heterotheca jonesii, and Sphaeromeria ruthiae (see Appendix 4 in Volume I).

This WSA is located in a transition zone between the Colorado Plateau and Rocky Mountain Forest Province Ecoregions, as shown on the Bailey-Kuchler ecosystems map (USDI, USGS, 1978a). This transition has a diverse vegetation, with plants from each of these ecoregions being represented. The PNV type of the WSA is Arizona pine forest.

Water Resources

The WSA is located in the Virgin River subbasin of the Colorado River Basin hydrologic region. There are no existing water rights in the area. There are no perennial surface waters in the WSA.

The WSA water right status is considered fully appropriated (UDNRE, DWR, 1988). Surface and groundwater sources are closed to further water right applications. There are no withdrawals in the WSA.

Mineral and Energy Resources

The energy and mineral resource rating summary for the Taylor Creek Canyon WSA is given in Table 3. Refer to Appendix 5 in Volume I for a description of the mineral and energy rating system.

Table 3
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|-------------|---------------------------|------------------------|---|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f2 | c1 | Less than 10 million barrels of oil; less than 60 billion cubic feet of gas |
| Uranium | f2 | c1 | Less than 500 metric-tons of uranium oxide |

Source: SAI, 1982; USDI, BLM, 1987.

^aFavorability of the WSA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

There are no strategic or critical minerals known to occur within the WSA (USDoD, 1988).

• Leasable Minerals

There are no known deposits of any leasable minerals in the WSA. Currently, there are no active drilling, mining, or exploration activities for leasable minerals.

• Oil and Gas

Based on similarities between the WSA and the nearby Anderson Junction oil field (located 13 miles southwest) and the Virgin oil field (15 miles south), the WSA has potential for small accumulations of hydrocarbons. To date, however, no commercial oil and gas potential has been identified in the WSA.

The favorability of the tract for oil and gas is rated (f2) (SAI, 1982). The size of the hydrocarbon accumulation in such an environment is anticipated to be less than 10 million barrels of oil or less than 60 billion cubic feet of gas. Based on the available information, the certainty of occurrence for oil and gas is rated very low (c1).

Under the current land use plan, all 35 acres of the WSA are in Category 1 (standard stipulations). There are presently no oil and gas leases in the WSA.

• Locatable Minerals

There are no known deposits of locatable minerals in the WSA. There are presently no mining claims.

• Uranium

The WSA is approximately 20 miles northeast of the Silver Reef Mining District, a known uranium-producing area. Although known primarily for its past silver production, uranium has been found there in the Springdale Sandstone Member of the Moenave Formation. The Moenave Formation occurs at depths of about 2,500 feet below the surface of the WSA. The Chinle Formation is also favorable for uranium, but it occurs at depths exceeding 3,000 feet. SAI has assigned an uranium favorability rating of (f2) (containing less than 500 metric-tons of uranium oxide). Based on available information, the certainty that uranium deposits occur in the WSA is very low (c1) (SAI, 1982).

TAYLOR CREEK CANYON WSA

• Salable Minerals

Stream gravel and other loose rock material that could be used for construction occur within the WSA. These deposits are not unique or economically significant due to the presence of ample similar materials outside the WSA.

Wildlife Including Special Status Species

Because this WSA occurs in the transition zone of two vegetation ecoregions, it may support a variety of animal species. The Virgin River Unit Resource Analysis indicates approximately 300 vertebrate animal species could inhabit the WSA (USDI, BLM, 1979a). These include 60 mammal species, 208 bird species, 20 reptile species, six amphibian species, and three fish species. No critical wildlife habitat areas have been identified within the WSA.

Raptors may include the golden eagle, bald eagle, peregrine falcon, prairie falcon, American kestrel, red-tailed hawk, and Cooper's hawk. The red-tailed and Cooper's hawks are the most common. The bald eagle (*Haliaeetus leucocephalus*) and peregrine falcon (*Falco peregrinus*) are included on the Federal endangered species list. Bald eagles winter in the Virgin River drainage south of the WSA and also in Kanarrville and New Harmony valleys west of the WSA. An active peregrine falcon nest occurs in Taylor Creek Canyon in Zion National Park downstream of the WSA. Occasional sightings of these birds have been made, with most reports occurring in the Deep Creek-Goose Creek area. No other threatened or endangered species are known to inhabit the WSA. The golden eagle, which may inhabit the WSA, is a BLM sensitive species. The FWS Category 2 candidate species, the Great Basin Silverspot butterfly and Virgin River montane vole, may be present in the WSA.

Cougar activity in the vicinity is heavy compared to other areas in Utah. The Taylor Creek Canyon WSA contains cougar habitat and is within the Utah Cougar Management Unit 30, Cedar Mountain. Cougar populations and harvest by sport hunters and by the Animal Damage Control Program has been higher in this management unit than in any other location in Utah. During the 11-year period, 1977 through 1987, a total of 217 cougars were taken from the Cedar Mountain Management Unit. This harvest averaged nearly 20 animals per year (UDNRE, DWR, 1988). It has not been determined how many of these may have been taken from within the WSA.

Forest Resources

The forest resource in the WSA is restricted to 6 acres of scattered conifer trees. As a whole, the limited forest resources in the WSA have no commercial value. There is presently no production of forest resources in the WSA and none is projected for the foreseeable future because of the limited resource and lack of access.

Livestock and Wild Horses/Burros

The Taylor Creek Canyon WSA lies within the Cedar Mountain Allotment which is grazed by 800 sheep from June 16 to October 15. Only 3 percent of this allotment is Federal range (20 AUMs). One permittee uses the allotment. All of the WSA is unsuitable for livestock use due to the steep terrain. There are no other agricultural uses. There are no existing range improvements and none proposed. There is no potential for land treatment.

Predator control was not conducted during the 1986 to 1987 period in the Taylor Creek Canyon WSA. (USDA, APHIS, 1988).

There are no wild horses or burros within the WSA.

Visual Resources

The VRM Class for the WSA is Class II (refer to Appendix 7 in Volume I for a description of the BLM VRM rating system). The WSA's scenic quality is Class A, exceptional. The WSA exhibits the same type of features as Zion National Park, one of the nation's most important tourist attractions with a worldwide reputation for scenic splendor.

Cultural Resources

Petroglyphs, stone granaries, and rock shelters are known to exist in Zion National Park and the general vicinity. However, no archaeological inventory exists on this specific WSA and no cultural values have been identified.

Recreation

Recreational use of the WSA is nearly nonexistent due to its steep terrain. Access to Zion National Park cannot be reached through the WSA because of high cliffs.

TAYLOR CREEK CANYON WSA

The WSA receives some recreational use by sight-seers peering over the rim and looking down Taylor Creek. It is estimated that visitor use would be less than 50 visitor days per year. Motorized recreational use does not occur on this WSA because of the rugged terrain.

Land Use Plans

There are no State or private in-holdings, subsurface rights, or rights-of-way in the WSA. The land is presently used for primitive forms of outdoor recreation and wildlife habitat. The NPS land adjacent to the WSA has been administratively endorsed for wilderness.

The Statement of Management for Zion National Park is ". . . to maintain the quality and flow of water from all natural water resources that have been traditionally important in serving domestic needs and in perpetuating the park's ecological communities" (USDI, NPS, 1976). NPS has shown interest in the nondevelopment of adjacent lands in order that the park's watershed remain unimpaired.

In response to H.R. 1214 (Ninety-Eighth Congress of the U.S., 1983), the NPS assessed the WSA to determine its value for potential addition to the adjacent NPS unit (USDI, NPS, 1984a). The NPS concluded that the Taylor Creek Canyon WSA would add a minor buffer zone to the park but value and contribution to the NPS unit would be insignificant. The Taylor Creek Canyon WSA was recommended as suitable for inclusion into the adjacent unit of the national park system (U.S. Secretary of the Interior, 1985c). Although the WSA did not meet all of the NPS criteria for inclusion into the park, there was no objection to transferring the WSA from BLM to NPS administration because the WSA is isolated by park and private lands and is uneconomical for BLM to manage. No Congressional action has been taken on that recommendation.

There are no existing or proposed rights-of-way within this WSA.

There are no State of Utah or private lands in the WSA.

The Washington County Master Plan (Planning and Research Associates, 1971) identifies the WSA as an open space zone, and Washington County policy does not support wilderness designation for this WSA.

The Washington County Commission has endorsed the Consolidated Local Government Response to Wilderness that opposes wilderness designation of BLM lands in Utah (Utah Counties, 1986).

Socioeconomics

• Demographics

The WSA is in Washington County. From 1970 to 1980, the population of Washington County grew from 13,699 to 24,600, an overall increase of about 93 percent. Table 4 presents baseline and projected population data for Washington County. It is estimated that between 1980 and 1987, the population increased to about 39,720. Population projections indicate that the number of people living in Washington County in the year 2010 will be about 65,600 for about a 148-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

Table 4
Baseline and Projected Population and Employment Growth
Washington County

| | 1980 | 1990 | 2000 | 2010 |
|------------|--------|--------|--------|--------|
| Population | 26,400 | 45,500 | 51,000 | 65,600 |
| Employment | 8,100 | 14,400 | 18,400 | 24,100 |

Source: Utah Office of Planning and Budget, 1987.

• Employment

Table 4 shows the baseline and projected total employment for Washington County to the year 2010.

Washington County is part of the Southwest MCD. Table 5 shows the baseline (1980) and projected employment by source for the MCD to the year 2010. In 1980 the leading employment sectors for the Southwest MCD were government (23 percent), trade (20 percent), and nonfarm proprietors (2 percent). Mining provided less than 3 percent of the employment in the MCD.

It is projected that by the year 2010, employment in the MCD will more than double. Services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 3 percent, mining to less than 1 percent, and government to 18 percent of the total.

TAYLOR CREEK CANYON WSA

Table 5
Southwest Multi-County District
Employment^a

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|--------------|--------------|--------------|--------------|
| Agriculture | 1,810 | 1,700 | 1,600 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,600 | 3,300 |
| Transportation, Utilities | 1,006 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 6,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 6,900 | 8,900 |
| Government | 4,616 | 5,800 | 6,500 | 8,100 |
| Nonfarm Proprietors | <u>2,386</u> | <u>3,100</u> | <u>3,500</u> | <u>4,700</u> |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

^aincludes Beaver, Garfield, Iron, Kane, and Washington Counties.

• Sales and Revenues

The only economic-related activity in the WSA is recreation.

The WSA has no mining claims or oil and gas leases. Therefore, mineral and energy resource production from the WSA has not contributed to local employment or income.

There is no livestock grazing in the WSA, so no income or revenues are generated.

The WSA's recreational use is for primitive recreation and related local expenditures are low. These expenditures are insignificant to both the local economy and individual businesses. The actual amount of income generated locally from recreational use in the WSA is unknown. However, an approximate range of expenditures can be deduced (Dalton, 1982). This study indicates that the Statewide average local expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for the Taylor Creek Canyon WSA is estimated at about 50 visitor days per year.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This section describes the environmental consequences of implementing the alternatives. The analysis is based on the BLM management actions and anticipated activities presented in the Introduction to Volume III-B and the Description of the Alternatives section for the Taylor Creek Canyon WSA.

The WSA has low mineral potential, no mining claims or mineral leases, no livestock grazing, and is inaccessible to vehicles. Primitive recreational use is low, estimated to be less than 50 visitor days per year.

The only issue identified and analyzed in detail for the Taylor Creek WSA is the impact to the wilderness values of naturalness, opportunities for solitude and primitive and unconfined recreation, and special features.

No Action/No Wilderness Alternative

• Impacts on Wilderness Values

Because the WSA would not be designated wilderness with this alternative, the identified wilderness values would not receive the degree of protection afforded by application of the BLM Wilderness Management Policy (BLM Manual 8560). Wilderness values in the WSA would be somewhat protected by limitations placed on potential surface-disturbing activities (i.e., VRM Class II management on 35 acres).

No development would be expected in the foreseeable future that would affect wilderness values.

Because ORV use would be limited by steep, rugged terrain, no disturbance from ORV activity is anticipated in the future.

The 2 to 7 percent annual increase in visitor use that would occur would not be expected to reduce wilderness values because the additional use is expected to be small and primitive in nature.

Overall, no disturbance of the WSA's wilderness values, including naturalness, outstanding opportunities for solitude and primitive and unconfined recreation, and special features including Class A scenery, endangered or sensitive species (including raptors), and wildlife associated with wilderness, would be expected in the foreseeable future. The degree to which wilderness values would be reduced in quality due to disturbance over the long term is not accurately known.

Nondesignation would not complement the NPS proposal for wilderness management of the contiguous portion of Zion National Park.

Conclusion: Wilderness values would not be preserved by wilderness designation. No disturbance that would

TAYLOR CREEK CANYON WSA

affect wilderness values would be expected in the foreseeable future.

All Wilderness Alternative (Proposed Action)

- Impacts on Wilderness Values

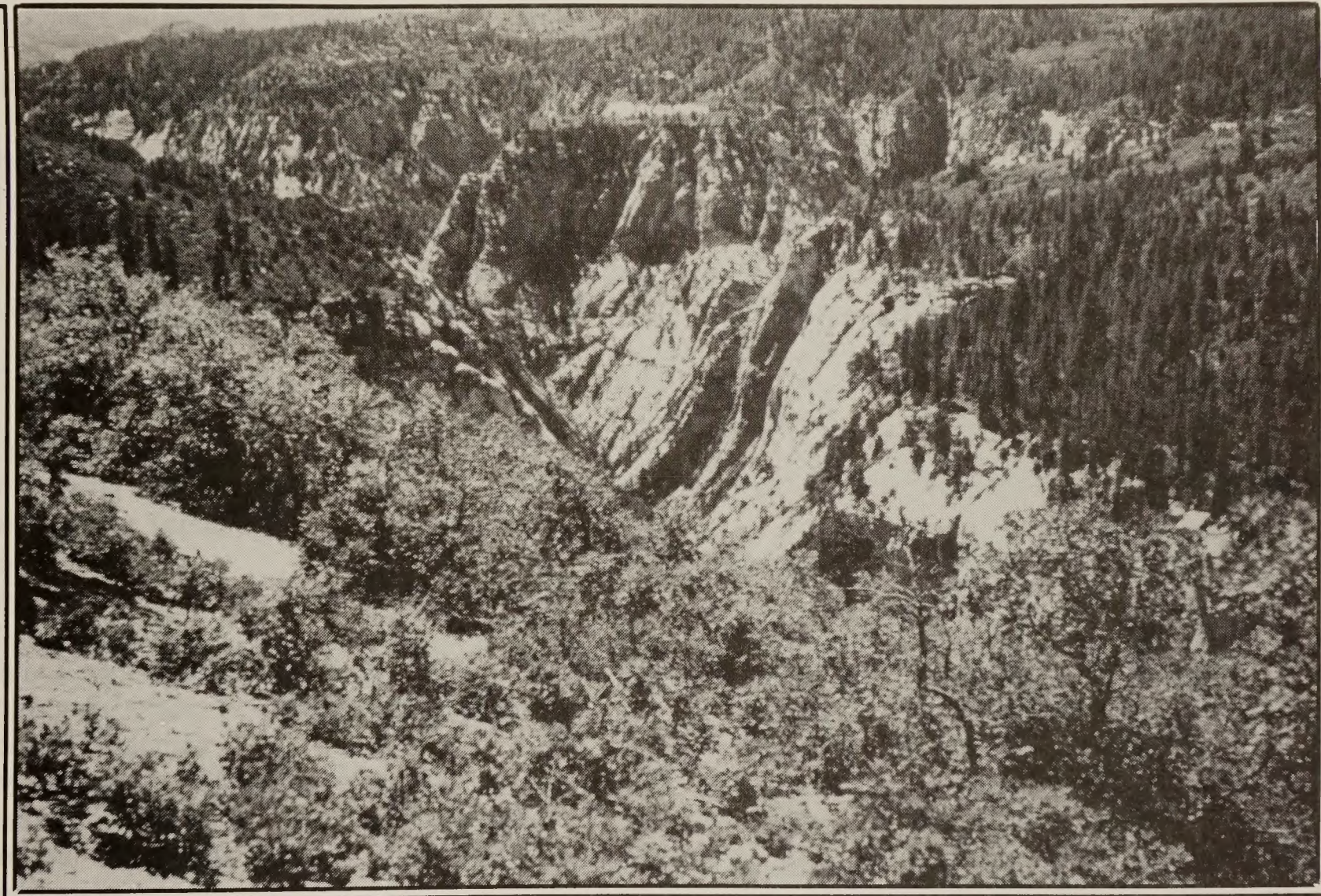
Designation and management of all 35 acres as wilderness would preserve the wilderness values in the Taylor Creek Canyon WSA. The potential for surface-disturbing activities would be reduced through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I which allows for only natural ecological change. Naturalness, and outstanding opportunities for solitude and primitive and unconfined recreation would be preserved on all 35 acres. Resources that could be considered as special features in the WSA, including Class A scenery, endangered or sensitive species (including raptors), and wildlife associated with wilderness, would also be preserved.

The 2 to 7 percent annual increase in visitor use that would occur would be primitive in nature and would be managed in conjunction with Zion National Park so as not to result in a loss of wilderness values.

Designation would complement the NPS proposal for wilderness management of the contiguous portion of Zion National Park.

Conclusion: Wilderness designation would preserve wilderness values throughout the WSA.

Goose Creek Canyon WSA



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GOOSE CREEK CANYON WSA

(UT-040-176)

INTRODUCTION

General Description of the Area

The Goose Creek Canyon WSA contains 89 acres administered by the BLM Cedar City District. Goose Creek Canyon WSA is at the boundary of Zion National Park in the northeast corner of Washington County. It is adjacent to a NPS administratively endorsed wilderness proposal encompassing 120,620 acres.

WSA's topography is dominated by Goose Creek drainage. The canyon rims are approximately 2,000 feet above the creek exposing various rock formations. The climate within the WSA is considered mild with average temperatures ranging from the low 40s during the winter months to the high 80s during mid-summer. Temperature extremes can vary from 0 to 105 degrees Fahrenheit. Average annual precipitation in Zion National Park is 14.5 inches with about half occurring in the form of winter snow and half as rain during summer thunderstorms. Winds usually prevail from the southwest with the strongest winds occurring in March and April.

This WSA was dropped from wilderness study status by the Secretary of the Interior on December 30, 1982, due to its small size. As a result of a decision of the Eastern District Court of California (Sierra Club vs. Watt, Civil No. 5-83-035 LKR, dated April 18, 1985) and because of the WSA's wilderness values, it is included in the EIS for analysis. This is in line with general land use planning provisions of Section 202 of the FLPMA and in accordance with BLM guidance that allows for wilderness consideration of areas of less than 5,000 acres in size if they are adjacent to land with wilderness potential administered by other Federal agencies.

There are no private, State, or split-estate lands located within the WSA.

Changes for the Final EIS

The changes noted in the Introduction to Volume III-B are applicable to the WSA. In addition, impacts to wilderness values has been analyzed as an issue in the Final EIS. No other changes have been made since publication of the Draft EIS.

Specific Issues Identified Through Scoping and Public Comment

• Issues Considered But Not Analyzed in Detail

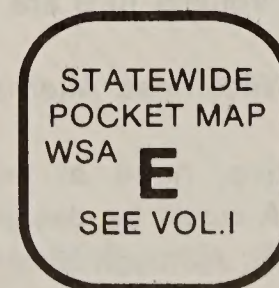
No issues were analyzed in detail in the Draft EIS for the Goose Creek Canyon WSA. The WSA is located at the upper end of the Goose Creek. It encompasses only 89 acres, 20 percent of which is confined into a steep, narrow canyon. Vertical walls and narrow canyon bottoms make the unit difficult to cross. The potential for any development of the WSA is practically nonexistent because of its site characteristics and its extremely low mineral potential. No change in the use of the WSA's environment is foreseen under the No Action/No Wilderness Alternative or the All Wilderness Alternative. Therefore, no environmental impacts would result from wilderness designation or nondesignation.

• Issues Analyzed in Detail

Although not analyzed as an issue in the Draft EIS, impacts on the wilderness values of naturalness, outstanding opportunities for solitude and primitive recreation, and special features is analyzed in the Final EIS.

Comments made during the public comment period for the Draft EIS centered mainly on the inventory phase of the wilderness review, BLM's assessment of the value of wilderness vs. other resource values, and the relationship to NPS management.

See Volume VII-C, Section E for responses to specific comments about the Goose Creek Canyon WSA; and Volume VII-B for responses to general comments applicable to all WSAs and/or the Statewide analysis.



GOOSE CREEK CANYON WSA

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated from Detailed Study

One alternative considered was to transfer the WSA to NPS administration. Such a transfer could occur in the future regardless of wilderness status and is not analyzed as an alternative in this EIS. The question of which agency should manage the WSA to achieve overall management effectiveness will be addressed in the wilderness study report, but it will be based primarily on factors affecting both BLM and NPS jurisdictions, such as relative amounts of the total wilderness area administered by each agency, principal public ingress and exit points, agency staffing and workload in the region, and similar nonenvironmental items. Environmental differences, if any, would be due to variations in BLM and NPS mandates and policy (for example national parks are closed to hunting while public lands are not) rather than from wilderness designation. These differences would exist with or without wilderness designation, and, therefore, are not relevant to the analyses of the impacts from wilderness designation.

A partial wilderness alternative was not considered reasonable because of the area's size and because of lack of resource conflicts. BLM has determined that the Goose Creek Canyon WSA would not be a viable independent wilderness if adjacent NPS land is not also designated as wilderness.

Alternatives Analyzed

Two alternatives are analyzed for this WSA: (1) No Action/No Wilderness; and (2) All Wilderness (Proposed Action) (89 acres). A description of each alternative follows. Where management intentions have not been clearly identified, assumptions are made based on management projections under each alternative. These assumptions are indicated in each case. The assumed BLM management actions presented in the Introduction to Volume III-B are also applicable.

• No Action/No Wilderness Alternative

With this alternative, none of the 89-acre Goose Creek Canyon WSA would be designated by Congress as part of the NWPS. Although BLM land use plans are regularly updated, it is assumed for this analysis that the area would continue to be managed in accordance with the Virgin River MFP (USDI, BLM, 1979a). No State, private, or split-estate lands are within the

WSA (refer to Map 1). Figures and acreages in this analysis are for Federal lands only.

• Management Conditions and Constraints

All 89 acres would remain open to mineral location, leasing, and sale. There are no mining claims in the WSA at the present time. Development work, extraction, and patenting would be allowed on future mining claims. Development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809). Future oil and gas leases could be developed under standard stipulations (Category 1) on the 89-acre area. Although mineral resources would be managed as described above, mineral exploration and development are not anticipated because the level of known resources and the probability of their development are too low to support that assumption. Appendix 6 in Volume 1 explains the mineral exploration and development assumptions.

There is no present domestic livestock grazing use in the WSA. Part of the WSA is potentially suitable, but there is no authorized use. There are no existing range developments in the WSA.

The entire WSA acreage would be open to vehicular use, but none is expected because of the rugged terrain.

The entire area would continue to be managed under VRM Class II.

• Action Scenario

BLM projects that the implementation of the No Action/No Wilderness Alternative would not result in any surface-disturbing activities in the foreseeable future. No locatable or leasable mineral resource exploration or development is anticipated. No rangeland, wildlife habitat, watershed projects, or other developments are planned, nor is any ORV use projected due to rugged terrain. Recreation use in the foreseeable future would be primitive in nature, and would increase over the current estimated use of approximately 100 visitor days annually at a rate of 2 to 7 percent per year.

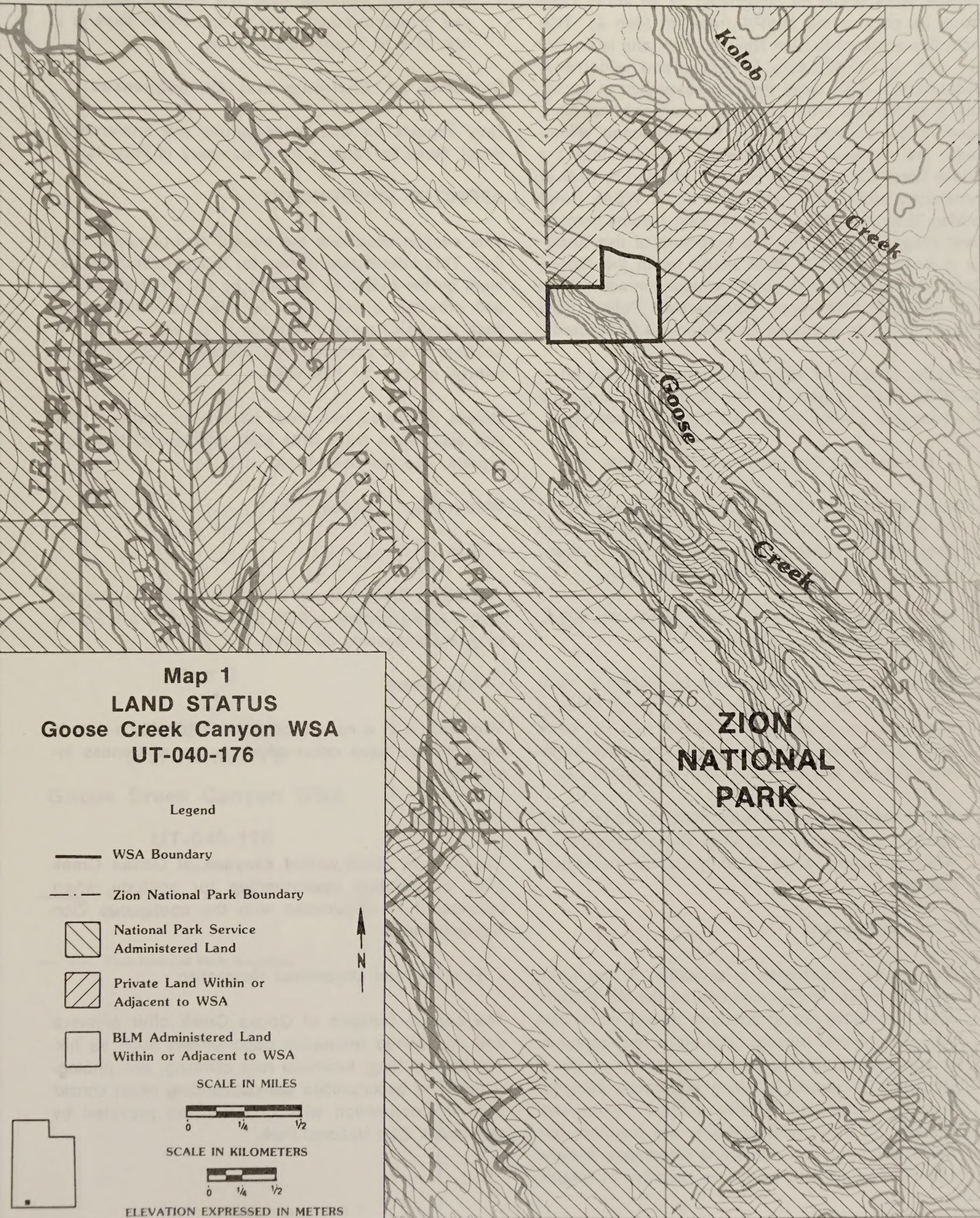
• All Wilderness Alternative (Proposed Action)

With this alternative, all 89 acres of the Goose Creek

GOOSE CREEK CANYON WSA

R. 11 W.

R. 10 W.



GOOSE CREEK CANYON WSA

Canyon WSA would be designated by an act of Congress as part of the NWPS (refer to Map 2). This WSA lies adjacent to Zion National Park and is contiguous with a 120,620-acre NPS-proposed wilderness. Because this WSA lacks the necessary size to constitute a wilderness area by itself, it can only be managed in conjunction with the NPS-proposed wilderness. As a result, the possibility exists that the Goose Creek Canyon WSA could be retained by BLM or transferred along with nine other small WSAs (refer to Map 3) to the NPS, who would then assume management responsibilities. For the purposes of this analysis it is assumed that BLM would retain the Goose Creek Canyon WSA and would manage it in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) to preserve its wilderness character.

No State, private, or split-estate lands are located in the WSA (refer to Map 1). The figures and acreages given for this alternative are for Federal lands only.

- Management Conditions and Constraints

After wilderness designation, all 89 acres would be withdrawn from mineral location and closed to new mineral leasing and sale. Currently, there are no mining claims or leases in the WSA.

No livestock use has occurred within the WSA, and non-use would continue.

The entire 89-acre area would be closed to ORV use except for users with valid existing rights if approved by BLM in accordance with 43 CFR 8560 provisions. The dirt road forming the northern boundary would remain open for vehicle use.

Visual resources in the wilderness would be managed in accordance with VRM Class I standards, which generally allow for only natural ecological change.

- Action Scenario

No surface disturbance is projected in the foreseeable future. Implementation of the All Wilderness Alternative would preclude mining claim location and mineral leasing. Therefore, no locatable or leasable mineral resource exploration or development is projected following wilderness designation. No rangeland, wildlife habitat, watershed projects, or other developments are planned, nor would ORV use occur following wilderness designation. Recreation use would be primitive in nature

and would increase over the current estimated use of approximately 100 annual visitor days at a rate of 2 to 7 percent per year.

Summary of Environmental Consequences

Only impacts on wilderness values are analyzed in detail. Refer to Table 1 for a summary of impacts.

AFFECTED ENVIRONMENT

This section describes the overall environmental setting. This information allows for independent assessment by the public as required by the CEQ guidelines and provides a data base for the cumulative State-wide analysis found in Volume I, as well as for the analysis of the Environmental Consequences of Alternatives section for this WSA.

Unless otherwise indicated, information for this section was taken from BLM staff specialists, technical reports, and file documents.

Wilderness Values

- Size

The Goose Creek Canyon WSA is in the shape of a rectangle approximately a 0.25 mile wide and a 0.5 mile long, encompassing 89 acres.

- Naturalness

The WSA is in a natural condition. No surface-disturbing activities have occurred since the wilderness inventory.

- Solitude

The narrow, sheer-walled canyons of Goose Creek offer outstanding opportunities for solitude when considered in conjunction with the contiguous Zion National Park.

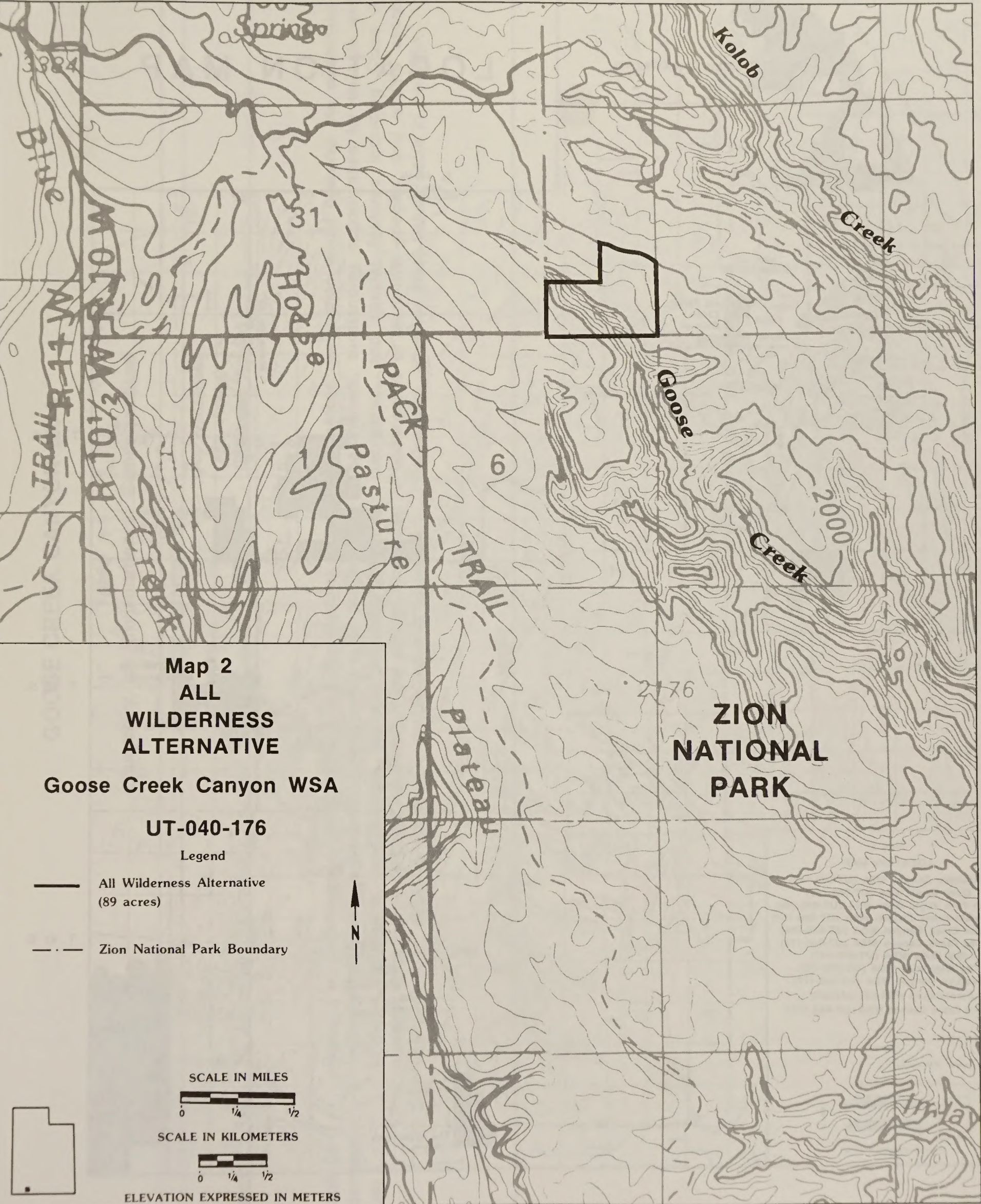
- Primitive and Unconfined Recreation

The canyon bottoms of Goose Creek offer primitive and unconfined recreation opportunities such as hiking, backpacking, technical rock climbing, and photography. The opportunities are outstanding when considered in conjunction with opportunities provided by contiguous Zion National Park.

GOOSE CREEK CANYON WSA

R. 11 W.

R. 10 W.

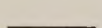
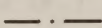


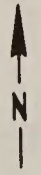
Map 2
ALL WILDERNESS ALTERNATIVE

Goose Creek Canyon WSA

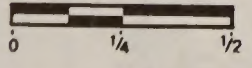
UT-040-176

Legend

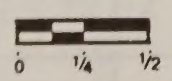
-  All Wilderness Alternative (89 acres)
-  Zion National Park Boundary



SCALE IN MILES



SCALE IN KILOMETERS



ELEVATION EXPRESSED IN METERS



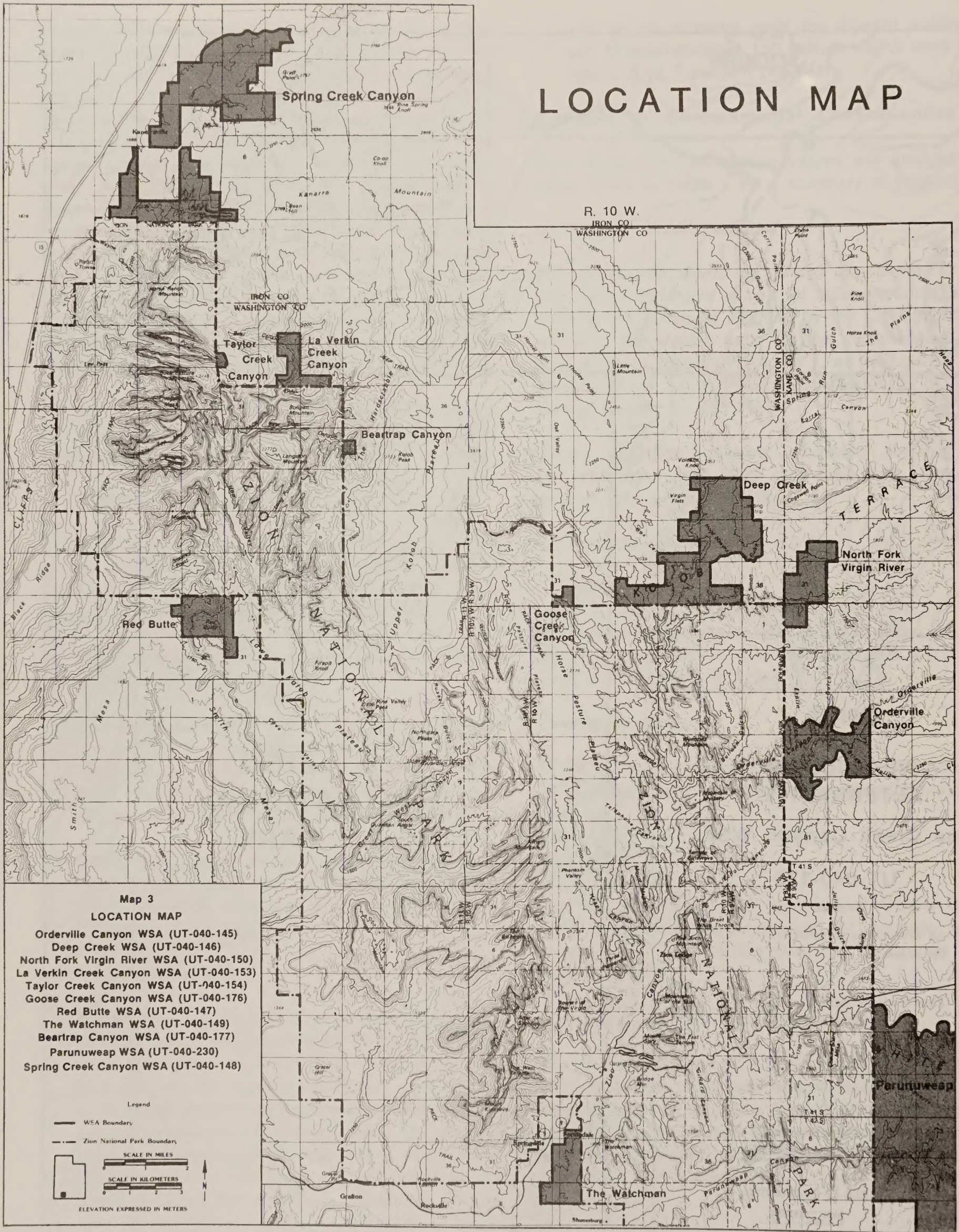
T. 40 S.

GOOSE CREEK CANYON WSA

R. 12 W.

R. 11 W.

LOCATION MAP



T. 39 S.

T. 40 S.

T. 41 S.

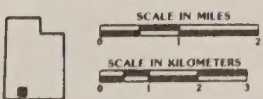
**Map 3
LOCATION MAP**

- Orderville Canyon WSA (UT-040-145)
- Deep Creek WSA (UT-040-146)
- North Fork Virgin River WSA (UT-040-150)
- La Verkin Creek Canyon WSA (UT-040-153)
- Taylor Creek Canyon WSA (UT-040-154)
- Goose Creek Canyon WSA (UT-040-176)
- Red Butte WSA (UT-040-147)
- The Watchman WSA (UT-040-149)
- Beartrap Canyon WSA (UT-040-177)
- Parunuweap WSA (UT-040-230)
- Spring Creek Canyon WSA (UT-040-148)

Legend

— WSA Boundary

- - - Zion National Park Boundaries



GOOSE CREEK CANYON WSA

**Table 1
Summary of Environmental Consequences**

| Alternatives | |
|-------------------------------------|--|
| | All Wilderness (760 Acres) (Proposed Action) |
| Resource | No Action/No Wilderness |
| Impacts on Wilderness Values | <p>Because no disturbance is anticipated, no loss of wilderness values, including naturalness, outstanding opportunities for solitude and primitive recreation, and special features including Class A scenery, endangered or sensitive species, and wildlife associated with wilderness, would be expected in the foreseeable future.</p> <p>Wilderness designation would preserve the wilderness values of naturalness, outstanding opportunities for solitude and primitive recreation, and special features including Class A scenery, endangered or sensitive species, and wildlife associated with wilderness, wherever these values occur in the WSA.</p> |

GOOSE CREEK CANYON WSA

• Special Features

During the wilderness inventory, the steep canyons of the WSA which provide raptor habitat and exceptional scenic values, were identified as special features. All of the WSA is rated Class A for scenic quality. In addition, the WSA may have two wildlife species (bald eagle and peregrine falcon) listed as endangered, and 13 animal species and four plant species that are considered sensitive. Refer to the Wildlife and Vegetation Including Special Status Species sections for more information.) The WSA has cougar which is a wildlife species commonly associated with wilderness.

• Diversity

This WSA is in a transition zone between the Colorado Plateau and Rocky Mountain Forest Province Ecoregion and has the PNV type of Arizona pine forest. Refer to the Vegetation Including Special Status Species section for more discussion on ecoregions and PNV types. To see how the ecoregion and PNV types represented by this WSA compare Statewide and nationally with existing and potential National Wilderness Preservation Units, refer to the Wilderness Values section in Volume I.

The WSA is within a 5-hour drive from one standard metropolitan statistical area, Las Vegas, Nevada.

Air Quality

The Goose Creek Canyon WSA is located in a PSD Class II area as defined in the Clean Air Act, as amended. Air quality is considered excellent. The adjacent Zion National Park is designated as PSD Class I. Visual ranges in excess of 100 miles occur 75 percent of the time, and ranges in excess of 155 miles occur 10 percent of the time.

Geology and Topography

The Goose Creek Canyon WSA is in the Grand Staircase section of the Colorado Plateau Physiographic Province. The WSA is adjacent to Zion National Park and consists of the upper end of Goose Creek Canyon.

Elevations range from about 7,000 feet above sea level along the ridgetop forming the north boundary of the WSA to about 5,000 feet above sea level in the bottom of Goose Creek Canyon along the southern boundary of the WSA.

Rocks of Jurassic age, totaling about 1,700 feet in thickness, crop out in the WSA. Underlying Mesozoic and Paleozoic rocks may be as much as 10,000 feet thick (Hintze, 1973). Marine sediments of the Jurassic Carmel Formation form the most extensive outcrops in the WSA, with approximately 1,000 feet exposed in the higher elevations. Approximately 700 feet of cross-bedded eolian sandstone of the Jurassic Navajo Formation is exposed in the lower elevations. The only drainage is Goose Creek Canyon.

Soils

All soils in the WSA (89 acres) are in the "slight" erosion class. Erosion condition was determined using soil surface factors as summarized in Table 2 (terms are defined in the Glossary).

Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | Acres | Percent of WSA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|-------|----------------|--------------------------------------|
| Severe | 5.4 | 0 | 0 | 0 |
| Critical | 2.7 | 0 | 0 | 0 |
| Moderate | 1.3 | 0 | 0 | 0 |
| Slight | 0.6 | 89 | 100 | 53 |
| Stable | 0.3 | 0 | 0 | 0 |
| Total | | 89 | 100 | 53 |

Sources: USDI, BLM, 1978c and 1979c; Leifeste, 1978.

There are some isolated pockets of productive soils within this WSA, but they are very small and undelineated. Most of the soils are mapped by the Washington County Soil Survey (USDA, SCS, 1977) as Paunsaugunt-Kolob-Dalcan Association or rock outcrop/rockland association. These are excessively drained, nearly level to very steep, shallow to deep gravelly silt loams, fine sandy loams, cobbly loams, and bare bedrock. The soils are unsuitable for agriculture. The soils are classified as nonsaline. The annual salt loss would be up to 15 lb per acre.

Seeding suitability is estimated as 20 percent unsuitable and 80 percent fair. The unsuitable areas are comprised of rock outcrop with slopes in excess of 20 percent. Sites with fair seeding suitability have shale loam soils with slopes between 5 and 50 percent.

Vegetation Including Special Status Species

Existing vegetation in the WSA is comprised primarily of coniferous forest. It is characterized by

GOOSE CREEK CANYON WSA

Ponderosa pine, Douglas fir, white fir, aspen, and Rocky Mountain juniper. Approximately 20 percent of the WSA is barren rock outcrop.

No threatened or endangered plant species are known to occur in the WSA. However, the WSA could contain four Category 2 candidate species. These are Asplenium andrewsii, Erigeron sionis, Heterotheca ionesii, and Sphaeromeria ruthiae (see Appendix 4 in Volume I).

This WSA is in a transition zone between the Colorado Plateau and Rocky Mountain Forest Province Ecoregions, as shown on the Bailey-Kuchler ecosystems map (USDI, USGS, 1978a). This transition has a diverse vegetation with plants from each of these ecoregions being represented. The PNV type of the WSA is Arizona pine forest.

Water Resources

This WSA is located in the Virgin River subbasin of the Colorado River Basin hydrologic region.

Goose Creek Canyon WSA has no permanent surface waters present, although some water may be present in Goose Creek during the rainy season (July through September). Water quantity is sufficient for the existing wildlife use. Goose Creek runs north to south for about 0.25 mile on the west side of the area. The Navajo Sandstone Formation is known to be a good water producer. There are no proposals or plans for development of ground water in the WSA. Flash floods in Goose Creek could be a hazard during the summer rainy season.

The WSA's water right status is considered to be fully appropriated. There are no existing water rights within the WSA. Surface and ground water sources are closed to further water right applications. The Utah State Water Engineer has stated that some applications could be considered, depending on water use and location (UDNRE, DWR, 1988). An ongoing water right adjudication is being conducted by the Fifth Judicial District Court for the Virgin River Drainage. The court is determining rights to the use of underground and surface water. There are no withdrawals present in the WSA.

Water Quality Standards for the North Fork of the Virgin River as established by the State of Utah are: Class 1C (protected for domestic purposes with treatment), Class 2B (protected for recreational uses excluding swimming), Class 3A (protected for cold water fisheries), and Class 4 (protected for agricul-

ture uses, both irrigation and livestock). In addition to assigned use classes an Anti-Degradation Segment has been assigned the East Fork Virgin River to headwaters. Water quality within this drainage is mostly affected by the natural geology of the area. Sedimentary sandstones and limestones contribute to dissolved and suspended solids primarily during runoff periods and storm events. Utah's 1986 305(b) Water Quality Assessment Report shows the North Fork Virgin River to have water quality problems for public water supply, secondary contact, and cold water fishery.

Mineral and Energy Resources

The energy and mineral resource rating summary for the Goose Creek Canyon WSA is given in Table 3. Appendix 5 in Volume I explains the methodology for the mineral and energy resource rating system.

Table 3
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|-------------|---------------------------|------------------------|---|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f 2 | c 1 | Less than 10 million barrels of oil; less than 60 billion cubic-feet of gas |
| Uranium | f 2 | c 2 | Less than 500 metric-tons of uranium oxide |

Source: SAI, 1982; USDI, BLM, 1987.

^aFavorability of the WSA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

There are no strategic or critical minerals known to occur within the WSA (USDoD, 1988).

• Leasable Minerals

There are no known deposits of any leasable minerals in the WSA. Currently, there are no active drilling, mining, or exploration activities for leasable minerals.

• Oil and Gas

Based on similarities between the WSA and the nearby Virgin oil field (13 miles southwest), the WSA has potential for small accumulations of hydrocarbons. To date, however, no commercial oil and gas potential has been identified in the WSA.

GOOSE CREEK CANYON WSA

The favorability of the tract for oil and gas is rated (f2) (SAI, 1982). The size of the hydrocarbon accumulation in such an environment is anticipated to be less than 10 million barrels of oil or less than 60 billion cubic-feet of gas. Based on the available information, the certainty of occurrence for oil and gas is rated very low (c1).

Under the current land use plan, all 89 acres of the WSA are in Category 1 (standard stipulations). There are presently no oil and gas leases in the WSA.

- Locatable Minerals

There are no known deposits of locatable minerals in the WSA. There are presently no mining claims.

- Uranium

The WSA is approximately 28 miles northeast of the Silver Reef Mining District, a known uranium-producing area. Although known primarily for its past silver production, uranium has been found there in the Springdale Sandstone Member of the Moenave Formation. The Moenave Formation occurs at depths of about 3,000 feet below the surface of the WSA. The Chinle Formation is also favorable for uranium, but it occurs at depths exceeding 4,000 feet. SAI has assigned a uranium favorability rating of f2 (containing less than 500 metric tons of uranium oxide) (SAI, 1982). Based on available information, the certainty that uranium deposits occur in the WSA is low (c2).

- Salable Minerals

Stream gravel and other loose rock material that could be used for construction occur within the WSA. These deposits are not unique or economically significant due to the presence of ample similar materials outside the WSA.

Wildlife Including Special Status Species

Because this WSA occurs in the transition of two vegetation ecoregions, it supports a variety of animal species. The Virgin River Unit Resource Analysis indicates approximately 300 vertebrate animal species could inhabit this WSA (USDI, BLM, 1979B). These include 60 mammal species, 208 bird species, 20 reptile species, seven amphibian species, and three fish species. No critical or crucial wildlife habitat areas have been identified within the WSA.

Raptors may include the bald eagle, peregrine falcon, prairie falcon, American kestrel, red-tailed hawk, and Cooper's hawk. The red-tailed and Cooper's hawks are the most common. The bald eagle (Haliaeetus leucocephalus) and peregrine falcon (Falcon peregrinus), are on the Federal endangered species list. Bald eagles winter in the Virgin River drainage south of the WSA and also in Kanarraville and New Harmony valleys west of the WSA. Occasional sightings of these birds have been made with most reports occurring in the Deep Creek-Goose Creek area. Nesting or roosting sites are not known to occur in the vicinity. The golden eagle, which may inhabit the WSA, is a BLM sensitive species. No other sensitive, threatened, or endangered species are known to inhabit the WSA. Candidate threatened or endangered species that may occur in the WSA are the Great Basin Silverspot butterfly and Virgin River montane vole.

Cougar activity in the vicinity is heavy compared to other areas in Utah. The Goose Creek Canyon WSA contains cougar habitat and is within Utah Cougar Management Unit 30, Cedar Mountain. Cougar populations and harvest by sport hunters and by the Animal Damage Control Program has been higher in this management unit than in any other location in Utah. During the 11-year period, 1977 through 1987, a total of 217 cougars were taken from the Cedar Mountain Management Unit. This harvest averaged nearly 20 animals per year (UDNRE, UDWR, 1988) how many of these may have been taken from within the WSA.

Forest Resources

The forest resource in the WSA consists of scattered Ponderosa pine, Douglas fir, white fir, aspen, and Rocky Mountain juniper. However, as a whole, the forest resources in the WSA have no commercial value. There is presently no forest production in the WSA and none is projected for the foreseeable future because of the lack of resource and access.

Livestock and Wild Horses/Burros

The Goose Creek Canyon WSA is within the Park Allotment. Although 58 percent of the unit is suitable and the remaining 42 percent is potentially suitable (lacking water) for livestock use, there is presently no authorized grazing use. There are no existing or proposed range improvements and no land treatment potential.

Predator control was not conducted during the 1986 to 1987 period in the grazing allotment that com-

GOOSE CREEK CANYON WSA

prises the Goose Creek Canyon WSA (USDA, APHIS, 1988).

There are no wild horses or burros within the WSA.

Visual Resources

This WSA is VRM Class II. Refer to Appendix 7 in Volume I for a description of the BLM VRM rating system. This WSA is Scenic Class A, exceptional (USDI, BLM, 1979a). The WSA exhibits the same type of features as Zion National Park, an area with a worldwide reputation for scenic splendor.

Cultural Resources

Petroglyphs, stone granaries, and rock shelters are known to exist in Zion National Park and the general vicinity. However, no archaeological inventory exists on this specific WSA and no cultural values have been identified.

Recreation

Recreational use of the WSA low. Vertical rockwalls require technical rock climbing to access the Zion National Park portion of the canyon from the WSA.

Visitor use data does not exist. It is assumed, however, that approximately 100 visitor days occur annually in the WSA. Most of this use would be from people using the dirt road that forms the northern boundary of the WSA, and hiking into the WSA to view Goose Creek Canyon. Rugged terrain prevents use of ORVs in the WSA.

Land Use Plans

A 120,620-acre proposed wilderness in Zion National Park is contiguous to the WSA on the western border. In the past the NPS has expressed interest in some of the drainages that flow through the park but which originate outside park boundaries. The Statement of Management for Zion National Park is "to maintain the quality and flow of water from all natural water sources that have been traditionally important in serving domestic needs and in perpetuating the park's ecological communities" (USDI, NPS, 1976). In this light, the NPS has shown interest in nondevelopment of adjacent lands in order to not impair the park's watershed.

In response to H.R. 1214 (Ninety-Eighth Congress of the U.S., 1983), the NPS assessed the WSA to deter-

mine its value for potential addition to the adjacent NPS unit (USDI, NPS, 1984c). The NPS found that the Goose Creek Canyon WSA contained significant recreational values that supplement those within Zion National Park. The Goose Creek Canyon WSA was recommended as suitable for inclusion into the adjacent unit of the National Park System (U.S. Secretary of the Interior, 1985d). No Congressional action has been taken on that recommendation.

There are no existing or proposed rights-of-way within this WSA.

The Washington County Master Plan (Planning and Research Associates, 1971) identifies the WSA as an open space zone, and the Washington County policy does not support wilderness designation for this WSA. The Washington County Commission has endorsed the Consolidated Local Government Response to Wilderness (Utah Counties, 1986) that opposes wilderness designation of BLM lands in Utah.

The WSA is managed according to the BLM Virgin River MFP (USDI, BLM, 1979a) which allows multiple uses as noted in the Description of the No Action/No Wilderness Alternative.

There are no State-of-Utah or privately owned lands in the WSA.

Socioeconomics

• Demographics

The WSA is in Washington County. From 1970 to 1980, the population of Washington County grew from 13,699 to 24,600, an overall increase of about 93 percent. Table 4 presents the baseline and projected population data for Washington County. It is estimated that between 1980 and 1987, the population increased to about 39,720.

Table 4
Baseline and Projected Population and Employment Growth
Washington County

| | 1980 | 1990 | 2000 | 2010 |
|------------|--------|--------|--------|--------|
| Population | 26,400 | 45,500 | 51,000 | 65,600 |
| Employment | 8,100 | 14,400 | 18,400 | 24,100 |

Source: Utah Office of Planning and Budget, 1987.

Population projections indicate that the number of people living in Washington County in the year 2010 will be about 65,600 for about a 148-percent

GOOSE CREEK CANYON WSA

increase over 1980 levels (Utah Office of Planning and Budget, 1987).

• Employment

Table 4 shows the baseline and projected total employment for Washington County to the year 2010.

Washington County is part of the Southwest MCD. Table 5 shows the baseline (1980) and projected employment by source for the MCD to the year 2010. In 1980 the leading employment sectors for the Southwest MCD were government (23 percent), trade (20 percent), and nonfarm proprietors (12 percent). Mining provided less than 3 percent of the employment in the MCD.

Table 5
Southwest Multi-County District
Employment^a

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|--------|--------|--------|--------|
| Agriculture | 1,810 | 1,700 | 1,600 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,600 | 3,300 |
| Transportation, Utilities | 1,006 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 6,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 6,900 | 8,900 |
| Government | 4,616 | 5,800 | 6,500 | 8,100 |
| Nonfarm Proprietors | 2,386 | 3,100 | 3,500 | 4,700 |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

^aIncludes Beaver, Garfield, Iron, Kane, and Washington Counties.

It is projected that by the year 2010, employment in the district will more than double and that services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 3 percent, government to 18 percent, and mining to less than 1 percent of the total district employment.

• Sales and Revenues

The only economic related activity in the WSA is recreation.

No grazing occurs in the WSA, therefore, no income or revenues are generated.

The WSA's nonmotorized recreational use and related local expenditures are low. These expenditures are insignificant to both the local economy and individual businesses. The actual amount of income generated locally from recreational use in the WSA is unknown.

However, an approximate range of expenditures can be deduced (Dalton, 1982). This study indicates that the Statewide average local expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for the Goose Creek Canyon WSA is estimated to be about 100 visitor days per year.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This section describes the environmental consequences of implementing the alternatives. The analysis is based on implementation of the Action Scenarios presented in the Description of Alternatives section.

No Action/No Wilderness Alternative

• Impacts on Wilderness Values

Because the WSA would not be designated wilderness with this alternative, the identified wilderness values would not receive the degree of protection afforded by application of the BLM Wilderness Management Policy (BLM Manual 8560). Wilderness values in the WSA would be somewhat protected by limitations placed on potential surface-disturbing activities, i.e., VRM Class II management on 89 acres.

No development would be expected in the foreseeable future that would affect wilderness values.

Because future ORV use would be limited by terrain, no disturbance from ORV activity is anticipated.

The 2 to 7 percent annual increase in visitor use would not be expected to reduce the quality of wilderness values because the additional use is expected to be small and primitive in nature.

All in all, no disturbance of wilderness values, including 89 acres having naturalness, outstanding opportunities for solitude and primitive recreation, and special features including Class A scenery, endangered or sensitive species, and wildlife associated with wilderness, would be expected in the foreseeable future. The degree to which wilderness values would be reduced in quality due to disturbance over the long term is not accurately known.

Nondesignation would not complement the NPS proposal to manage the contiguous portion of Zion National Park as wilderness.

GOOSE CREEK CANYON WSA

Conclusion: Wilderness values would not be protected by wilderness designation. No disturbance that would affect wilderness values would be expected in the foreseeable future.

All Wilderness Alternative (Proposed Action)

- Impacts on Wilderness Values

Designation and management of all 89 acres as wilderness would preserve the wilderness values in the Goose Creek WSA. Any potential for surface-disturbing activities would be eliminated through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I which allows for only natural ecological change. Naturalness would be preserved on all 89 acres. Resources that could be considered as special features in the WSA, including Class A scenery, endangered or sensitive species, and wildlife associated with wilderness, would also be protected.

The 2 to 7 percent annual increase in visitor use would be primitive in nature and would be managed so as to not result in loss of wilderness values.

Designation would complement the NPS goals, to manage the contiguous portion of Zion National Park as wilderness.

Conclusion: Wilderness designation would preserve wilderness values where found throughout the WSA.

Beartrap Canyon WSA

INTRODUCTION

General Description of the Area
Changes to the Plan
Special Issues Related to the Project

DESCRIPTION OF THE PROJECT

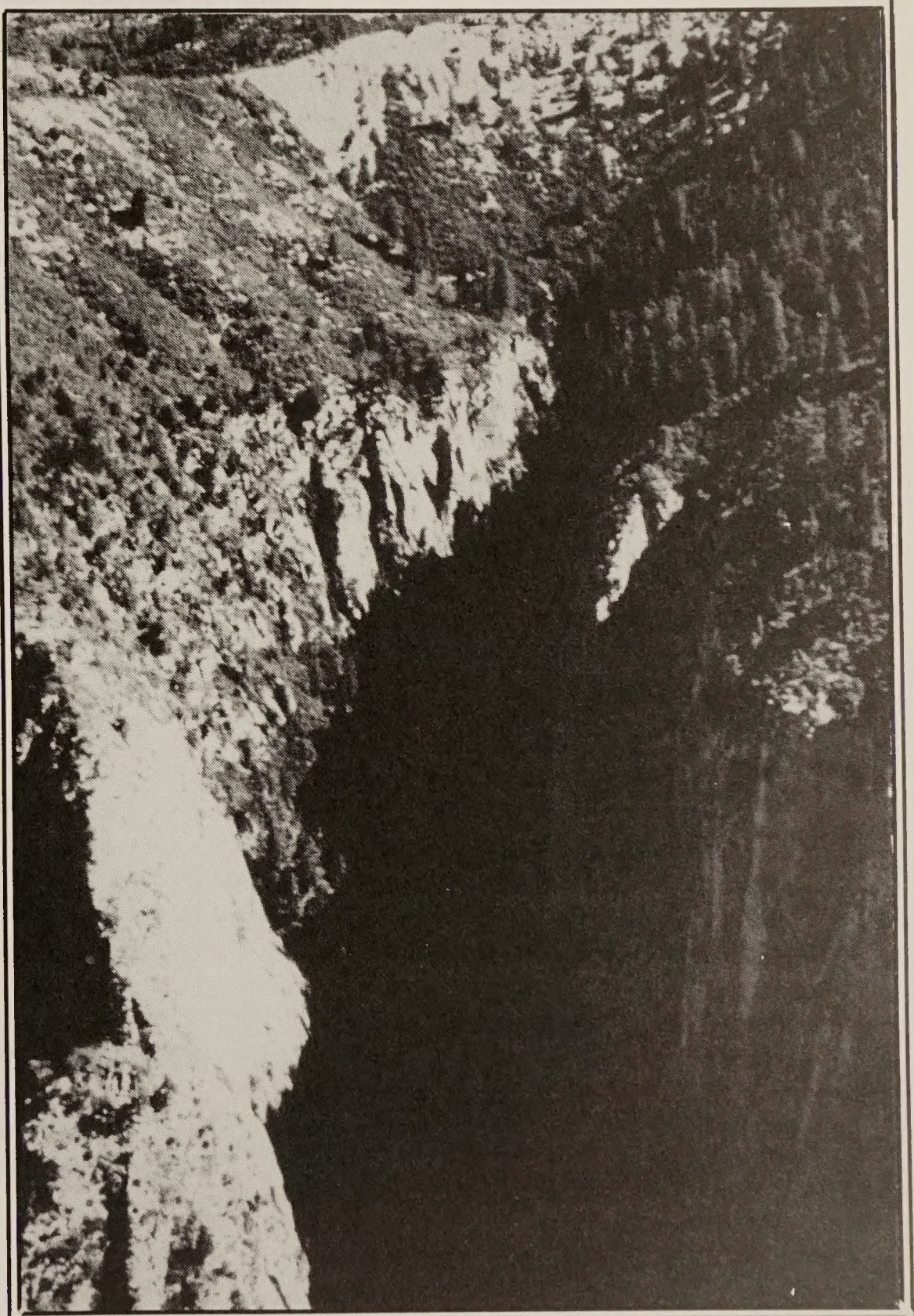
Approved Easement and
Administrative Approval
No Action for
All activities
Summary of Environmental

AFFECTED ENVIRONMENT

Wilderness Value
Air Quality
Cultural and Historical
Soil
Vegetation including Special
Water Resources
Biological and Energy Resources
Wildlife including Special
Forest Resources
Landscape and Visual Resources
Visual Resources
Cultural Resources
Recreation
Land Use Plans
Endowments

ENVIRONMENTAL CONSEQUENCES

No Action
All Activities



BEARTRAP CANYON WSA

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BEARTRAP CANYON WSA

(UT-040-177)

INTRODUCTION

General Description of the Area

The Beartrap Canyon WSA contains 40 acres. The Beartrap Canyon WSA is located along the boundary of Zion National Park in the northeast corner of Washington County. It is contiguous with a NPS administratively endorsed wilderness proposal encompassing 120,620 acres. It is administered by the BLM Cedar City District.

The WSA's topography is dominated by Beartrap Canyon and its side drainages. The canyon rims are 1,300 feet above the creek exposing various rock formations. The climate within the WSA is considered mild with average temperatures ranging from the low 40s during the winter months to the high 80s during mid-summer. Temperature extremes can vary from 0 to 105 degrees Fahrenheit (F). Average annual precipitation in Zion National Park is 15 inches, with about half occurring in the form of winter snow and half as rain during summer thunderstorms. Winds usually prevail from the southwest with the strongest winds occurring in March and April.

This WSA was dropped from wilderness study status by the Secretary of the Interior on December 30, 1982, due to its small size. As a result of a decision of the Eastern District Court of California (Sierra Club vs. Watt, Civil No. 5-83-035 LKR, dated April 18, 1985) and because of the WSA's wilderness values, it is in WSA status and is included in the EIS for analysis. This is in line with general land use planning provisions of Section 202 of the FLPMA and in accordance with BLM guidance that allows for wilderness consideration of areas of less than 5,000 acres in size if they are adjacent to land with wilderness potential administered by other Federal agencies.

There are no private, State, or split-estate lands located within the WSA.

Changes for the Final EIS

The changes noted in the Introduction to Volume III-B are applicable to the WSA. In addition, impacts to wilderness values has been analyzed as an issue in the Final EIS. No other changes have been made since publication of the Draft EIS.

Specific Issues Identified Through Scoping and Public Comment

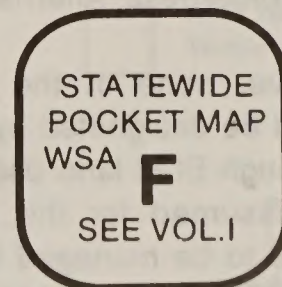
• Issues Considered But Not Analyzed in Detail

No issues were analyzed in detail in the Draft EIS for the Beartrap Canyon WSA. The WSA is located at the very extreme upper end of the Beartrap Canyon. It encompasses only 40 acres confined into a steep narrow canyon, most of which is barren rock outcrop. Vertical walls and narrow canyon bottoms make the unit basically impassable. The potential for any development of the WSA is practically nonexistent because of its site characteristics. The WSA has low mineral potential, no mining claims or mineral leases, no livestock grazing, and is inaccessible to vehicles. Primitive recreational use is low, estimated to be only 10 visitor days per year. No change in use of the WSA's environment is foreseen under the No Action/ No Wilderness Alternative or the All Wilderness Alternative. Therefore, no environmental impacts would result from wilderness designation or nondesignation.

• Issues Analyzed in Detail

Although not analyzed as an issue in the Draft EIS, impacts on wilderness values including naturalness, opportunities for solitude and primitive and unconfined recreation, and special features is analyzed as the only issue in the Final EIS.

Comments made during the public comment period for the Draft EIS centered mainly on the inventory phase of the wilderness review, BLM's assessment of the value of wilderness vs. other resource values, the size of the WSA, recreation, and the relationship to NPS management. (See Volume VII-C, Section F for responses to specific comments about the Beartrap Canyon WSA, and Volume VII-B for responses to general comments applicable to all WSAs and/or the Statewide analysis.)



BEARTRAP CANYON WSA

DESCRIPTION OF THE ALTERNATIVES

Alternatives Considered and Eliminated from Detailed Study

One alternative considered was to transfer the WSA to the NPS administration. Such a transfer could occur in the future regardless of wilderness status, and is not analyzed as an alternative in this EIS.

The question of which agency should manage the WSA to achieve overall management effectiveness will be addressed in the wilderness study report, but it will be based primarily on factors affecting both BLM and NPS jurisdictions, such as relative amounts of the total wilderness area administered by each agency, principal public ingress and exit points, agency staffing and workload in the region, and similar nonenvironmental items. Environmental differences, if any, would be due to variations in BLM and NPS mandates and policy (for example national parks are closed to hunting while public lands are not) rather than from wilderness designation. These differences would exist with or without wilderness designation, and, therefore, are not relevant to the analyses of the impacts from wilderness designation.

A partial wilderness alternative was not considered reasonable because of the area's small size and because of lack of resource conflicts. BLM has determined that the Beartrap Canyon WSA would not be a viable independent wilderness if contiguous NPS land is not also designated as wilderness.

Alternatives Analyzed

Two alternatives are analyzed for this WSA: (1) No Action/No Wilderness; and (2) All Wilderness (Proposed Action) (40 acres). A description of each alternative follows. Where management intentions have not been clearly identified, assumptions are made based on management projections under each alternative. These assumptions are indicated in each case. The assumed BLM management actions presented in the Introduction to Volume III-B are also applicable.

• No Action/No Wilderness Alternative

With this alternative, none of the 40-acre Beartrap Canyon WSA would be designated by Congress as part of the NWPS. Although BLM land use plans are regularly updated, it is assumed for this analysis that the area would continue to be managed in accordance with the Virgin River MFP (USDI, BLM, 1979a). No private, State, or split-estate lands are within the WSA

(refer to Map 1). Figures and acreages in this analysis are for Federal land only.

• Management Conditions and Constraints

All 40 acres would remain open to mineral location, leasing, and sale. There are no mining claims in the WSA at the present time. Development work, extraction, and patenting would be allowed on future mining claims, and development would be regulated by unnecessary or undue degradation guidelines (43 CFR 3809). The existing 40-acre post-FLPMA lease could be developed according to stipulations issued at the time of leasing.

Future oil and gas leases could be developed under standard stipulations (Category 1) on the 40-acre area.

Although minerals would be managed as described, mineral exploration and development are not anticipated because the level of known resources and the probability of their development are too low to support a development assumption. Appendix 6 in Volume I explains the mineral exploration and development assumptions.

The Beartrap Canyon WSA is unallotted for livestock grazing due to steep and rough terrain.

The entire WSA acreage would be open to vehicular use, but none is expected because of the steep terrain. There are no ways or cherry-stemmed roads in the WSA.

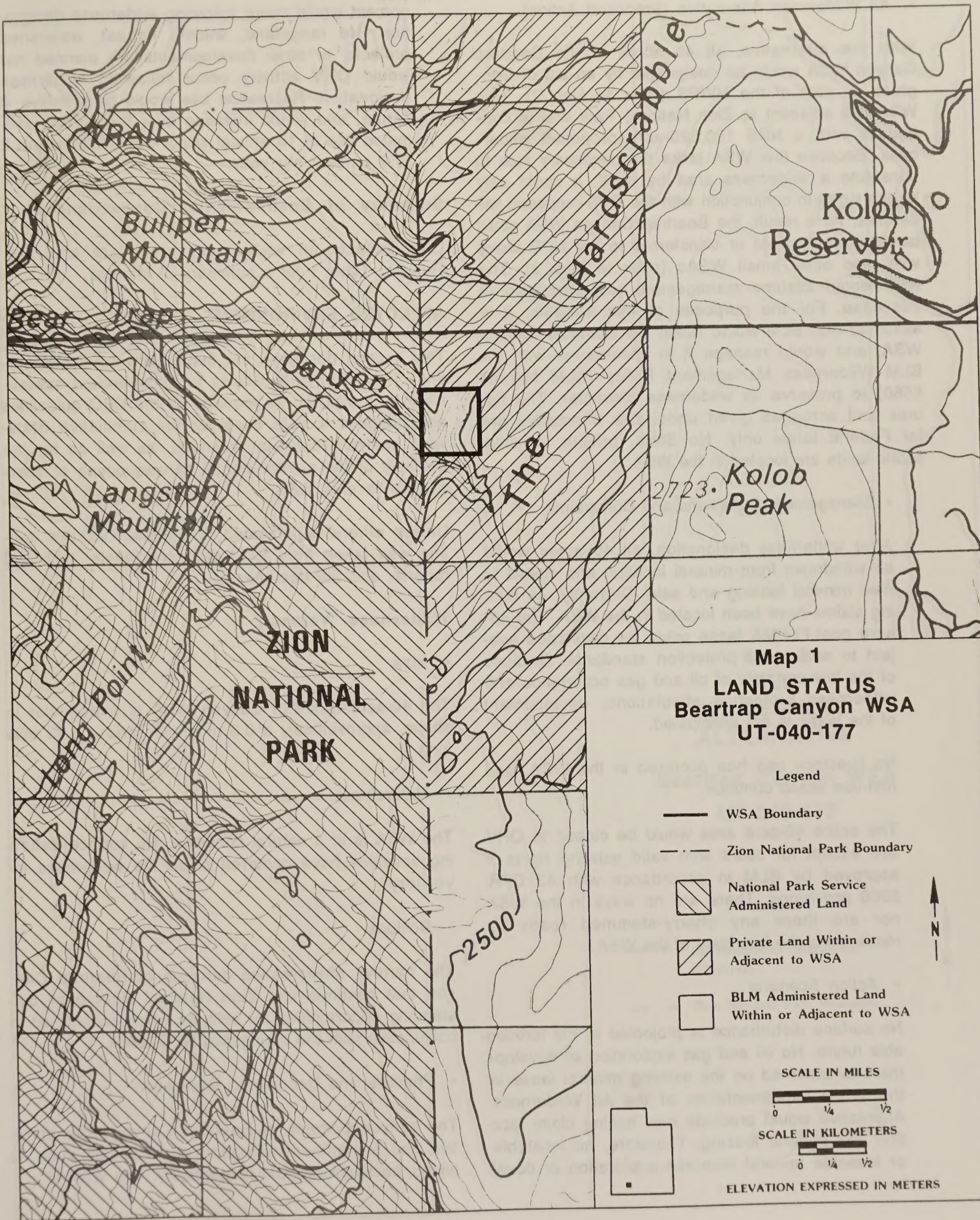
The entire area would continue to be managed under VRM Class II.

• Action Scenario

BLM projects that implementation of the No Action/No Wilderness Alternative would not result in any surface-disturbing activities in the foreseeable future. No locatable or leasable mineral resource exploration or development is anticipated. No rangeland, wildlife habitat, watershed projects, or other developments are planned, nor is any ORV use projected due to rugged terrain and lack of access. Recreation use in the foreseeable future would be primitive in nature, and would increase over the current estimated use of 10 visitor days annually at a rate of 2 to 7 percent per year.




BEARTRAP CANYON WSA

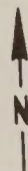
R. 11 W.



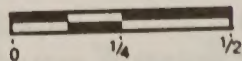
Map 1
LAND STATUS
Beartrap Canyon WSA
UT-040-177

Legend

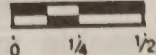
- WSA Boundary
- - - Zion National Park Boundary
-  National Park Service Administered Land
-  Private Land Within or Adjacent to WSA
-  BLM Administered Land Within or Adjacent to WSA



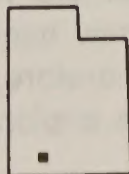
SCALE IN MILES



SCALE IN KILOMETERS



ELEVATION EXPRESSED IN METERS



T. 39 S.

BEARTRAP CANYON WSA

- All Wilderness Alternative (Proposed Action)

With this alternative, all 40 acres of the Beartrap Canyon WSA would be designated by an act of Congress as part of the NWPS (refer to Map 2). This WSA lies adjacent to Zion National Park and is contiguous with a NPS 120,620-acre proposed wilderness. Because this WSA lacks the necessary size to constitute a wilderness area by itself, it could only be managed in conjunction with the NPS-proposed wilderness. As a result, the Beartrap Canyon WSA could be retained by BLM or transferred to the NPS along with nine other small WSAs (refer to Map 3). The NPS would assume management responsibilities in this case. For the purposes of this analysis, it is assumed that BLM would retain the Beartrap Canyon WSA, and would manage it in accordance with the BLM Wilderness Management Policy (BLM Manual 8560) to preserve its wilderness character. The figures and acreages given under this alternative are for Federal lands only. No State, private, or split-estate lands are located in the WSA.

- Management Conditions and Constraints

After wilderness designation, all 40 acres would be withdrawn from mineral location and closed to new mineral leasing and sale. Currently, no mining claims have been located in the WSA. The 40-acre post-FLPMA lease could be developed subject to wilderness protection standards. Because of the low certainty of oil and gas occurrence and wilderness protection stipulations, development of the lease is not anticipated.

No livestock use has occurred in the WSA, and non-use would continue.

The entire 40-acre area would be closed to ORV use except for users with valid existing rights if approved by BLM in accordance with 43 CFR 8560 provisions. There are no ways in the WSA nor are there any cherry-stemmed roads or roads along the boundary of the WSA.

- Action Scenario

No surface disturbance is projected in the foreseeable future. No oil and gas exploration or development is assumed on the existing mineral lease in the WSA. Implementation of the All Wilderness Alternative would preclude new mining claim location and mineral leasing. Therefore, no locatable or leasable mineral resource exploration or devel-

opment would occur following wilderness designation. No rangeland, wildlife habitat, watershed projects, or other developments are planned nor would ORV activity occur following wilderness designation. Recreation use would be primitive in nature, and would increase over the current estimated use of 10 annual visitor days at a rate of 2 to 7 percent per year.

Summary of Environmental Consequences

Only impacts on wilderness values are analyzed. Refer to Table 1 for a summary of impacts.

AFFECTED ENVIRONMENT

This section describes the overall environmental setting. This information allows for independent assessment by the public as required by the CEQ guidelines and provides a data base for the cumulative State-wide analysis found in Volume I, as well as for the analysis of the environmental consequences of alternatives for this WSA.

Unless otherwise indicated, information for this section was taken from BLM staff specialists, technical reports, and file documents.

Wilderness Values

- Size

The 40-acre Beartrap Canyon WSA is rectangular in shape, approximately a 0.5 mile wide and a 0.13 mile long.

- Naturalness

The WSA is in a natural condition. No surface-disturbing activities have occurred since the wilderness inventory.

- Solitude

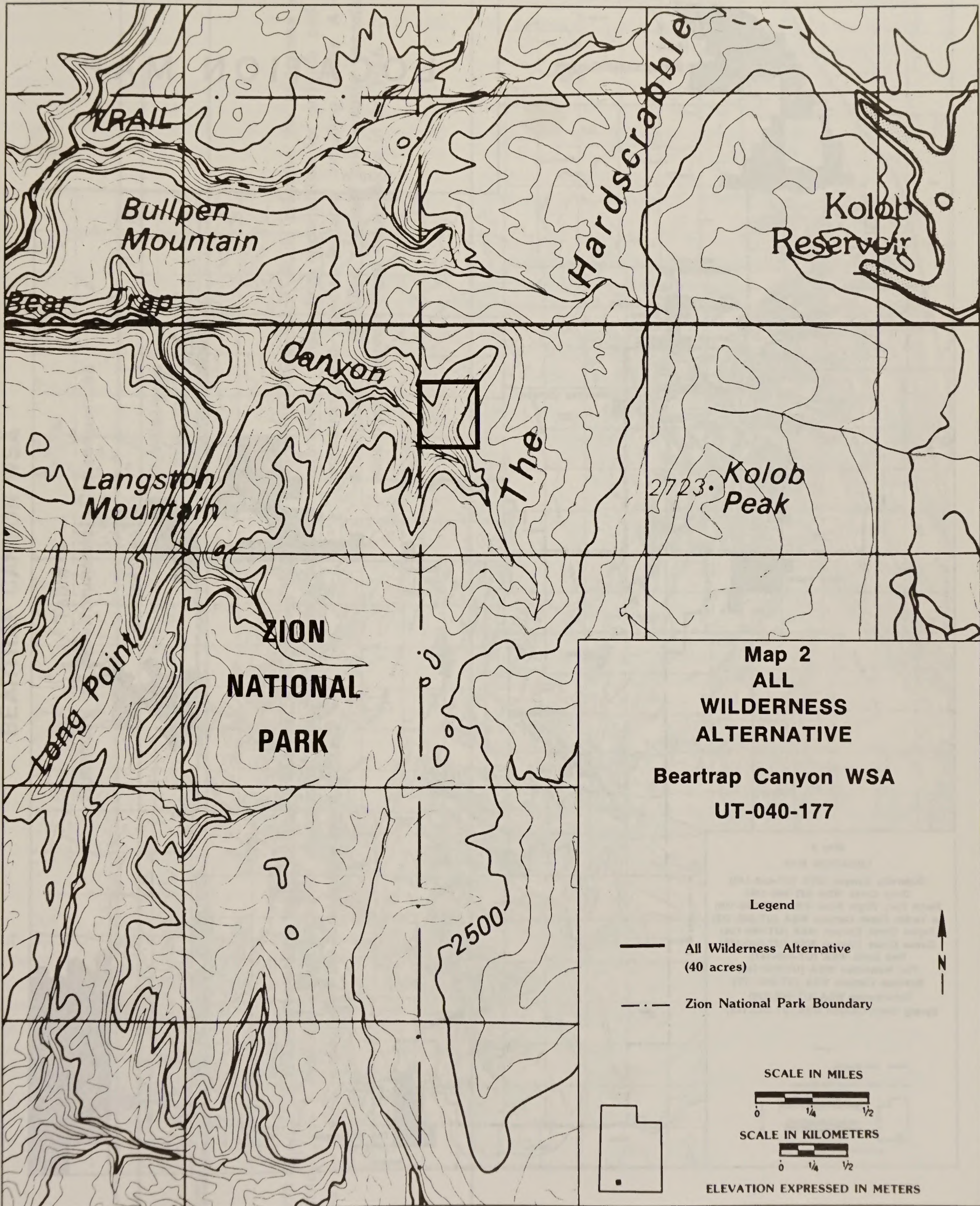
The narrow, sheer-walled canyons of Beartrap Canyon that continue into Zion National Park offer outstanding opportunities for solitude when considered in conjunction with the contiguous NPS lands.

- Primitive and Unconfined Recreation

The canyon bottoms of Beartrap Canyon offer primitive and unconfined recreation opportunities such as hiking, backpacking, and photography. The WSA is

BEARTRAP CANYON WSA

R. 11 W.

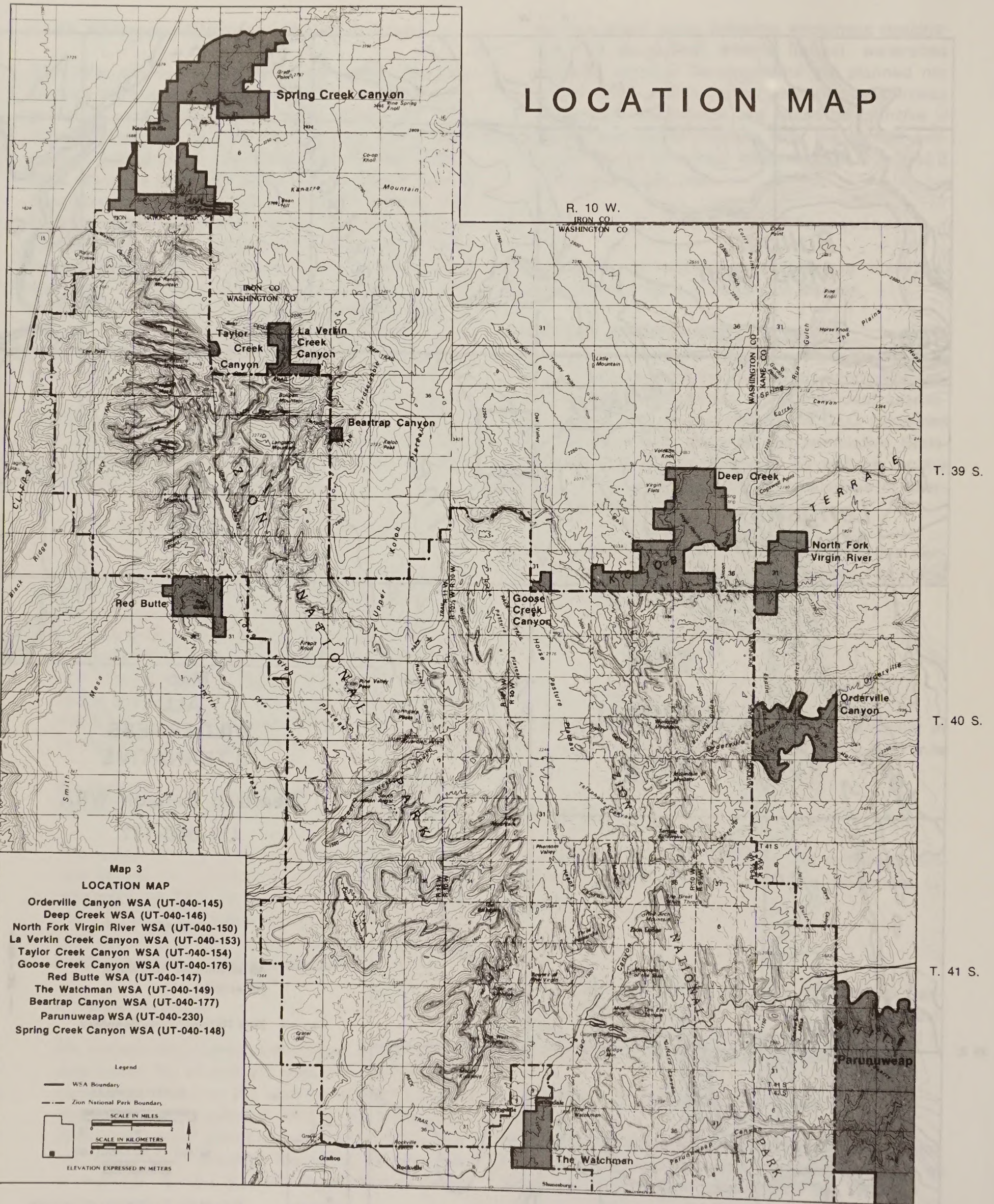


BEARTRAP CANYON WSA

R. 12 W.

R. 11 W.

LOCATION MAP

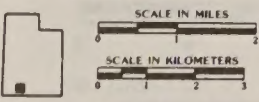


Map 3
LOCATION MAP

- Orderville Canyon WSA (UT-040-145)
- Deep Creek WSA (UT-040-146)
- North Fork Virgin River WSA (UT-040-150)
- La Verkin Creek Canyon WSA (UT-040-153)
- Taylor Creek Canyon WSA (UT-040-154)
- Goose Creek Canyon WSA (UT-040-176)
- Red Butte WSA (UT-040-147)
- The Watchman WSA (UT-040-149)
- Beartrap Canyon WSA (UT-040-177)
- Parunuweap WSA (UT-040-230)
- Spring Creek Canyon WSA (UT-040-148)

Legend

- WSA Boundary
- - - Zion National Park Boundary



BEARTRAP CANYON WSA

Table 1
Summary of Environmental Consequences

| | Alternatives | |
|------------------------------|---|--|
| | All Wilderness (40 Acres) (Proposed Action) | |
| Resource | No Action/No Wilderness | |
| Impacts on Wilderness Values | Wilderness values would not be preserved by wilderness designation. No disturbance that would affect wilderness values would be expected in the foreseeable future. | Wilderness designation would preserve the wilderness values of naturalness, outstanding opportunities for solitude and primitive recreation, and special features including Class A scenery, endangered or sensitive species, and wildlife associated with wilderness, wherever these values occur in the WSA. |

BEARTRAP CANYON WSA

considered to have outstanding opportunities for primitive and unconfined recreation when considered in conjunction with Zion National Park.

• Special Features

During the BLM Wilderness Inventory, the WSA was found to have exceptional scenic values (the entire WSA is rated Class A for scenic quality) as the WSA is a natural extension of Zion National Park, and excellent raptor habitat.

The WSA also has resource values that, although not identified as such during the wilderness inventory, could be considered special features. There are two animal species (peregrine falcon and bald eagle) listed as endangered that may use the WSA. There are 13 animal species and four plant species that are considered sensitive that may occur in the WSA. Cougar, which is a wildlife species associated with wilderness, occurs in the WSA. Refer to the Vegetation and Wildlife Including Special Status Species sections for additional information.

• Diversity

This WSA is in the transition zone of the Colorado Plateau and Rocky Mountain Forest Province Ecoregions, and has the PNV type of Arizona pine forest. Refer to the Vegetation Including Special Status Species section for more discussion on ecoregions and PNV types.) To see how the ecoregion and PNV types represented by this WSA compare Statewide and nationally with existing and potential National Wilderness Preservation Units refer to the Wilderness Values section in Volume I.

This WSA is within a 5-hour drive from one standard metropolitan statistical area, Las Vegas, Nevada.

Air Quality

Air quality is excellent (PSD Class II). Visual ranges in excess of 100 miles occur 75 percent of the time, and ranges in excess of 155 miles occur 10 percent of the time (USDI, BLM, 1980c). Zion National Park, contiguous within the WSA, is designated as Class I under the PSD regulations.

Geology and Topography

The Beartrap Canyon WSA is within the Grand Staircase section of the Colorado Plateau Physiographic Province. The WSA is adjacent to Zion National Park

and consists essentially of the upper portion of Beartrap Canyon.

Rocks of Jurassic age, totalling about 1,000 feet, crop out in the WSA. Underlying Mesozoic and Paleozoic rocks may be as much as 10,000 feet thick (Hintze, 1973). Cross-bedded eolian sandstones of the Navajo Formation form the most extensive outcrops in the WSA, with about 700 feet exposed in the canyons. Approximately 300 feet of marine sediments of the Carmel Formation are exposed in the higher elevations.

No faults or other structures are known to occur within the WSA. The north to south trending Hurricane Fault is located approximately 8 miles west of the WSA.

Elevations range from 6,600 feet at the bottom of Beartrap Canyon to about 7,600 feet on the west side of Kolob Peak. The main drainage is Beartrap Canyon.

Soils

All soils in the WSA are in the "slight" erosion class. Erosion condition was determined by using soil surface factors as summarized in Table 2 (terms are defined in the Glossary).

Table 2
Erosion Condition

| Classification | Annual Soil Loss (cubic yards/acre) | Acres | Percent of WSA | Total Annual Soil Loss (cubic yards) |
|----------------|-------------------------------------|-------|----------------|--------------------------------------|
| Severe | 5.4 | 0 | 0 | 0 |
| Critical | 2.7 | 0 | 0 | 0 |
| Moderate | 1.3 | 0 | 0 | 0 |
| Slight | 0.6 | 40 | 100 | 24 |
| Stable | 0.3 | 0 | 0 | 0 |
| Total | | 40 | 100 | 24 |

Sources: USDI, BLM, 1978c and 1979c; Leifeste, 1978.

The soils are mapped by the Washington County Soil Survey (USDA, SCS, 1977) as Paunsaugunt-Kolob-Dalcan Association or rock outcrop-rockland association. Soils are unsuitable for agriculture. These soils are excessively drained, nearly level to very steep, shallow to deep gravelly silt loams, fine sandy loams, cobbly loams, and bare bedrock. Erosion potential is moderate to severe. The soils are classified as non-saline.

BEARTRAP CANYON WSA

Seeding potential is rated as unsuited because the area is composed mainly of rock outcrop with slopes in excess of 20 percent.

Vegetation Including Special Status Species

Existing vegetation in the WSA is comprised primarily of a coniferous forest type. This type is characterized by Ponderosa pine, Douglas fir, white fir, aspen, and Rocky Mountain juniper. However, over 60 percent of the WSA (approximately 25 acres) is barren with rock outcrops. There are also hanging gardens in the WSA.

No threatened or endangered plant species are known to occur in the WSA. However, the WSA could contain four Category 2 candidate species. These are Asplenium andrewsii, Erigeron sionis, Heterotheca ionesii, and Sphaeromeria ruthiae (see Appendix 4 in Volume I).

This WSA is located in a transition zone between the Colorado Plateau and Rocky Mountain Forest Province Ecoregions, as shown on the Bailey-Kuchler ecosystems map (USDI, USGS, 1978a). The PNV type of the WSA is Arizona pine forest.

Water Resources

This WSA is located in the Virgin River subbasin of the Colorado River Basin hydrologic region. There are no existing water rights for use in the WSA. There are no perennial surface waters in the WSA.

The WSA water right status is considered to be fully appropriated. Surface and ground-water sources are closed to further water right applications (UDNRE, DWR 1988). There are no withdrawals present in the WSA. An ongoing water right adjudication for the Virgin River Drainage is currently being conducted by the Fifth Judicial District Court. The purpose is to determine rights to the use of underground and surface water.

Water quality standards for the North Fork of the Virgin River as established by the State of Utah are: Class 1C (protected for domestic purposes with treatment), Class 2B (protected for recreational uses excluding swimming), Class 3A (protected for cold water fisheries), and Class 4 (protected for agriculture uses, both irrigation and livestock). In addition to assigned use classes an Anti-Degradation Segment has been assigned the East Fork Virgin River to headwaters. Water quality within this drainage is mostly

affected by the natural geology of the area. Sedimentary sandstones and limestones contribute to dissolved and suspended solids primarily during runoff periods and storm events. Utah's 1986 305(b) Water Quality Assessment Report shows the North Fork Virgin River to have water quality problems for public water supply, secondary contact, and cold water fishery.

Mineral and Energy Resources

The energy and mineral resource rating summary for the Beartrap Canyon WSA is given in Table 3. Refer to Appendix 5 in Volume I for a description of the energy and mineral resource rating system.

Table 3
Mineral and Energy Resource Rating Summary

| Resource | Rating | | Estimated Resource |
|-------------|---------------------------|------------------------|---|
| | Favorability ^a | Certainty ^b | |
| Oil and Gas | f2 | c1 | Less than 10 million barrels of oil; less than 60 billion cubic feet of gas |
| Uranium | f2 | c1 | Less than 500 metric tons of uranium oxide |

Source: SAI, 1982; USDI, BLM, 1987.

^aFavorability of the WSA's geologic environment for a resource (f1 = lowest favorability or smallest size deposit; f4 = highest favorability or largest size deposit).

^bThe degree of certainty that the resource does or does not exist within the WSA (c1 = lowest and c4 = highest).

There are no strategic or critical minerals known to occur within the WSA (USDoD, 1988).

• Leasable Minerals

There are no known deposits of any leasable minerals in the WSA. Currently, there are no active drilling, mining, or exploration activities for leasable minerals.

• Oil and Gas

Based on similarities between the WSA and the nearby Anderson Junction oil field (located approximately 13 miles southwest) and the Virgin oil field (14 miles south), the WSA has potential for small accumulations of hydrocarbons. To date, however, no commercial oil and gas potential has been identified in the WSA.

The favorability of the tract for oil and gas is rated (f2) (SAI, 1982). The size of the hydrocarbon

BEARTRAP CANYON WSA

accumulation in such an environment is anticipated to be less than 10 million barrels of oil or less than 60 billion cubic feet of gas. Based on the available information, the certainty of occurrence for oil and gas is rated very low (c1).

Under the current land use plan, all 40 acres of the WSA are in Category 1 (standard stipulations). There is presently one post-FLPMA oil and gas lease (40 acres) in the WSA.

• Locatable Minerals

There are no known deposits of locatable minerals in the WSA. There are presently no mining claims.

• Uranium

The WSA is approximately 20 miles northeast of the Silver Reef Mining District, a known uranium-producing area. Although known primarily for its past silver production, uranium has been found there in the Springdale Sandstone Member of the Moenave Formation. The Moenave Formation occurs at depths of about 2,500 feet below the surface of the WSA. The Chinle Formation is also favorable for uranium, but it occurs at depths exceeding 4,000 feet. SAI has assigned the WSA an uranium favorability rating of (f2) (containing less than 500 metric-tons of uranium oxide). Based on available information, the certainty that uranium deposits occur in the WSA is very low (c1) (SAI, 1982).

• Salable Minerals

Stream gravel and other loose rock material that could be used for construction occur within the WSA. These deposits are not unique or economically significant due to the presence of ample similar materials outside the WSA.

Wildlife Including Special Status Species

Because this WSA is in the transition of two vegetation ecoregions, it supports a variety of animal species. The Virgin River Unit Resource Analysis indicates approximately 300 vertebrate animal species could inhabit the WSA (USDI, BLM, 1979a). These include 60 mammal species, 208 bird species, 20 reptile species, and six amphibian species. No critical or crucial wildlife habitat areas have been identified within the WSA.

Raptors may include the golden eagle, bald eagle, peregrine falcon, prairie falcon, American kestrel, red-tailed hawk, and Cooper's hawk. The red-tailed and Cooper's hawks are the most common. The bald eagle (Haliaeetus leucocephalus) and peregrine falcon (Falco peregrinus) are included on the Federal endangered species list. Bald eagles winter in the Virgin River drainage south of the WSA and also in Kanarraville and New Harmony valleys west of the WSA. Occasional sightings of these birds have been made, with most reports occurring in the Deep Creek-Goose Creek area. No other threatened or endangered species are known to inhabit the WSA. The golden eagle, which inhabits the WSA, is a BLM sensitive species. The FWS Category 2 candidate threatened or endangered species, Great Basin Silverspot butterfly and Virgin River montane vole, may inhabit the WSA.

The Beartrap Canyon WSA contains cougar habitat and is within Utah Cougar Management Unit 30, Cedar Mountain. Cougar populations and harvest by sport hunters and by the Animal Damage Control Program has been higher in this management unit than in any other location in Utah. During the 11-year period, 1977 through 1987, a total of 217 cougars were taken from the Cedar Mountain Management Unit. This harvest averaged nearly 20 animals per year (UDNRE, UDWR, 1988). It has not been determined how many, if any, of these may have been taken from within the WSA.

Forest Resources

The forest resources in the WSA consists of scattered Ponderosa pine, Douglas fir, white fir, aspen, and Rocky Mountain juniper. However, as a whole, the forest resources in the WSA have no commercial value. There is presently no production of forest resources in the WSA and none is projected in the foreseeable future due to the steep terrain, lack of access, and the small acreage involved.

Livestock and Wild Horses/Burros

The Beartrap Canyon WSA is unallotted for livestock use because of steep terrain and lack of forage. Wild horses and burros do not use the WSA.

Visual Resources

The VRM Class for the WSA is Class II. Refer to Appendix 7 for a description of the BLM VRM rating system. The WSA is Scenic Class A, exceptional.

BEARTRAP CANYON WSA

Cultural Resources

Petroglyphs, stone granaries, and rock shelters are known to exist in Zion National Park and the general vicinity. However, no archaeological inventory has been conducted in this WSA, and no cultural values have been identified.

Recreation

Recreational use of the WSA is nearly nonexistent due to its steep terrain. Access to Zion National Park cannot be obtained through the WSA because of high cliffs.

Visitor use data do not exist, but it is estimated that the WSA receives 10 visitor days per year.

Land Use Plans

The WSA is managed under the BLM Virgin River MFP which allows multiple use as discussed in the description of the No Action/No Wilderness Alternative. Wilderness is not addressed in the MFP. However, wilderness designation is part of the BLM multiple-use concept and the BLM land use plan is linked to the State-wide Wilderness EIS through analysis of the present plan as the No Action/No Wilderness Alternative.

In response to H.R. 1214 (Ninety-Eighth Congress of the U.S., 1983), the NPS assessed the WSA to determine its value for potential addition to the adjacent NPS unit (USDI, NPS, 1984c). The NPS concluded that the Beartrap Canyon WSA would add a minor buffer zone to the park but value and contribution to the NPS unit would be insignificant. The Beartrap Canyon WSA was recommended as suitable for inclusion into the adjacent unit of the National Park System (U.S. Secretary of the Interior, 1985e). Although the WSA did not meet all of the NPS criteria for inclusion into the park, there was no objection to transferring the WSA from BLM to NPS administration because the WSA is isolated by park and private lands and is uneconomical for BLM to manage. No Congressional action has been taken on that recommendation.

There are no existing or proposed rights-of-way within this WSA.

The Washington County Master Plan identifies the WSA as an open space zone, and Washington County policy does not support wilderness designation for this WSA (Planning and Research Associates, 1971). The Washington County Commission has endorsed the

Consolidated Local Government Response to Wilderness that opposes wilderness designation of BLM lands in Utah (Utah Counties, 1986).

There are no private, State of Utah, or split-estate lands in the WSA.

Socioeconomics

• Demographics

The WSA is in Washington County. From 1970 to 1980, the population of Washington County grew from 13,699 to 24,600, an overall increase of about 93 percent. Table 4 presents baseline and projected population data for Washington County.

Table 4
Baseline and Projected Population and Employment Growth
Washington County

| | 1980 | 1990 | 2000 | 2010 |
|------------|--------|--------|--------|--------|
| Population | 26,400 | 45,500 | 51,000 | 65,600 |
| Employment | 8,100 | 14,400 | 18,400 | 24,100 |

Source: Utah Office of Planning and Budget, 1987.

It is estimated that between 1980 and 1987, the population increased to about 39,720. Population projections indicate that the number of people living in Washington County in the year 2010 will be about 65,600 for about a 148-percent increase over 1980 levels (Utah Office of Planning and Budget, 1987).

• Employment

Table 4 shows the baseline and projected total employment for Washington County to the year 2010.

Washington County is part of the Southwest MCD. Table 5 shows the baseline (1980) and projected employment by source for the MCD to the year 2010. In 1980 the leading employment sectors for the Southwest MCD were government (23 percent), trade (20 percent), and nonfarm proprietors (12 percent). Mining provided less than 3 percent of the employment in the MCD.

It is projected that by the year 2010, employment in the MCD will more than double. Services will increase to 20 percent and trade to 25 percent of the total. Agriculture will decline to 3 percent, mining to less than 1 percent, and government to 18 percent of the total.

BEARTRAP CANYON WSA

Table 5
Southwest Multi-County District
Employment^a

| | 1980 | 1990 | 2000 | 2010 |
|---------------------------------|--------------|--------------|--------------|--------------|
| Agriculture | 1,810 | 1,700 | 1,600 | 1,500 |
| Mining | 499 | 300 | 300 | 400 |
| Construction | 1,308 | 1,700 | 2,300 | 3,100 |
| Manufacturing | 1,498 | 2,000 | 2,600 | 3,300 |
| Transportation, Utilities | 1,006 | 1,300 | 1,800 | 2,500 |
| Trade | 4,120 | 6,800 | 8,800 | 11,200 |
| Finance, Insurance, Real Estate | 785 | 1,100 | 1,400 | 1,800 |
| Services | 2,184 | 5,100 | 6,900 | 8,900 |
| Government | 4,616 | 5,800 | 6,500 | 8,100 |
| Nonfarm Proprietors | <u>2,386</u> | <u>3,100</u> | <u>3,500</u> | <u>4,700</u> |
| Totals | 20,212 | 28,900 | 35,700 | 45,500 |

Source: Utah Office of Planning and Budget, 1987.

^aIncludes Beaver, Garfield, Iron, Kane, and Washington Counties.

• Sales and Revenues

The only economic-related activity in the WSA is recreation.

The WSA has no mining claims or oil and gas leases. Therefore, mineral and energy resource production from the WSA has not contributed to local employment or income.

There is no livestock grazing in the WSA and, therefore, no sales or revenue from this source that are attributable to the WSA.

The WSA's recreational use is for primitive recreation and related local expenditures are low. They are insignificant to both the local economy and individual businesses. The actual amount of income generated locally from recreational use in the WSA is unknown. However, an approximate range of expenditures can be deduced (Dalton, 1982). This study indicates that the Statewide average local expenditures per recreational visitor day for all types of recreation in Utah are approximately \$4.10. The recreational use for the Beartrap Canyon WSA is estimated at about 10 visitor days per year.

ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This section describes the environmental consequences of implementing the alternatives. The analysis is based on the BLM management actions and anticipated activities presented in the Introduction to Volume III-B and the Description of the Alternatives for the Beartrap Canyon WSA.

The only significant issue analyzed for this WSA is impacts to the wilderness values including naturalness, outstanding opportunities for solitude and primitive recreation, and special features.

No Action/No Wilderness Alternative

• Impacts on Wilderness Values

Because the WSA would not be designated wilderness with this alternative, the identified wilderness values would not receive the degree of protection afforded by application of the BLM Wilderness Management Policy (BLM Manual 8560). Wilderness values in the WSA would be somewhat protected by limitations placed on potential surface-disturbing activities (i.e., VRM Class II management on 40 acres).

No development would be expected in the foreseeable future that would affect wilderness values.

Because vehicular use would be limited by terrain, no disturbance from ORV activity is anticipated in the future.

The 2 to 7 percent annual increase in visitor use would not be expected to reduce wilderness values because the additional use is expected to be small and primitive in nature.

Overall, no disturbance of wilderness values including naturalness, outstanding opportunities for solitude and primitive recreation, and special features including Class A scenery, endangered or sensitive species (including raptors), and wildlife associated with wilderness, would be expected in the foreseeable future. The degree to which wilderness values would be reduced in quality from disturbance over the long term is not accurately known.

This alternative would not complement the NPS proposal to manage the contiguous portion of Zion National Park as wilderness.

Conclusion: Wilderness values would not be preserved by wilderness designation. No disturbance that would affect wilderness values would be expected in the foreseeable future.

BEARTRAP CANYON WSA

All Wilderness Alternative (Proposed Action)

• Impacts on Wilderness Values

Designation and management of all 40 acres as wilderness would preserve the wilderness values in the Beartrap Canyon WSA. The potential for surface-disturbing activities would be eliminated through closure of the entire area to future mineral leasing and location and to ORV use, and through management of the area as VRM Class I which allows for only natural ecological change. Naturalness and outstanding opportunities for solitude and primitive recreation would be protected on all 40 acres. Special features including Class A scenery, endangered or sensitive species, and wildlife associated with wilderness, would also be preserved.

The 2 to 7 percent annual increase in visitor use would be primitive in nature, and would be managed so as not to result in the loss of wilderness values.

This alternative would complement the NPS proposal to manage the contiguous portion of Zion National Park as wilderness.

Conclusion: All wilderness values would be preserved where they occur in the WSA.

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