1987

Adobe Town - Ferris Mountains Wilderness Environmental Impact Statement Final

United States Department of the Interior Bureau of Land Management

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Adobe Town - Ferris Mountains

WILDERNESS
ENVIRONMENTAL
IMPACT
STATEMENT final

Prepared by:
U.S. Department of the Interior
Bureau of Land Management
1987

Wyoming State Director Date

12-14-97
This Environmental Impact Statement (EIS) analyzes the impacts that would result from designating or not designating three wilderness study areas as wilderness. The proposed action recommends a portion of WSA 030-407 (Adobe Town for wilderness designation (10,920 acres)) and a portion for nonwilderness designation (74,790 acres). The proposed action also recommends all of WSA 030-407 Ferris Mountains for wilderness designation (22,245 acres).

Several significant environmental issues were developed during the study process. Issues common to both WSA 030-407 (1) impacts on wilderness values, (2) impacts on energy and mineral development, (3) impacts on raptors, and (4) impacts on recreational off-road vehicle (ORV) use. Issues specific to the Adobe Town WSA include (1) impacts on cultural resources, (2) impacts on paleontological resources, (3) impacts on livestock grazing management, and (4) impacts on antelope and mule deer. An issue specific to the Ferris Mountain WSA is impacts on forest management. The alternatives for each WSA and the significant impacts are summarized below.

**SUMMARY**

Ferris Mountains

**Proposed Action (All Wilderness)**

Under the Proposed Action, the entire 22,245 acres of the Ferris Mountains WSA would be recommended for wilderness designation.

The major impacts under the Proposed Action relate to the long term retention of wilderness values, the withdrawal of the WSA from mineral exploration, and the effects on timber management.

Wilderness values would be retained on the entire WSA. Because the entire WSA would be designated wilderness, all of its 22,245 acres would be withdrawn from mineral entry. This would not be a significant impact because of the WSA's low mineral potential. Timber harvest of 8 MMBF over the next 50 to 100 years would also be forgone, but no sales are planned in the short term.

**Enhanced Wilderness Alternative**

Under this alternative, the entire Ferris Mountains WSA (22,245 acres) plus state and private inholding (1,800 acres) would be recommended for wilderness. The state and private lands would become part of the designated wilderness upon consummation of a land exchange.

Impacts under this alternative are very similar to those in the Proposed Action (All Wilderness). Differences lie in the increased acreage upon which wilderness values would be retained (an additional 1,800 acres), and the increased acreage withdrawn from mineral entry and leasing. The state and private lands hold no more potential for valuable mineral deposits than the rest of the WSA, so this would not be a significant impact.

**No Wilderness Alternative**

All 22,245 acres of the Ferris Mountains WSA would be recommended for nonwilderness uses under this alternative.

Here, impacts relate to the long-term loss of wilderness values, the availability of the WSA for mineral exploration and the availability of timber for harvest. Wilderness values would not receive the legislative protection given to designated wilderness. Because of projected timber harvesting and mineral exploration activities, naturalness would be permanently lost on 4,000 acres. The entire 22,245 acres would be open to mineral entry and leasing, but projections indicate that very little activity would occur. About 8 MMBF of commercial timber (primarily lodgepole pine for posts and poles) would be available for harvest over the next 50 to 100 years. No harvests are currently planned in the WSA.

**ALTERNATIVES AND SIGNIFICANT IMPACTS BY WSA**

**Adobe Town**

**Proposed Action (Partial Wilderness/Conflict Resolution)**

As stated above, the Proposed Action would recommend 10,920 acres for wilderness designation and 74,790 acres for nonwilderness. Significant impacts under the Proposed Action relate to the retention of wilderness values and oil and gas production. Although the entire WSA would be designated wilderness, valid existing rights on pre-FLPMA oil and gas leases would allow for the recovery of 70% of the natural gas reserves. However, this means that wilderness values would be lost on 39,300 acres because of the gas development.

**Partial Wilderness-2 Alternative**

Under the Partial Wilderness-2 Alternative, 16,280 acres would be recommended for wilderness and 69,430 acres would be recommended for nonwilderness.

Impacts under this alternative relate to the retention of wilderness values and oil and gas production. Because of projected developments on existing pre-FLPMA leases in the portion recommended for wilderness, wilderness values would be retained on only 15,000 acres. It is estimated that 72% of the natural gas could be recovered under this alternative.

**SUMMARY**

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CHAPTER 1

INTRODUCTION AND PLANNING PROCESS

PURPOSE AND NEED

The Federal Land Policy and Management Act of 1976 (FLPMA) mandates the Bureau of Land Management (BLM) to manage the public lands and their resources under the principles of multiple use and sustained yield. Wilderness values are identified as part of the spectrum of multiple land-use values to be considered in BLM inventory, planning, and management. Section 603 of FLPMA requires a wilderness review of BLM roadless areas of 5,000 or more acres and roadless islands. The BLM inventory process identified wilderness study areas which have the mandatory wilderness characteristics (size, naturalness, solitude, and/or primitive recreation opportunities). Suitable or nonsuitable wilderness recommendations for each WSA will be presented to the President by the Secretary of the Interior. The President will then make recommendations to the Congress. Areas can be designated wilderness only by an act of the Congress. If designated as wilderness, an area would be managed in accordance with the Wilderness Act of 1964.

This document discusses the environmental impacts of either designating or not designating 107,955 acres in three wilderness study areas (WSAs) as wilderness. The WSAs include Ferris Mountains (WSA WY-030-407, 22,245 acres) and Adobe Town (WSAs WY-030-401 and WY-040-408, 85,710 acres). Although Adobe Town actually consists of two WSAs, (one in the Rock Springs District and one in the Rawlins District), they are contiguous areas; in this EIS both will be referred to as Adobe Town WSA and analyzed as a single unit.

The purpose of the proposed action is to manage 22,245 acres of the Ferris Mountains WSA and 10,920 acres of the Adobe Town WSA as wilderness. The remainder of the Adobe Town WSA (74,790 acres) would be managed for uses other than wilderness.

The WSAs being studied are covered by two management framework plans (MFPs); these are the Divide Resource Area MFP and the Salt Wells Resource Area MFP. The WSAs are listed in Table 1.

LOCATION

The WSAs are located in south-central Wyoming, near Rawlins, Wyoming (see map 1). Adobe Town WSA is 80 miles southwest of Rawlins and Ferris Mountains WSA is 45 miles north of Rawlins.

ENVIRONMENTAL ISSUE IDENTIFICATION/SCOPING

The scoping process for the Adobe Town/Ferris Mountains Wilderness Environmental Impact Statement (EIS) encompasses issues identified by the BLM staff, the public, and government agencies at all levels. Scoping occurred throughout the development of the Divide and Salt Wells MFPs; numerous meetings were held with individuals, interest groups, industry representatives, and government agencies.

The draft Adobe Town/Ferris Mountains Wilderness EIS was released for public review and comment in June 1983. The formal comment period was open until the end of September 1983. A public hearing was held July 26, 1983 at Rawlins, Wyoming.

During the scoping process, consultation continues with the Wyoming State Historic Preservation Officer (SHPO) concerning the presence or absence of sites in the WSA that would be eligible for nomination for listing on the "National Regis-

TABLE 1

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</table>
Impacts on Antelope and Mule Deer in Adobe Town WSA

There are approximately 750 antelope and 225 mule deer utilizing the Adobe Town WSA during the winter. Natural gas development activities could be disruptive to these populations, possibly reducing herd numbers. Therefore, the impact of natural gas development on antelope and mule deer populations is an issue for analysis in the EIS.

Impacts on Elk and Bighorn Sheep in the Ferris Mountains WSA

Elk and bighorn sheep habitat in the Ferris Mountains WSA includes some commercial forest lands. Concern was expressed that if timber harvest occurred, habitat could be adversely affected. Thus, the impact of timber harvest on elk and bighorn sheep is an issue for analysis in the EIS.

Impacts on Raptors

Raptor nest reproduction rates are dependent, in part, on the level of human activity in the vicinity of the nests. Development activities such as natural gas development, timber harvesting, and associated roads can decrease nest success rates. Wilderness could prohibit those activities, thus maintaining nesting habitat. Therefore, the impacts of wilderness designation or nondesignation on raptor nesting in both WSAs is an issue for analysis in this EIS.

The following issues were identified in scoping, but were not selected for detailed analysis in the EIS. The reasons for setting the issues aside are discussed below.

Impacts on Livestock Operations in the Ferris Mountains WSA

Concerns were raised that livestock operators in the Ferris Mountains WSA could be required to modify their operations within designated wilderness in a manner that would have significant adverse economic impact on their business. This issue was considered but dropped because the BLM's Wilderness Management Policy provides for the continued use of wilderness areas for livestock operations at historic levels. Although the management practices of livestock operators in the WSAs would be more closely regulated, they would continue as they did prior to wilderness designations. Therefore, this issue was dropped from further analysis. However, because livestock grazing is a major activity in the Ferris Mountains WSA, livestock management will be described for each alternative in chapter 2 and again in chapter 3 (Affected Environment).

Impacts on Water Quality

Concerns were raised regarding how water quality would be affected by wilderness designation or nondesignation. For Adobe Town, the concern centers on the potential gas field development. Here, however, surface water would be protected because of well casing design, and produced down-hole water will either be reinserted into a similar geologic formation or evaporated in surface reservoirs. In the Ferris Mountains WSA, the primary influence on water quality is livestock use and this will not vary significantly with either designation or nondesignation. Also, potential effects on water quality from timber harvests will be avoided by standard mitigation procedures such as avoiding steep terrain and using setbacks from live water. Therefore, this issue was dropped from further consideration in this EIS.
INTRODUCTION AND PLANNING PROCESS

Impacts on Cultural Resources in the Ferris Mountains WSA
Consultation with the State Historic Preservation Officer during scoping and review of existing inventory information indicated that the Ferris Mountains WSA does not contain any cultural resource sites eligible for listing on the National Register of Historic Places. The cultural resource sites that do exist consist of lithic scatters, hearths, and firepits which would be protected under current law with or without wilderness designation. Because the significance of the cultural resource sites in the WSA is low, and because developments even under the No Wilderness Alternative would not cause significant impacts to the sites, this issue was dropped from further analysis.

Impacts on Locatable Minerals in Adobe Town WSA
The Adobe Town WSA has been withdrawn from locatable mineral entry since the 1930s. As a result, there are no mining claims in the WSA and none are expected as long as the withdrawal stays in effect. Therefore, the issue of impacts of wilderness designation on the development of locatable mineral resources was considered but dropped from further analysis. The withdrawal is discussed further in chapter 3.

Impacts on Oil and Gas Development in Ferris Mountains WSA
The issue of impacts of wilderness designation on the development of oil and gas resources in the Ferris Mountains WSA was considered but dropped from further analysis. The oil and gas potential in the WSA is quite low, so no development is expected and the issue was dropped from further consideration. The oil and gas potential for the Ferris Mountains WSA is discussed further in chapter 3.

DEVELOPMENT OF ALTERNATIVES
A series of alternatives ranging from All Wilderness to No Wilderness was developed to analyze each WSA. The All Wilderness and No Wilderness alternatives are required by the National Environmental Policy Act (NEPA). For the purpose of this document, the No Wilderness and the No Action/Continuation of Present Management are considered identical.

For the Adobe Town WSA, the Proposed Action is Partial Wilderness/Conflict Resolution in which 10,900 acres are redesignated for wilderness designation. The alternative was developed in response to public comment and changes in oil and gas lease status. It was designed so that the wilderness boundary would better encompass those areas with high wilderness values such as Skull Creek Rim while also considering manageability and the presence of pre-FLPMA oil and gas leases. This alternative represents a modification of the draft EIS's partial wilderness alternative (now titled Partial Wilderness-2 in the final EIS) Alternatives include: (a) No Wilderness/Intensive Management for Oil and Gas, (b) All Wilderness, and (c) Partial Wilderness-2.

The Proposed Action for the Ferris Mountains WSA is All Wilderness. Here alternatives include: (a) No Wilderness/No Action and (b) Enhanced Wilderness Management.

ALTERNATIVES CONSIDERED BUT DROPPED FROM ANALYSIS
In the draft EIS, one alternative for Adobe Town was a No Wilderness/No Action Alternative. However, after further analysis it was determined that the actions and impacts of this alternative were essentially identical to the No Wilderness/Intensive Management Alternative. Thus, these were combined into a No Wilderness Alternative in the EIS.

A number of commenters suggested designation of more acreage than that included in the 16,280 acres identified in the Partial Wilderness-2 Alternative. As a result of these comments, several partial wilderness possibilities were examined specifically for preservation of outstanding wilderness values, while considering pre- and post-FLPMA oil and gas leases and manageability. Through this examination, it was found that larger partial wilderness alternatives would either increase the conflicts with oil and gas development on pre-FLPMA leases in areas of high wilderness values, or would add areas of low wilderness values on post-FLPMA leases. In this last situation, the added area would be withdrawn from mineral entry, but the conflict between wilderness designation and gas production would remain. The former would result in a wilderness with extensive oil and gas activity that would be unmanageable as wilderness. Thus, a larger partial wilderness alternative was considered but dropped from further consideration as being unmanageable. It should be noted that this reexamination resulted in a modification of the original partial wilderness alternative to what is now the Proposed Action.

A partial wilderness alternative for the Ferris Mountains WSA that would recommend for wilderness something less than the entire acreage of the WSA was considered but dropped. In all cases, reducing the acreage would result in an arbitrary boundary and would eliminate important wilderness attributes. Furthermore, adjusted boundaries would not reduce resource conflicts or enhance wilderness values.

Another alternative suggested for the Ferris Mountains was that of "Non-Wilderness/Manage for Primitive Values." This alternative was analyzed in the draft EIS and was found to have identical impacts on the Proposed Action (All Wilderness). As noted previously, there is no inherent increase in visitation due to wilderness designation which was the basic contention behind this alternative. This alternative would create a de facto wilderness. Because the All Wilderness Alternative fully analyzes the effects of designating the WSA as wilderness, the "de facto" alternative was eliminated from the final EIS.
CHAPTER 2

PROPOSED ACTION AND ALTERNATIVES

Since the pattern of future actions cannot be predicted with certainty, assumptions must be made to allow impact analysis to be performed. These assumptions are the basis of the scenarios developed in this impact statement. They are not management plans or proposals, but are believed to represent reasonable patterns of activities which could occur as a result of this action.

ADOBE TOWN

Proposed Action (Partial Wilderness/Conflict Resolution)

Under the Proposed Action, 10,920 acres of Adobe Town WSA, centered around Skull Creek Rim, would be recommended for wilderness designation (see map 2). The remaining 74,790 acres would be available for other multiple-use management and development.

Energy and Minerals Actions

Under the Proposed Action, energy and minerals activities would occur on the 74,790 acres outside of the partial wilderness boundary. Oil and gas development would occur on a 320-acre spacing in every square mile in those areas where terrain and drainages allow. Development would be allowed in accordance with Stipulation No. 1 of the Standard Surface Protection Requirements (see Appendix). No wells would be allowed on post-FLPMA leases in areas exceeding 25% slope or within 300 feet of surface water or riparian areas, except when an approved plan of operations shows that development could occur without significant impacts to other resource values. It is assumed that no development would occur on pre-FLPMA leases in areas of excess slope or near drainages simply from the impracticality of doing so. Thus, there would be 203 wells drilled in the wilderness portion, requiring 490 miles of road and 510 miles of pipeline. There would be 8,500 acres of surface disturbance.

There are 4,060 acres of pre-FLPMA leases in the 10,920-acre portion recommended for wilderness use under the Proposed Action. While most of the pre-FLPMA leases are impractical to develop, two wells would be located within the partial wilderness boundary in the northwestern part of the partial wilderness. This would require 2 miles of new road and 2 miles of pipeline, resulting in 84 acres of surface disturbance.

The entire area has been withdrawn from locatable mineral entry since the 1930s. Thus, there are no mining claims left in the area.

Livestock and Range Actions

The WSA (85,710 acres) would continue to provide 5,068 AUMs for livestock use. This includes 4,068 AUMs allocated as winter range for domestic sheep. No new range improvements are scheduled for the WSA. Projections beyond existing planning estimates (beyond the 15 to 20 year planning cycle) indicate that it is reasonable to expect that 5,068 AUMs would be maintained in the future.

The use of motorized vehicles would continue for the purposes of monitoring and moving livestock, especially during the winter months, in the nonwilderness portion of the WSA. Motorized vehicles would not be allowed in the portion recommended for wilderness use, but vehicles are not typically used therein for management of livestock.

Recreation Management Actions

Under the Proposed Action, ORV use on 74,790 acres of the WSA would be limited to designated roads and trails including the 490 miles of oil and gas related roads, while in the partial wilderness area (10,920 acres) ORVs would be eliminated. While new roads associated with natural gas development would increase the accessibility of most of the WSA, it is not expected to increase use substantially due to the area’s isolation. Recreational ORV use is projected to remain below 175 visitor days annually for the next 5 to 10 years, projections beyond this timeframe indicate that it is reasonable to expect recreational ORV use to increase slightly, but remain below 300 visitor days annually.

PROPOSED ACTION AND ALTERNATIVES

The entire WSA would be open for other recreation activities including hunting, horseback riding (generally associated with hunting activities), camping (generally associated with hunting activities), photography, and sightseeing. No recreation facilities or developed trails exist in the WSA and none are planned. Recreational use for these activities would remain below 900 visitor days for the next 10 years. Projections beyond existing planning estimates (beyond the 15 to 20 year planning cycle) indicate that it is reasonable to expect that recreational use for these activities would increase slightly, but remain below 1,000 visitor days annually for the foreseeable future.

Energy and Minerals Actions

Under this alternative, the WSA would be available for oil and gas development. No new road development would occur in areas exceeding 25% slopes or within 500 feet of surface water or riparian areas, except where an approved plan of development shows that development could occur without significant impacts to other resource values (see Appendix, Standard Surface Protection Requirements, Stipulation No. 1). There would be an estimated 216 wells with a spacing of 320 acres requiring 520 miles of road and 540 miles of pipeline. The result would be a total of 9,075 acres of surface disturbance due to oil and gas development. The entire area has been withdrawn from locatable mineral entry since the 1930s. There are no mining claims left in the area.

Livestock and Range Actions

Other than the use of motorized vehicles, actions under this alternative would be the same as the Proposed Action. The WSA would continue to provide 5,068 AUMs for livestock use. Motorized vehicles would continue to be used for livestock management in the entire WSA.

Recreation Management Actions

Under the No Wilderness Alternative, all 85,710 acres of the WSA would have ORVs limited to 520 miles of designated roads and trails. Recreational ORV use is projected to remain below 200 visitor days annually for the next 5 to 10 years. Beyond this timeframe, it is reasonable to expect recreational ORV use to increase slightly but remain below 300 visitor days annually for the foreseeable future.

The entire WSA would be open for other recreation activities including hunting, horseback riding (generally associated with hunting activities), camping (generally associated with hunting activities), photography, and sightseeing. No recreation facilities or developed trails exist in the WSA and none are planned. Recreational use for these activities would remain below 900 visitor days for the next 10 years. Projections beyond existing planning estimates (beyond the 15 to 20 year planning cycle) indicate that it is reasonable to expect that recreational use for these activities would increase slightly, but remain below 1,000 visitor days annually for the foreseeable future.
PROPOSED ACTION AND ALTERNATIVES

Cultural Resource Management Actions

Management actions for cultural resources would be similar to those described in the Proposed Action, except that investigations would be done on 9,075 acres corresponding to the amount of surface disturbance caused by natural gas development. The remainder of the WSA would be custodial only.

Wildlife Management Actions

Wildlife Stipulations 2a and 2b. would be applied to protect big game winter habitat and raptor nesting habitat (see Appendix). No other wildlife management actions are planned for the Adobe Town WSA.

Paleontological Resource Management Actions

Under the Proposed Action, except that investigations would be done on 7,770 acres associated with surface disturbance caused by natural gas development. Management of cultural resources for the remainder of the area would be custodial only.

Wildlife Management Actions

Wildlife Stipulations 2a and 2b. would be applied to protect big game winter habitat and raptor nesting habitat (see Appendix). No other wildlife management actions are planned for the Adobe Town WSA.

Paleontological Resource Management Actions

Management actions for paleontological resources would be similar to those described in the Proposed Action, except that investigations would be done on 7,770 acres associated with surface disturbance caused by natural gas development. Management of cultural resources for the remainder of the WSA would be custodial only.

All Wilderness Alternative

Under this alternative, the entire 85,710 acres of Adobe Town would be recommended for wilderness designation.

Energy and Minerals Actions

Under an All Wilderness Alternative, oil and gas development would occur only on pre-FLPMA leases. Because of the impracticality of doing otherwise, development would occur only in areas which do not exceed 25% slope or are within 500 feet of major drainages (see Appendix, Standard Surface Protection Requirements). There are 39,300 acres of pre-FLPMA leases (1987 figures) within the Adobe Town WSA and assuming a 320-acre spacing, there would be about 89 wells drilled with 215 miles of new road and 225 miles of pipeline. Total surface disturbance would be 3,750 acres. The entire area has been withdrawn from locatable mineral entry since the 1930s. There are no mining claims in the area. No development would occur.

Livestock and Range Actions

The WSA would continue to provide 5,068 AUMs of forage for livestock. The use of motorized vehicles to manage livestock would be eliminated.

Recreation Management Actions

Under an All Wilderness Alternative, ORVs would be eliminated from the entire 85,710 acres of the WSA. Only authorized vehicles (well operators and BLM inspectors) would be allowed on 39,300 acres corresponding to the pre-FLPMA leases.

The entire WSA would be open for nonmotorized recreation activities including hunting, horseback riding (generally associated with hunting activities), photography, and sightseeing. No recreation facilities or developed trails exist in the WSA and none are planned. Recreational use for these activities would remain below 900 visitor days for the next 10 years. Projections beyond existing planning estimates (beyond the 15 to 20 year planning cycle) indicate that it is reasonable to expect that recreational use for these activities would increase slightly, but remain below 1,000 visitor days annually for the foreseeable future.

Cultural Resource Management Actions

Management actions for cultural resources would be similar to those described in the Proposed Action, except that clearances would be done on 3,750 acres associated with surface disturbance caused by natural gas development.
PROPOSED ACTION AND ALTERNATIVES

FERRIS MOUNTAINS

Proposed Action (All Wilderness)

Under the Proposed Action, all the Ferris Mountains WSA (22,245 acres) would be recommended for wilderness (see map 4).

Energy and Minerals Actions

Under the Proposed Action, the entire WSA would be withdrawn from oil and gas leasing. There are no pre-FLPMA leases in the WSA and there is low potential for oil and gas in the WSA.

There are four existing lode mining claims located on the extreme east side of the WSA. The BLM’s Wilderness Management Policy states that prior to commencing operations, a formal validity examination must occur to determine whether or not the claims in question indeed hold sufficient quantity and quality of material so that a prudent man could expect to get a reasonable return on his investment. For purposes of analysis, it is assumed that such an examination would show insufficient quantity and quality of material to satisfy the prudent man concept. Thus, the claims would be deemed null and void and no mining development would be allowed. The entire 22,245 acres would be withdrawn from all forms of appropriation under the mining laws upon designation by Congress.

Recreation Management Actions

The entire 22,245 acres of the WSA would be closed to ORV use. The WSA would be open for other recreation activities including hunting, horseback riding (generally associated with hunting activities), camping (generally associated with hunting activities), photography, and backpacking. No facilities are planned. Recreational use for these activities would remain below 1,500 visitor days for the next 10 years. It is reasonable to expect recreation use to increase slightly in the future, but use is estimated to remain below 1,750 visitor days annually.

Forest Management Actions

Under the Proposed Action, harvest of 8 MMBF of commercial timber would not occur. Two hundred acres of precommercial thinning would not occur.

Livestock Management Actions

The Ferris Mountains WSA would continue to provide 2,263 AUMs in portions of six grazing allotments. Range improvements consisting of fences on the lower slopes would continue to be maintained. No new range improvements are planned.

Wildlife Management Actions

Prescribed burns on approximately 600 acres would occur on the west side of Cherry Creek to improve bighorn sheep habitat.

No Wilderness Alternative

Under the No Wilderness Alternative, all 22,245 acres of the Ferris Mountains WSA would be recommended for nonwilderness uses. The lands would be open for multiple-use management and development.

Energy and Minerals Actions

Under this alternative, the entire WSA would be open to oil and gas exploration and development. However, there is low potential for oil and gas in the WSA; therefore, no oil and gas exploration or developments are expected to occur.

It is assumed that assessment work would continue on the four existing lode claims along the WSA’s eastern boundary, resulting in 80 acres of surface disturbance. No new roads would be constructed. No development (mines) is expected because of the lack of any mineral in economic quantities.

Recreation Management Actions

The entire WSA (22,245 acres) would be closed to ORVs. The new roads associated with timber harvest would not be available for public use.
PROPOSED ACTION AND ALTERNATIVES

The WSA would be open for other activities including hunting, horseback riding (generally associated with hunting activities), camping (generally associated with hunting activities), photography and backpacking. Recreational use for these activities would remain below 1,500 visitor days for the next 10 years. It is reasonable to expect recreation use to increase slightly in the future, but use is estimated to remain below 1,750 visitor days annually.

Forest Management Actions

Under the No Wilderness Alternative, approximately 8 MMBF of commercial timber on 1,000 acres on the north side of the WSA would be harvested. Harvest would occur over the next 50 to 100 years, using clearcuts up to 25 acres in size. Within the 1,000 acres of commercial timber, about 200 acres would be precommercially thinned within the next 5 to 10 years. There would be 7½ miles of new road constructed to facilitate timber harvest. There would be a total of 1,050 acres of surface disturbance. No timber harvests would occur during winter months when big game species were utilizing their winter ranges.

Livestock Management Actions

The Ferris Mountains WSA would continue to provide 2,263 AUMs in portions of six grazing allotments. Range improvements consisting of fences on the lower slopes would continue to be maintained. No new range improvements are planned.

Wildlife Management Actions

Under the No Wilderness Alternative, Stipulation 2b would be applied to all timber harvests in order to protect nesting habitat of raptors. Prescribed burns on approximately 600 acres would occur on the west side of Cherry Creek to improve bighorn sheep habitat.

Enhanced Wilderness Alternative

With this alternative, the entire 22,245 acres of the WSA would be recommended for wilderness. Additionally, 1,800 acres of state and private inholdings would be proposed for acquisition through land exchange or purchase and would be incorporated into the area under study (see map 5). The total acreage recommended for wilderness would be 24,045 acres.

Energy and Minerals Actions

Under the Enhanced Wilderness Alternative, energy and minerals actions would be the same as in the Proposed Action (All Wilderness). Because there are no pre-FLPMA leases in the WSA and oil and gas potential is low, no oil and gas development is anticipated in the WSA. For the purpose of analysis, it is assumed that the four existing lode claims would be allowed. The entire 24,045 acres under this alternative would be withdrawn from all forms of appropriation under the mining law upon designation by Congress.

Recreation Management Actions

All of the 22,245 acres comprising the Ferris Mountains WSA would be closed to ORV use. Additionally, the 1,900 acres acquired from the state and private parties would be closed to ORV use after these lands were acquired by BLM. The entire 24,045 acres would be open for other recreation activities including hunting, horseback riding (generally associated with hunting activities), camping (generally associated with hunting activities), photography, and backpacking. No facilities are planned. Recreational use for these activities would remain below 1,500 visitor days for the next 10 years. It is reasonable to expect recreation use to increase slightly in the future, but use is estimated to remain below 1,750 visitor days annually.

Forest Management Actions

Under the Enhanced Wilderness Alternative, harvest of 8 MMBF of commercial timber would not occur. Two hundred acres of precommercial thinning would not occur.

Livestock Management Actions

The Ferris Mountains WSA would continue to provide 2,263 AUMs in portions of six grazing allotments. Range improvements consisting of fences on the lower slopes would continue to be maintained. No new range improvements are planned.

Wildlife Management Actions

Prescribed burns on approximately 600 acres would occur on the west side of Cherry Creek to improve bighorn sheep habitat.
# PROPOSED ACTION AND ALTERNATIVES

## TABLE 2A
**COMPARATIVE ANALYSIS OF IMPACTS**
**ADOBE TOWN WSA**

<table>
<thead>
<tr>
<th>Resource</th>
<th>Proposed Action</th>
<th>No Wilderness</th>
<th>Partial Wilderness-1</th>
<th>All Wilderness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wilderness Values</strong></td>
<td>Naturalness and solitude lost on 75,710 acres in long term. No legal protection of wilderness values on 85,710 acres.</td>
<td>Naturalness and solitude lost on 75,710 acres in long term. Includes 1,280 acres in partial wilderness boundary. Wilderness values retained on 15,060 acres.</td>
<td>Naturalness and solitude lost on 38,360 acres in long term due to development of pre-FI-PMA leases. Wilderness values retained on 84,410 acres.</td>
<td>Naturalness and solitude lost on 38,360 acres in long term due to development of pre-FI-PMA leases. No legal protection of wilderness values on 4,000 acres.</td>
</tr>
<tr>
<td><strong>Energy and Mineral Resources</strong></td>
<td>Eighty percent of gas from 75,710 acres recovered (900 billion cubic feet), remained closed to oil and gas leasing.</td>
<td>Eighty-five percent of gas from 75,710 acres recovered (900 billion cubic feet); 85,710 acres open to oil and gas leasing.</td>
<td>Seventy-two percent of gas from 38,360 acres recovered (700 billion cubic feet). Thirty-five percent of gas from 38,360 acres recovered (350 billion cubic feet).</td>
<td>Eighty percent of gas from 38,360 acres recovered (350 billion cubic feet).</td>
</tr>
<tr>
<td><strong>ORV Use</strong></td>
<td>Twenty-five visitor days annually displaced from 10,000 acres (significant impact on domestic mules and significant opportunities on nearby public land).</td>
<td>Minor increase in vehicle accessibility. No significant impacts.</td>
<td>FIFTY visitor days annually displaced from 18,280 acres (significant impact on domestic mules and significant opportunities on nearby public land).</td>
<td>Two hundred visitor days annually displaced from 85,710 acres, magnificenetly impacted due to better opportunities on nearby public land.</td>
</tr>
<tr>
<td><strong>Cultural Resources</strong></td>
<td>Cultural resource surveys on 8,050 acres, 60 sites evaluated but destroyed. All remaining sites would be largely undisturbed.</td>
<td>Cultural resource surveys on 6,970 acres, 37 sites evaluated but destroyed. Sites on 77,840 acres would remain largely undisturbed.</td>
<td>Cultural resource surveys on 7,870 acres, 373 sites evaluated but destroyed. Sites on 77,840 acres would remain largely undisturbed.</td>
<td>Cultural resource surveys on 7,870 acres, 373 sites evaluated but destroyed. Sites on 81,980 acres would remain largely undisturbed.</td>
</tr>
<tr>
<td><strong>Paleontological Resources</strong></td>
<td>Adverse impacts to paleontological resources on 6,960 acres due to oil and gas activities. No impacts on 77,720 acres because sites would remain largely undisturbed.</td>
<td>Adverse impacts to paleontological resources on 9,075 acres due to oil and gas activities. No impacts on 78,655 acres because sites would remain largely undisturbed.</td>
<td>Adverse impacts to paleontological resources on 7,870 acres due to oil and gas activities. No impacts on 77,840 acres because sites would remain largely undisturbed.</td>
<td>Adverse impacts to paleontological resources on 3,750 acres due to oil and gas activities on pre-FI-PMA leases. No impacts on 81,980 acres because sites would remain largely undisturbed.</td>
</tr>
<tr>
<td><strong>Livestock Grazing</strong></td>
<td>Continue to provide 5,068 AUMS. Elimination of vehicle use on 10,000 acres would have a minimal affect on grazing management.</td>
<td>Continue to provide 5,068 AUMS. No impacts on grazing management.</td>
<td>Continue to provide 5,068 AUMS. Elimination of vehicle use on 18,280 acres would have a minimal affect on grazing management.</td>
<td>Continue to provide 5,068 AUMS. Increased difficulty in managing domestic sheep on smaller range, may result in voluntary nonuse of 3,893 AUMS.</td>
</tr>
<tr>
<td><strong>Wildlife</strong></td>
<td>Antelope populations unaffected. Mule deer populations reduced from 10,000 acres to 74,790 acres, but can be easily accommodated in other areas.</td>
<td>Antelope populations unaffected. Mule deer populations reduced from 18,280 acres to 74,790 acres, but can be easily accommodated in other areas.</td>
<td>Antelope populations unaffected. Mule deer populations reduced from 77,840 acres to 74,790 acres, but can be easily accommodated in other areas.</td>
<td>Antelope populations unaffected. Virtually no displacement of mule deer.</td>
</tr>
<tr>
<td><strong>Raptors</strong></td>
<td>Out of a total of 32 fungicidal hawk nests, six to eight would produce fledglings. Success rates for golden eagles and prairie falcons remained on 74,790 acres and reduced an unknown amount on 74,790 acres.</td>
<td>Out of a total of 32 fungicidal hawk nests, five to six would produce fledglings. Success rates for golden eagles and prairie falcons reduced on 74,790 acres and reduced an unknown amount on 74,790 acres.</td>
<td>Out of a total of 32 fungicidal hawk nests, five to six would produce fledglings. Success rates for golden eagles and prairie falcons reduced on 74,790 acres and reduced an unknown amount on 68,430 acres.</td>
<td>Out of a total of 32 fungicidal hawk nests, nine to ten would produce fledglings. Success rates for golden eagles and prairie falcons reduced on 4,000 acres and reduced an unknown amount on 68,430 acres.</td>
</tr>
</tbody>
</table>

## TABLE 2B
**COMPARATIVE ANALYSIS OF IMPACTS**
**FERRIS MOUNTAIN WSA**

<table>
<thead>
<tr>
<th>Resource</th>
<th>Proposed Action (All Wilderness)</th>
<th>No Wilderness</th>
<th>Enhanced Wilderness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wilderness Values</strong></td>
<td>Wilderness values retained on 22,245 acres. No impact to naturalness and solitude would not occur on 4,000 acres.</td>
<td>No impact to naturalness and solitude would not occur on 4,000 acres.</td>
<td>Wilderness values retained on 24,045 acres.</td>
</tr>
<tr>
<td><strong>Energy and Mineral Resources</strong></td>
<td>Ten visitor days annually displaced from 22,245 acres.</td>
<td>Ten visitor days annually displaced from 22,245 acres.</td>
<td>Ten visitor days annually displaced from 24,045 acres.</td>
</tr>
<tr>
<td><strong>ORV Use</strong></td>
<td>8 MMBF harvest on 1,000 acres. Timber management on remaining 8,000 acres. Sages unlikely in foreseeable future.</td>
<td>8 MMBF harvest on 1,000 acres. Timber management on remaining 8,000 acres. Sages unlikely in foreseeable future.</td>
<td>8 MMBF harvest on 1,000 acres.</td>
</tr>
<tr>
<td><strong>Wildlife</strong></td>
<td>No impacts. Long-term protection of wildlife habitat on 22,245 acres.</td>
<td>No impacts. Loss of 1,000 acres of habitat over short term while harvesting occurs. Prescribed burn on 800 acres would double bighorn sheep population.</td>
<td>No impacts. Long-term protection of wildlife habitat on 24,045 acres.</td>
</tr>
<tr>
<td><strong>Raptors</strong></td>
<td>No impacts.</td>
<td>No impacts. Nesting habitat protected would not occur during nesting activity.</td>
<td>No impacts. Long-term protection of nesting habitat on 24,045 acres.</td>
</tr>
</tbody>
</table>
CHAPTER 3

AFFECTED ENVIRONMENT

ADOBE TOWN

General Characteristics

Adobe Town is in a remote area, bounded on the west by a broad, relatively undissected, west-sloping plain that is covered with stabilized sand dunes and alluvium. The flat terrain of this plain breaks abruptly at Adobe Town Rim into a maze of badlands that form small basins, ledges, and alcoves at lower elevations east of the rim. From a few hundred feet to several miles east of Adobe Town Rim, at still lower elevations, small isolated haystack or house-shaped buttes are located (photographs 1 and 2). These give Adobe Town its name and form the area known as Monument Valley.

Photograph 1. Typical badland formations in the Adobe Town WSA.

This landform pattern repeats itself with relatively flat, sand-dune covered plains east of Monument Valley and gradually becomes Skull Creek Rim. Skull Creek Rim is similar to Adobe Town Rim, although it is much more extensive in both length and width. Skull Creek Rim is dissected by Sand Creek and its tributaries, creating colorful canyons and numerous small drainages (photographs 3 and 4).

The Adobe Town WSA is part of the Washakie Basin proposed National Natural Landmark. This designation is bestowed upon areas with outstanding geological and ecological features.

Photograph 2. Small isolated buttes with sagebrush-covered sand dune in the foreground.

Photograph 3. Skull Creek Rim showing spring runoff in Sand Creek.
AFFECTED ENVIRONMENT

Wilderness Values

Size
Adobe Town is made up of two contiguous WSAs, WY-040-408 in the Rock Springs District and WY-00-401 in the Rawlins District. Together they contain 85,710 acres and constitute the largest BLM WSA in Wyoming. Size, which is one of the Adobe Town WSA's important attributes, enhances the wilderness character of the area.

Naturalness

The Adobe Town WSA exhibits a high degree of naturalness. The few man-made intrusions in the WSA are minor and consist of active and abandoned oil and gas drilling locations (photograph 5), roads, trails, and seismic lines associated with oil and gas explorations. There are livestock watering reservoirs, abandoned wild horse traps, and abandoned enclosures for livestock feed storage. These intrusions are not particularly noticeable and have a minimal impact on the total

Photograph 4. Small drainage eroding Skull Creek Rim.

Outstanding Opportunities for Solitude and Primitive, Unconfined Recreation

The Adobe Town WSA possesses outstanding opportunities for solitude and primitive, unconfined types of recreation. Activities identified as outstanding were hiking, sightseeing, and photography which complement each other. Short backpacking excursions could be taken, but all water would have to be carried by the user because potable water sources would not be available. These opportunities exist throughout the WSA.

Hiking or backpacking in the area would be an interesting and educational experience, particularly for typical backpackers who have done most of their backpacking and hiking in the mountains. A hiker would have the opportunity to view the wildlife and vegetation of a high-desert ecosystem in a natural condition. A person could hike in and around the major badland features—Adobe Town Rim, Skull Creek Rim, Monument Valley, and the major tributaries of Sand Creek—and view and photograph a variety of interesting features ranging from the geological features of the area to wildlife and wild horses.

Primitive, overnight camping areas are plentiful and shade, shelter, and scenic views are available for the camper. Shelter can be found in the leeward sides of stabilized sand dunes, in draws or washes, or in the midst of the rocky, eroded rims. These types of shelters protect the user from frequent winds that are characteristic of the area.

The erosional landforms are the area's most outstanding feature. They are the focal point of the area. Although similar landforms are found elsewhere in southern Wyoming, these are perhaps the most spectacular (photograph 6).
AFFECTED ENVIRONMENT

The WSA's size and topography contribute to the degree of solitude that the area provides. The WSA totals nearly 134 square miles, which is sufficient to accommodate a large number of visitors with little interaction. In Adobe Town, the visitor can disappear quickly in the rim areas by going around a corner, up a draw, or into the next canyon. The rugged topography provides seclusion throughout most of the WSA; the scenic rims provide a maze of small canyons and draws so that visitors can easily include hunting, sightseeing, andsounds of others. Elsewhere the terrain is hummocky because the surface is covered by stabilized sand dunes.

Quality is a function of the combination of interrelated values that an area exhibits and the resulting unique combination. In this regard, Adobe Town exhibits high-quality solitude and opportunities for primitive recreation.

Special Features

The Adobe Town area contains a herd of wild horses, averaging 400 animals, with a range of 300 to 500 head. The herd is currently at management level.

The area is also well known for its fossils. Fossil remains of mammals are numerous and widely distributed throughout the area. (See the Paleontological section for more information.)

Recreation

The Adobe Town WSA has been used for many years for recreational purposes by area residents. Typical activities include hunting, sightseeing, camping, and rock collecting. Recreational ORV use is estimated to be approximately 200 visitor days per year. This use is generally associated with or in support of the other activities. Hunting, sightseeing, camping, and rockhounding account for an additional 900 visitor days of use per year.

Big game hunting is the predominant recreational activity in Adobe Town. Adobe Town provides some of the highest quality antelope hunting in southern Wyoming. Trophy mule deer hunting is also popular in the WSA.

Cultural Resources

Field inventories indicate that the prehistoric cultural resource site density for the study area is approximately 30 sites per section, a high density of prehistoric human occupation. Cultural resource properties in this area are generally characterized by lithic scatters, stone circle features, hearths, lithic material quarries, and rock shelter habitation sites. The prehistoric people who occupied the study area were hunters and gatherers whose movements were, to a large degree, determined by seasonal changes in resource availability. These people generally lived in small bands, spending only a limited amount of time in any one location. A particular cultural resource site might indicate use of a location or repeated use of the location for thousands of years. Diagnostic projectile points indicate nearly continuous use of the area for the last 12,000 years. At this time, no cultural resource sites recorded within the study area are listed on the National Register of Historic Places.

Although the density of cultural resource sites is estimated to be 30 sites per square mile, the information may not be statistically reliable because the sample size is very small and is not of scientific design. The field inventories that were conducted were for project-related activities and were not based on an overall scientific sampling scheme.

Paleontological Resources

The Washakie Basin, of which the Adobe Town WSA is a part, is one of the most noted paleontological areas in North America. Many fossils of extinct mammals and reptiles are numerous and scattered throughout the WSA. Two notable mammalian fossils found in the area are the Uintatherium and the Titanotherium. The Uintatherium was a large mammal about the size and configuration of an African rhinoceros. The species of Titanotherium found in the WSA was a tapir-like mammal, about 40 inches in height. Later species, whose fossil remains have been found elsewhere in Wyoming, grew to be 8 feet tall, 12 feet long, and could weigh up to 4 tons (Hager 1982).

Scientific interest in the paleontology of the Adobe Town WSA is high. Turnbull (1978) notes that paleontological resources in the Washakie Basin (Adobe Town lies about in the basin's center) have been almost continuously studied since the time of the Hayden Survey of 1867 to 1878. Many specimens taken from the Washakie Basin are now in museums such as the Chicago Field Museum of Natural History, the University of Wyoming and Western Wyoming College, collect specimens from the WSA.

Most fossils are recovered as scattered surface finds in areas of exposed rock. Paleontologists often rely on chance for discoveries. Exposures that produce significant fossils, particularly vertebrates, are rare and consequently are of considerable scientific value and public interest wherever they are found.

Livestock Grazing

There are four grazing allotments in the Adobe Town WSA (see map 6). Three of these allotments are in the Rawlins District, and one is in the Rock Springs District. The three Rawlins allotments are held by individuals, and the Rock Springs allotments are held by the Rock Springs Grazing Association. Of the four allotments, only a portion of each lies within the WSA boundaries. All of the allotments traditionally have been used for winter grazing of sheep, but in recent years there have been some conversions to summer grazing of cattle (see Table 3).

<table>
<thead>
<tr>
<th>Allotment Name</th>
<th>Season of Use</th>
<th>Class of Livestock</th>
<th>Total Federal AUMs</th>
<th>Number Federal AUMs in WSA</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willow Creek (528)</td>
<td>Winter</td>
<td>Sheep</td>
<td>5,382</td>
<td>660</td>
<td>13</td>
</tr>
<tr>
<td>Adobe Town (502)</td>
<td>Winter</td>
<td>Sheep</td>
<td>1,820</td>
<td>175</td>
<td>10</td>
</tr>
<tr>
<td>Cow Creek (509)</td>
<td>Summer</td>
<td>Cattle, sheep</td>
<td>2,420</td>
<td>1,000</td>
<td>40</td>
</tr>
<tr>
<td>Rock Springs Grazing Association¹</td>
<td>Winter</td>
<td>Sheep</td>
<td>105,000</td>
<td>3,213</td>
<td>3</td>
</tr>
</tbody>
</table>

¹ The Rock Springs Grazing Association allotment is a large common allotment shared by the Rock Springs Grazing Association and other users.

Energy and Mineral Resources

Energy Resources

The Adobe Town WSA lies near the center of the Washakie Basin, a structural and topographic basin. The Washakie Basin is considered by some geologists to be a portion of the larger Green River Basin, which covers the southwest part of Wyoming.

The Adobe Town WSA is underlain by a sequence of sedimentary rock over 30,000 feet thick. The sediments range in age from the Cambrian Flathead Sandstone to the Tertiary Washakie Formation and have an abundance of coal, oil shales, and the potash in the area that has given this region its name.

Both the U.S. Bureau of Mines and Rocky Mountain Energy Company have investigated an area west of Adobe Town WSA for oil shale potential.
Large amounts of relatively low-grade oil shale, averaging approximately 15 gallons per ton, were found in the La Clee bed of the Laney Shale Member of the Green River Formation. In some areas, minable thicknesses of rock, containing up to 25 gallons per ton, were found (Trudell 1973). These oil shale beds appear to be overlain by 3,000 feet or more of overburden in the Adobe Town WSA. This is based on average dips of the rock formations and is consistent with the estimated thicknesses of overlying strata. The development potential of oil shale lying 3,000 feet below the surface is low.

Coal is projected to be present in the Washatch, Fort Union, and Lance formations and in the Mesaverde Group underlying the Adobe Town WSA. However, the coal is so deep that development is unlikely.

The Washakie Basin is presently being developed into a major gas producing province. Until 1976, most of the petroleum discovered in the Washakie Basin was in stratigraphic and structural-stratigraphic traps around the edges of the basin. The major oil reserves at that time were in the Patrick Draw area near the northwest edge of the basin. The major gas reserves were around the west, southwest, and south margins of the basin. Since 1976, there have been large increases in natural gas production in the basin. The north and east margins of the basin are being explored, and exploration is beginning in the basin's deeper portions.

Approximately 46% of the Adobe Town WSA (39,300 acres) has oil and gas leases that were issued before the passage of FLPMA. These pre-FLPMA leases are committed to unit agreements and are held by production. As a result, the lease holders are recognized as having valid existing rights. This means that they may explore, develop, and produce oil and gas, even if the area is designated as wilderness. In addition, there are approximately 25,500 acres under post-FLPMA leases, 17,710 acres unleased, and 3,320 acres of split-estate (state minerals, federal surface).

The Upper Cretaceous Lewis Shale and Mesaverde Group have been the major gas producing areas in the shallower portions of the basin. The gas appears to have resulted from low grade, thermal metamorphism of coal beds. The amount of gas generated per unit of coal through this process is dependent on the maximum temperature to which the coal has been subjected, the effective heating time of the coal, the coal rank, and the percent of volatile matter.

Natural gas reserve estimates have been made by Barlow and Haun (1979) and McPeek (1981) for the Mesaverde Group and Lewis Shale. These estimates are based on parameters such as average productive zone thickness, average porosity, reservoir pressure, reservoir temperature, gas saturation, recovery factor, and success rates as they are presently known. McPeek estimated 20.4 trillion cubic feet (tcf) total gas reserves in the Washakie and Red Desert basins, of which 10.8 tcf are between 12,500 and 18,500 feet in depth. Estimating a basin the size of the Adobe Town WSA at an average depth of 15,000 feet and assuming the same porosity, McPeek stated that these two estimates were close. The primary reason for the difference in the estimates is McPeek used a 50% ultimate recovery level, whereas Barlow and Haun used 100%.

The deeper portions of Washakie Basin, including Adobe Town WSA, remain largely unexplored. The Mesaverde Group and Lewis Shale are over 15,000 feet in depth and are gaspressured in this area. Formation treatment, such as hydraulic fracturing, in these deep areas has been technically impossible until very recently. In addition, there were no price incentives to produce gas from deep or tight formations before the Natural Gas Policy Act of 1978. Exploration and production in the deep basin was delayed until these events took place.

Gas discoveries have also been made in the Fort Union and Lance formations in the deep Washakie Basin. These formations have no natural gas in the margins of the basin, but they appear to contain large reserves in the basin.

Two wells capable of producing lie within the Adobe Town WSA. Section 2, T. 15 N., R. 96 W., contains a Lewis Formation completion without a pipeline connection. Approximately 1 mile of temporary access road for this well lies within the WSA. A permanent access road plus pipeline will be required before this well can go on-line. Section 20, T. 15 N., R. 97 W. contains a producible Adobe Town unit well completed in the shallower Fort Union and Lance formations. Approximately 3 miles of pipeline and access road for this well lies within the Adobe Town WSA. A 700-foot water well lies in NW1/4NW1/4, Section 34, T. 15 N., R. 97 W., inside the Adobe Town WSA. The water well was left intact at the request of BLM on October 1, 1973.

Seven drilled and abandoned wells lie within the Adobe Town WSA. These wells were drilled between 1952 and 1981 and range in depth from 3,500 to 13,000 feet. Only one of these wells was drilled deep enough to penetrate the deep potential horizons. This deep well has provided little information due to the lack of test data. However, the well test data did show the presence of gas in the deeper formations.

**Mineral Resources**

A marker bed in the Adobe Town Member of the Washakie Formation in which clinoptilolite, a zeolite mineral, is abundant was identified by Roehler (1973). During the summer of 1980, BLM conducted a reconnaissance type inventory of this bed for the purposes of location, field description, and sampling. To the south of the Adobe Town WSA zeolite minerals are abundant, but the bed is contaminated in most areas with detrital material and authigenic clay. To the east and north of the Adobe Town WSA, the bed changes to a sandy tuff. The bed is projected to underlie the Adobe Town WSA, but it is at a depth where development potential is very low.

**Wildlife Resources**

Proprong antelope and mule deer are the two big game species inhabiting the WSA. Wyoming Game and Fish Department population objectives and current population estimates for these two species are presented in Table 4.

**TABLE 4**

<table>
<thead>
<tr>
<th>Species</th>
<th>Present Population Within the Adobe Town WSA</th>
<th>Present Population Within the Total Herd Unit</th>
<th>Total Herd Unit Population Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pronghorns</td>
<td>400</td>
<td>11,200-11,500</td>
<td>11,000</td>
</tr>
<tr>
<td>Mule Deer</td>
<td>185</td>
<td>18,700-18,700</td>
<td>18,700</td>
</tr>
</tbody>
</table>

* Post-hunt population objective.

There are no mining claims in the Adobe Town WSA. The area was withdrawn from mining location by Executive Order 5327, April 15, 1930.

No uranium exploration or development has taken place in the study area because the area has been withdrawn from mineral location. The Washakie Basin, like all known uranium occurrences, has no commercial deposits found. The structural nature of this sedimentary basin and the chemical and physically favorable host rocks in and adjacent to the study area, indicates the potential for significant uranium deposits.
Adobetown WSA
OIL AND GAS LEASES
AFFECTED ENVIRONMENT

The availability of free-standing water and vegetation in the preferred range type determines the overall antelope distribution pattern within the herd unit. As summer progresses, the antelope tend to concentrate in areas where water is readily available. In the fall, the animals start to migrate back to the winter ranges. As winter conditions become severe, the antelope concentrate on the crucial winter ranges where windblown slopes offer the only available forage.

Mule Deer

Mule deer that inhabit the WSA are part of the Bagg's Herd Unit (Data Analysis Unit), which is located between Interstate 80 and the Colorado border, and extends west from the Sage Creek Road/Medicine Bow National Forest boundary to the Bitter Creek Road. The juniper ridges, sagebrush breaks, and eroded badlands provide high-quality mule deer habitat.

In the decade prior to the severe winter of 1983-84, the mule deer population had been steadily increasing. Summer and winter populations within the WSA prior to the 1983-84 winter were estimated to be 185 and 225, respectively. Since the 1983-84 winter, mule deer populations have been rebuilding and are estimated to have reached pre-1983 and 1984 levels (Moody 1987, pers. com.).

The 1987 population is estimated to be only slightly above the 1987-88 post-hunt objective of 18,700 animals (Moody 1987, pers. com.). The entire WSA is classified as winter and yearlong range.

Raptors

The BLM Rawlins District has attempted to inventory raptors in the WSA. However, because of the rugged terrain and inaccessibility of the area, the complete raptor survey has not been accomplished. An abundance of prey (jack rabbits, cottontails, and other small mammals) and numerous cliff-nests makes the WSA quality raptor habitat. Seven ferruginous hawk nests, nine golden eagle nests, one prairie falcon nest, and one red-tailed hawk nest have been found in the area.

The ferruginous hawk is a Category II species for threatened or endangered species listing. This means that there is inadequate data to list the species at this time, but additional data may provide the necessary information to determine whether or not the ferruginous hawk should be included on the threatened or endangered species list. The ferruginous hawk is extremely sensitive to disturbance during nesting. Studies in the Rawlins District have shown that the nest failure rate for ferruginous hawks to be 50% due to natural predation, nonspecific human contact, and unknown causes.

In the Adobe Town WSA, it is estimated that there is up to 50,000 acres available for nesting, with each nest requiring 2,300 acres. The nesting habitat is primarily in the badlands portion of the WSA (the western half and the Adobe Town Rim-Skull Creek Rim area). As a result, it is projected that there are 22 active ferruginous hawk nests in the Adobe Town WSA.

FERRIS MOUNTAINS

General Characteristics

The Ferris Mountains WSA lies in northwestern Carbon County, 45 miles north of Rawlins. The Ferris Mountains are a small mountain range, bounded on the south by the Great Divide Basin, on the west by Highway 287 and the small settlement of Muddy Gap, on the north by gently rolling sagebrush plains, and on the east by the Seminole Mountains. Along the entire length of the range, deep canyons and steep slopes predominate; meadowlands are limited in extent (photograph 7). The extreme local relief, coupled with the rugged nature of the topography and the effort one must exert to travel in the area, all contribute to the perception that the Ferris Mountains are larger than they actually are.

From a distance, the Ferris Mountains appear to be dominated by forest vegetation (lodgepole pine, Douglas-fir, limber pine, subalpine fir, Engelmann spruce, juniper, and aspen), but they also contain unforested slopes covered by shrubs, grasses, and forbs. In addition, grassy meadows and riparian zones of willow, water birch, and herbaceous vegetation occur, along with drier, open parks (photograph 8). The mountain forests have burned several times in recorded history, and as a result, forests of varying ages occur on the slopes. The shrubby and herbaceous plants are used as food by livestock and many species of wildlife. The forest provides shelter for livestock and wildlife and, in addition, escape cover for wildlife.

There are 520 acres of private holdings in the Ferris Mountains WSA. Negotiations are currently underway with the private landowner for an exchange of these lands for comparable public lands outside of the WSA.

Photograph 7. View of the Ferris Mountains from the west showing steep slopes and deep canyons.

Photograph 8. A view showing spruce-filled drainager and unforested slopes.
**Affected Environment**

**Wilderness Values**

**Size**

The Ferris Mountains WSA is 22,245 acres in size. Combined with the rugged terrain and forest cover, size enhances the WSA's wilderness character.

**Naturalness**

The Ferris Mountains are in a natural state, essentially roadless and rugged. There are a few man-made intrusions in the area. These consist of one abandoned washed out access road and an abandoned mineral exploration area known as the Babb's Mine. Exploration activity ceased in the early 1970s after an unsuccessful search for economic quantities of minerals. The scars left by the exploration activity are visible. The Babb's Mine area is now a secluded spot in the WSA.

**Outstanding Opportunities for Solitude and Primitive, Unconfined Recreation**

The Ferris Mountains WSA provides a number of classic-wilderness land-based recreational opportunities. They include viewing scenery, hiking, horseback riding, camping, hunting, studying nature, and mountain climbing. The WSA's size and topography combine to create outstanding opportunities for solitude. Visitors to the area would be able to avoid the sights and sounds of others and find a secluded spot in this rugged area. Major canyons distributed throughout the WSA offer places to escape the activities of others.

**Special Features**

The Ferris Mountains WSA provides unusual and spectacular scenery. The mountains rise abruptly from Highway 287, providing beautiful scenery for travelers in south-central Wyoming. Along the southern flank of the mountain, a forest of lodgepole pine dominates the landscape. The mountain is a prominent white band several miles long. It is an outstanding scenic feature that is visible for many miles and gives this mountain range regional recognition. In addition, the Ferris' elk and bighorn sheep populations attract visitors to the area. These big game animals attract visitors not only for hunting, but also for nonconsumptive uses such as photography.

**Recreation**

The Ferris Mountains provide a variety of primitive recreational activities. They include hunting, fishing, sightseeing, hiking, camping, backpacking, and horseback riding. Hunting, hiking, and sightseeing are the primary attractions, those which generate the majority of the visits to the area. These activities contribute to a 1,000 visitor days of use per year. Recreational ORV use is estimated to be approximately 150 visitor days annually. Most if not all ORV activity is in support of the primary activities previously noted.

**Forestry Resources**

The Ferris Mountains WSA has 9,000 acres of forested land of which 1,000 acres are classified as commercial timber. The main commercial tree is lodgepole pine, most of which is currently pole-sized. There are also small stands of Douglas-fir, subalpine fir, and ponderosa pine. The commercial timber is located on the middle elevations on the north side of the Ferris Mountains, essentially dissected by the Cherry Creek drainage. Various forest insects and diseases are present in the WSA. These problems affect the forest's health to some degree, but are not considered significant.

**Energy and Mineral Resources**

**Energy Resources**

The Ferris Mountains are located on the south flank of the Sweetwater Arch, which is a broad northwest-southeast trending uplift in central Wyoming that stretches from the Wind River Mountains to the Freezeout Hills. A series of faults define the southern boundary of this uplift. The Emigrant Trail thrust fault extends from the Muddy Gap area northwestward for approximately 50 miles. At least six mineral exploration drill holes intersect this fault. The northeast plate of the fault overlies the southwest plate at a 20 to 35 degree angle. Precambrian crystalline rocks have been placed over Paleozoic and Mesozoic sediments by a throw, at some points, of over 15,000 feet. To the east of the Ferris Mountains, near the north edge of the Hanna Basin, there is evidence to indicate that some thrusting has occurred. This thrusting has buried sediments beneath the Shirley and Seminole mountains.

The conventional interpretation of the geology of the Ferris Mountains is that they were formed by nearly vertical uplifts (Love 1970). As a result, oil and gas potential is considered to be quite low.

There are no pre-FLPMA leases in the Ferris Mountains WSA. There are 8,640 acres of post-FLPMA leases and 13,605 acres of unleased lands in the WSA.

**Mineral Resources**

The Ferris Mountains consist of two anticlines trending N. 70 degrees W. which are separated by a similar structure called the Young's Pass Syncline (photograph 10). Each of these large anticlines expose blocks of Precambrian rocks. These Precambrian rocks are of igneous origin and vary in composition from diorite to granite. Geologic structures within the Precambrian rocks include shear zones and emplaced veins and dikes of various rock types, including pegmatite, calcite, quartz, and mafic rocks. The shear zones occur most often in zones of weakness where veins and dikes have been emplaced, but they are not extensive.
The shear zones often produce a gneissic texture in the shear zones themselves (Masters 1977). Sedimentary rocks range from the Cambrian Flathead Sandstone through Quartary pediment gravels, colluvium, and alluvium. Because of the steep dips and varying resistance to erosion, many slopes of the Ferris Mountains are cut by numerous sedimentary rock units that can be observed along the south slope of the mountains. The Mississippian Madison Limestone, at one locality, is present as a prominent silver-white feature on the south slope.

The larger hardrock-mineral prospect sites in the Ferris Mountains are located in two areas. The Cherry Creek/Babbins Mine area is located near Young's Pass, and the Spanish Mine area is located adjacent to the Ferris Mountains on the east end. Small individual prospect pits are scattered throughout the remainder of the WSA. There are no mining claims in the Cherry Creek/Babbins Mine area. Portions of four mining claims, totalling about 80 acres, are located on the east side of the WSA. They are part of the Spanish Mine block of claims which were located in October 1972 and are part of the eastern half of Section 1, T. 26 N., R. 77 W. The assessment work is current as of 1986. There has been no development work on these claims.

The Cherry Creek/Babbins Mine area contains two adits and one large dozer cut. This area was reportedly explored for copper and tungsten during the late 1950s and early 1960s. Mr. William H. Wilson of the Wyoming Geological Survey examined this area on October 6, 1955, and noted two types of mineralization: (1) copper-quartz veins and (2) pyrite and chalcopyrite which is disseminated in and forms veinlets in the brecciated and silicified country rock. Traces of scheelite, a calcium tungstate, were found and a slight amount of radioactivity was attributed to the presence of allanite, a silicate. The former claimant in the area submitted a report by John P. Ely, containing one-foot thick quartz vein containing 10% copper, 0.11 ounces silver per ton. This information does not correlate with BLM sampling in the area. The main Babbins Mine adit was mapped and sampled during the autumn of 1978 by BLM geologists. Four samples were taken from the quartz vein on which the adit was driven. The maximum copper content in one sample was 0.45%, with the average copper content being 0.19%. The maximum tungsten content was 37 parts per million (ppm). (One ppm is equal to 0.0001% Elements present in less than 0.01% are expressed in ppm.) All gold contents were less than 0.02 ppm and silver was less than 1 ppm. The copper mineralization was sporadic and mostly in the form of small sulfide minerals.

The dozer cut located above this adit was also examined on the same dates. The only mineralization observed was disseminated in the country rock. Five samples were collected from this working. The samples were assayed and the maximum value was 2.40 ppm gold, 6.8 ppm silver, 0.47% copper, and 115 ppm tungsten. Average values were 0.63 ppm gold, 2.4 ppm silver, 0.32% copper, and 33 ppm tungsten.

Most of the prospect pits scattered throughout the remainder of the WSA are small, the typical size being 2 to 4 feet deep and 3 to 5 feet across. They were generally dug into quartz veins that indicated the presence of copper. Some of the prospect pits are located on shear zones. Of all the prospect pits sampled, the highest copper content in any sample was 1.4%. Many of the samples contained less than 0.1% copper. Other metals were present in lesser amounts. Most of the quartz veins are discontinuous in nature being tracable for only a few feet outside the prospect pit.

The Spanish Mines area, bordering the Ferris Mountains WSA on the east, contains numerous prospect pits and at least five adits. The Spanish Mines area is discussed by both Hendricks (1943) and Half (1944). Hendricks examined some of the workings, sampled them, and concluded that the property showed no ore reserves and only slight mineralization of extremely low values. Mr. Half examined the area and noted that the mineralization consisted of galena (lead sulfide), pyrite (iron sulfide), chalcopyrite (copper-iron sulfide), limonite (iron oxide), and traces of azurite and malachite (copper carbonates). Half concluded that the deposit was in a highly favorable environment with evidence of relatively strong local mineralization and intense hydrothermal action as suggested by conspicuous mineral alteration, particularly serpentinization. The claimant, Mr. William Burnside, reported that he made discoveries of copper in the Spanish Mines area; however, no serious development work has been done for at least 4 years, although assessment work is continuing. A BLM inventory of the Spanish Mine area revealed no evidence of the workings to be on quartz or quartz-chlorite veins. Anomalous concentrations of lead, arsenic, and copper were present in various samples taken during this inventory. The BLM inventory concluded that no ore bodies were presently identified in the Spanish Mine area. The geologic conditions of the Spanish Mines area indicate a moderate potential for the occurrence of mineral resources. A combined USGS and Bureau of Mines mineral report will be done prior to submission to Congress.

Livestock Grazing

Six operators graze livestock within the boundaries of the Ferris Mountains WSA. The majority of the area is used for grazing cattle, although sheep occasionally use the lower slopes on the southeast end of the mountain. In spite of the steepness and ruggedness of the mountains, live stock graze most of the WSA. During the summer months, for example, cattle may be observed on the summit ridge. Livestock grazing occurs during the months when the area is free of snow, usually from May through October.

Range improvements are limited to fences along the lower slopes of the WSA. Herding of livestock within the core of the Ferris Mountains has always been done on foot or horseback.

There are six grazing allotments in the area that are made up in part by lands in the Ferris Mountains WSA. In general, only a small portion of each allotment is contained within the boundaries of the WSA, both in terms of acreage and in terms of livestock forage.

Wildlife Resources

Current Wyoming Game and Fish Department population objectives and present population estimates for the three major big game species (elk, deer, and bighorn sheep) are presented in Table 5. The population objective for each big game species is established and managed by herd unit. The WSA does not encompass the entire herd unit for any of the species. For elk and bighorn sheep, the WSA comprises a large portion of the habitat within the herd unit. For other species, such as antelope, the WSA makes up a very small portion of the habitat.

Elk

The Ferris elk herd was established through a transplant of 25 Yellowstone elk in 1963 and 1964. Since that time, the herd has dispersed throughout the Ferris and Seminoe mountains and reached the population objective of 350 animals in the late 1970s. In 1984, a slight decline to 250 animals occurred, mainly because of excessive harvest and immigration to the Green Mountains...
The segment of the herd (about 375 animals) that inhabits the Ferris Mountains WSA winters from the east fork of Pete Creek to Little Cherry Creek near the base of the mountains. However, in the most severe conditions, these animals move north toward the Sentinel Rocks and Point of Rocks where windswep t ridges are used as foraging sites. During the summer, these elk move atop the higher ridges throughout the mountain range, with a few cows and calves remaining in the lower riparian habitats and aspen stands.

**Bighorn Sheep**

Historical accounts from early explorers and settlers record the presence of bighorn sheep along the Sweetwater River, which probably included the Ferris Mountains. However, as in other areas throughout the west, this bighorn population disappeared around the turn of the century.

The first recorded attempt by the Wyoming Game and Fish Department to establish a bighorn sheep herd in the Ferris and Seminoe mountains was in February 1958, when seven animals were transplanted from the Whiskey Mountain herd near Dubois. Subsequent transplants added 13 sheep in December 1958 and 18 sheep in March 1967. A harvest was attempted in 1962 and 1963, with one legal ram taken. The season was later dis continued because of a lack of harvestable animals.

Thirty-seven bighorn sheep were released in the Seminoe Mountains in December 1976 and 19 more in 1980. During this time period, six to twelve of these sheep were thought to be residents of the Ferris Mountains. In 1985, an additional 100 bighorn sheep were released on the southwest slopes of the Ferris Mountains. Dispersion of those sheep from the release site was extensive, presumably due to the heavy snowfall that covered the release site prior to the release.

The present population estimate for this herd is 180 bighorn sheep. The management objective for this herd is 300 bighorn sheep. Lack of in-migration has been identified as a factor in the inability to reach population objectives.

Rocky Mountain bighorn sheep are characterized as mountain dwellers with a strong affinity for rugged, steep, precipitous terrain or open ridges and slopes. These animals appear to thrive on late successional mountain-grassland communities where grass and grass-like plants dominate, with some shrubs available (Longhurst 1977).

The habitat requirements for bighorn sheep seem to be keyed to good foraging sites near escape cover (terrain). These animals prefer open grassy ridgetops, slopes, or benches within 100 meters of rocky outcrops, precipitous cliffs, or steep rocky slopes. During light, powdery snowfall, steep slopes with good grass production are preferred. However, when snow conditions are trusted or past 2½ feet deep, windblown ridges

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**AFFECTED ENVIRONMENT**

TABLE 5

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>PRESENT POPULATION WITHIN THE FERRIS MOUNTAINS WSA</th>
<th>PRESENT POPULATION WITHIN THE TOTAL HERD UNIT</th>
<th>HERD UNIT OBJECTIVE</th>
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<td>Elk</td>
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<tr>
<td>Bighorn Sheep</td>
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<td>180¹</td>
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<tr>
<td>Mule deer</td>
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<td>3,800</td>
<td>5,000</td>
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</table>

¹ Wyoming Game and Fish Department annual big game herd unit reports and personal communication with Greg Hiatt, WGFDB biologist.

² Revised Ferris bighorn sheep herd, 1986 post-season population estimate 100-150 (personal communication with Greg Hiatt, WGFDB biologist).

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Raptors

Because raptors occupy a position at the top of the food chain, they are considered important nongame species. Not only do raptors serve as biological indicators of environmental quality, they also contribute to the "wilderness experience" when viewed by nonconsumptive wildlife users. The rocky cliffs that make up part of the Madison Formation in the WSA provide excellent nesting habitat for many raptors, particularly prairie falcons and golden eagles. Twelve active prairie falcon nests, three active golden eagle nests, one active Swainson's hawk nest, and one active Cooper's hawk nest have been found within the WJA. Other raptor nests are believed to occur within the WSA but intensive inventories have not been completed.
CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

ADOBE TOWN

Proposed Action (Partial Wilderness/Conflict Resolution Alternative)

Under the Proposed Action, 10,920 acres of the Adobe Town WSA would be recommended for wilderness as an alternative to oil and gas development and the resultant impacts on wilderness values.

Impacts on Wilderness Values

Wilderness values on 10,920 acres of the WSA would be protected by legislative mandates while 74,790 acres would not receive the special legislative protection provided by wilderness designation.

Under this alternative, no oil and gas activity would occur on the 8,640 acres of post-FLPMA leases and unleased land within the 10,920 acres recommended for wilderness. Wilderness values of naturalness and solitude would thus be preserved on 8,640 acres. Two wells would be located on the 4,060 acres of pre-FLPMA leases within the partial wilderness boundary. This would result in the loss of wilderness values on 84 acres of surface disturbance and an additional 236 acres adjacent to the operations within the designated portion. Little activity is expected in the short term but in the long term, development would be expected. Impacts would be further minimized because the well locations are expected to be within 1 mile of the boundary of the partial wilderness.

The 74,790 acres of the WSA recommended for nonwilderness would be open to oil and gas development. Because of the expected spacing of wells, the road and pipeline network, and other related facilities, wilderness values would essentially be lost on the entire 74,790 acres. While little oil and gas activity is expected in the short term, it is anticipated that the area would eventually reach full development. Thus, wilderness values of naturalness and solitude would be lost in the long term on the 74,790 acres recommended for nonwilderness.

An estimated 25 visitor days annually of recreational ORV use would be eliminated from the wilderness portion of the WSA. Although encounters between recreational ORV users and other recreationists are infrequent at current levels of use, the elimination of ORV use would benefit the wilderness value of solitude because visitors would not encounter or hear ORV users in the area. Beneficial impacts on naturalness would result if ORVs were negligible because current use levels are quite low.

Sights and sounds from recreational ORV use in the nondesignated portion of the WSA would have an adverse impact on solitude. The impact would be minimal because ORV use is currently estimated to be less than 175 visitor days annually. Recreational ORV use is expected to remain below 300 visitor days annually for the foreseeable future, so the long term impact of ORV use on the wilderness value of solitude would be negligible.

Conclusion: Wilderness values of naturalness and solitude would be protected on the 10,600 acres of the Adobe Town WSA. Anticipated oil and gas activity would result in the loss of wilderness values on 75,110 acres in the long term.

Impacts on Recreational Off-Road Vehicle Use

An estimated 25 visitor days annually of recreational ORV use would be eliminated from the 10,920 acres designated as wilderness under this alternative. Future opportunities would be forgone. However, the terrain of the WSA is not conducive to ORV use and there are similar or superior opportunities for ORV use on public land throughout the region. Any ORV use displaced from this portion of the WSA upon designation would be absorbed on the surrounding public land.

Proposed ORV use in the 74,790 acre nonwilderness portion of the WSA is projected to remain below 300 visitor days annually in the foreseeable future. While 490 miles of new road is anticipated in conjunction with oil and gas development, recreational ORV use is not expected to increase dramatically, primarily because of the area's isolation.

ENVIRONMENTAL CONSEQUENCES

Conclusion: Recreational ORV use is expected to remain below 300 visitor days annually in the 74,790 acres recommended for nonwilderness. ORV use of 25 visitor days annually would be eliminated from the 10,920 acres recommended for wilderness. The impact of this action on recreational ORV use in the Adobe Town WSA would be minimal because of similar or superior opportunities for ORV use on surrounding public land.

Impacts on Cultural Resources

Oil and gas development is expected to physically disturb 8,500 acres within the 74,790 acres of nonwilderness under this alternative. Cultural resource surveys would be required on the disturbed area, resulting in inventory and evaluation of an estimated 400 cultural resource sites. This represents about 10% of the total estimated number of sites in the WSA. Inventory and evaluation of these sites would enhance knowledge about the pattern of past human activity in the WSA.

However, these sites would necessarily be destroyed in the process of salvaging them prior to surface disturbance. In so doing, features that may not be important today, but could be extremely valuable in the future, would be lost. This also eliminates any of these sites from being preserved in place for future study.

In the 10,920 acres recommended for wilderness designation, surface disturbance would be minimal on all but 300 acres of pre-FLPMA leases (development). Cultural resource sites would remain largely undisturbed for future scientific study and interpretation of the resource values to the public.

Conclusion: Surface disturbance on 8,584 acres would result in the inventory and evaluation of about 10% of the WSA's cultural resource sites. This would enhance the knowledge about the pattern of past human activity in the WSA, but the sites would necessarily be destroyed and there would be no opportunity for preservation of these sites. Cultural resource sites on the remaining 77,126 acres would remain largely undisturbed for future study.

Impacts on Livestock Grazing

The Proposed Action would maintain the current level of 5,068 AUMS in the WSA. Maintenance and construction of range improvements would continue as long as that activity did not impair wilderness values.

Impacts on livestock grazing management in the portion of the WSA recommended for wilderness would be minimal because the area is essentially roadless. That portion of the Rock Springs Grazing Association Allotment within the wilderness boundary is not normally used in winter for domestic livestock because of its isolation. The Cow Creek Allotment is summer range, so vehicle use is not critical to efficient and safe operation of the area. None of the Adobe Town Allotment lies within the partial wilderness boundary. Only a small fraction of the Willow Creek Allotment lies within the wilderness boundary and its isolation makes its use impractical under any designation.

There would be no impacts on livestock grazing in areas outside of the portion of the WSA recommended for wilderness designation. Surface disturbance would be minimal on less than 1% of the total ALUs in the allotments containing the WSA.

Conclusion: The Adobe Town WSA would continue to provide 5,068 AUMS. Vehicle use would be eliminated in the portion recommended for wilderness (10,920 acres), but the effect would be minimal because this area's isolation limits its utilization in winter under any designation.

Impacts on Energy and Mineral Development

There are 4,080 acres of pre-FLPMA leases within the partial wilderness under the Proposed Action. Development is not expected on most of these leases because of the area's rugged terrain, drainage deviations, and inaccessibility. However, two wells (disturbing an estimated 84 acres) could be drilled that would be in locations of gentler slopes. Development would not occur on the 6,840 acres of post-FLPMA leases and unleased land within the partial wilderness.

That portion of the WSA not proposed for wilderness under the Proposed Action (74,790 acres) would be available for development. About 200 cultural resource sites (and the associated water and riparian areas) are located within this area. Surface disturbance would result in the loss of 84 acres of wetlands and some development would occur in locations of gentler slopes. Development would not occur on the 6,840 acres of post-FLPMA leases and unleased land within the partial wilderness.

Conclusion: The area not proposed for wilderness under the Proposed Action (74,790 acres) would be available for development. About 200 cultural resource sites would be affected by development within the area. Development would not occur on the 6,840 acres of post-FLPMA leases and unleased land within the partial wilderness.

Thus, considering the acreage undevelopable because of terrain and drainages, along with the acreage within the partial wilderness boundary, the Proposed Action would result in approximately 80% of the WSA's natural gas reserves being recovered (800 bcf).
ENVIRONMENTAL CONSEQUENCES

Conclusion: The Proposed Action would allow for recovery of 80% of the natural gas on 75,110 acres within the Adobe Town WSA.

Impacts on Paleontological Resources

Development of natural gas in 75,110 acres would result in about 8,584 acres of surface disturbance on roads, and pipelines. Except for obvious features such as bones, paleontological resources are not easily recognized by untrained individuals. Even though BLM requires that sites discovered during the course of work be reported to BLM, sites are likely to be destroyed through the failure of the operator to recognize features as important paleontological resources. There, the assimilation of the herd into adjacent areas would be easily accommodated. Overall, herd unit populations would not be significantly affected.

Conclusion: The antelope population in the Adobe Town WSA would be unaffected by the Proposed Action. Between the 74,790 acres of mule deer habitat could be lost, resulting in displacement of the herd from the WSA. However, assimilation of the herd into areas outside the WSA would be easily accommodated. Overall, herd unit populations would not be significantly affected.

Impacts on Raptors

In the 10,920 acres recommended for wilderness, succession rates for raptors would be expected to range between 45-50%. There are projected to be five active nests in this portion of the WSA. Therefore, two to three nests would produce fledglings.

In the 74,790 acres recommended for non-wilderness, fledging success rates for ferruginous hawks would be expected to decrease to 25-30%. There are projected to be 17 active nests in the non-wilderness portion of the WSA. As a result of development activities, only four to five nests would produce fledglings.

No data exist to indicate fledgling success rates for golden eagles. Because of the limited data available, the assumption would be that the success rate for golden eagles would be the same as for ferruginous hawks. Thus, in the 10,920 acres recommended for wilderness, golden eagle and prairie falcon nesting success would be the same as for ferruginous hawks. There, the assumption would be that the success rate for ferruginous hawks would be the same as for golden eagles and prairie falcons. The success rate for ferruginous hawks in the 10,920 acres recommended for wilderness would be expected to decrease to 25-30%.

Conclusion: Under the Proposed Action, between six and eight active ferruginous hawk nests (out of a total 22) would produce fledglings. Fledgling success rates for golden eagles and prairie falcons would remain unchanged.

Impacts on Antelope and Mule Deer

In the 10,920 acres recommended for wilderness designation under the Proposed Action, the loss of antelope and mule deer habitat would be insignificant. The two natural gas fields would not significantly reduce the amount of habitat available to these two species.

In the 74,790 acres not recommended for wilderness designation, there would be a temporary loss of 8,500 acres of antelope habitat during oil and gas operations. There would also be some increased stress on a small area of antelope crucial winter range. In light of the antelope’s ability to habitually visit the area, the amount of habitat loss or increased stress on crucial winter range would not significantly affect the antelope population.

Mule deer would experience an effective habitat loss of 74,790 acres. This includes the actual surface disturbance and avoidance zones around areas of concentrated human activity. Development activities could displace the herd from the entire WSA or could concentrate the population into the 10,920-acre portion recommended for wilderness. However, the number of mule deer within the WSA is small compared to the total herd unit, and crucial winter range is not involved. Further, additional habitat is available in adjacent areas outside of the WSA. Therefore, assimilation of the herd into adjacent areas would be easily accommodated. Overall, herd unit populations would not be significantly affected.

Conclusion: The antelope population in the Adobe Town WSA would be unaffected by the Proposed Action. Between the 74,790 acres of mule deer habitat could be lost, resulting in displacement of the herd from the WSA. However, assimilation of the herd into areas outside the WSA would be easily accommodated. Overall, herd unit populations would not be significantly affected.

ENVIRONMENTAL CONSEQUENCES

No Action - No Wilderness

Under the No Action - No Wilderness Alternative, the entire 85,710 acre Adobe Town WSA would be recommended for non-wilderness uses. The primary impacts of this alternative relate to impacts on wilderness values from oil and gas development.

Impacts on Wilderness Values

The entire WSA would be recommended for non-wilderness designation and none of the wilderness values on 85,710 acres would be affected. Thus, paleontological resources would be destroyed without any knowledge of the sites’ existence. Conversely, paleontological resources on the 72,126 acres recommended for wilderness would remain largely undisturbed and would be available for scientific study.

Conclusion: Destruction of paleontological resources would occur on 8,584 acres due to development of oil and gas resources. Paleontological resources would remain largely undisturbed on 77,126 acres because there would be no surface disturbance from oil and gas activities.

Impacts on Livestock Grazing

There would be no adverse impacts on livestock grazing under this alternative. There would continue to be 5,068 AUMs, 1,000 more than in the WSA. Surface disturbance would result in a loss of less than 1% of the total AUMs containing the WSA. Continued oil and gas exploration and development would result in improved year-round motor vehicle access and facilitate yearlong grazing of livestock. Maintenance of existing range improvements would be facilitated by this alternative.

Conclusion: The WSA would continue to provide 5,068 AUMs. There would be improved year-round motor vehicle access which would facilitate yearlong grazing of livestock.

Conclusion: While more of the WSA would be accessible, ORV use is projected to remain below 300 visitor days in the foreseeable future. There would be no significant impact to recreational ORV use.

Impacts on Cultural Resources

Oil and gas development is expected to physically disturb 9,075 acres within the 85,710 acre WSA, under the No Wilderness Alternative. Cultural resource surveys would be required on the disturbed acreage, resulting in inventory and evaluation of 425 cultural resource sites. This represents about 11% of the estimated total number of sites in the WSA. While little oil and gas activity would be essential to be lost in the entire WSA, little oil and gas activity would be expected to result in the short term. It is anticipated that the WSA would eventually reach full development.

Conclusion: There would be some enhancement to the process of salvaging sites would be considered. In the future, there would be more sites being salvaged in place for future study. Sites on 78,635 acres would remain largely undisturbed for future study.

Conclusion: The 425 cultural resource sites would be evaluated under the No Wilderness Alternative. This would provide important information regarding historical activity in the WSA. However, some sites would not be able to be salvaged in place and would be valuable for protection of these sites on 76,635 acres would remain largely undisturbed for future study.

Conclusion: The 425 cultural resource sites would continue to be evaluated under the No Wilderness Alternative. This would provide important information regarding historical activity in the WSA. However, some sites would not be able to be salvaged in place and would be valuable for protection of these sites on 76,635 acres would remain largely undisturbed for future study.

Conclusion: While more of the WSA would be accessible, ORV use is projected to remain below 300 visitor days in the foreseeable future. There would be no significant impact to recreational ORV use.

Impacts on Cultural Resources

Oil and gas development is expected to physically disturb 9,075 acres within the 85,710 acre WSA, under the No Wilderness Alternative. Cultural resource surveys would be required on the disturbed acreage, resulting in inventory and evaluation of 425 cultural resource sites. This represents about 11% of the estimated total number of sites in the WSA. While little oil and gas activity would be essential to be lost in the entire WSA, little oil and gas activity would be expected to result in the short term. It is anticipated that the WSA would eventually reach full development.

Conclusion: There would be some enhancement to the process of salvaging sites would be considered. In the future, there would be more sites being salvaged in place for future study. Sites on 78,635 acres would remain largely undisturbed for future study.

Conclusion: The 425 cultural resource sites would be evaluated under the No Wilderness Alternative. This would provide important information regarding historical activity in the WSA. However, some sites would not be able to be salvaged in place and would be valuable for protection of these sites on 76,635 acres would remain largely undisturbed for future study.

Conclusion: The 425 cultural resource sites would continue to be evaluated under the No Wilderness Alternative. This would provide important information regarding historical activity in the WSA. However, some sites would not be able to be salvaged in place and would be valuable for protection of these sites on 76,635 acres would remain largely undisturbed for future study.
ENVIRONMENTAL CONSEQUENCES

Impacts on Energy and Minerals

All lands within the Adobe Town WSA (85,710 acres) would be open to oil and gas leasing. Oil and gas development is not expected to occur, however, on areas exceeding 25% slope or within 500 feet of surface water and riparian areas because of the impacts of developing in these areas. Thus, 15% of the land within the Adobe Town WSA would not be recoverable under the No Wilderness Alternative while 85% of the area would be recoverable. This is estimated to be 850 billion cubic feet (bcf) of gas and represents the maximum recoverable gas in the Adobe Town WSA.

Conclusion: The No Wilderness Alternative would allow for the maximum recovery of gas (85% or 850 bcf) in the Adobe Town WSA.

Impacts on Paleontological Resources

Under the No Wilderness Alternative, development of natural gas in the entire 85,710 acres of the WSA would result in about 9,075 acres of surface disturbance due to drill pads, roads, and pipelines. Except for obvious features such as bones, paleontological resources are not easily recognized by untrained individuals. Even though BLM requires that sites discovered during the course of work be reported to BLM, sites may be destroyed through the failure of the operator to recognize features as important paleontological remains. Therefore, paleontological resources on the 9,075 acres could be destroyed without any knowledge of the site's existence.

Displacement of paleontological resources would occur on 9,075 acres of the WSA due to development of oil and gas resources.

Impacts on Antelope and Mule Deer

Impacts on antelope and mule deer, under the No Wilderness Alternative, would be similar to those described in the Proposed Action, except that the possibility of concentrating mule deer within the WSA to avoid development activities would be eliminated. Displacement of animals to areas outside the WSA would be easily accommodated.

Conclusion: There would be no significant impacts to antelope and mule deer. Displacement of mule deer would be easily accommodated in areas adjacent to the WSA.

Impacts on Raptors

Because of the wide distribution of projected natural gas development, ferruginous hawk fledgling success rates would be expected to be between 25-30% throughout the entire Adobe Town WSA. With 22 active nests projected in the WSA, only five to six would produce fledglings. No data exist to indicate fledgling success rates for golden eagles and prairie falcons. It is assumed that survival rates for these two species would decrease to an unknown level, but because they are more tolerant of human activity, the success rate would not drop as low as that for ferruginous hawks.

Conclusion: Between five and six active ferruginous hawk nests would allow a total of 22 in the entire WSA. Fledgling success rates for golden eagles and prairie falcons would decrease to an unknown level, but would not drop as low as that for ferruginous hawks.

Partial Wilderness-2

Under the Partial Wilderness-2 Alternative, 16,280 acres of the Adobe Town WSA would be recommended for wilderness while the remaining 69,430 acres would be recommended for nonwilderness uses. The primary impacts under this alternative relate to oil and gas development and the resultant impacts on wilderness values.

Impacts on Wilderness Values

Wilderness values on the 16,280 acres recommended for wilderness would be protected by legislative mandate, except for 1,280 acres of existing pre-FLPMA leases within the partial wilderness boundary. The 1,280 acres of pre-FLPMA leases are physically capable of being developed and because of the valid existing rights, development thereon is expected. The end result is that the wilderness values of naturalness and solitude would be sustained on only 15,000 acres in the partial wilderness boundary, while naturalness and solitude would be lost on 1,280 acres within the partial wilderness boundary. Little activity is anticipated in the short term, but in the long term full development is expected so wilderness values would eventually suffer.

There would be no special legislative protection for wilderness values in the 69,430 acres recommended for nonwilderness under this alternative.

Because of the anticipated development pattern, oil and gas activity (well spacing, roads, pipelines, and related facilities), wilderness values of naturalness and solitude would essentially be lost on the entire 69,430 acres. While little oil and gas activity is expected in the short term, it is anticipated that these activities would eventually reach full development. Thus, wilderness values of naturalness and solitude would be lost in the long term on the 69,430 acres recommended for nonwilder-

An estimated 50 visitor days annually of recreational ORV use would be eliminated from the wild-

Recreational ORV use on the 69,430 acre nonwilder-

Recreational ORV use on the 69,430 acre non-wilderness portion of the WSA is projected to remain below 200 visitor days annually for the foreseeable future. The road would be anticipated in conjunction with oil and gas develop-

Recreational ORV use is not expected to increase dramatically, primarily because of the area's isolation.

Conclusion: Recreational ORV use is expected to remain below 200 visitor days annually in the 69,430 acres recommended for nonwilderness. Recreational ORV use of 50 visitor days annually would be eliminated from the 16,280 acres recommended for wilderness. The impact of this action on recreational ORV use in the Adobe Town WSA would not be minimized because of the remote location of similar or superior opportunities for ORV use on surrounding public land.

Impacts on Cultural Resources

Oil and gas development is expected to physically disturb 7,870 acres combined within the 69,430 acres of nonwilderness and the 1,280 acres of pre-FLPMA leases in the partial wilderness under this alternative. Cultural resource surveys would be required on the disturbed acreage resulting in inventory and evaluation of an estimated 370 cultural resource sites. This represents about 9% of the estimated total number of sites in the WSA. Inventory and evaluation of these sites would enhance knowledge about the pattern of past human activity in the WSA. However, these sites would need to be preserved in the process of salvaging them prior to surface disturbance. In so doing, features that may not be important today, but can be extremely valuable in the future, would be lost. This also eliminates any of these sites from being preserved in place for future study.

In the 16,280 acres recommended for wilderness, no oil and gas activity or other surface disturbance would occur on 15,000 acres. Cultural resource sites on the 15,000 acres would remain largely undisturbed for future scientific study and interpretation of the resource values to the public.

Conclusion: Surface disturbance on 7,870 acres would result in the inventory and evaluation of about 9% of the WSA's cultural resource sites. This would enhance the knowledge about the pattern of past human activity in the WSA, but the sites would necessarily be destroyed, and there would be no opportunity for preservation of these sites. Cultural resource sites on the remaining 77,840 acres would remain largely undisturbed for future study.
Impacts on Livestock Grazing

The Partial Wilderness-2 Alternative would not result in the removal of livestock in the number of livestock utilizing the WSA. Maintenance and construction of range improvements would continue as that activity did not impair wilderness values. In general, motor vehicle access would only be allowed in emergencies and on special occasions, not for feeding, moving, or checking livestock. In the part of the WSA not recommended for wilderness designation, there would be no restrictions.

Impacts on livestock grazing would be minimal in the portion of the WSA recommended for wilderness under this alternative. That portion of the Rock Springs Grazing Association Allotment within the partial wilderness boundary is not normally grazed by domestic sheep in the winter because of the Cow Creek Allotment is summer range so vehicle use is not critical to efficient and adequate use of the allotment. None of the Adobe Town Allotment lies within the partial wilderness boundary. A small part of the Willow Creek Allotment lies within the partial wilderness boundary, but its isolation makes it use impractical under any designation.

There would be no impacts on livestock grazing in the area recommended for nonwilderness under this alternative. Surface disturbance would result in a loss of less than 1% of the total AUMs in the allotment containing the WSA.

Conclusion: There would be minimal impacts on livestock grazing within the partial wilderness boundary. There would be no reduction of livestock, and the partial wilderness isolation limits its utilization in winter under any designation. There would be no impacts on livestock grazing in the nonwilderness portion of the WSA.

Impacts on Energy and Mineral Development

The 69,430 acres of the WSA recommended for nonwilderness would be open to oil and gas leasing. In addition, 1,280 acres of pre-FLPMA leases within the partial wilderness under this alternative would be open to development. This alternative would result in increased oil and recovery of 72% of the gas (720 bcf) within the Adobe Town WSA.

There would be no oil and gas development on the remaining 15,000 acres within the partial wilderness boundary. In the nonwilderness portions where the slope exceeds 25% and which lie within 500 feet of surface water and riparian areas, no development would occur unless an approved plan of development could show that there would be no significant impacts on other resource values. Thus, 28% of the gas within the WSA would be unresourceable under this alternative.

Conclusion: This alternative would allow for recovery of 72% (720 bcf) of the gas on 70,710 acres within the Adobe Town WSA.

Impacts on Paleontological Resources

Development of natural gas in the 69,430 acres recommended for nonwilderness uses and the 1,280 acres of pre-FLPMA leases in the wilderness portion would result in about 7,870 acres of surface disturbance due to drill pads, roads, and pipelines. Except for obvious features such as bones, paleontological resources are not easily recognized by untrained individuals. BLM requires that sites discovered during the course of work be reported to BLM. Sites are likely to be destroyed through the failure of the operator to recognize features as important paleontological remains. Therefore, paleontological resources on 7,870 acres could be destroyed without any knowledge of the sites' existence. Conversely, paleontological resources on 77,840 acres would remain undisturbed and would be available for scientific study.

Conclusion: Destruction of paleontological resources would occur in the nonwilderness portion due to development of oil and gas resources. Paleontological resources would remain largely undisturbed because there would be no surface disturbance from oil and gas activities.

Impacts on Antelope and Mule Deer

Impacts on antelope and mule deer would be similar to those described for the Proposed Action. Antelope would habituate to increased human activity and would be essentially unaffected. Mule deer would disperse from the nonwilderness portion (69,430 acres) into the wilderness portion (16,280 acres) to areas outside the WSA. These areas could easily accommodate the displaced animals.

Conclusion: There would be no significant impacts on antelope or mule deer. Displacement of mule deer would be easily accommodated.

Impacts on Raptor

Impacts on raptors would be similar to those described under the Proposed Action, except that naturally occurring fledgling success rates would occur on 16,280 acres within the area recommended for wilderness. There are projected to be four active ferruginous hawk nests in the suitable portion of the WSA; therefore, two nests would produce fledglings. On the nonwilderness portion, ferruginous hawk fledgling success rates would be expected to decrease to 25-30%. Of the 18 active nests projected to be in this portion of the WSA, only four to five would produce fledglings.

No data exist to indicate fledgling success rates for golden eagles or prairie falcons. It is known, however, that these two species are more tolerant of human disturbance than are ferruginous hawks. Thus, in the 16,280 acres recommended for nonwilderness, golden eagles and prairie falcons would produce fledgling success rates that would be occurring naturally. In the nonwilderness portion, fledgling success rates for golden eagles and prairie falcons would decrease to an unknown rate, but would probably not decrease to the same degree as for ferruginous hawks.

Conclusion: Under the Partial Wilderness-2 Alternative, between four and five active ferruginous hawk nests (out of a total of 22) would produce fledglings. Fledgling success rates for golden eagles and prairie falcons would remain the same in the 16,280 acres recommended for wilderness. In the 69,430 acres of nonwilderness, fledgling success rates for these two species would decrease to an unknown level, but would probably not decrease to the same degree as for ferruginous hawks.

All Wilderness

Under this alternative, the entire 85,710 acres of the Adobe Town WSA would be recommended for wilderness designation. The primary impacts here relate to oil and gas development on pre-FLPMA leases and the resultant impacts on wilderness values.

Impacts on Wilderness Values

Wilderness values on 85,710 acres of the WSA would be given the special legislative protection afforded to designated wilderness, except for 39,300 acres of pre-FLPMA leases within the WSA. These 39,300 acres would be open to oil and gas leasing and development because of the valid existing rights of pre-FLPMA oil and gas leases. Because of the spacing of wells, roads, and pipeline network, and related facilities, wilderness values would essentially be lost on 39,300 acres of designated wilderness under this alternative.

While little oil and gas activity is expected in the short term, it is expected that the area would eventually reach full development. Thus, wilderness values of nonwilderness WSA would be lost in the long term on 39,300 acres.

An estimated 200 visitor days annually of recreational ORV use would be eliminated from the WSA. While there would be 215 miles of new road associated with oil and gas development, these would be open to authorized vehicles (well operators and BLM inspectors) only. Thus, there would be no increase in recreational ORV use because of new roads. Although encounters between recreational ORV users and other recreationists are infrequent at current use levels, the increased ORV activity would reduce the wilderness value of solitude because visitors would not encounter or hear ORV users in the WSA.

Conclusion: Under the All Wilderness Alternatives, the wilderness boundary would be extended only on 46,410 acres. Wilderness values would essentially be lost on 39,300 acres of pre-FLPMA leases in a designated wilderness. While elimination of recreational ORV use would enhance opportunities for solitude, oil and gas activity on pre-FLPMA leases would be beneficial to maintain appropriate levels on 39,300 acres.

Impacts on Recreational Off-Road Vehicle Use

An estimated 200 visitor days annually of ORV use would be eliminated from the existing WSA. Future opportunities would be forgone. However, there are similar or superior opportunities for ORV use on public lands throughout the region. Any ORV use displaced from the WSA would be absorbed on the surrounding public land.

Conclusion: Recreational ORV use of 200 visitor days annually of ORV use would be forgone, the impacts of displacing this use to other nonwilderness public land would be negligible.

Impacts on Cultural Resources

Oil and gas activity is expected to physically disturb 3,750 acres within the 39,300 acres of pre-FLPMA leases under this alternative. Cultural resource surveys would be conducted on the disturbed acreage, resulting in inventory and evaluation of an estimated 175 cultural resource sites. This is about 4% of the estimated total number of sites in the WSA. Inventory and evaluation of these sites would enhance knowledge about the pattern of past human activity in the WSA.
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However, these sites would necessarily be destroyed by the process of salvaging them prior to surface disturbance. In so doing, features that may not be important today, but could be extremely valuable in the future, would be lost. This also eliminates any of these sites from being preserved for future study. Sites on 35.550 acres would remain largely undisturbed for future study.

In the remaining 46,410, no oil and gas activities or other surface disturbance would occur. Cultural resource sites would remain largely undisturbed for future scientific study and interpretation of the resource values to the public.

Conclusion: Oil and gas activity on 39,300 acres of pre-FLPMA leases would disturb 3,750 acres. Cultural resource surveys on these 3,750 acres would result in the inventory and evaluation of about 4% of the WSA's cultural resource sites. While enhancing the knowledge about the pattern of past human activity in the WSA, the sites would necessarily be destroyed and there would be no opportunity to preserve these cultural resource sites would remain largely undisturbed for future study on 81,860 acres.

Impacts on Livestock Grazing

The WSA would continue to provide 5,068 AUMS. Existing range improvements could be maintained and new ones could be constructed, as long as they conform with the Wilderness Management Policy. None are currently planned for the area. Motor vehicle access would not be allowed.

Wilderness designation would make the operators’ management of livestock in the WSA more difficult. While they could monitor their sheep by horseback and move their sheep wagons by horse in the WSA, this becomes much more difficult and risky in the winter if it were done with a motorized vehicle. The result may be that the livestock operator may choose to take voluntary nonuse of the WSA. This could affect up to 3,893 AUMS or 4% of the total AUMS in the Rock Springs Grazing Association Allotment and the Willow Creek Allotment. Motor vehicle access in the Cow Creek Allotment is not that critical because it is summer range. Very little of the Adobe Town Allotment is in the WSA and what is in the WSA is easily accessible by a road along the WSA's eastern boundary. Therefore, it would only be manifested in the Rock Springs Grazing Association Allotment and the Willow Creek Allotment.

Conclusion: Designation of the entire Adobe Town WSA (85,710 acres) would make improvements of livestock by the operators more difficult by eliminating vehicle use. This could result in operators taking voluntary nonuse of 3,893 AUMS in the Rock Springs Grazing Association Allotment and the Willow Creek Allotment. The Adobe Town Allotment and the Cow Creek Allotment would be unaffected by this action.

Impacts on Energy and Mineral Development

Under the All Wilderness Alternative, 39,300 acres of existing pre-FLPMA leases would remain open for oil and gas development. Given constraints due to steep slopes, surface, water, and riparian areas, this would result in about 89 wells, recovering 35% of the gas within the Adobe Town WSA. There would be no oil and gas development on the remaining 46,410 acres of the WSA. Thus, 55% of the gas in the Adobe Town WSA would be unrecoverable under this alternative. Table 6 illustrates the comparative summary of the amount of natural gas recoverable under each of the four alternatives.

Conclusion: The All Wilderness Alternative would allow for the recovery of 35% of the gas within the Adobe Town WSA.

Table 6

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Percent of Gas Recoverable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Action¹</td>
<td>80</td>
</tr>
<tr>
<td>Partial Wilderness</td>
<td>80</td>
</tr>
<tr>
<td>No Wilderness²</td>
<td>85</td>
</tr>
<tr>
<td>All Wilderness¹</td>
<td>35</td>
</tr>
<tr>
<td>Partial Wilderness²</td>
<td>72</td>
</tr>
</tbody>
</table>

¹ Includes most of the area that is impractical to develop
² Not 100% gas recovery because of areas of steep slopes, drainage, and inaccessible
³ Assumes development on 37,790 acres of pre-FLPMA leases except in areas of steep slopes, drainage, and inaccessible
⁴ Assumes development on 1,280 acres of pre-FLPMA leases

Impacts on Paleontological Resources

Development of natural gas in the 39,300 acres of pre-FLPMA leases would result in about 3,750 acres of surface disturbance due to drill pads, roads, and pipelines. Except for obvious features such as bones, paleontological resources are not easily recognized by untrained individuals. Even though BLM requires that sites discovered during the course of work be reported to BLM, sites are likely to be destroyed through the failure of the operator to recognize features as important paleontological remains. Therefore, paleontological resources on 3,750 acres could be destroyed without any knowledge of the sites’ existence. Consequently, all paleontological resources on the remaining acres would remain undisturbed and would be available for scientific study.

Conclusion: Destruction of paleontological resources would occur on 3,750 acres due to development of oil and gas resources. Paleontological resources would remain largely undisturbed on the remaining acres because there would be no surface disturbance from oil and gas activities.

Impacts on Antelope and Mule Deer

Under the All Wilderness Alternative, surface disturbance would be significantly reduced. As a result, there would be no impacts on antelope. The developments would be sufficiently spread out so that little, if any, displacement of mule deer would occur.

Conclusion: There would be no significant impact on antelope and mule deer. Antelope would not be affected. Little, if any, displacement of mule deer would occur.

Impacts on Raptors

Under the All Wilderness Alternative, development activities would occur only in the 39,300 acres of pre-FLPMA leases on which development is developed. Because development would be somewhat less concentrated than in nonwilderness, fledging success for ferruginous hawks would be expected to be about 35-40%. There are projected to be 12 active ferruginous hawk nests in the 39,300 acres of pre-FLPMA lease. Therefore, between four and five would produce fledglings. Success rates of ferruginous hawks in the remainder of the WSA (46,410 acres) would be between rates of 45-55%. Here, of the 10 nests projected to be in the area, about five would produce fledglings.

Conclusion: Under the All Wilderness alternative, nine to ten active ferruginous hawk nests (out of 22 total) would produce fledglings. Success rates for golden eagles and prairie falcons would remain essentially unchanged from that normally found in nature.

FERRIS MOUNTAINS

Proposed Action (All Wilderness)

Under the Proposed Action, the entire Ferris Mountains WSA (22,245 acres) would be recommended for wilderness designation. The primary impacts of this action relate to wilderness designation and the resultant forgone opportunities for mineral development and timber harvest.

Impacts on Wilderness Values

Wilderness values on 22,245 acres (the entire WSA) would be given the special legislative protection afforded to designated wilderness. No timber harvesting would occur. The entire area would be withdrawn from all forms of mineral entry and leasing. Current uses of the 160-acre private inholdings in the WSA are compatible with wilderness and are not projected to change. Therefore, there would be no adverse effects to wilderness values adjacent to the inholding.

The 800 acres of prescribed burns would have the appearance of natural fire in the short term, and would be essentially unnoticeable in the long term. As a result, prescribed burns would not adversely affect wilderness values.

An estimated 10 visitor days annually of recreational ORV use would be eliminated by wilderness designation. Although encounters between ORV users and other recreationalists are infrequent at current levels of use, the elimination of ORVs’ wilderness values would be negligible because of solitude because visitors would not encounter or hear ORV users in the area. Beneficial impacts on human recreation would only be undermined by the absence of ORVs.

No data exist to indicate fledging success rates for golden eagles or prairie falcons. Because these two species are more tolerant of human activity than are ferruginous hawks, and because they would not be relocated to the WSA, their potential for disturbance would not be assessed. Little, if any, displacement of mule deer would result.
ENVIRONMENTAL CONSEQUENCES

Conclusion: Wilderness values of naturalness and solitude would be protected on the entire 22,245-acre Ferris Mountains WSA.

Impacts on Recreational Off-Road Vehicle Use

An estimated 10 visitor days annually of recreational ORV use would be eliminated from the entire 22,245 acres of the WSA. Future opportunities would be forgone. However, there are similar or superior opportunities for ORV use on public land throughout the region. Any ORV use displaced from the WSA upon wilderness designation would be absorbed with no consequence on surrounding public land.

Conclusion: Recreational ORV use of 10 visitor days annually would be forgone, the impacts of displacing this use to other non-wilderness public land would be negligible.

Impacts on Forest Management Actions

By designating the WSA as wilderness, post and pole harvest opportunities on 1,000 acres of commercial timber would be forgone. Approximately 8 MMBF over the next 50 to 100 years would be forgone. There are no timber sales planned in the WSA. However, there would be no short term impacts on timber harvesting due to wilderness designation.

Impacts on Energy and Mineral Development

The entire WSA would be withdrawn from mineral leasing. No interest has been shown in drilling within the WSA, and it has been identified as having low potential. Future opportunities to explore for oil and gas resources on 22,245 acres would be forgone.

The entire area would be withdrawn from mineral entry. Prior to commencing work on the existing claims in the WSA, a validity examination must show that the claims hold sufficient quantity and quality of material so that a prudent man could expect a reasonable return on investment. For purposes of analysis, it is assumed that the existing claims within the WSA would not pass a validity examination and thus, could not be developed.

Conclusion: Opportunities to explore for and develop potential, locatable mineral deposits would be forgone. However, there is low potential for locatable minerals, so no production would be forgone. There would be no oil and gas development activities.

Impacts on Elk and Bighorn Sheep

There would be no surface disturbance on 22,245 acres under the Proposed Action. Exclusion of activities such as road building and timber harvest would help ensure long-term preservation of elk and big horn sheep habitat throughout the WSA. Prescribed burns would improve forage quality on 600 acres of big horn sheep habitat. This could double the number of animals utilizing the WSA to 120.

Conclusion: Exclusion of roads and timber harvests would help ensure long-term protection of elk and big horn sheep habitat on 22,245 acres. The sheep population in the WSA is expected to double from 60 to 120.

Impacts on Raptors

The Proposed Action would provide long-term protection of nesting habitat for raptors. Nest failure rates for golden eagles, prairie falcons, and other raptors would be that typically expected for a relatively undisturbed area.

Conclusion: Long-term protection of nesting habitat would be provided on 22,245 acres of the Ferris Mountains WSA.

No Wilderness/No Action Alternative

Under this alternative, the entire 22,445 acres of the WSA would be recommended for non-wilderness use. The primary impacts under this alternative relate to timber harvest and the resultant impacts on wilderness values.

Impacts on Wilderness Values

The entire WSA would be recommended non-suitable for wilderness designation and none of the wilderness values on 22,245 acres would receive the special legislative protection provided wilderness designation. In the long term, harvest of 8 MMBF of commercial timber over the next 50 to 100 years would adversely affect wilderness values.

The 600 acres of prescribed burns would have the appearance of an ongoing fire in the short term and would be essentially unnoticeable in the long term. As a result, the prescribed burns would not adversely affect wilderness values.

Timber harvest over the next 50 to 100 years would result in the wilderness value of naturalness being lost on 1,000 acres consisting of the timber sale areas and new roads. Further, the perception of naturalness would be adversely impacted on an additional 2,950 acres surrounding the timber activity, the area in which at least some portion of the man-caused development could be seen by a casual visitor. Impacts would include noise of the logging equipment, the new roads, and the equipment itself while the timber was being harvested. The aftermath of timber harvest (roads, stumps, and slash) would also adversely impact naturalness. The end result is 4,000 acres on which the wilderness values of naturalness would be either lost or impaired.

The wilderness value of solitude would be similarly impaired but essentially only during the period of active timber harvest. Sights and sounds of the logging operation would reduce the feeling of solitude while logging took place. Afterwards, the impact to solitude would be negligible.

Current uses of the 160-acre private inholding and adjacent state and private lands are not projected to change. Therefore, there would be no adverse effects to wilderness values adjacent to the state and private lands.

Assessment work on the four existing lode claims on the eastern side of the WSA would result in the wilderness value of naturalness being lost on 100 acres of the WSA. Impacts from visual ground disturbance, new roads, and machinery would adversely affect wilderness values on 100 acres. No oil and gas activity is expected, so no impacts would occur.

Other recreation uses would increase slightly but would remain at 7,750 visitor days annually, primarily for the foreseeable future. This increase would not significantly impact opportunities for solitude.

Conclusion: The wilderness values of naturalness and solitude in the Ferris Mountains WSA would be lost or impaired on 4,100 acres in the long term due to timber harvesting and mineral development. No timber sales or mining development plans are in the WSA, so there would be no short-term impacts on wilderness values caused by timber harvests.

Impacts on Recreational Off-Road Vehicle Use

As a result of the ORV closure, an estimated 10 visitor days annually of recreational ORV use would be eliminated from the entire 22,445 acres of the WSA. The 7.5 miles of new road associated with timber harvest would not be accessible to recreational ORV users. There would be no increase in accessibility.

Conclusion: There would be no increase in accessibility in the WSA. Recreational ORV use of 10 visitor days annually would be forgone. There would be no significant impacts on recreational ORV use.

Impacts on Forest Management Actions

With this alternative, 8 MMBF of primarily post and pole commercial timber on 1,000 acres would be harvested in the next 50 to 100 years. Other intensive forest management activities could occur on the remaining 8,000 acres of forested land in the WSA. The forested land would be managed to produce a sustained yield over the long term.

Conclusion: Timber harvest on 1,000 acres would occur under this alternative, resulting in 8 MMBF of posts and poles cut over the next 50 to 100 years. No short-term impacts would be seen by a casual visitor. There would be no significant impacts on forest management practices that could occur in the WSA.

Impacts on Energy and Mineral Development

The entire Ferris Mountains WSA (22,245 acres) would be open to mineral entry and leasing. All of the WSA would be available for oil and gas exploration and development, except for areas in excess of 25% slope or within 500 feet of surface water and riparian areas. However, no interest has been shown in drilling within the WSA and the area has low potential, so no activity is expected.

Conclusion: The entire Ferris Mountains WSA would be open to locatable mineral entry. Assessment work on the existing lode claims would continue. However, there is a low potential for locatable minerals in the WSA, so no development of these claims is expected.

Conclusion: Potential energy and mineral resources would be available for development. There is low potential for such resources in the WSA so no development is expected.
ENVIRONMENTAL CONSEQUENCES

Impacts on Elk and Bighorn Sheep

Under the No Wilderness Alternative, timber harvesting would occur. Small quantities of habitat would be lost until disturbed areas were reclaimed or harvest activities ended. However, because harvests would not occur while the animals are on the crucial winter ranges, and because roads built would be used only for harvest activities, there would be no significant impacts to either of these species. Prescribed burns would improve forage quality on 600 acres of bighorn sheep habitat, thus doubling the number of sheep utilizing the WSA to 120.

Conclusion: About 600 acres of bighorn sheep habitat would be improved by burning, thus doubling the sheep population in the WSA.

Impacts on Raptors

Under the No Wilderness Alternative, timber harvesting would occur, but would not be allowed during the raptors' nesting periods. Stipulation 2b. (see Appendix) would be applied to all timber sales to protect nesting raptors. As a result, raptors would not be significantly affected. Additionally, new roads built for timber harvest activities could not be open to the general public. There could be no increase in vehicle traffic and thus, no impact to raptors. A natural nest failure rate for golden eagles, prairie falcons, and other raptors would be expected.

Conclusion: Because of restrictions to timber harvesting during nesting periods, there would be no significant impacts to raptors under the No Wilderness Alternative.

Enhanced Wilderness Alternative

With this alternative, the entire 22,245 acres of the WSA would be recommended for wilderness. Additionally, 1,800 acres of adjacent state and private lands would be proposed for acquisition through exchange or purchase and incorporated into the designated wilderness. The predicted impacts here relate to forgone opportunities for mineral development and timber harvest and the enhancement of wilderness values on a larger acreage.

Impacts on Wilderness Values

Wilderness values on 24,045 acres (the entire WSA and added acreage) would be given the special legislative protection provided by wilderness designation. No timber harvesting would occur. The entire area would be withdrawn from all forms of mineral entry and leasing.

Current uses of the 160-acre private inholding and the 1,640 acres of state and private land identified for inclusion are compatible with wilderness and are not projected to change. Therefore there are no anticipated beneficial impacts on wilderness values from the conversion of the 1,640 acres into the designated wilderness, official designation would be the only method to assure that wilderness values on the additional acreage would be maintained in the long term.

The 600 acres of prescribed burns would have the appearance of natural fire in the short term, and would be essentially unnoticeable in the long term. As a result, the prescribed burns would not adversely affect wilderness values.

An estimated 10 visitor days annually of recreational ORV use would be eliminated from wilderness designation. Although encounters between ORV users and other recreationists are infrequent at current levels of use, the elimination of ORVs would benefit the wilderness value of solitude because visitors would not encounter or hear ORV users in the area. Beneficial impacts on naturalness would be negligible because current use levels are low.

Conclusion: Wilderness values of naturalness and solitude would be protected on 24,045 acres of the expanded wilderness.

Impacts on Recreational Off-Road Vehicle Use

An estimated 10 visitor days annually of recreational ORV use would be eliminated from the expanded 24,045-acre WSA. Future opportunities would be forgone. However, there are similar or superior opportunities for ORV use on public land throughout the region. Any ORV use displaced from the WSA upon wilderness designation would be absorbed with no consequence on surrounding public land.

Conclusion: Recreational ORV use of 10 visitor days annually would be forgone. The impact of placing this use to other nonwilderness public land would be negligible.

Impacts on Forest Management Actions

By designating the WSA as wilderness, timber harvest opportunities on 1,900 acres of commercial timber would be forgone. Approximately harvest of 8 MMFB of posts and poles over the next 50 to 100 years would be forgone. There are no timber sales planned in the WSA, so there would be no short term effects on timber harvesting due to wilderness designation.

Conclusion: Wilderness designation of the expanded area (24,045 acres) would forgive timber harvest of 8 MMFB over the next 50 to 100 years. No timber sales are planned in the near future in the WSA, so there would be no short-term impacts due to wilderness designation.

Impacts on Energy and Mineral Development

The entire expanded WSA would be withdrawn from mineral leasing. Interest has been shown in drilling within the WSA, and it has been identified as having low potential. Future opportunities to explore for and develop oil and gas resources on 24,045 acres would be forgone.

The entire area would be withdrawn from mineral entry. Prior to commencing work on the existing claims in the WSA, a validity examination must show that the claims hold sufficient quantity and quality of material so that a producer would expect a reasonable return on his investment. For purposes of analysis, it is assumed that the existing claims within the WSA would not pay a validity examination and thus, could not be developed. Other, as yet, undiscovered energy and mineral resources could not be developed.

Conclusion: Opportunities to explore for and develop potential locatable mineral deposits would be forgone. However, there is low potential for locatable minerals, no production would be forgone. There would be no oil and gas development activities.

Impacts on Elk and Bighorn Sheep

Impacts on elk and bighorn sheep under the Enhanced Wilderness Alternative would be the same to those described for the Proposed Action, except that long-term preservation of habitat would occur on 24,045 acres. Because this alternative would ensure that development activities would be excluded on the expanded acreage (none are planned), additional elk and bighorn sheep habitat would be preserved in the long term. Prescribed burns would improve forage quality on 600 acres of bighorn sheep habitat, thus doubling the number of sheep utilizing the WSA to 120.

Conclusion: Long-term preservation of elk and bighorn sheep habitat would occur on 24,045 acres. About 600 acres of bighorn sheep habitat would be improved by burning, thus doubling the sheep population in the WSA.

Impacts on Raptors

Under the Enhanced Wilderness Alternative, impacts on raptors would be similar to those described under the Proposed Action, except that long-term protection of nesting habitat would be increased to a total of 24,045 acres. Naturally occurring nest failures for golden eagles, prairie falcons, and other raptors would be expected.

Conclusion: Long-term protection of raptor nesting habitat would be increased to 24,045 acres under the Enhanced Wilderness Alternative.

RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

If a WSA is not designated wilderness, all present, short-term uses would continue. Off-road vehicle use, timber harvest, mining, and mineral leasing activities would result in the loss of wilderness values over the long term.

If an area is designated wilderness, it would ensure the long-term productivity of ecosystems and would maintain or enhance present wilderness values. Motorized vehicles could no longer be used except where prescribed by an area's wilderness management plan. Mineral resources would not be available for development after the date of designation, subject to a validity examination.
ENVIRONMENTAL CONSEQUENCES

IRREVERSIBLE AND
IRRETRIEVABLE
COMMITMENT OF
RESOURCES

Activities such as mining, mineral leasing, and material sales could create an irreversible commitment of the wilderness resource in part or all of a WSA, if not designated as wilderness. Wilderness designation would not create an irretrievable or irreversible commitment of resources within a WSA. Designation would restrict or stop development activities and maintain an area's natural condition. If, in the future, Congress decided it would be in the national interest to develop certain resources within a wilderness, they can modify the law to allow it.
CHAPTER 5

CONSULTATION AND COORDINATION

INTRODUCTION

The Adobe Town/Ferris Mountains Wilderness Final Environmental Impact Statement (FEIS) was prepared by specialists from BLM's Rawlins District Office, with assistance from the Wyoming State Office. Disciplines and skills used to develop this EIS were: vegetation and range use, soils, recreation, geology, climate, economics, cultural resources, public affairs, wildlife, and word processing. The writing of the EIS began in July 1982; research began in 1978 with the wild­erness review required by FLPMA. The process included inventories of resources, public participation, and coordination with other agencies, organizations, and individuals. Care has been exercised to ensure that the public was consulted and informed throughout the wilderness review process.

An active public involvement process aided in developing this EIS. Public opinion was elicited through a public meeting in Rawlins, mailings to an extensive list of groups and individuals, personal interviews, and a notice in the Federal Register.

List of Preparers

Jim Annable
Qualifications: Petroleum Engineer, Bureau of Land Management, 3 years; AMOCO Production Company, 2 years; B.S. Geological Engineering, South Dakota School of Mines and Technology. Responsibility: Oil and Gas Resources

Michael Bies
Qualifications: Archaeologist, Bureau of Land Management, 3 years; Archaeologist, U.S. Forest Service, 1 year; Archaeologist, Historical Archaeologist, Historian, Contract Cultural Resource Management, private industry and various federal agencies (Oregon, Washington, Idaho, and Montana), 3 years; M.A. in progress Anthropology, University of Idaho, Moscow, B.S. History and Sociology/Anthropology, University of South Dakota, Vermillion. Responsibility: Cultural Resources

Vernon Lovejoy
Qualifications: Outdoor Recreation Planner, Bureau of Land Management, 10 years, Realty Specialist, Army Corps of Engineers, 3 years: B.A., Geography, University of Charleston, W. Va.; M.S. Recreation and Park Administration, Eastern Kentucky University.

Responsibilities: Recreation and Wilderness Resources

Jan Macey
Qualification: Clerk-typist, Bureau of Land Management, 3 years; Computer Assistant, 1 year, Secretary 7 years, Bureau of Reclamation.

Responsibilities: Typing

Jeff Olson
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Responsibility: Oil and Gas Resources

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Responsibility: Wildlife Resources, Ferris Mountains WSA

Bob Tigner
Qualifications: Natural Resource Specialist, Bureau of Land Management, 10 years; B.S., Wildlife Resources, University of Northern Colorado; M.S., B.S., Wildlife Management, Colorado State University.

Responsibility: Team Leader on draft EIS, overall direction and management.

Environmental Impact Statement Review

An intensive effort has been made to involve the public, other agencies, industry, and special interest groups. The draft EIS was released for public review and comment in June 1983. The formal comment period was open until September 30, 1983. Over 300 copies of the draft EIS were sent to interested parties. A public hearing was held July 26, 1983 in Rawlins, Wyoming. A total of five people testified at that hearing.

During the comment period, 46 written comments were received. Comments were received from 4 federal agencies, 12 State of Wyoming agencies, including the Governor's Office; Six energy companies commented. Conservation organizations submitted 5 comments, and 20 comments were received from individuals.

All comments that presented new data, questioned facts or analysis, and raised issues having a direct bearing on the adequacy of the EIS were used in making changes to the draft and/or given individual responses in chapter. Responses are also provided for other comments considered to be of general interest to the readers. All public comments will be considered when making the final wilderness recommendations, regardless of whether they are printed or receive responses in this EIS.

Reviewers and Responses

The following list identifies agencies, organizations, and individuals to whom copies of the draft EIS were sent. Those agencies, organizations, and individuals who returned written comments are denoted by a letter and page number. The comments for which responses were prepared are identified by vertical lines and consecutive numbers in the left margin of each letter. The corresponding responses are shown on the pages following each letter and are numbered to match the comments.

Elected Officials

Federal Officials and Agencies

Senator Malcolm Wallop
Senator Alan Simpson
Congressman Richard Cheney

Department of the Interior
Bureau of Reclamation
Bureau of Mines, Comment Letter 1
Fish and Wildlife Service, Comment Letter 2a, 2b
Geological Survey
Minerals Management Service
National Park Service, Comment Letter 3
Office of Surface Mining
Department of Agriculture
Forest Service
Soil Conservation Service
Department of Energy
Department of the Air Force
Environmental Protection Agency, Comment Letter 4

State Officials and Agencies

Governor Ed Herschler, Comment Letter 5

Senators

Win Hickey
David A. Nichols
O. R. "But" Daily

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CONSULTATION AND COORDINATION

State Officials and Agencies (con't)

Thomas E. Krowbridge
John P. Vinsch
Wm. G. Rentor
Dick Sader
Tom Stroock
Dexter True
Steve Maphenich

Representatives
T. A. Larson
Patti MacMillan
Mary Odle
Scott Refitt
Harry B. Tipton
Ken Burns
Harriet "Liz" Byrd
Elizabeth Peabody
Alvin Wiederpahn
Hyle A. Murphy
Jack Sid
Joe Stewart
James Roth
Edlin Spacer
Ann Brand

Wyoming Game and Fish Department, Comment Letter 6
Wyoming Highway Department
Wyoming State Historic Preservation Office, Comment Letter 7, 8
Wyoming Recreation Commission, Comment Letter 9
Wyoming Planning Commission
Geologic Survey of Wyoming, Comment Letter 10
Wyoming Department of Agriculture, Comment Letter 11, 12
Wyoming Department of Environmental Quality, Comment Letter 13
Wyoming Oil and Gas Conservation Commission, Comment Letter 14
State Engineer's Office, Comment Letter 15
Commission of Public Lands & Farms Loans, Comment Letter 16
University of Wyoming

Local

Mayor, Bagg
Mayor, Dixon
Mayor, Riverton
Mayor, Sinclair
Mayor, Worsham
Carbon County Planning Commission
Medicine Bow Basin Council
Natrona County Commissioners
Sweetwater County Planning Department

Organizations

Continental Divide Trail Society, Comment Letter 17
Defenders of Wildlife
Friends of the Earth
Holy Cross Wilderness Defense Fund
League of Women Voters
National Audubon Society
National Museum Association, Inc.
National Wildlife Federation
National Resources Defense Council
Rock Springs Grazing Association
Sierra Club, Comment Letter 18, 19

American Wilderness Alliance
Izaak Walton League
Wild Horse Organization Assistance
The Wilderness Society
Wyoming Heritage Society
Wyoming Heritage Foundation
Wyoming Outdoor Council, Comment Letter 21
Wyoming Mining Association
Wyoming Wilderness Federation
Wyoming Wool Growers Association
Wyoming Stockgrowers Association

PUBLIC COMMENTS AND RESPONSES ON THE WILDERNESS DRAFT ENVIRONMENTAL IMPACT STATEMENT

Introduction

This section has been divided into two parts. Part one is the transcript of the public hearing conducted July 26, 1983, and responses. Part two consists of a total of 47 comment letters from individuals, private organizations, and federal, state and local agencies on their comments to the Adobe Town/Ferris Mountain Wilderness Draft Environmental Impact Statement.

Hearing Transcript and Responses

All public hearing responses immediately follow the transcript which is printed in its entirety.

Comment Letters and Responses

All comments are printed verbatim. A few hand-written comments have been typed verbatim for better readability and have been noted as such.
of public concern examined throughout the process. Number five is a historic look at local, and not necessarily with the first designation of an area as wilderness. And number six is to designate wilderness or wilderness-quality areas in consultation with other agency groups, such as county road and land use things of that nature.

The wilderness study for these three areas was done as part of the New Land Planning Act. We also had, as part of our new management framework plan, the wilderness study for these three areas. After applying these evaluation criteria and quality standards, we arrived at preliminary recommendations for each of the areas. For Adams Lake the preliminary recommendation was that it be considered for designation as a wilderness area. The preliminary recommendation was that it be considered for designation as a wilderness area. After applying these evaluation criteria and quality standards, we arrived at preliminary recommendations for each of the areas. For Adams Lake the preliminary recommendation was that it be considered for designation as a wilderness area. The preliminary recommendation was that it be considered for designation as a wilderness area.

Carrying out this study this process forward, does not mean that we have finished. There were some preliminary recommendations, which we have passed to the minister of the Environment for consideration there as well. There will be no reservation from the minister, but if the minister chooses to amend the study report, you can expect a clarification to be given to me, and I will subsequently send it to the minister for approval.
p. 63

And I had a prepared statement: making it all. It’s not really to be no 1085. In one of the statement, and how it can’t really be because.

My background is in the technology, and I have been working on the design of the system for over five years as a consultant.

As I was going to be talking about a particular aspect of the social sciences, that is going to be the social sciences aspect of the social sciences. An example, which includes one of the aspects of the social sciences, and how it can’t really be because.

How does this occur, that is to say, that is going to be the social sciences aspect of the social sciences. An example, which includes one of the aspects of the social sciences, and how it can’t really be because.

In general, this social sciences really does not reflect this organization.

I find this document contradicts many of the statements that are made in this report, and in fact it is not really talking about protecting those important cultural resources.

In this instance, I am assuming some of those statements which were made here, and the fact that this document is not talking about cultural resources, and how it can’t really be because.

First of all, some of the summarized statements on the page 62, that talk about how the amount of cultural resources from the social sciences, and how it can’t really be because.

However, it does not really state in that table or anywhere else that the summary that this is not going to be the social sciences, and how it can’t really be because.

This is a completely, and that is to say, that is going to be the social sciences aspect of the social sciences. An example, which includes one of the aspects of the social sciences, and how it can’t really be because.

Now, the other thing which is this, and I am going to be talking about this particular aspect of the social sciences, and how it can’t really be because.

Recommending cultural resources less will protect our cultural resources, even when there is energy development. For all this is going to be the social sciences aspect of the social sciences. An example, which includes one of the aspects of the social sciences, and how it can’t really be because.

As I was going to be talking about this particular aspect of the social sciences, and how it can’t really be because.

I think this is important to try and understand these particular aspects of the social sciences, and how it can’t really be because.

However, I think that is very important, and not necessarily for this particular aspect of the social sciences, and how it can’t really be because.
The Comparative Analysis of Impacts (Table 2) has been revised to more accurately reflect expected impacts on various resources, including cultural resources.

The analysis of impacts to cultural resources in the Adobe Town WSA has been revised. Please see appropriate sections of chapter 4.

Please see the new Proposed Action. Also, please see the discussion of alternatives considered but dropped from analysis (chapter 1).

The analysis of the impacts on livestock management have been extensively changed to more accurately reflect those impacts.

Please see the new Proposed Action.

After further analysis, we have concluded that designating an area wilderness does not necessarily lead to recreational overuse. This issue was dropped from analysis in the final EIS.

7. Analysis of wildlife resources in both WSAs has been extensively changed in the final EIS. Please see the revised discussion in chapter 4 and chapter 4.

9. Our analysis concludes that these resources would be unaffected by either designation or nondesignation of the WSA.

9. See response 5 above.

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Our analysis concludes that these resources would be unaffected by either designation or nondesignation of the WSA.

9. See response 5 above.
Responses to Letter No. 1

1. Note that the Proposed Action has changed from the Draft EIS.

2. Findings of the mineral examination noted in your letter will be incorporated into the Wilderness Study Report given to the Secretary of the Interior.

Responses to Letter No. 2a

1. Please see the new Proposed Action for Adobe Town. No big game population was identified that would be affected by either designation or nondesignation of the WSA.

2. The Ferris Mountains were identified in the HMP as a possible site for peregrine recovery efforts. BLM searches of the cliffs during breeding season for peregrines in the springs of 1984 and 1986 failed to identify peregrines or nesting sites in the cliffs.

Responses to Letter No. 3

1. As stated in chapter 4 (Environmental Consequences), there are certain pre-FLPMA leases which are considered to be valid existing rights and would be developed. If the entire WSA were designated wilderness, BLM would be faced with managing a wilderness within which would be several producing gas wells. This, in our opinion, means that the area would be unmanageable as wilderness. The Ferris Mountains WSA has no pre-FLPMA leases and, therefore, is not subject to the same concern. Our projections indicate that recreation in the Adobe Town WSA would remain essentially unchanged. Currently the dominant recreation activity in the WSA is antelope hunting. Even with full development, the quality of antelope hunting in the WSA would not change significantly.

2. The sections on cultural resources have been rewritten to reflect the ultimate loss of understanding that necessarily comes from salvaging cultural resource sites. The reference to standard operating procedures has been deleted.
3. References mentioned have been eliminated from the final EIS. The Comparative Analysis of Impacts (table 2, formerly table 5-1) has been revised.

4. The Washakie Basin potential National Natural Landmark is now noted in the chapter 3 discussion of the Adobe Town WSA's wilderness characteristics.

Responses to Letter No. 4

1. A location map is included in the final EIS.
2. Please see the new Proposed Action for the Adobe Town WSA.
3. As of the writing of the final EIS, all nonunitized pre-FLPMA leases in the Adobe Town WSA have expired. This was, in part, what drove the creation of the new Proposed Action for the WSA. The pre-FLPMA leases in the Ferris Mountains WSA have also expired.

In developing the Proposed Action, many alternatives were examined, including alternatives larger than the original 16,280-acres partial wilderness. However, none of these reduced conflicts between wilderness preservation and natural gas production, nor did they add important wilderness attributes. Please see chapter 1 for further details.

Response to Letter No. 5

1. Thank you. Please be assured BLM will work with the state of Wyoming regarding public comments, new resource information, use and management opportunities, and enhancement needs.
Responses to Letter No. 6

1. These errors have been corrected.

2. Discussions of grazing and livestock management in the Ferris Mountains WSA has been revised in the final EIS. It was determined that livestock grazing and management would not appreciably change from present practices between any of the alternatives.

3. Table 5 (old Table 2-8) has been revised with updated information. The wildlife section (chapter 3) for the Ferris Mountains WSA has been extensively revised.
Response to Letter No. 7

1. The existing federal laws and regulations, which require the consideration of the effects of any action planned, permitted, or licensed by the federal government on cultural resources will be complied regardless of which alternative is adopted.

Response to Letter No. 8

1. The existing federal laws and regulations, which require the consideration of the effects of any action planned, permitted, or licensed by the federal government on cultural resources will be complied regardless of which alternative is adopted.

Responses to Letter No. 9

1. This section has been deleted entirely in the final EIS.
2. Our projections indicate that there would be little increase in ORV use in nondesignated areas. Wyoming BLM policy is that in areas where ORV travel is limited to designated roads and trails, open routes would be delineated using white arrows.
3. Please note that the Proposed Action is different than that in the draft EIS. However, a loss of "wilderness type recreation" is implied in the analysis on impacts on wilderness values. It should be noted that the dominant recreation activity in the Adobe Town WSA is antelope and deer hunting.
Responses to Letter No. 10

1. Please note that the Proposed Action has changed from the draft EIS.

2. The potential for finding zeolite mineral occurrences in the Adobe Town WSA is presently based on literature searches and some preliminary field work done by BLM during the summer of 1980. The U.S. Bureau of Mines and Geological Survey will conduct a final mineral survey of the area prior to final recommendation to the President.

3. We do not anticipate major changes in the sand dunes or hydrology of the Adobe Town WSA.

4. The U.S. Bureau of Mines and Geological Survey will also be conducting a mineral survey on the Ferris Mountains WSA. The mineral surveys already conducted in the WSA are preliminary in nature. A detailed systematic exploration of the Ferris Mountains WSA may be the only way to precisely determine mineral potential. The traditional interpretation of the structure of the Ferris Mountains has been block faulting in a nearly vertical plane on the south flank. The new hypothesis being put forward is a model involving thrust faulting. The former interpretation is a preferred model at this point.

5. The word should be "geographical."

Response to Letter No. 11

1. Thank you for your comments.

Response to Letter No. 12

1. Thank you for your comments.
Response to Letter No. 13

1. Thank you for your comments.

Response to Letter No. 14

1. Thank you for your comments.

Responses to Letter No. 15

1. The water resources section has been deleted from the final EIS. Stock water reservoirs are discussed in the livestock grazing section.

2. The Ferris Mountains WSA contains no water developments. Livestock and wildlife obtain water from the natural drainages and from water developments outside the WSA.

3. Acreage corrections have been made in the final EIS.
Response to Letter No. 16

1. No state land in the Adobe Town WSA is proposed for wilderness, so state lands would not be affected. State lands are not included in the Ferris Mountains WSA. A land exchange, as recommended in Alternative 3, Enhanced Wilderness, would require time, but state lands would not be included in a wilderness area until such an exchange occurred.

Response to Letter No. 17

1. As to a location for the Continental Divide National Scenic Trail, the BLM has made no decision as to whether the trail will pass through the Ferris Mountains. Present Continental Divide Trail hikers use a number of routes while passing through the Great Divide Basin, one of which is the Ferris Mountains.
10. This reference has been deleted.
11. This table has been corrected.
12. This map has been corrected.
Responses to Letter No. 21

1. Please see the new Proposed Action for the Adobe Town WSA. Also, please see discussion in chapter 1 on alternatives considered but dropped from analysis.

2. As pointed out in chapter 3, the pre-FLPMA leases in the Adobe Town WSA are under unit agreements and are held by production. In essence, they will never expire. As such, they are considered to be valid existing rights and are developable even under wilderness designation.

3. This discussion has been deleted from the final EIS.

Response to Letter No. 22

1. Please note that the Proposed Action has changed from the draft EIS.
Response to Letter No. 23

1. Please note that the Proposed Action has changed from the draft EIS.
Response to Letter No. 24

1. Industry has suggested a hypothesis that the Ferris Mountains have been involved in some recumbent folding and/or thrust faulting which has placed sedimentary rocks underneath the Precambrian. If this were the case, it would indicate potential for oil and gas accumulations. Two geophysical studies, one in 1982 and one in 1983, have been conducted in and near the Ferris Mountains, neither produced evidence in support of the new hypothesis. This, combined with our interpretation of the geologic structure of the WSA, leads us to the conclusion that oil and gas potential in the Ferris Mountains is low.

Response to Letter No. 25

1. Please note that the Proposed Action has changed from the draft EIS.

Responses to Letter No. 26

1. Wyoming BLM has adopted standard stipulations for oil and gas leases (see Appendix). These would be used on new leases as needed. Existing leases are subject to stipulations already attached to the lease. All new leases in the Adobe Town WSA would be subject to Stipulations No. 1 (Surface Disturbance Stipulation) and No. 2b (Wildlife Stipulation - Raptors).

2. Several raptor nesting sites have been identified in the Adobe Town WSA. The Stipulation No. 2b mentioned above specifies the constraints that might be imposed to protect nesting sites.

3. Very little antelope crucial winter range is actually in the WSA. This analysis has been deleted from the final EIS.

4. This discussion has been deleted from the final EIS.

5. Please see response 1 to Letter No. 24. The EIS sections on Energy and Mineral Resources in the Ferris Mountains were written based on literature searches, personal communication with industry and individuals familiar with the area, and a preliminary
field mineral survey conducted by BLM during the summer of 1978 and 1979. The EIS represents a summary of this information. Complete details on the mineral information so far collected are available in the referenced documents.

6. The final mineral survey of the Ferris Mountains WSA will be conducted by the U.S. Bureau of Mines and Geological Survey.

Response to Letter No. 27

1. The BLM’s Wilderness Management Policy allows for certain exploration activities in wilderness as long as wilderness values are preserved. Helicopter seismic studies could be done given adequate safeguards to the wilderness values. Therefore, designation of the WSA as wilderness should not constrain your ability to explore your leases adjacent to the WSA.
Response to Letter No. 28

1. Thank you for your comments.

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TABLE 1

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Response to Letter No. 29

1. Thank you for your comments.

WASA: Your concern arises out of the observation of a certain level of management in the EIS. Yes, some of the areas will not be managed as wilderness, and one can speculate about this fact. I believe there were several individual authorities that can be cited for the decision, which serve to underline and negate the same route. These areas, which are not wilderness areas, are in my view, and our conclusions.

I would like to emphasize the EIS and those entities of the effects of various and not just on wilderness. In other words, it is not only the area where the same issues can be resolved.

Hence, I must reiterate my conclusions with this view of the issues are not yet resolved. The reasons could be precisely the most crucial of all cases facing the WSA, the necessity of the area. Many times in the past, funding as well as execution I have emphasized my views very strongly. It is not only the area where the same conclusions are valid.

I am very unfortunate for any action, in fact, that the issues did not properly address this concern. In fact, if it is not properly addressed, then the lack of basic evidence is the major reason. I am of the view that the same conclusions have been given in a paper that was already presented.

The conclusion is that the final action remains and is not involved in the environmental management of the affected areas.

3. Boundary identification and trespass would be addressed in the wilderness management plan, should the WSA be designated as wilderness. BLM's Wilderness Management Policy specifically addresses the continuation of livestock grazing and its associated facilities.

4. Essentially, the policy means that grazing will be allowed to continue in a designated wilderness to the same manner and degree as before designation. Designation will not affect obtaining a cooperative management agreement.

5. Legal access already exists to the WSA. Specific access needs would be addressed in a wilderness management plan.

6. Your recommendation is outside the scope of this EIS.

7. This discussion has been deleted from the final EIS.

This discussion has been deleted from the final EIS.

9. This section has been deleted from the final EIS.

10. This table has been deleted from the final EIS.

11. BLM wilderness areas would be managed according to the guidelines in BLM's Wilderness Management Policy. This policy provides specific guidance for the management of various resource activities and provides valuable insight into the way BLM wilderness would be managed. Upon designation as wilderness, a formal Wilderness Management Plan would be written for each area. Before publishing such a plan, the public would be given the opportunity to review and comment on the contents.
Response to Letter No. 31

1. Please see the new Proposed Action for the Adobe Town WSA.

Response to Letter No. 32

1. Please see the new Proposed Action for the Adobe Town WSA.

2. This section has been deleted from the final EIS.

Response to Letter No. 33

1. Please note that the Proposed Action has changed from the draft EIS.

2. This alternative was eliminated from analysis in the final EIS because it would be creating a defacto wilderness which is contrary to BLM policy.
Response to Letter No. 34

1. Thank you for your comments.

Response to Letter No. 35

1. Thank you for your comments.

Response to Letter No. 36

1. Please see the new Proposed Action. Directional drilling would allow the exploration and development of a small "fringe" area around a designated wilderness area at an added expense. However, it is not possible to directionally drill and develop an area as large as the Adobe Town WSA.

Response to Letter No. 37

1. Your suggested alternative is not within the scope of this EIS because the lands included in your proposal have not been designated wilderness study areas. The area you suggest may be considered in future land-use planning efforts under the authority provided in Section 202 of FLPMA and the regulations in 43 CFR 1601 and 1610.

2. Please see chapter 1 for a discussion of alternatives considered but dropped from further analysis. Larger partial wilderness alternatives were considered but none reduced conflicts nor added important wilderness attributes.

3. This discussion has been deleted from the final EIS.
Response to Letter No. 38

1. Thank you for your comments.
Response to Letter No. 39
1. Thank you for your comments.

Response to Letter No. 40
1. Thank you for your comments.

Response to Letter No. 41
1. Please see the new Proposed Action.
Response to Letter No. 42

1. Please see the new Proposed Action.

Response to Letter No. 43

1. Please see the new Proposed Action.

Response to Letter No. 44

1. Thank you for your comments.
Response to Letter No. 45
1. Thank you for your comments.

Response to Letter No. 46
1. Thank you for your comments.

Response to Letter No. 47
1. Please see the new Proposed Action for Adobe Town.
APPENDIX

STANDARD PROTECTION REQUIREMENTS

1. SURFACE DISTURBANCE STIPULATION (used on all leases)

Surface disturbance will be prohibited in any of the following areas or conditions. Modifications to this limitation may be approved in writing by the Authorized Officer.

a. Slopes in excess of 25 percent.

b. Within important scenic areas (Class I and II Visual Resource Management areas).

c. Within 500 feet of surface water and/or riparian areas.

d. Within a quarter mile of visual horizon (whichever is closer) of significant sites along historic trails.

e. Construction with frozen material or during periods when the soil material is saturated, frozen, or when watershed damage is likely to occur.

GUIDANCE

The SURFACE DISTURBANCE STIPULATION will be included in all BLM authorizations. The intent of this stipulation is to inform interested parties (potential lessees, permittees, operators) that, when one or more of the five (a through e) environmental conditions exist, surface disturbing activities will be prohibited unless or until the permittee or his designated representative and the surface management agency (SMA) arrive at an acceptable plan for mitigation of anticipated impacts. This negotiation will occur prior to development and become a condition for approval when authorizing the action.

Specific threshold criteria (e.g., 500 feet from water) have been established based upon the best information available. However, geographical areas and time periods of concern must be delineated at the field level (i.e., "surface water and/or riparian areas" may include both intermittent and ephemeral water sources or may be limited to perennial surface water). "Significant sites along historic trails," refer to those trail segments and sites which have been enrolled in or are eligible for enrollment in the National Register of Historic Places. These decisions, where possible, should be described in the land use planning documents.

Modification or waiver of this stipulation must allow for additional requirements to be applied on a site specific basis, if necessary to mitigate the impacts of concern. Waiver of this stipulation must be based upon demonstration, through environmental analysis, plans of development, plans of operation, Application for Permit to Drill (APD) processing, etc., that the adverse effects will be mitigated or avoided.

2. WILDLIFE STIPULATION

a. To protect important big game ungulate winter habitat, drilling and other surface disturbing activity will not be allowed during the period from November 15 to April 30 within certain areas encompassed by this lease. The same criteria applies to elk calving areas from the period of May 1 to June 30. This limitation does not apply to maintenance and operation of producing wells. Modifications of this limitation in any year may be approved in writing by the Authorized Officer.

b. To protect important raptor and/or sage and sharp-tailed grouse nesting habitat, drilling and other surface disturbing activity will not be allowed during the period from February 1 to July 31 within certain areas encompassed by this lease. This limitation does not apply to maintenance and operation of producing wells. Modifications of this limitation in any year may be approved in writing by the Authorized Officer.

c. No surface occupancy will be allowed on that portion of the lease within the following defined area for the purpose of protecting wildlife habitat (e.g., sage/sharp-tailed grouse strutting grounds): (legal description). Modifications of this limitation in any year may be approved in writing by the Authorized Officer.

GUIDANCE

The WILDLIFE STIPULATION is intended to provide two basic types of protection, seasonal restriction (a and b) and no surface occupancy
(c) A legal description will ultimately be required and should be measurable and legally definable. There are no minimum subdivision requirements at this time. The area delineated can and should be refined as necessary based upon current biological data at the time the APD or Sundry Notice is processed. It should eventually become a condition for approval in these permits.

The seasonal restriction section of the stipulation identifies three groups of species and delineates two similar timeframe restrictions. These two restrictions are big game ungulate and raptors/grouse. The big game ungulates including elk, moose, deer, antelope, and big horn sheep all require protection of crucial winter range between November 15 and April 30. Sage and sharp-tailed grouse and raptors such as eagles, accipiters, falcons, buteos, osprey, and burrowing owls, also require nesting protection during periods between February 1 and July 31.

The no surface occupancy section of the stipulation is intended for protection of unique wildlife and wildlife habitat values (e.g., sage grouse strutting grounds, known threatened and endangered species habitat, etc.) which cannot be protected using seasonal restrictions.

3. SPECIAL RESOURCE PROTECTION STIPULATION

In order to protect (resource value), the District Manager reserves the right to prohibit surface disturbance (i.e., within a specific distance of the resource value or between date-to-date in legal subdivision). This limitation does not apply to operation and maintenance of producing wells. Modifications to this limitation may be approved in writing by the Authorized Officer.

Resource Category:
- a. Recreation areas.
- b. Special historic features.
- c. Special management areas.
- d. Sections of major rivers.
- e. Prior existing rights-of-way.
- f. Occupied dwellings.

GUIDANCE

The SPECIAL RESOURCE PROTECTION STIPULATION is intended for use only in the few very specialized, site-specific situations where one of the other three general stipulations will not adequately address the concern. The resource value, location, and specific restriction must be clearly identified. A detailed plan addressing mitigation and special restrictions on development will be required prior to development and will become a condition for approval in the Application for Permit to Drill or Sundry Notice.

4. NO SURFACE OCCUPANCY STIPULATION

No surface occupancy will be allowed on the following described lands (legal subdivision/area) because of (resource value). See examples.

Resource Category:
- a. Recreation and interpretive areas (campgrounds, historic trails, national monuments).
- b. Major reservoirs/dams.
- c. Special management areas (e.g., Area of Critical Environmental Concern, wild and scenic rivers).

GUIDANCE

The NO SURFACE OCCUPANCY STIPULATION (NSO) is intended for use only when other stipulations are determined insufficient to adequately protect the public interest and/or as an alternative to "no leasing." The legal subdivision and resource value of concern must be identified in the stipulation and be tied to a land use planning document. There will be no exceptions to this stipulation granted without amendment of the appropriate land use plan.

When considering the no lease option, a rigorous test must be met and fully documented in the record. This test must be based on the stringent standards of the Interior Board of Land Appeals. Since rejection of a lease offer is more severe than the most restrictive stipulation, the record must show that consideration was given to leasing subject to reasonable stipulations including a NSO stipulation. The record must also show that stipulations were determined to be insufficient to adequately protect the public interest. A no-lease decision should not be made solely because it appears that directional drilling would be unfeasible, especially where a NSO lease may be acceptable to a potential lessee. In such cases the opportunity to accept or refuse a NSO lease should be left to the potential lessee.
GLOSSARY

ALLUVIUM. Unconsolidated material deposited relatively recently in geologic time by a stream or other body of running water.

ANIMAL UNIT MONTH (AUM). the amount of forage consumed by a cow-calf pair in one month.

COLLUVIUM. Loose incoherent deposits at the foot of a slope or cliff, brought there primarily by gravity.

COMMERCIAL TIMBER. Forest land that is capable of yielding at least 20 cubic feet of wood per year of commercial coniferous tree species.

CULTURAL RESOURCES. Fragile and nonrenewable remains of human activity, occupation, or endeavor reflected in districts, sites, structures, buildings, objects, artifacts, carvings, works of art, architecture, and natural features that were of importance in human events. These resources consist of (1) physical remains; (2) areas where significant human events occurred, even though evidence of the event no longer remains; and (3) the environment immediately surrounding the actual resource. Cultural resources, including both prehistoric and historical remains, represent a part of the continuum of events from the earliest evidence of humans to the present day.

FLPMA. The Federal Land Policy and Management Act of 1976. FLPMA provides guidelines for the administration, management, protection, development, and enhancement of the public lands administered by the Bureau of Land Management.

LIVESTOCK GRAZING OPERATIONS. Operations under permit where the primary purpose is the grazing of free stock for the production of food and fiber. Includes pack and saddle stock used in conjunction with such operations.

MANAGEMENT FRAMEWORK PLAN (MFP). The Bureau’s basic planning decision document prior to the adoption of a new planning process in 1976.

MBF. The abbreviation used by foresters to indicate a volume of one million board feet.

MINERAL WITHDRAWAL. Removal of specific federal lands from availability for mineral development.

MULTIPLE USE. "the management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people, making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some lands for less than all of the resources; a combination of balanced and diverse resource uses that take into account the long-term needs but not limited to recreation, range, timber, minerals, watershed, wildlife and fisheries, and natural scenic, scientific, and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output." (From Section 103, FLPMA.)

NATURALNESS. Refers to an area which “generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable.” (From Section 2(c), Wilderness Act.)

OFF-ROAD VEHICLE. Any motorized tracked or wheeled vehicle designated for cross-country travel over any type of natural terrain. Exclusions from Executive Order 11944, as amended by Executive Order 11989) are non-amphibious registered motorboats, any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes, any vehicle whose use is expressly authorized by the authorizing officer or otherwise officially approved, vehicles in official use, and any combat support vehicle in times of national defense emergencies.

OUTSTANDING. (1) Standing out among others of its kind; conspicuous; prominent. (2) Superior to others of its kind; distinguished; excellent.

PALEONTOLOGICAL RESOURCES. Fossilized remains of prehistoric faunal and floral species.


PRECOMMERCIAL THINNING. Thinning noncommercial stands of young trees so that the growth potential of an area is utilized by fewer trees; therefore, the remaining trees grow larger in a shorter period of time, eventually becoming commercial timber.

PRE-FLPMA LEASES. Leases issued before October 21, 1976, the date of the passage of FLPMA.

PRIMITIVE AND UNCONFINED RECREATION. Nonmotorized and undeveloped types of outdoor recreational activities.

RIPARIAN. Of or relating to or living or located on the bank of a water course.

SHPO. State Historic Preservation Office.

SOLITUDE. (1) The state of being alone or remote from habitations, isolation. (2) A lonely, unfrequented, or secluded place.

VISITOR DAY. A measure of recreation use; one visitor in an area for 12 hours, 2 visitors for six hours, etc.

WILDERNESS. The definition contained in Section 2(c) of the Wilderness Act of 1964.

WILDERNESS STUDY AREA. A roadless area or island that has been inventoried and found to have wilderness characteristics as described in Section 103 of FLPMA and Section 2(c) of the Wilderness Act of 1964.

ZEOILITE. A large group of hydro-aluminosilicate minerals formed especially in beds of tuff. Sometimes valuable for chemical properties allowing them to be used in ion exchange and adsorption.
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Master, Timothy D.

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Roehler, Henry W.

Spencer, C. W. AND Powers

Trudell, L. G.; Roehler, H. W., and Smith, J. W.

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