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VOLUME II
APPENDICES

United States
Department of
Agriculture

Lewis and Clark
National Forest
P.O. Box 871
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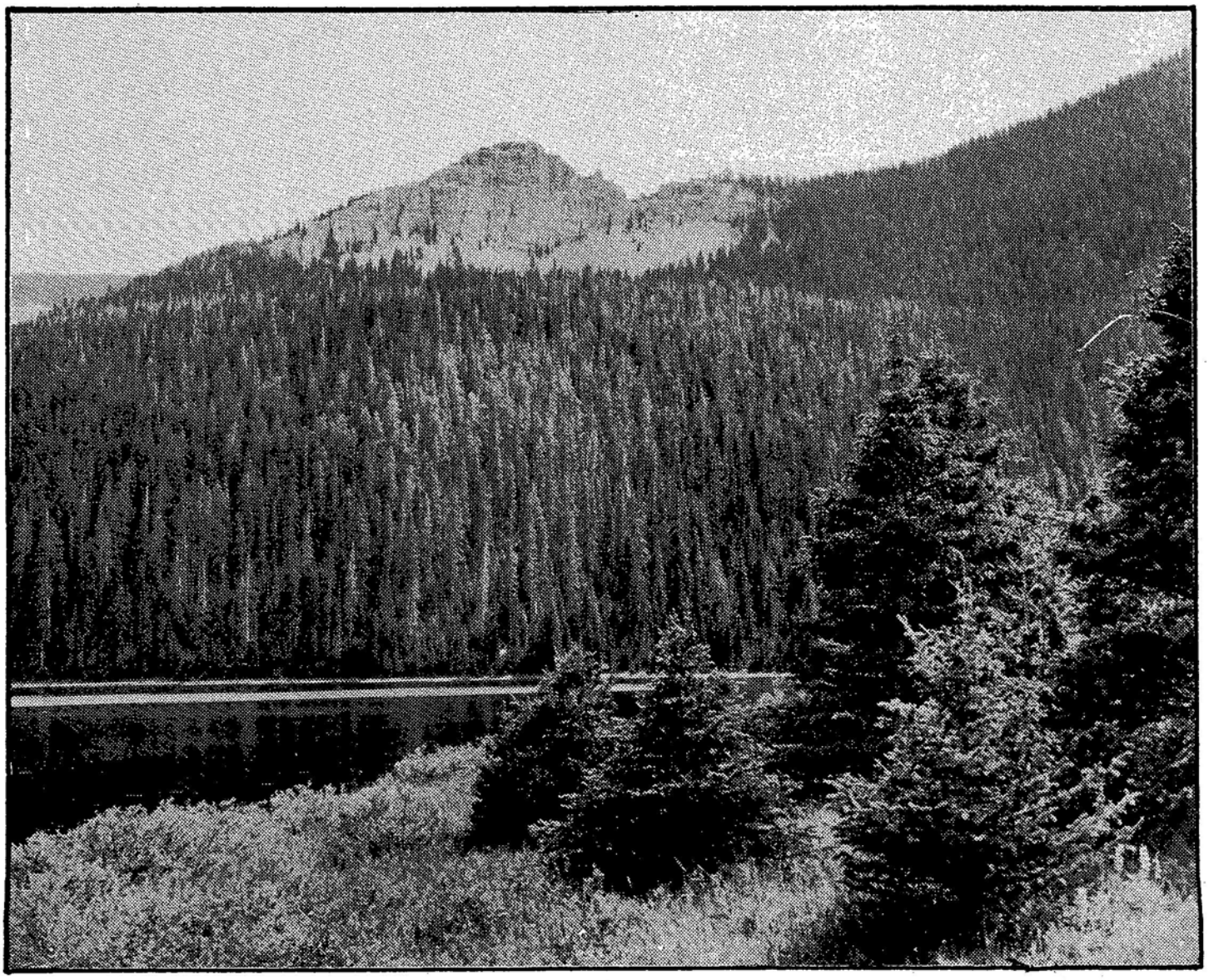
Lewis and Clark National Forest Plan [redacted] Environmental Impact Statement



Crystal Lake in the Big Snowy Mountains.

VOLUME II
FEIS
Appendices

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FEIS
Appendix A

Identification of Issues, Concerns and Opportunities

This appendix describes the Notice of Intent to prepare an EIS and Forest Plan, how issues were identified, the issue, concerns and opportunities and how they were addressed, planning coordination, public involvement with land owners, and agency plans reviewed.

NOTICE OF INTENT

The Notice of Intent to prepare a Forest Plan and Environmental Statement was published in the Federal Register in October 1978. Local people were informed by letters and newspaper advertisements.

ISSUE IDENTIFICATION

As part of the Forest Planning process, the public was asked to help in the process of identifying the major issues the Forest Plan should address.

Public Workshops

Public workshops were held in 11 cities in July and August 1979 to gather comments from the public on issues.

Over 1,200 people received pre-meeting packets, and articles appeared in most local Central Montana newspapers prior to the meetings.

Approximately 192 people took part in the workshops held in:

Lewistown
Roundup
Harlowton
White Sulphur Springs
Fort Benton
Stanford
Neihart
Choteau
Augusta
Browning
Great Falls

Nominal Group Process

A process for gathering and prioritizing group concerns called the Nominal Group Process was used to obtain objective information from the public. Nominal Group Process allows people to record all their concerns and then prioritize and rate their most important concerns.

Social Data Interview

Concurrent with the public workshops, a variety of individuals were interviewed to gather information for the social data base. The individuals interviewed were selected from a list suggested by each District Ranger and included local government, business, industry, and labor leaders as well as a variety of Forest users. Over 70 separate interviews were conducted.

Evaluation

Comments were taken directly from worksheets developed at each public workshop. Similar comments were grouped in categories of like concern. The various categories were separated into three basic groups - those which should be handled by other entities (agencies, congressional delegations), those which should be dealt with in other ways than through the Forest Plan, and those which could be handled by the Forest Plan.

Using factors - number of towns where like comments were expressed, the number of people ranking comments as their most important, the ranking given, and the weighted rating importance given - 32 concerns were selected as issues for the Forest Plan. Those concerns not selected were all rated by less than 10 percent of the people attending as one of their top nine concerns.

After selection of the 32 issues, actual comments within each group were again reviewed and a primary issue question was developed for each issue. Additional questions, not brought up by the public, were identified as separate concerns. These questions are referred to as Forest Service or management concerns. Seven management concerns were identified.

A New Issue

On July 26, 1982, the Lewis and Clark National Forest issued a DEIS and a Proposed Forest Plan. Because RARE II had apparently resolved the wilderness allocation issue, the RARE II roadless areas was not included in the planning process.

However, in October 1982, the Ninth Circuit Court held that 47 areas in California had not been adequately analyzed for wilderness in the RARE II process. NFMA planning regulations were amended to require an evaluation of land suitable for wilderness classification. The Notice of Intent to re-evaluate roadless areas was published in the summer of 1983.

Consideration of Public Interest

In September, 1983, over 600 individuals, groups, businesses, and agencies were asked to comment on how the roadless area of the Lewis and Clark National Forest should be managed.

Letters were received from 104 people, plus petitions with 224 signatures from the Rocky Mountain Front Advisory Council. Overall, this response of public opinion supported additional wilderness designations, primarily on the Rocky Mountain Division.

The primary reasons given for additional wilderness designation on the Rocky Mountain Division were:

-- Grizzly bear habitat - Large tracts of land were cited as necessary for the maintenance or enhancement of grizzly populations, with limited disturbances caused by roads.

-- Other wildlife values - Bighorn sheep, mountain goat, and elk populations on the Rocky Mountain Division would benefit from wilderness designation.

-- Unique wilderness values - Many people felt that the Rocky Mountain Division roadless areas presented many unique geological and biological values that should be protected.

-- Recreation - Opportunities for solitude and outstanding scenery were important to many people.

-- 'Best Use' - Many people felt that the wilderness values of the Rocky Mountain Division simply outweighed any values of sawtimber or unproven oil reserves.

Primary reasons given for no more wilderness on the Rocky Mountain Division were:

-- Oil & Gas - The need for exploring new energy sources was expressed.

-- 'Enough is Enough' - Some people felt that enough of the Rocky Mountain Division was already in wilderness and that more was not needed.

Fewer comments were received for the Jefferson Division, with most addressing wilderness designation for the Tenderfoot-Deep Creek, Big Baldy, Pilgrim Creek, and Crazy Mountains areas. Wildlife protection was the primary reason given for wilderness designation.

The Montana Wilderness Association submitted their wilderness proposal to the Lewis and Clark National Forest. (Alternative I reflects the association's proposal.)

These concerns were analyzed and considered in identifying the new issue responsive to evaluating roadless areas for wilderness classification. On November 9, 1984, the Lewis and Clark National Forest issued a DEIS-Supplement and Revised Proposed Forest Plan.

ISSUES, CONCERNS, AND OPPORTUNITIES

Following is a discussion of the major ICOs (issues, concerns and opportunities) that are the focus of the Lewis and Clark Forest Plan and EIS. A detailed discussion of the present situation for each of these is given in Chapter 3, The Affected Environment. Discussion of how the ICOs are differently treated in each alternative is provided in Chapter II, Chapter IV, and Appendix B of this FEIS.

The 39 ICOs are treated in two ways in this FEIS. First twelve major issues were identified that are addressed in different ways in the Alternatives considered. Secondly, the remaining issues were essentially addressed by standards and guidelines that do not vary by alternative.

The major issues in this FEIS are:

No. 1 What recreation activities and use levels should be permitted?

No. 2 How many campgrounds or camping sites should be provided?

No. 7 Should additional trails be provided?

No. 10 Which roadless areas on the Lewis and Clark National Forest should be recommended for wilderness designation?

No. 12 How should conflicts be resolved between wildlife and management activities of domestic livestock grazing; timber; oil and gas exploration and development; minerals; recreation; and wilderness?

No. 13 How much oil and gas activity can be accepted and still meet the intent of the Endangered Species Act?

No. 14 How much domestic livestock grazing should be provided?

No. 17 How and where should range be provided for elk as well as cattle?

No. 19 How much timber should be harvested?

No. 21 Should sales, including timber salvage, be planned on uneconomical areas?

No. 27 Amount of mineral exploration and development

No. 30 What is adequate access to and within the National Forest?

RECREATION

ISSUE 1- AMOUNT OF RECREATION

What recreation activities and use levels should be permitted?

The Forest provides a wide range of dispersed recreation -- hiking, camping, backpacking, fishing, hunting, off-road vehicle use, cross-country skiing, horseback riding, birding photography, wilderness use, and nature study. To analyze the dispersed recreation opportunity, the Forest has been divided into four recreation settings: primitive, semi-primitive, roaded natural, and rural. The type of setting affects the kind of recreation opportunity available. Currently, the Forest has 384,000 acres of primitive recreation setting, 992,000 acres of semi-primitive setting, 450,000 acres of roaded natural setting, and 17,000 acres of rural setting. These settings provide 47,000 RVDs of primitive recreation, 223,000 RVDs of semi-primitive recreation, 1,905,000 RVDs of roaded natural recreation, and 194,000 RVDs of rural recreation.

The amount (acres) of different recreation setting varies by alternative.

Under the Forest Plan, 431,000 acres would be managed for primitive recreation, 849,000 acres for semi-primitive recreation, 546,000 acres roaded natural recreation, and 17,000 acres rural recreation.

ISSUE 2-AMOUNT OF CAMPGROUNDS

How many campgrounds or camping sites should be provided (both road and trail oriented).

The Forest has 29 campground or picnic sites. These sites can provide 198,500 RVDs of developed recreation. The developed use in 1984 was 66,000 RVDs.

The level of new developed campgrounds varies by alternative from 0 to 7 sites.

Under the Forest Plan 7 additional developed sites (31,500 RVDs) would be constructed by 2030.

ISSUE 3- EXISTING CAMPGROUND ADMINISTRATION AND MANAGEMENT

What facilities should be provided at developed campgrounds?

For campgrounds, heavy-use campgrounds, and heavy-use picnic areas are managed at full service levels. Facilities are maintained to their

original standard. Worn and sub-standard facilities are replaced or rehabilitated in accordance with the Northern Regional Guide.

The issue is treated the same for all alternatives and is resolved by Forest-Wide Management Standard A-2, Developed Recreation. Operation, Maintenance and Administration.

ISSUE 4- RECREATION RESIDENCES PERMITS

Should existing recreation residences permits be continued?

The Forest administers 178 summer home sites, under special use permits. No new permits are being issued because of conflicts with public needs.

The issue is treated the same for all alternatives and is resolved by Forest-Wide Management Standard A-3, Recreation Residences.

ISSUE 5- AMOUNT OF MOTORIZED RECREATION

What opportunities for both summer and winter off-road vehicle use will be provided?

The Forest provides a wide range of opportunities for both summer and winter off-road vehicle use.

The issue is treated the same for all alternatives and is resolved by Forest-Wide Management Standard A-1, Recreation Information and A-5, Winter Dispersed Recreation Opportunity.

The Plan calls for a continuing update and awareness of the demand for motorized and non-motorized recreation on the Lewis and Clark National Forest with usage based on the ability of the resources to sustain such activity.

ISSUE 6- AMOUNT OF RESTRICTIONS ON MOTORIZED RECREATION

How much control (enforcement, closures, education) of ORV (off-road vehicles) should be implemented?

Many ORV restrictions are dictated by soil conditions, wildlife security, firewood availability, public safety, or desired type of recreation. The Forest Plan sets guidelines for open road densities. A Travel Plan, which regulats motorized vehicle use, was implemented in April 1985. The Travel Plan is scheduled to be reviewed yearly and revised as needed.

RECREATION

ISSUE 7- AMOUNT OF TRAILS AND TRAIL IMPROVEMENTS	The issue is treated the same for all alternatives and is resolved by Forest-Wide Management Standard L-2, Travel Plan. Should additional trails be provided? The Forest trail system has 1,677 miles of managed trails. The level of trail construction/reconstruction varies by alternative from 0 to 10 miles per year. Under the Forest Plan, 500 miles of additional trail construction/reconstruction will be accomplished by 2030 (10 miles per year).

WILDERNESS

ISSUE 8-DEEP CREEK-RESERVOIR NORTH	Should the Deep Creek/Reservoir North RARE II further planning area be recommended to Congress for inclusion in the National Wilderness Preservation System? The Deep Creek/Reservoir North area consists of high parallel overthrust limestone reefs separated by deep valleys. The area is considered to have outstanding wilderness attributes as well as a high potential for oil and gas. This issue will not be resolved at this time. The Deep Creek/Reservoir North roadless area will be carried in a further planning status pending determination of the oil and gas potential of the area.
ISSUE 9-PRESERVING OR CONTROLLING ESTABLISHED WILDERNESS	Should the amount of wilderness use be controlled and how? Many wilderness access points, major trails, popular destination sites, and scenic attractions receive heavy recreational use. While other areas, with few trails, vast distances, and ordinary views receive little use. The issue is treated the same for all alternatives and is resolved by Management Direction for the Bob Marshall, Great Bear and Scapegoat Wilderness (Appendix D - Lewis and Clark Forest Plan). Forest Service researchers have been working with the managers of this wilderness complex to refine methods for determining where and when it is necessary to limit and distribute use. Rather than attempting to arrive at a specific number of people and pack/saddle stock an area can accommodate, the new concept relates to establishing objectives for the "limits of acceptable change" (L.A.C.) for various parameters. The objectives apply to effects on resources of the land as well as to human experiences. The concept recognizes that an area's ability to accommodate use depends on several variables, including the intensity of management, visitor behavior, timing or season of use, and elevation and habitat of the specific sites involved.

WILDERNESS

ISSUE 10-AMOUNT OF WILDERNESS

Which roadless areas on the Lewis and Clark National Forest should be recommended for wilderness designation?

The Forest contains a 384,407 acre portion of the Bob Marshall-Great Bear-Scapegoat Wilderness Complex. Another 1,002,232 acres of roadless land are available for wilderness classification.

Indicators of how this issue was addressed in the alternatives are the acres of wilderness and acres of roadless management. The level of additional wilderness varies by alternative from 0 to 664,326 acres. Acres managed as roadless varies from 58,000 to 857,000 acres.

Under the Forest Plan, 51,834 acres are recommended for wilderness designation and 857,000 acres will be managed as roadless.

FISH AND WILDLIFE

ISSUE 11-AMOUNT OF FISH AND WILDLIFE HABITAT

How much fish and wildlife habitat should be improved and to what extent?

The Forest provides habitat for a wide diversity of wildlife and fish species including, elk, deer, mountain sheep, mountain goat, grizzly bear, black bear, mountain grouse, turkey, trout, fur bears, predators, raptors, trout, and song birds. Many of these wildlife species especially big-game, can benefit from wildlife improvement practices. These practices include prescribed burning, protective fencing, and planting grass and shrubs.

Indicators of how this issue was addressed in the alternatives are the level of wildlife habitat improvement, elk population potential, and catchable trout population potential.

The level of wildlife habitat improvement varies by alternative from 138 to 1146 acres yearly. Elk population potential varies from 7800 to 9300 elk. Catchable trout varies from 167,000 to 208,000 fish.

Under the Forest Plan about 700 acres of wildlife habitat improvement would be accomplished yearly. The elk population potential will remain at 8500 elk and the catchable trout population potential at 202,000 fish.

ISSUE 12-EFFECTS OF OTHER USES ON WILDLIFE

How should conflicts be resolved between wildlife and management activities of: domestic livestock grazing; timber; oil and gas exploration and development; minerals; recreation; and wilderness?

There is a high level of public concern on how other Forest management activities will affect wildlife, particulary elk and T&E species. This issue is treated the same for all alternatives as is addressed by Forest-Wide Management Standards C-1 Wildlife Coordination, C-2 Threatened and Endangered Species, C-3 Fish Habitat, D-4 Livestock Grazing Restrictions, E-4 Standards for Timber Harvest, G-1 Seismic Exploration, and G-2 Oil and Gas Leasing Exploration, Drillings, Field Development, and Production. These standards include coordination and mitigation of the wildlife resources.

ISSUE 13 - ENDANGERED SPECIES AND OIL AND GAS EXPLORATION AND DEVELOPMENT

Also see Issue 28, Effects of Mineral Exploration and Development for Oil and Gas Guidelines.

How much oil and gas activity can be accepted and still meet the intent of the Endangered Species Act?

There is a high level of public concern on the affect of oil and gas activities on grizzly bears and their habitat. More than 98 percent of the Rocky Mountain Division has been identified as essential for the survival of the grizzly bear (Management Situation 1). All of the Division has a very high oil and gas potential. Over 335,000 acres have been leased.

This issue is treated the same under all alternatives. Site specific oil and gas activities are evaluated using the cumulative effects process described in Appendix L of the Forest Plan.

RANGE

ISSUE 14-AMOUNT OF GRAZING	How much domestic livestock grazing should be provided? The public was concerned with the grazing level because of the need to protect wildlife habitat, especially elk winter range and T&E species, riparian areas, soils and water quality. The level of grazing varies by alternative from 64,800 AUMs to 89,900 AUMs. The Forest currently provides 71,000 AUMs of grazing. Under the Forest Plan, grazing would increase slightly to 73,600 AUMs by 2030.
ISSUE 15- RANGE IMPROVEMENTS	Can and should the range structural and non-structural improvement program be improved and how? Existing range improvements include 430 acres of fences, 375 water developments, 75 cattleguards, and 15 miles of water transmission pipelines. Normally, maintenance of these improvements is the permittee's responsibility. Construction and replacement of range improvements is usually a cooperative effort between the Forest Service and the permittee. This issue is treated the same for all alternatives and is resolved by Forest-Wide Management Standard D-1, Range Improvement.
ISSUE 16-EFFECT OF OTHER USES	What are the effects of the following on domestic grazing? Clean Water Act; early hunting season; wilderness management; wildlife management; timber management; recreation management; and how can impacts be resolved? The other uses particularly Clean Water Act, wilderness management, wildlife management, and recreation uses do effect grazing, usually by constraining the amount of grazing. The effects of other uses on grazing is discussed in the range section in Chapter IV of this FEIS.
ISSUE 17 -RANGE FOR ELK AS WELL AS CATTLE	How and where should range be provided for elk as well as cattle? The nature of elk-cattle competition is very complicated. Livestock grazing can have a adverse effect on big-game habitat. Winter ranges and riparian zones are especially critical. Social competition between livestock and elk can also be a problem.

Elk populations potential and the level of domestic grazing varies by alternative (from 7,800 to 9,200 elk and 70,000 to 89,900 AUMs).

Under the Forest Plan, the elk population potential will be maintained at 8,500 elk and the level of grazing will increase slightly to 73,600 AUMs. The effect of grazing on elk are discussed in the Range section in Chapter IV of this FEIS.

ISSUE 18-CONTROL OF NOXIOUS WEEDS

How can control of noxious weeds be improved and to what extent?

The primary noxious weeds on the Forest include, leafy spurge, spotted knapweed, whitetop, Canada thistle, and musk thistle. Biological, cultural, and chemical control of areas infested by noxious weeds is accomplished on about 100 to 500 acres annually.

This issue is treated the same for all alternatives and is resolved by Forest-Wide Management Standard D-2, Noxious Weeds.

TIMBER

ISSUE 19 -AMOUNT OF TIMBER HARVEST	How much timber should be harvested? Timber harvest provides vegetative diversity; jobs, income, and taxes to local communities; opportunities to increase range forage and wildlife habitat; and prevent losses from fire, insects, and disease. Timber harvest can also adversely affect wildlife, fish, soil, air and water quality. There is a high degree of public concern with the level of timber harvest. Indicators of how this issue was addressed in the alternatives are the timber sale program (million board feet), the number of suitable acres on which timber production is part of the management direction, and the amount of volume representing LTSYC (long-term sustained yield capacity). The timber sale program varies by alternative from 12.5 million board feet to 40 million board feet. Suitable acres varies from 195,553 acres to 541,678 acres. The LTSYC varies from 14.3 million board feet to 43.5 million board feet. Under the Forest Plan, the timber sale program will be 20 million board feet on 282,307 suitable acres. The LTSYC is 23.8 million board feet (by the third decade).
ISSUE 20- TIMBER HARVEST PLANNING AND CONTROL	How can timber sales be prepared to provide proper coordination with other resources? The public has expressed concern that wildlife, fish, soil, and water quality values be maintained while harvesting timber. This issue is treated the same in all alternatives and is resolved by Forest-Wide Management Standards E-1, Timber Management Coordination and Information, and E-4, Timber Harvest.
ISSUE 21- ECONOMICS OF HARVESTING TIMBER IN MARGINAL AREAS	Should sales, including timber salvage, be planned on uneconomical areas? Many respondents indicated the Forest Service should not subsidize timber sales. They were opposed to below cost timber sales and stated that a timber sale should not be made unless financially efficient.

Suitable timber lands vary by alternative. This issue is resolved through quantitative analysis of suitable lands and selection of an alternative that concentrates the timber harvest on the most cost-efficient areas and provides for salvage of timber on an opportunity basis.

The Forest Plan has determined what lands are suitable for timber production. This determination considers economic criteria as well as constraints designed to achieve multiple use goals and objectives. A more detailed economic analysis will be completed for timber sales over 1 million board feet and decisions concerning specific sales will be based on this analysis.

ISSUE 22- CLEARCUT METHOD OF HARVEST

What clearcutting, if any, should be allowed and how could clearcuts be coordinated with other uses?

Clearcutting is only used where it is the optimum silvicultural system. Optimum is considered to be the situation where no other silvicultural system is an alternative to clearcutting as a result of applying regional standards (see Northern Regional Guides). Clearcutting insures the perpetuation of certain tree species and permits orderly salvage in dead and dying areas. It often provides the only effective means of combating destructive forest enemies, such as insects and disease. Clearcutting is a sound and practical way of bringing mature and overmature lodgepole pine forests under management.

The amount of clearcutting varies by alternative (See Chapter II, FEIS).

Resolved by management practices and standards related to the clearcut method of harvest (see Appendix A, Forest Plan).

ISSUE 23 -TIMBER UTILIZATION AND CLEANUP

What degree of slash cleanup should be required after timber harvest?

Slash disposal is used to maintain fuel loading within acceptable limits for the prevention and control of wildfires. Some people are concerned that material that could be used as firewood is burned while reducing timber harvest slash.

The degree of slash cleanup is the same in all alternatives and is resolved by Forest-Wide Management Standard E-2, Firewood Administration and Utilization (see Issue No. 25). However, the amount of slash disposal varies by alternative (see Chapter IV, FEIS).

ISSUE 24-
REFORESTATION

How much and what kind of reforestation is appropriate?

Natural regeneration is abundant on most harvest areas. Dry forest sites do require about 15 percent of the site to be hand planted where regeneration failures have occurred and in shelterwood areas where the remaining trees are heavily mistletoed.

This issue is treated the same in all alternatives and is resolved by Forest-Wide Management Standard E-3, Reforestation.

ISSUE 25 -FIREWOOD
CUTTING AND CONTROL

Should permits be required for free-use firewood cutting and what controls should be established?

Ten million board feet per year of dead trees are removed for firewood. Since the energy crisis in the early 1970s, the use of firewood has steadily increased. Firewood gathering has also become an important recreational activity. Firewood cutting old-growth trees increase road maintenance, and remove material that could be used by the timber industry.

This issue is treated the same in all alternatives and is resolved by Forest-Wide Management Standard E-2, Firewood Administration and Utilization.

ISSUE 26 - WATERSHED PROTECTION	What coordination is necessary between water and other resources to protect watershed values and water quality? Management practices will be used in all alternatives to carry out these activities to assure that they will meet and/or exceed State water quality standards. These practices are referred to as best management practices. Projected sediment yields are shown for all alternatives (Chapter II). The effects of sediment production on water related beneficial uses will be evaluated during project development to ensure meeting water quality goals. Projects not meeting water quality standards will be redesigned, rescheduled, or dropped.

MINERALS

ISSUE 27 - AMOUNT OF MINERAL EXPLORATION AND DEVELOPMENT

How much mineral exploration and development should be allowed?

Most all of the Forest, except wilderness, is open to mineral entry. National Forest System lands are managed to accommodate and facilitate the exploration, development, and production of mineral resources. Exploration, development, and production of energy and other mineral resources including access are intergrated with the use and conservation of other resources to the fullest extent possible. To date, over 415,000 acres of the Forest has been leased for oil and gas. However, there is high public concern with the effect of oil and gas activities on the environment including roadless values, wildlife, water, soil and air quality. (See Issue 28.)

The Forest Service works with the BLM concerning jurisdiction over the mineral resources of the Forest, the Forest Services does exercise control over the surface activities.

Indicators of how this issue was addressed in the alternatives are the level of oil and gas leasing and exploration. The comparison of alternatives shows lands withdrawn or proposed for withdrawal, lands where laws or executive orders require specific protection or mitigation, lands where the Regional Forester requires special mitigation, and lands where standard stipulations would apply. (See Chapter II.)

ISSUE 28 - EFFECTS OF MINERAL EXPLORATION AND DEVELOPMENT

How should conflicts between exploration for and development of mineral resources and surface resource values be resolved?

Some publics are against oil and gas exploration because it could lead to development and potential harm to wildlife, roadless, scenic and recreation values. Most of the controversy is on the Rocky Mountain Division. Many publics support full protection for T&E species.

This issue is treated the same in all alternatives and is resolved by Forest-Wide Management Standards G-1, Seismic Exploration and G-2, Oil and Gas Leasing, Exploration Drilling, Field Development, and Production. These standards detail how much oil and gas

activities are to be conducted to minimize the effects of the activity on other Forest resources. Efforts are underway to develop a computerized cumulative effects process. If critical areas are identified through this process, occupancy will not be permitted.

ISSUE 29 -EROSION

What measures are necessary to prevent or reduce erosion from: (a) road and trail maintenance; (b) off-road vehicle use; (c) timber sales; (d) oil and gas exploration and development?

There is a high level of public concern about erosion, sediment, and water quality.

This issue is treated the same in all alternatives and is resolved (a) by the standards for road and trail maintenance practices for all management areas; (b) by management practices in management areas A, B, and C; (c) by Forest-Wide Management Standards G-1, Seismic Exploration and G-2, Oil and Gas Leasing, Exploration Drilling, Field Development, and Production (Issue 28); and (d) as outlined in Forest-Wide Management Standard L-2, Travel Plan (Issue 6).

The standards require the application of all reasonable land, soil, and water conservative practices, as guided by technical handbooks, to prevent any new management-caused erosion. All restoration to control management-caused erosion would be completed by 1995.

FACILITIES

ISSUE 30 -ACCESS TO THE NATIONAL FOREST	What is adequate access to and within the National Forest? Lack of public access to the Forest and the intermingling of public and private lands within the Forest boundary creates a variety of problems. The Forest lacks rights-of-way on many roads and most trails that cross private land. Road needs for surface resource management vary by alternative (See Chapter II - Facilities). Under the Forest Plan, by 2030 an additional 121 miles of arterial and collector roads and 763 miles of local roads would be constructed. The on-going Forest lands program's goal is to obtain rights-of-way as a means of providing long-term road and trail access to the National Forest. Under the Forest Plan, about 70 miles of rights-of-way across private land would be acquired.
ISSUE 31 -ROAD MAINTENANCE	What roads should be maintained and to what extent? The inventoried road system consists of 155 miles of arterial roads, 643 miles of collector roads, and 597 miles of local roads. An estimated 600 miles of primitive roads are not on the inventory. Road maintenance is governed by the road standard, use level, and condition (Forest Service Handbooks 7709.1 - Road Standards and 7709.15 - Road Maintenance.)

PROTECTION

ISSUE 32 -PRESCRIBED BURNING	How much, if any, prescribed burning should be planned? Prescribed fire can be used in many forest types to improve timber, range, and wildlife habitat, to reduce wildlife hazard and for site preparation. The amount of prescribed burning is tied to the range, wildlife and timber programs which vary by alternative (See Chapters II and IV.) About 3,787 acres of prescribed fire are planned annually, under the Forest Plan.
ISSUE 33 -INSECT DISEASE AND CONTROL	To what extent and in what manner should insect and disease control be carried out? Four insect and two diseases are the most damaging agents to the Forest. The moutain pine beetle presents the most serious threat to lodgepole pine. The Forest has about 200,000 acres of lodgepole pine that are classified as highly susceptible to mountain pine beetle attacks. This issue is treated the same in all alternatives and is resolved by Forest-Wide Management Standard P-1, Protection which emphasizes the harvest of stands that exhibit characteristics of high risk for mountain pine beetle attack. Timber sales are located to break-up continuous natural fuel accumulations. Project silvicultural prescriptions emphasizes treatments that reduce losses to other insects and diseases.

RECREATION

MANAGEMENT CONCERN 1- CULTURAL RESOURCE MANAGEMENT	How can the Forest carry out identification, protection, interpretation, and management of cultural resources? Cultural resources are managed under the Antiquities Act of 1906, the National Historic Preservation Act of 1966, the Archaeological and Historical Conservation Act of 1974, and the Archaeological Resource Protection Act of 1979. This management concern is treated the same in all alternatives and is resolved by Forest-Wide Management Standard A-7, Cultural Resource Management.
MANAGEMENT CONCERN 2- SPECIAL INTEREST SITES	What is the best way to provide special management protection to special interest sites? The Forest contains several special interest areas, such as caves, archaeological sites, and areas with rare or unusual vegetation which warrant protection. This management concern is treated the same for all alternatives and is resolved by Forest-Wide Management Standards A-6, Special Interest Areas, and N-2, Rare Plants.

MANAGEMENT CONCERN 3- RESEARCH NATURAL AREAS

How can the Forest identify candidate research natural areas containing specific grassland, shrub, and forest habitat types and aquatic ecosystems to meet regional targets?

The Northern Region has assigned 18 habitat types and 4 aquatic ecosystems to the Lewis and Clark. One 3,281 acre area, Paine Gulch, near Monarch in the Little Belts, has been proposed as a Research Natural Area. Other parts of the Forest are candidates. These are the Front Range and Sawtooth Ridge on the Rocky Mountain Division; Little Snowies; Jumping Creek in the Little Belts; Onion Park in the Tenderfoot Experiment Station; and Bartleson Peak.

This management concern is treated the same in all alternatives and is resolved by Forest-Wide Management Standard N-1, Research Natural Areas. Paine Gulch may fill 11 habitat types and 1 aquatic ecosystems. Other candidate areas may fill the remaining targets, except waterfalls. Further field work is needed to verify the location of these habitat types. If verified, these candidate areas may be proposed by the Forest as Research Natural Areas.

Under all alternatives, the proposed and candidate areas will be protected until the presence or absence of the habitat types is verified.

MANAGEMENT CONCERN 4- LAND OWNERSHIP ADJUSTMENT

What landownership adjustment would support resource management goals and where should the Forest place its priorities in an adjustment program?

Landownership within the Forest boundary includes private lands, mineral fractions, other Federal, and State lands. Ownership changes take place through land exchange and fee purchases. In 1967, a land adjustment plan was prepared for the Forest.

This management concern is treated the same in all alternatives and is resolved by Forest-Wide Management Standard J-1, Land Ownership Adjustment.

The Forest plan updates the land adjustment plan and establishes specific guidelines for landownership adjustments.

MANAGEMENT CONCERN 5- NATIVE AMERICAN RIGHTS	How do the rights according to the Blackfeet Indian Tribe in the agreement ratified by Congress in 1896 affect management of National Forest land covered in that agreement?

This management concern is treated the same in all alternatives and is addressed by Forest-Wide Management Standard H-1, Native American Claims.

The rights and privileges reserved to the Indians of the Blackfeet Indian Reservation by Article I of the Agreement set forth in, and accepted, ratified, and confirmed by the Act of Congress approved June 10, 1896, respecting that portion of their Reservation now known as the North End Geographic Unit (RM-1) of the Lewis and Clark National Forest, shall be in no way infringed or modified by the Forest Plan. The 130,000 acres of ceded land will be managed for wildlife, range, and semi-primitive recreation values. Regulated timber harvest is limited to the Blackfeet Tribe under their treaty rights.

ECONOMICS

MANAGEMENT CONCERN 6- ECONOMIC EFFICIENCY	Consider the need to provide goods and services efficiently. Resolved by selecting, through quantitative analysis, the most cost efficient mix of prescriptions which meets objectives for each alternative of the Forest Plan. Indicators of how this issue was addressed in the alternatives are budget costs, cash receipts, present net value, and income transfers to Forest users. In addition, the contribution of the Forest to the economic development and way of life of nearby communities is an important aspect of economic efficiency. Indicators of this aspect are number of jobs, income generated to communities, and payment to counties.

ENERGY CONSERVATION

MANAGEMENT CONCERN 7- ENERGY CONSERVATION	How can the Forest help achieve the national need for energy self-sufficiency through conservation of renewable and non-renewable energy resources? This management concern is treated the same in all alternatives and is resolved by Forest-Wide Management Standard G-5, Energy Conservation.

PLANNING COORDINATION

PLANNING COORIDINATION

From the outset of the planning process, Federal, State, and local agencies and interested publics have been informed of the Forest Plan's development. Letters, planning updates, news releases, and public meetings were all used to distribute information. In addition, many groups have corresponded and had meetings with the Forest when necessary. These actions are documented in the Forest planning records.

The following are those whom the Forest has worked with in its planning effort:

Amerda-Hess*
American Fisheries Society
American Wilderness Alliance
American Petrofina Company of Texas*
Amoco Production Company*
Arma Geophysical*
Auberry Logs Ltd.*
Atlantic Richfield Company*
Berg Lumber Company*
Billings Rod and Gun Club
Blackfeet Tribal Council*
Bonneville Power Administration
BN Timberland, Inc.*
Brand S Corporation*
Bullock Exploration, Inc.
Bureau of Indian Affairs - Blackfeet Indian Agency
Bureau of Land Management*
Buttes Resources Company
Cascade County Commissioners
Castle Mountain Company*
Champion International Corporation*
Champlin Petroleum Company
Chevron USA, Inc.*
Chouteau County Commissioners
Clearwater Ranch
Coalition for Canyon Preservation
Conoco, Inc.*
Continental Divide Trail Society
Cut Bank Chamber of Commerce*
Cut Bank Snowgoers*
Defenders of Wildlife*
Earth First! of Montana
East Slope Taxpayers Association
Economic Development Corporation of Great Falls
Elk Calf Incorporated
F.H. Stoltze
Exxon Company, USA*
Fergus County Commissioners

Fishing & Floating Outfitters
Fortune Oil Company
Glacier County Commissioners
Glacier National Park*
Golden Valley County Commissioners
Governor's Planning Task Force*
Governor's Natural Resource Council*
Grant Norpac*
Great Bear Foundation*
Great Falls Cross Country Club, Inc.*
Great Falls Snowmobilers, Inc.*
Gulf Oil Exploration and Production Company
Gulf Minerals Resources*
Haynes Store, Inc.
Homestead Ranch
Inland Forest Resource Council*
Intergem
International Geoscience
Judith Basin County Commissioners
K Bar L Ranch
Lewis and Clark County Commissioners
Lewis & Clark National Forest Grazing Advisory Board*
Lewistown Rod and Gun Club*
Madison-Gallatin Alliance
Meagher County Commissioners
Meridian Land & Mineral Company
Minerals Exploration Coalition
Montana Association of Conservation Districts
Montana Department of Fish, Wildlife & Parks*
Montana Division of Forestry
Montana East Side Timber Practices Committee*
Montana Historical Society
Montana Land Improvement Contractors Association
Montana Petroleum Association*
Montana Power Company
Montana State Clearing House
Montana Snowmobile Association
Montana Stockgrowers Association
Montana Wilderness Association*
Montana Wilderness Outfitters, Inc.
Montana Wildlife Federation*
Montana Women in Timber
National Audubon Society*
National Forest Products Association
National Park Service
Park County Commissioners
Paul Grande Ranch, Inc.
Pennzoil Exploration & Production Company
Phillips Petroleum Company*
Pondera County Soil & Water Conservation District
Pondera County Commissioners

Pondera Sportsman Club*
Placid Oil Company
Raths Ranch
Representative Ron Marlenee
Representative Pat Williams
Ripple Creek Ranch
Rocky Mountain Front Advisory Council*
Rocky Mountain Oil and Gas Association, Inc.*
Rostad & Rostad Cattle
Showdown Ski Area
Sierra Club - Upper Missouri Group
Sohio Petroleum Company*
Soil Conservation Service
Spring Creek Forest Products, Inc.*
Stevenson Angus Ranch
Sun Exploration Company*
Sweetgrass County Commissioners
T G Ranch
Teton County Commissioners
Teton County Sportsmen's Association*
Texaco*
The Meagher County News
The Nature Conservancy
The Wilderness Society*
True Oil Company
University of Montana Natural Resources Clinic*
Upper Missouri River Audubon Society*
U.S. Borax
U.S. Department of Agriculture
U.S. Department of Air Force
U.S. Department Health & Human Service
U.S. Department of Interior
U.S. Fish and Wildlife Service*
U.S. Environmental Protection Agency
Wheatland County Commissioners
Western Environmental Trades Association*
Western Geophysical*
Western Montana Fish & Game Association
Wexpro Company
Whittaker Mining & Marketing, Inc.
Wilderness Institute
Wildland and Resource Association*
Wildlife Management Institute

* Meetings were held.

AGENCY PLANS	
Bureau of Land Management	U.S. Department of Interior, Bureau of Land Management, 1983, Headwaters Resource Area Management Plan. - The plan primarily focuses on resolving eleven key resource management issues. These issues are: oil and gas leasing and development, grazing allotments and riparian habitat management, wilderness study recommendations, forest management, land ownership adjustments, mineral exploration and development, motorcycle use areas, motorized vehicle access, utility and transportation corridors, coal leasing in the Great Falls coal field, and special designations. U.S. Department of Interior, Bureau of Land Management, 1983. Billings Resource Area Management Plan. - The plan primarily focuses on resolving thirteen key resource management issues. These are: grazing management, wild horse management, wildlife management, timber management, coal leasing, oil and gas leasing, land tenure adjustment, classifications under the Classification and Multiple Use Act of 1964, recreational access, off-road vehicle use, environmental education, wild horse interpretation and the wilderness study of selected lands.
Glacier National Park	U.S. Department of Interior, Glacier National Park, 1983, Natural Resource Management Plan and Environmental Assessment. - This plan arises from the Statement for Management and the Master Plan, May 1977. The Master Plan is the document which interprets National Park Service Management Policies for Glacier National Park. The Resource Management Plan provides the framework for assessing, developing, and implementing pertinent elements of the Master Plan and the Statement for Management.
U.S. Fish and Wildlife Service	U.S. Department of Interior, Fish and Wildlife Service, 1982. Grizzly Bear Recovery Plan. - This plan presents a comprehensive recovery plan for grizzly bears in the "conterminous United States." The plan includes as one section the recovery plan for the Northern

Continental Divide ecosystem. It serves to coordinate measures for bear recovery among all the land management agencies who administer the ecosystem. The plan was used to develop management standards to aid in the recovery of threatened species.

U.S. Department of Interior, Fish and Wildlife Service, 1980. Northern Rocky Mountain Wolf Recovery Plan.

- This plan sets as a primary objective, re-establishing and maintaining at least two populations of wolves within their former range. The plan was used to develop management standards for wolf habitat to aid in recovery of this endangered species.

Bonneville Power Administration

U.S. Department of Energy, 1977. Bonneville Power Administration, Pacific Northwest Long-Range, East-West Energy Corridor Study, Phase I.

- The study identifies the potential corridors that occur on the Lewis and Clark National Forest. One potential corridor (R2N) crosses the Forest. This route parallels U.S. Highway 2. The corridors identified in this study reflect general capability for linear facility siting and are not planning units. Site-specific studies would be conducted before determining any facility location.

Forest Service

U.S. Department of Agriculture, Forest Service, 1981. The Continental Divide National Scenic Trail: Comprehensive Plan.

- This plan describes the portion of the Continental Divide Trail along the Rocky Mountain Division of the Forest. The plan was used to provide protection of the Continental Divide Trail route.

U.S. Department of Agriculture - Forest Service, 1981. Environmental Assessment Oil and Gas Leasing on Nonwilderness Lands. Lewis and Clark National Forest, Great Falls, Montana.

- This Environmental Assessment sets the standards for leasing nonwilderness land for oil and gas exploration and development on the Forest. These contributed to the development of Forest-Wide Management Standards for oil and gas leasing.

U.S. Department of Agriculture - Forest Service, 1982. Environmental Assessment Geophysical Exploration on Nonwilderness Land. Lewis and Clark National Forest, Great Falls, Montana.

- The environmental assessment sets the standards for geophysical oil and gas exploration on nonwilderness land on the Forest and were used to develop Forest-Wide Management Standards for oil and gas exploration.

Montana Department of Fish, Wildlife and Parks. 1978 Montana State-wide Comprehensive Outdoor Recreation Plan:

- This plan sets harvest goals for elk, mule deer, bighorn sheep, moose, and mountain goat. It also outlines strategies for managing habitat for these species, including:

- Road closure, walk-in hunting areas.
- Use of cooperative elk-logging study recommendations when planning timber sales.
- Construction of minimum number of roads.

The Lewis and Clark National Forest worked closely with the Montana Department of Fish, Wildlife, and Parks. Field biologists from the Fish, Wildlife, and Parks helped develop the Forest wildlife standards. The Forest adopted Montana State Fish and Game Commission's road management guidelines as a Forest-Wide Standard. The 1983 Statewide Comprehensive Outdoor Recreation Plan was also reviewed to ensure that the Forest Plan direction and standards were compatible with the projected State recreation needs.

LAND OWNERS

Following is a description of some of the public involvement with adjacent landowners and of agency plans reviewed.

Intermingled Land Owners

Over 800 adjacent or intermingled land owners were contacted at the start of the planning effort. They were urged to take part in issue identification workshops or to participate by phone or mail. Many of these landowners have participated throughout the planning process. One special meeting was held with landowners along the Rocky Mountain Division to discuss wilderness recommendations.

Bureau of Land Management

The Lewis and Clark National Forest administers the 776,259 acre Rocky Mountain Division. Adjacent to the east lies a mountainous and foothills strip of land between 1 to 4 miles wide (totalling approximately 140,000 acres) that serves as a transition between the remote, rugged mountains on the National Forest to the prairie. As this mountainous and foothills strip shares not only similar landforms, vegetation, wildlife and oil and gas potential, it shares several similar issues in the management of these resources. Within this mountainous and foothills strip and adjacent to the Lewis and Clark National Forest, BLM (Bureau of Land Management) administers approximately 17,800 acres as public lands while it also administers the minerals estate on approximately 39,900 acres of private and State lands. Of the 17,800 acres of BLM public lands, 11 parcels, totalling approximately 13,400 acres, are immediately adjoining the National Forest boundary. The remaining 4,400 acres are in 4 parcels. This area is managed under the Headwaters Resource Area Management Plan (FEIS November, 1983).

The Lewis and Clark National Forest also administers the 1,067,138 acre Jefferson Division. That Division includes the Little Belt, Castle, Big and Little Snowies, and Highwood Mountains, and the north end of the Crazy Mountains. The mountains within this division are each distinct ranges separated from each other by prairie. The BLM administers 15,880 acres contiguous to the Lewis and Clark and 20,060 acres within two miles of the Forest boundaries. The BLM also administers the mineral estate on 1,070 acres of State land and 22,080 acres of private land in the same area.

Most of these adjacent lands are managed under the Headwater Resource Area Management Plan (FEIS - November, 1983) and the Billings Resource Area Management Plan (FEIS - November, 1983).

Due to the obvious need to coordinate agency management of areas sharing common characteristics, resources, and issues, the two agencies completed a formal Coordinated Plan for Land and Resource Management Planning.

This effort resulted in several meetings, exchange of information, coordination of the management of adjacent lands, and joint public involvement when appropriate.

Glacier National Park

The Lewis and Clark National Forest and Glacier National Park share about 10 miles of common boundary. U.S. Highway 2 traverses this area.

The Park has expressed concern with management activities on Forest land and their effects on wildlife that migrate between the areas, air and water quality, and visual impacts. A segment of the Continental Divide National Scenic Trail crosses both areas.

The two agencies have worked closely in identifying and coordinating management activities. This includes the development of future recreation facilities at Marias Pass. The two agencies meet regularly throughout the year to exchange information and coordinate the management of adjacent lands.

Blackfeet Tribe

The Blackfeet Indians of Montana are descendents of the South Piegan Tribe, one of the four bands of the Blackfeet Nation. They were a nomadic people, numbering somewhere around 20,000, living off buffalo, supplemented by roots, berries and fruit growing throughout the territory. Early contact with the Anglo-saxons consisted mainly of trappers. The Tribe's reputation as warriors and their remoteness from early transcontinental trails isolated the Blackfeet until long after other tribes had to face the dominant white civilization. The advancing settlers could not be ignored, however, and through treaties and various executive orders the Blackfeet Indians lost the majority of their previous land base and occupy what is the present Blackfeet Reservation.

The Blackfeet Reservation is approximately one-half million acres in size. It is located in Northern Montana, bordered by Canada on the north and Glacier National Park and the Lewis and Clark National Forest on the west. The reservation is 69 percent rangeland, 14 percent farmland and 7 percent timber. The population of the reservation is approximately 8,000 people, the majority being enrolled members of the Blackfeet Tribe.

The Blackfeet Indian Nation and the United States agreed in an 1855 Treaty and Agreements of 1888 and 1896 to various provisions and articles dealing with the rights of the Blackfeet and the United States on lands included in the Blackfeet Reservation. In 1896, the United States acquired

	lands along the portion of the Blackfeet Reservation which are now part of Glacier National Park and the Lewis and Clark National Forest. The portion of the Lewis and Clark National Forest which was formerly part of the Reservation is referred to as the "ceded strip." Under this agreement the Blackfeet retain certain rights (see FEIS page 3-4). Over the past 10 years the Forest Service and the Blackfeet Tribe has been working to define and resolve resource and legal issues on Blackfeet Indian Treaty Agreement lands. A working group has been established which meets at least annually. The Forest has met numerous times with the Blackfeet Tribal Council, Blackfeet Natural Resource Council and their legal council to discuss the Lewis and Clark Forest Plan.
State of Montana	The State of Montana administers numerous adjacent lands including school trust lands and four wildlife management areas. The Forest worked closely with the Montana Department of Fish, Wildlife, and Parks, in wildlife management issues. The Forest also worked with the Montana Department of State Lands in coordinating land use and fire management and the Department of Health and Environmental Sciences, in coordinating water quality and "Best Management Practices".

FEIS

Appendix B

Description of the Analysis Process

SECTION I - Introduction.....B- 1
SECTION II - Inventory Data and Information Collection.....B- 4
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INTRODUCTION (SECTION I)

Description of the Analysis Process

PLANNING PROBLEM

The Forest Service is responsible for determining how best to manage National Forest lands in response to public desires and based on land capabilities. The capability of the Lewis and Clark National Forest is influenced by its wide range of topography, soils, cover, and geographic distribution over all or parts of 6 mountain ranges.

Topography ranges from the steep, rugged, and preciptous slopes of the Rocky and Big Snowy Mountains to gently rolling terrain with broad plateaus and deep valleys in the Castle and Little Snowy Mountains. The physical and chemical properties of the soils are directly related to the underlaying rocks. Soils underlain by igneous rock, sandstone, and shale have good water holding capacity and are fertile. Those soils underlain by limestone are generally droughty and have lower productivity. The Rocky Mountains have very steep ridges and narrow valleys. The soils on the limestone or dolomite ridges are shallow and droughty and of low productivity while the valley soils, over shales and sandstone, often form in deep glacier or alluvial deposits and are more productive. Nearly 75 percent of the Forest is forest land, the remaining 25 percent contains grassy parks, mountain meadows, water, numerous rocky ridges and peaks. Forage has been and continues to be a major resource on the Forest.

Twenty-one percent of the Forest is currently designated wilderness. The Forest supports roaded and unroaded recreation (including big-game hunting and viewing scenery); timber harvest; domestic grazing; and wildlife habitat. There is a dependent recreation-outfitter industry, a local wood products industry, a commercial ski industry, dependent water users, and livestock permittees.

Public interest includes divergent viewpoints about the production of commodities such as timber, grazing, and minerals and noncommodity resources such as wilderness, recreation, scenery, wildlife, old-growth, and diversity. The Forest's major planning goal is to provide enough information to help decision makers determine which combination of goods, services, and land uses will maximize the net public benefit. (Discussed in more detail in Section IV of this appendix.) The NFMA (National Forest Management Act) and the regulations deve-

loped under NFMA (36 CFR 219) provide the analytical framework to address this objective, and also states that the requirements of the NEPA (National Environmental Policy Act and its regulations (40 CFR 1500-1508) must be applied in this analysis process.

PLANNING PROCESS

The forest-wide planning and environmental analysis process brings a new outlook and a new technology to National Forest land management, principally: (1) processes formerly used to make individual resource decisions are now combined to help make intergrated management decisions, and (2) new mathematical modeling techniques are used to assist in the land designation problem including identifying the most cost-efficient pattern of land management. The 10-step planning process is discussed in the NFMA regulations and in Chapter I of this document. The judgement phases, steps 1, 2, 7, and 8, are described in Chapters I and II, and in Appendix A. The execution phases, steps 9 and 10, are presented in the Forest Plan. This appendix describes the analysis phases of this process including steps 3 through 6, summarized below.

Inventory Data & Collect Information (Planning Step 3)

The IDT (interdisciplinary team) determined what data was necessary to respond to the issues and concerns identified in Step 1. The analysis of the management situation, formulation of alternatives, and monitoring require data on resource capabilities, existing supply and demand, expected outputs, benefits, and costs. Existing data was used whenever possible but was supplemented with new data to help resolve sensitive issues or management concerns. Data is on file in the Forest Supervisor's Office.

Analysis of the Management Situation (Planning Step 4)

This analysis examines resource supply and market conditions and determines suitability and feasibility for resolving issues. A multiple-use land analysis model (FORPLAN) was used to address a number of specific analysis requirements, including benchmarks. These requirements include: (a) projecting of the Forest's current management program; (b) determining the Forest's ability to produce a range of goods and services from minimum management to maximum production; (c) evaluating the feasibility of reaching the national production goals (RPA targets) and social demands identified as issues and concerns; and (d) identifying monetary benchmarks which estimate the output mix which maximizes present net value (or minimizes the cost) of

resources having an established market or assigned value and meeting other departure analysis requirements. The Analysis of the Management Situation is on file in the Forest Supervisor's Office.

Formulation of Alternatives (Planning Step 5)

The information gathered during the first four planning steps is combined and analyzed to formulate alternative management plans. The alternatives reflect a range of resource management direction. Each major public issue and management concern was addressed in one or more alternatives. Management prescriptions and practices were formulated to represent the most cost-efficient way of attaining the objectives for each alternative. Both priced and nonpriced outputs are considered in formulating the alternatives. Additional information covering alternatives is also on file in the Forest Supervisor's Office.

Estimation of Effects of Alternatives (Planning Step 6)

The physical, biological, economic, and social effects of each alternative were estimated and analyzed to determine how each responded to the issues, concerns, and evaluation criteria. FORPLAN was used to estimate some of the economic and physical output effects while other methods were used for remaining effects. Both direct and indirect effects were considered. Such analysis included:

(1) Spatial analysis of wildlife habitat, watersheds, and transportation needs.
(2) Effects of various land uses on mineral development.
(3) Roadless resources and wilderness potential.
(4) Socio-economic effects of management.
(5) Energy use.
(6) Wilderness management.
(7) Wildfire management.
(8) Insect, disease, and noxious weed management.
(9) Cultural resource management.
(10) Means of mitigation.
(11) Relationship to other plans and activities.

FOREST DATA BASE

Capability Areas

The basic resource data storage unit is the capability area. Capability areas are lands delineated for the purpose of estimating their responses to various management practices. There are approximately 4,700 unique capability areas on the Lewis and Clark National Forest. Forest capability areas were based on the following criteria:

Geographic indentifers - The Forest was divided into coherent land units considering (a) Mountain Range, (b) Ranger District, (c) Montana Wilderness Study Act Areas, (d) Wilderness Boundaries, and (e) RARE II Wilderness Recommendations.

Landtype identifiers - The Forest landtype inventory was selected as the basic unit for the capability area since it was the best reflection of natural systems expressed by soils, vegetation, slope, and landform.

Unique number identifiers - A sequential number starting with 01 was used to represent each individual occurrence of a landtype association in each geographic area.

Each occurring combination of these identifiers defined a unique capability area. An example of such a combination is shown below:

Capability area is H17406

where H = Highwood Mountains.
174 = 25 percent slope, moderate soil erodibility, low avalanche hazard, and low site productivity.
06 = The sixth occurrance of this Geographic/landtype combination.

Further definition of the capability area components may be found in the Forest Planning Data Base Component Dictionary.

Analysis Areas

Analysis areas are one or more capability areas combined for the purpose of analysis in formulating alternatives and estimating various impacts and effects (FSM 1920.5). Capability areas were aggregated into analysis areas based on similarities in resource production potential and economic considerations. Analysis areas are not contiguous

land units, as capability areas are, but may be composed of capability areas from many parts of the Forest. In delineating analysis area, various land characteristics were considered which would help identify potential suitability for management practices. There are 530 analysis areas.

Production Coefficients

Rates of production were determined for several Forest products and environmental indicators needed to address issues and concerns. These are summarized below:

Output	Unit Of Measure Per Acre
Developed Recreation	Recreation visitor days
Dispersed Recreation	Recreation visitor days
Wildlife Forage Productivity	Animal Unit Months
Domestic Forage Productivity	Animal Unit Months (780 pounds of air dried forage)
Timber	Thousand cubic feet/thousand board feet
Local Road Constr.	Miles
Sediment	Tons
Arterial & Collector Road Construction	Miles

Coefficients were also developed for costs and benefits. In all cases these coefficients represent the effect of applying a particular management prescription to an analysis area. They are based on existing research and data, supplemented by the judgement of agency professionals.

Suitable Lands

Forest habitat types and legal status were used to identify areas considered tentatively suitable for timber management. Tentative suitable timber lands are shown in Table B-1.

TABLE B-1 IDENTIFICATION OF LANDS SUITABLE FOR TIMBER PRODUCTION

Total Net Forest Area	1,843,397
Water	4,655
Nonforest land	482,205
Forestland (at least 10% stocked with trees)	1,356,537
Forestland not capable of producing industrial wood	491,475
Productive Forest land	865,062
Lands withdrawn from timber production by Congress	176,872
Lands withdrawn from timber production by Chief - F.S.	8,273
Available productive land	679,917
Technologically unsuited for timber production	0
Irreversible resource damage	0
Restocking not assured	0
Tentatively suitable for timber production	679,917

Non-forested lands include grasslands, scree, talus, and other rockland. Lands not capable of producing industrial wood were determined before July, 1982, and a breaking point of 20 cubic feet/acre/year was one of the criteria used. (See 36 CFR 219.296.) Forested lands withdrawn from timber production include the Scapegoat and Bob Marshall Wildernesses and the Tenderfoot Experimental Forest.

Land Use Designation and Scheduling

Land use designation and scheduling are determined by the FORPLAN model for any set of objectives. The model uses the production coefficients derived from inventory data in determining the most economically efficient land use designation and implementation schedule.

Monitoring

Forest planning data provides a base from which changes can be measured and will also be used to monitor implementation activities.

Plan Implementation Programs

The data base provides biological and physical data that will help develop subsequent programs for plan implementation. As more information is available the data base will be updated and improved.

Sources of Data

Sources of existing data include the following:

Basile, Joseph V. and Chester E. Jensen. 1971. Grazing Potential on Lodgepole Pine Clearcuts in Montana. USDA - Forest Service, Intermountain Forest and Range Experiment Station, Ogden, Utah. Research Paper INT-98.

Beasley, L. (Letter to Tom Coston, Regional Forester. Discussion of price trends in the 1980 RPA Report.) 1978. Located at Lewis and Clark National Forest, Great Falls, Montana.

Cole, Jim (Editor) 1978. Elk habitat/timber management relationships on east-side forests of the Northern Region, USFS. 48 pp.

Coop, Kenneth J., 1971. Habitat use, distribution, movement, and associated behavior of elk, Little Belt Mountains. Montana Department of Fish and Game Research Project Number W-120-R-1 and R-2. 61 pp.

Cullen, Steve and Cliff Montagne. 1981. Final Report to the United States Forest Service (Region 1)--Soil Compaction Study.

Day, Thomas A., 1973. Summer and fall elk distribution, movements, and range use in the Little Belt Mountains. Montana Department of Fish and Game Research Project Number W-120-R-3 and R-4. 70 pp.

Erickson, Glenn L., 1972. The ecology of Rocky Mountain bighorn sheep in the Sun River area of Montana with special reference to summer food habits and range movements. Montana Department of Fish and Game Research Project Number W-120-R-2 and R-3. 50 pp.

Fisher, William and Bruce Clayton. 1982. Fire Ecology of Eastern Montana Forest Habitat Types. Editorial Draft. USDA-Forest Service, Intermountain Forest and Range Experiment Station, Ogden, Utah.

Fisher, William C. and Bruce D. Clayton. May 1983. Fire Ecology of Montana Forest Habitat Types East of the Continental Divide. General Technical Report INT-141. Odgen, Utah: Intermountain Forest and Range Experiment Station, Forest Service, USDA.

Flynn, James. 1982. Road Management Policy. Montana Fish, Wildlife, and Parks, Helena, Montana.

Frisina, Michael R., 1974. Ecology of bighorn sheep in the Sun River area of Montana during fall and spring. Montana Department of Fish and Game Research Project Number W-120-R-4 and R-5. 68 pp.

Hamilton, Michael M. and Ronald T. Mayerle. 1982. Mineral Investigation of the Middle Fork Judith RARE II Area (No. 1734) and the Included Middle Fork Judith Wilderness Study Area. USDI-Bureau of Mines.

Hanzel, Delano A., 1959. The distribution of the cutthroat trout (Salmo clarki) in Montana. Proceedings of the Montana Academy of Sciences. 19:32-71.

Haynes, Richard W. and Davis M. Adams. The 1980 softwood timber assessment market model: structures, projecting and policy simulations. Forest Science Monograph. September 22, 1980.

Holdorf, H. 1981. Soil Resource Inventory. USDA-Forest Service, Lewis and Clark National Forest, Great Falls, Montana.

Holdorf, H. 1975. Preliminary Landtype Survey Legend, USDA-Forest Service, Lewis and Clark National Forest, Great Falls, Montana.

Jonkel, Charles. 1975. Border Grizzly Project Annual Progress Reports.

Knight, R.R., 1970. The Sun River elk herd. Wildlife Monograph No. 23, 66 pp.

Lyon, L. Jack. 1979. Habitat effectiveness for elk as influenced by roads and cover. 15 pp.

Lyon, L. Jack (Editor), 1980. Montana cooperative elk-logging study. Annual Progress Report, January 1 - December 31, 1979, 84 pp.

Lyon, L. Jack. 1982. Elk Guideline Validation, Job V-1. In Montana Cooperative Elk-Logging Study Annual Progress Report. 72-89 pp.

Merzenich, James P. Developing timber costs and prices for FORPLAN. Missoula, Montana: Forest Service, USDA; 1981. Available from: Regional Office, PP&B, Missoula, Montana.

Mueggler and Stewart. 1980. Grassland and shrubland habitat types of western Montana. General Technical Report INT-66. Ogden, Utah: Intermountain Forest and Range Experiment Station, Forest Service, USDA.

Mussell, Thomas W. and F.W. Howell, 1971. Game management in Montana. Montana Department of Fish and Game Federal Aid Project W-3-C. 238 pp.

Pfister, Robert D., Bernard L. Kovalchik, Stephen F. Arno and Richard C. Presby, 1977. Forest habitat types of Montana. USDA-Forest Service General Technical Report INT-34. 174 pp.

Ream, Robert R. 1978. Wolf Ecology Project--Annual Progress Reports.

Reid, James E. (Letter to Forest Supervisors) Downward sloping demand curves. Missoula, Montana: USDA-Forest Service, Northern Region; February 12, 1981.

Roe, Arthur L. and Gene D. Amman, 1970. The Mountain Pine Beetle in Lodgepole Pine Forest. USDA-Forest Service Research Paper, INT-71, Intermountain Forest and Range Experiment Station, Ogden, Utah.

Schallenberger, A.D., 1965. Food habits, range use and interspecific relationships of bighorn sheep in the Sun River area, west-central Montana. Montana Department of Fish and Game Research Project Number W-98-R-5. 44 pp.

Schallenberger, Allen, 1974. Wildlife habitat survey report, Badger Creek-Two Medicine management unit. USFS, Teton Ranger District. 50 pp.

Schallenberger, A. and Charles Jonkel. 1980. Rocky Mountain East Front Grizzly Studies, 1979. Annual Report, 87-90 pp. University of Montana Border Grizzly Project Special Report No. 39. 207 pp.

Thomas, Jack Ward, ed. 1979. Wildlife Habitats in Managed Forests in the Blue Mountains of Oregon and Washington. USDA-Forest Service Agriculture Handbook No. 553. 512 pp.

USDA-Forest Service. 1969. Wildlife Survey Handbook (FSH 2609.21 R-1). Missoula, Montana.

USDA-Forest Service. 1973. National Forest Landscape Management, Volume 1. Agriculture Handbook, Number 434. 77 pp.

USDA-Forest Service. 1974. National Forest Landscape Management. The Visual Management System 2(1). Agriculture Handbook, Number 462. 47 pp.

USDA-Forest Service. 1974. Slash Disposal Program. Final Environmental Impact Statement-Northern Region. Missoula, Montana.

USDA-Forest Service. 1974. Recreation Opportunity Inventory and Evaluation Handbook, Northern Region, R-1 74006, Missoula, Montana.

USDA-Forest Service. 1976. Fire Management in the Selway-Bitterroot Wilderness - A Proposed Policy Change. Final Environmental Impact Statement. Missoula, Montana.

USDA-Forest Service. 1976. Land System Inventory Guide (for the Northern Region). R1-76-20. Missoula, Montana.

USDA-Forest Service. 1976. Ecoregions of the United States by Robert G. Baily (Map). Ogden, Utah.

USDA-Forest Service. 1977. National Forest Landscape Management, Roads 2(4). USDA Handbook 483.

USDA-Forest Service. 1978. Description of the Ecoregions of the United States. Compiled by Robert G. Baily, Ogden, Utah.

USDA-Forest Service. 1979. Roadless Area Review and Evaluation (RARE II) Final Environmental Impact Statement. FS-325. Washington, DC.

USDA-Forest Service. 1979. Users Guide to Soils, Mining and Reclamation in the West. General Technical Report INT-68.

USDA-Forest Service. 1980. Management Information Handbook (FSH 1309.11). Washington, DC.

USDA-Forest Service. 1980. Social Impact Assessment Baseline, 1980. Lewis and Clark National Forest, Great Falls, Montana.

USDA-Forest Service. 1980. National Forest Landscape Management, Timber 2(5). USDA Handbook 559.

USDA-Forest Service. 1980. A Recommended Renewable Resources Program - 1980 Update. FS-346. Washington, DC.

USDA-Forest Service. 1980-1981. Recreational Information Management System (RIM) annual report for the Helena National Forest. Washington, DC.

USDA-Forest Service. 1980. Level I Fire Management Analysis. Lewis and Clark National Forest, Great Falls, Montana.

USDA-Forest Service. 1981. Level I Fire Management Analysis Adendum, Lewis and Clark National Forest, Great Falls, Montana.

USDA-Forest Service. 1981. Fuel Management Planning and Treatment Guides. Northern Region, Missoula, Montana.

USDA-Forest Service. 1981. Withdrawal Report on the Bob Marshall-Scapegoat Wilderness. Missoula, Montana.

USDA-Forest Service. 1981-82. Forest Transportation Study Report (FSH 7709.11, Transportation Engineering Handbook, Chapter 10).

USDA-Forest Service. 1981. Environmental Assessment Oil and Gas Leasing On Nonwilderness Lands. Lewis and Clark National Forest, Great Falls, Montana.

USDA-Forest Service. 1982. Environmental Assessment Geophysical Exploration on Nonwilderness Land. Lewis and Clark National Forest, Great Falls, Montana.

USDA-Forest Service. 1982. 36 Code of Federal Regulations (CFR) Part 219, National Forest System Land and Resource Management Planning. Washington, DC.

USDA-Forest Service. 1982. Wildlife User Guide for Mining and Reclamation. General Technical Report INT-126. Intermountain Forest and Range Experimental Station. Ogden, Utah. 77 pp.

USDA-Forest Service. 1982. Watershed Improvement Needs Inventory. Lewis and Clark National Forest, Montana.

USDA-Forest Service. Level II Fire Management Analysis: Helena, Kootenai, and Gallatin National Forests. Forest Planning records, Lewis and Clark National Forest, Great Falls, Montana.

USDA-Forest Service. Range Analysis Handbook (FSH (2009.21 R-1). Washington, DC.

USDA-Interagency Work Group on Range Production. 1974. Opportunities to Increase Red Meat Production From Ranges of the USA. On file. Lewis and Clark National Forest, Great Falls, Montana. pp. 50-51.

USDA-Soil Conservation Service. Hydrology of Mountain Watersheds, Preliminary Draft. Forest Planning records, Lewis and Clark National Forest, Great Falls, Montana.

USDI-Fish and Wildlife Service. 1982. Grizzly Bear Recovery Plan. Washington, DC. pp. 59-61.

USDI-Geological Survey. Topographic and planimetric maps (7.5 minute series) covering the Lewis and Clark National Forest. Used to obtain lake, wetland, flood plain, riparian areas, and stream miles; also to determine aspect, elevation, and slope. Available at Lewis and Clark National Forest Supervisors Office, Great Falls, Montana.

In addition, stream habitat information was based on surveys conducted in the late 1960s and early 1970s. These surveys were conducted using the R-1 Stream Habitat Survey procedure. However, less than 20 percent of the stream miles supporting fisheries on the Forest have been inventoried by this method. Data was also available for most streams from information stored in the Interagency Aquatic Resource Data Bank. This is a compilation of data input by the Montana Department of Fish, Wildlife, and Parks, the Forest Service, and the BLM.

Work maps were developed showing big-game winter ranges, reproduction areas, security areas, and migration routes. These maps are stored in the Forest wildlife biologist's office. Occupied range for mountain goat in the Big Snowies and moose in the Rocky Mountains are included on these maps. Work maps and printed maps of essential habitat for grizzly bear, gray wolf, bald eagle, and peregrine falcon are also located in the wildlife biologist's office. Work maps delineating streams which support salmonid fisheries are located in the same place.

Timber data were derived from Forest 1970-1973, and 1980 timber inventories. Timber types and condition classes were developed by Forest Service personnel.

THE FOREST PLANNING MODEL-INCLUDING FORPLAN (SECTION III)

OVERVIEW

The planning model consists of information and various analytic techniques combined to address planning questions and issues. The major analytic model is called FORPLAN.

ANALYSIS PROCESS AND ANALYTICAL TOOLS

Forplan

FORPLAN is a computerized linear program designed to analyze thousands of possible management activities, practices, and resource outputs on specific land areas in order to select an optimal set capable of meeting various management constraints and goals (objective functions).

The specific land areas (analysis areas), were delineated by characteristics which have a fairly uniform response to management activities, costs, and benefits. Management activities and practices were assigned to analysis areas based on their suitability (see Identification of Analysis Areas in this section). Specific combinations of activities and outputs were assigned to analysis areas to represent various multiple use objectives called management prescriptions. Each of the 530 analysis areas has from 1 to 6 management prescriptions assigned to it.

Resource outputs or production coefficients were developed for each combination of analysis area and management prescription. FORPLAN assigns those management prescriptions to analysis areas which produce the goods and services that maximize the objective function, after meeting all constraints. The objective function is said to be optimized when its value is as large as possible after all constraints are satisfied.

Alternatives are generated by constraining management prescriptions available to analysis areas, constraining the access to analysis areas for timber harvest in a particular decade, or constraining the outputs from analysis areas or groups of analysis areas. These constraints were designed to achieve the goals of an alternative. The conditions set by the constraints must be satisfied before the objective function is optimized. The analysis of the benchmarks and alternatives utilized the same objective function, to maximize present net value (see Section IV). In other words, after meeting all constraints the FORPLAN model assigned the remaining opportunities to produce the most economic value.

THE FOREST PLANNING MODEL-INCLUDING FORPLAN (SECTION III)

Preliminary Analysis

FORPLAN is based upon a complex set of mathematical relationships. A large amount of analysis preceded the descriptions of these relationships in terms of FORPLAN parameters. These were established by IDT interactions to assure that the minimum management requirements as discussed in Section VI of this appendix could be met. In general terms they include practices and costs that (1) assured protection of the basic soil and water resources; (2) provided special consideration for riparian zone management; (3) minimized hazards from flood, wind, wildfire, and erosion, or other natural physical forces primarily through fire management practices; (4) reduced hazards from pest organisms; (5) maintained viable populations of fish and wildlife species; (6) and specified construction and maintenance of roads only to the standards necessary to meet the intended need.

Additional Analysis

The FORPLAN designation of analysis areas was used as a basis for further analysis. Elk and fish habitat potential were based upon several aspects of the FORPLAN designation as were elk hunter days, wilderness benefits, sediment production, and arterial and collector road systems. A supplemental economic analysis determined the most cost-effective fire suppression techniques to be used. A social and economic impact assessment was conducted for each alternative.

Spatial analysis was performed on each alternative. The major component of this "ground truthing" process was a review by Ranger District personnel familiar with ground conditions. Mapped land designations were also reviewed by Interdisciplinary Team members. Aspects of the designation reviewed included distribution of old growth, effects on mineral development, watershed analysis, effects on range allotments, roadless areas, wilderness, and transportation planning.

IDENTIFICATION OF ANALYSIS AREAS

A description of the process used in delineating analysis areas is described in Section II of this appendix and in the Forest planning records (Planning Records: "Analysis Areas", April, 1981). A stratification of land into analysis areas results from assigning each capability area to one category in each of six levels. Table B-2 identifies the analysis area criteria. A summary and rationale for each FORPLAN level identifier follows.

TABLE B-2 ANALYSIS AREA CRITERIA

Level 1 (Mountain Ranges)	FORPLAN IDENTIFIER
(1) Rocky Mountains	RMF
(2) Little Belt Mountains	L-BELT
(3) Highwood Mountains	HIWOOD
(4) Crazy Mountains	CRAZY
(5) Snowy Mountains	SNOWY
(6) Castle Mountains	CASTLE
Level 2 (Current Land Status)	
(1) Bob Marshall & Scapegoat Wilderness	BM&SGW
(2) RARE II Recommended Wilderness	RAR2RW
(3) RARE II Further Planning	RAR2FP
(4) Undeveloped Areas	UNDEV
(5) Developed Recreation Areas	DEVREC
(6) All Other Areas	ALLOTH
Level 3 (Winter Range Areas)	
(1) Non-Winter Range	NWR
(2) Winter Range	WR
Working Group Identifiers (Potential Vegetation)	
(1) General Forest High Timber Productivity	GFH
(2) General Forest Low Timber Productivity	GFL
(3) General Forest Moderate Timber Productivity	GFM
(4) Range Opportunity, General Forest High Timber Opportunity	RGFH
(5) Range Opportunity, General Forest Low Timber Opportunity	RGFL
(6) Range Opportunity, General Forest Moderate Timber Opport.	RGFM
(7) Mosaic	MOSAIC
(8) Range Opportunity, Dry Forest Low Timber Opportunity	RDFL
(9) Water, grass, riparian zone, rock, scree, alpine, high areas	OTHER

Land Class Identifiers (Slope Class & Soil Sensitivity)

(1) Slope less than 25%, low soil sensitivity	-25L
(2) Slope less than 25%, high soil sensitivity	-25H
(3) Slope less than 25%, moderate soil sensitivity	-25M
(4) Slope between 25% and 45%, low soil sensitivity	25-45L
(5) Slope between 25% and 45%, high soil sensitivity	25-45H
(6) Slope between 25% and 45%, moderate soil sensitivity	25-45M
(7) Slope greater than 45%, low soil sensitivity	+45L
(8) Slope greater than 45%, high soil sensitivity	+45H
(9) Slope greater than 45%, moderate soil sensitivity	+45M

Condition Class Identifier-Existing Vegetation

(1) Nonstocked	NONSTK
(2) Seedlings-Saplings	SEED
(3) Poles	POLE
(4) Mature Sawtimber	MATSAW
(5) Multi-Age	MULTI
(6) Stagnated	STAG
(7) Noncommercial Forest	NCF
(8) Nonforest	NONFOR
(9) Grass	GRASS
(10) High Area	HAREA
(11) Range Opportunity-High Area	RHAREA
(12) Scree	SCREE
(13) Rock	ROCK
(14) Alpine	AIPINE
(15) Riparian Forest	RIPFOR
(16) Riparian Grass	RIPGRS
(17) Water	WATER
(18) Riparian Zone (Wilderness only)	RIPAR
(19) Forest (Wilderness only)	FOREST
(20) High Volume Mixed Conifer Low Risk (MWSA only)	HVMCLR
(21) High Volume Mixed Conifer High Risk (MWSA only)	HVMCHR
(22) High Volume Lodgepole Pine (MWSA only)	HVLPP
(23) High Volume Pole (MWSA only)	HVPOLE

(24) Low Volume Mixed Conifer Low Risk (MWSA only)	LVMCLR
(25) Low Volume Mixed Conifer High Risk (MWSA only)	LVMCHR
(26) Low Volume Lodgepole Pine (MWSA only)	LVLPP
(27) Low Volume Pole (MWSA only)	LVPOLE

Condition Class Identifier-
Regenerated Vegetation

(28) Clearcut/Shelterwood	CC/SHW
(29) Shelterwood	SHELTR
(30) Selection	SELECT

Level 1

Mountain range identity was maintained to reflect differences in wildlife and recreation opportunities and development costs. It also allowed the Forest to model outputs or constraints geographically/spacially. In addition, this provided the ability to identify activities and outputs by mountain range for display purposes for local publics.

Level 2

Level 2 was used to: (1) delineate areas with special land classifications or studies, (2) delineate areas where geographic cohesiveness is necessary for analysis, and (3) delineate areas to show developed/undeveloped condition as pertains to roads.

This stratification facilitated the analysis of the potential of the roadless resource for wilderness as well as other uses. It allowed for the tracking and examination of costs and benefits of developing previously identified roadless areas.

Level 3

Wildlife management is a major concern on the Forest, with big-game being of particular concern. Level 3 was used to delineate winter range and non-winter range for elk, mule deer, white tailed deer, and bighorn sheep. Winter ranges mapped for the various big-game species are areas which are utilized for at least half of the winter period (December 1 thru April 15) during a majority of years. Delineation of winter ranges is based on aerial surveys, forage utilization studies, and ground surveys conducted on an annual basis by personnel of the Montana Department of Fish, Wildlife, and Parks. Research studies conducted by graduate

students provided another source of information on winter range and other seasonal big-game habitat in specific areas. Other important big-game areas (summer/fall range, calving areas, migration routes, and security areas) were also delineated but were not stratified in the construction of the FORPLAN model. This stratification allowed constraints to be placed on management for other resources in areas that are especially important for big-game animals.

Working Group

These groupings represent biological potential to produce both timber and forage on commercial forest lands and are based primarily on habitat types (aggregations were necessary due to model size limits). Working groups were delineated under the following criteria. (1) Delineate commercial forest lands on the opportunity to apply different silvicultural systems, timber site productivity, and the opportunity for livestock grazing. Productivity is LOW (20 to 49 cubic feet/acre/year) and HIGH (50+ cubic feet/acre/year). (2) Maintain ability to aggregate commercial forest groups to current plan groups. (3) Noncommercial forest and nonforest capability areas are classified as OTHER. (4) Do not exceed 9 working groups (FORPLAN requirement).

Land Class

The land class category was used to reflect soil sensitivity. Some management activities have a high probability of producing long-term detrimental changes in environmental quality. High sensitivity identifies areas with a rapid sediment transport efficiency combined with a high erosion hazard and areas with a high probability of mass failure. The soil sensitivity ratings (HIGH or LOW) were then combined with slope classes (<25 percent, 26-45 percent, or >45 percent) to define a land class combination.

Slope classes for timber reflect different logging costs. Slope classes for livestock grazing reflect suitability for livestock grazing use.

Condition Class

Condition class was used to: (1) delineate commercial forest land based on size classes; (2) delineate commercial forest lands in the two MWSA areas (Middle Fork Judith and Big Snowies), based on the more recent inventory data of 1981; and (3) delineate noncommercial forest land and landtype asso-

ciations in wilderness or opportunities for assigning management prescriptions, homogenous response and current plan groups.

Age

An average age was assigned to each existing working group - condition class combination.

IDENTIFICATION OF PRESCRIPTIONS

Overview

NFMA regulations define management prescriptions as a series of complementary or compatible "...management practices selected and scheduled for application on a specific area to attain multiple-use and other goals and objectives." (36 CFR 219.3.) Prescriptions are used to describe the potential land treatments which could be applied to an analysis area. Prescriptions were developed by an IDT consisting essentially of the Resources Core Group with assistance from members of the Resources Support Group as needed. Review and input was obtained at various points from the Lewis and Clark National Forest Management Team and the Northern Regional Office. A management prescription consists of:

(1) A goal statement stating the desired future condition,

(2) Those management practices proposed to achieve the goal or compatible with the goal, and

(3) The standards and guidelines that apply to all practices within the prescription.

Some general requirements for developing prescriptions were:

(a) More than one prescription may be applied within an analysis area, but only one on any given acre.

(b) The series of practices contained in a prescription must be compatible on both the same site and at the same time unless competing practices are scheduled at compatible times.

(c) When a practice is included in a prescription it will be scheduled for application on the selected analysis area. The practice and its outputs, effects, and costs will be accounted for in the FORPLAN model.

(d) Prescriptions varying in management intensity and emphasis must be available to explore and describe:

(1) current direction;
(2) maximum output levels;
(3) maintenance levels;
(4) opportunities to meet national targets (RPA), and
(5) opportunities to resolve issues and concerns.

(e) Prescriptions must be explicit enough to determine how the practices are to be applied, but cannot be so specific that they exceed the reliability of the data base.

(f) Prescriptions must be different from each other. Differences include: (1) those that are meaningful to the land manager applying the prescription; and (2) quantifiable differences in outputs, effects, and costs resulting from application of the prescriptions.

Management Prescriptions were developed for the Lewis and Clark National Forest using the process summarized below. (Also see Planning Records Management Prescriptions", January, 1982, and "Management Practices", January, 1982.)

Management Practices

A complete set of practices were developed which described a full range of management options to achieve the following purposes.

(1) Describe the current Managment Direction (see Analysis of the Management Situation, section 2, Current Management Direction).

(2) Resolve issues and management concerns that are to be addressed in the Forest linear programming model. (See Analysis of the Management Situation, section 2, Method of Resolving Issues, Concerns, and Regulation Requirements.) Management practices with differing guidelines and standards were developed which could be used in prescriptions to resolve issues/concerns through a spectrum of options.

(3) Establish a realistic potential maximum and minimum management level for each resource.

To assist the IDT in developing a set of prescriptions that were (a) multiple-use orientated, yet, (b) realistic or practical for on-the-ground application of the mix of practices chosen within one prescription, and (c) reasonable or economically viable, the team found it convenient to classify each practice to be used in the prescriptions as to: (1) their compatibility with other practices if they were to be applied on the same acre at the same time, and (2) whether they contributed to market or non-market values or were support activities.

Developing a Range of Prescriptions

The IDT then established prescription goals and assigned the appropriate practices to the prescriptions. (See Prescription Assignment Criteria, AMS, section 2, Management Practices.) Prescriptions were designed to describe a full range of options, i.e., current direction, maximum output levels, maintenance levels, and a range of alternative methods to resolve issues. They were also designed to match the range of site-specific conditions that could be expected on the wide variety of areas within Forest.

To build each prescription the IDT generally found it convenient to (1) outline a goal statement in terms of market values and non-market values, (2) list the emphasis resource management practices that best fit the goal, (3) list other compatible resource management practices that fit within the prescription goal, (4) list the necessary support practices required to achieve the investment practices, (5) list the appropriate operations, maintenance, and protection practices for all resources and support activities, and (6) and note any guidelines or standards appropriate to any of the practices for achieving the prescription's goals. After the IDT had outlined each prescription, each specialist worked on the guidelines and standards for individual resource area. These were then consolidated into a draft form and reviewed by the IDT for consistency to the original intent.

When looking at a range of alternative prescriptions the IDT generally chose to develop a prescription if there was any doubt whether it was

needed or not. This gave the IDT and the Management Team a full range of prescriptions to review before determining which prescriptions werethe most appropriate ones.

Review and Revision

After the IDT had completed its initial draft, the Management Team reviewed the prescriptions and appropriate changes were made. The revised management practices and prescriptions were summarized and printed up as a review draft. The draft was then reviewed by the IDT, the Management Team , and the Regional Office. Appropriate changes were made and the final management practices "dictionary" and management prescriptions document were made a part of the planning record. (See "Management Practices" January, 1982 and "Management Prescriptions" January, 1982.)

This review centered on the following questions:

(1) Are the guidelines for management practice options appropriate?
(2) Are the standards appropriate for management practice options?
(3) Are the practices along with their guidelines and standards appropriate to meet the goal of the management prescription?
(4) Is there a prescription to analyze the range of existing on-the-ground situations and future options?
(5) Are there prescriptions that are not needed because they do not satisfy the questions in #4?
(6) Finally, if there are prescriptions that are extraneous because they are too similar to other prescriptions then which one of the "duplicates" can be drop from further analysis? (These questions will continue to be asked during coefficient development and begin to quantify differences in outputs, effects, and costs.)

Cost Efficiency

Cost efficiency was considered in developing prescriptions in the following manner. Objectives and standards were established for each prescription by resource element. Given the objective of the prescription, costs were estimated for resource elements to meet the standards of the prescription. Costs of producing the outputs that would result from implementing the prescription were developed. Two basic assumptions used in developing prescrip-

tion costs were: (1) costs experienced in implementing past practices were a reasonable basis from which to predict future costs; and (2) the funding for production of outputs would include only that necessary to meet the goals of the prescription. Validity of cost assumptions was evaluated using a computer program MERZ * XMAS which calculates PNV for each analysis area/prescription/timing option. Cost and benefits were compared to insure cost efficiency.

Prescriptions

The result was a set of sixty-seven multiple-use management prescriptions with a broad range of emphases, intensities, practices, and standards. Some of the prescriptions emphasize a specific resource while other prescriptions provided for many resource uses. All of these prescriptions developed by the interdisciplinary team are integrated resource management prescriptions.

Each prescription is a group of compatible management practices. These management practices represent a specific action or treatment of each resource element. Further information and descriptions of the management prescriptions and practices may be found in the following discussion and in the planning records (Analysis of the Management Situation: Management Prescriptions, Lewis and Clark National Forest, January 1982, 403 pp., and Analysis of the Management Situation; Management Practices, Lewis and Clark National Forest, January 1982, 160 pp.).

The following prescriptions were used in the FORPLAN model. They are grouped by the management emphasis of each management prescription. The description focuses on the main emphasis of the management prescription, although management for other resources is provided in each prescription.

RANGE PRESCRIPTION CATEGORY

(1) Purpose - the category of range prescriptions was developed to provide livestock management options on those lands available for and capable of producing livestock forage. These prescriptions were developed to respond to the issues of range production potentials, range improvement program levels, and livestock use levels that can be achieved while meeting the needs of other resources.

(2) Criteria and Assumptions - criteria used in preparing the prescriptions in the this category were:

- Provide a range of livestock management intensities and investment levels.

- Provide for other uses compatible with livestock management objectives.

- Develop standards, guidelines, and costs based on commonly accepted management practices currently in use.

(3) Prescriptions - the prescriptions which fall into this category are described below:

HLD04 Management emphasis is on range management at a high intensity level. Recreation setting is roaded natural.

HLD05 Management emphasis is on range management at a high intensity level. Recreation setting is semi-primitive.

MMD04 Management emphasis is on range management at a moderate intensity level. Dispersed recreation and wildlife management are also emphasized at moderate intensity levels. Recreation setting is roaded natural.

MMD05 Management emphasis is on range management at a moderate intensity level. Dispersed recreation and wildlife management are also emphasized at moderate intensity levels. Recreation setting is semi-primitive.

LLACD Management emphasis is at a low intensity level for both market and nonmarket values, which allows only a maintenance level for recreation, wildlife, and range.

SRZD1 See Riparian Category.

WILDLIFE PRESCRIPTION CATEGORY

(1) Purpose - the category of wildlife prescriptions was developed to provide wildlife management options on suitable lands. These prescriptions were developed in response to wildlife issues concerning fish and wildlife habitat management, habitat improvement levels, and interaction with other resource uses such as timber management or domestic grazing.

(2) Criteria and Assumptions - criteria used in preparing the prescriptions in this category were:

- Provide a range of wildlife management intensities and investment levels.

- Maintain or enhance important wildlife habitat elements including T&E habitat, big-game winter ranges, calving or lambing areas, migration routes, elk summer-fall ranges, raptor nesting sites, and significant non-game habitat values.

- When wildlife habitat improvements are applied, management objectives will be aimed at maintaining a good diversity of forested successional stages, including old-growth timber, and a relatively high level of big-game habitat security. Timber harvest and other silvicultural practices may be programmed to meet wildlife habitat management objectives.

- Provide for other uses compatible with wildlife management objectives.

- Develop standards, guidelines, and costs based on commonly accepted management practices currently in use.

(3) Prescriptions - the prescriptions which fall into this category are described below:

LHC08 Management emphasis is on wildlife management at a high intensity level. Recreation setting is semi-primitive.

LHA08 Management emphasis is on wildlife management and dispersed recreation at a high intensity level. Recreation setting is semi-primitive.

LHC05 Management emphasis is on wildlife management at a high intensity level. Range management is allowed. Recreation setting is semi-primitive.

LHA05 Management emphasis is on wildlife management and dispersed recreation at a high intensity level. Range management is allowed. Recreation setting is semi-primitive.

Moderate and low intensity wildlife management prescriptions are described in the Timber, Range, and Custodial Management categories.

TIMBER PRESCRIPTION CATEGORY

(1) Purpose - the category of timber prescriptions was developed to provide a timber management option(s) on all acres identified as tentatively suitable for timber production. These prescriptions were developed to respond to the issues of timber production potential and the levels of timber harvest that can be achieved while meeting the needs of other resources.

(2) Criteria and Assumptions - criteria used in developing the prescriptions in this category were:

- Provide a range of timber management intensities for existing and regenerated stands by allowing the application of commercial and/or precommercial thinning, differing final harvest methods, and various entry periods.

- Apply primarily even-age silvicultural systems.

- Provide for other uses compatible with timber management objectives.

- Develop standards, guidelines, and costs based on commonly accepted management practices currently in use.

(3) Prescriptions - the prescriptions which fall into this category are described below in two sub-groups:

Timber Management - applies on lands available for and capable of producing commerical timber.

MLE01 Management emphasis is at a moderate intensity level for timber management. Timber harvest uses the clearcutting system. Recreation setting is roaded natural.

MLE02 Management emphasis is at a moderate intensity level for timber management. Timber harvest uses the shelterwood system. Recreation setting is roaded natural.

HLE01 Management emphasis is at a high intensity level for timber management. Timber harvest uses the clearcutting system. Recreation setting is roaded natural.

HLE02 Management emphasis is at a high intensity level for timber management. Timber harvest uses the shelterwood system. Recreation setting is roaded natural.

HLE03 Management emphasis is at a high intensity level for timber management. Timber harvest uses the selection system. Recreation setting is roaded natural.

SRZE1 Manage riparian zone to protect or enhance unique resource values. Timber management is permitted, but must be in accordance with riparian guidelines.

Timber/Range Management - applies on lands available for and capable of producing commercial timber and livestock forage.

MLED1 Management emphasis is on timber and range management at moderate intensity levels. Timber harvest uses the clearcutting system. Recreation setting is roaded natural.

MLED2 Management emphasis is on timber and range management at moderate intensity levels. Timber harvest uses the shelterwood system. Recreation setting is roaded natural.

HLED1 Management emphasis is on timber management at high intensity levels. Timber harvest uses the clearcutting system. Recreation setting is roaded natural.

HLED2 Management emphasis is for timber and range management at high intensity levels. Timber harvest uses the shelterwood system. Recreation setting is roaded natural.

HLED3 Management emphasis is for timber and range management at high intensity levels. Timber harvest uses the selection system. Recreation setting is roaded natural.

VISUAL PRESCRIPTION CATEGORY

(1) Purpose - the category of visual management prescriptions was developed to address the concern for meeting visual quality objectives (VQO) while managing other resources, primarily timber. The prescriptions were designed to allow resource use while providing for visual quality.

(2) Criteria and Assumptions - criteria used in developing the prescriptions in this category were:

- Timber management activities have the greatest impact on visual quality so visual management prescriptions in this category will all be associated with the timber resource.

- Develop a broad range of timber management/other resource prescriptions which offer options for resource use and visual quality protection.

- Provide for other uses compatible with visual quality management objectives.

- Develop standards, guidelines, and costs using commonly accepted management practices currently in use.

(3) Prescriptions - the prescriptions which fall into this category are described below in two sub-groups:

Timber/Wildlife/Visual Management - applies on lands available and capable of producing commercial timber.

MMEC01 Management emphasis is for timber management at a moderate intensity level, while also emphasizing dispersed recreation and wildlife at moderate intensity levels. Timber harvest uses the clearcut system over a lengthened rotation. Recreation setting is roaded natural.

MMEC02 Management emphasis is for timber management at a moderate intensity level, while also emphasizing dispersed recreation and wildlife at moderate intensity levels. Timber harvest uses the shelterwood system over a lengthened rotation. Recreation setting is roaded natural.

MMEC03 Management emphasis is for timber management at a moderate intensity level, while also emphasizing dispersed recreation and wildlife management at moderate intensity levels. Timber harvest uses the selection system. Recreation setting is roaded natural.

Timber/Range/Wildlife Visual Management - applies on lands available and capable of producing livestock forage and commercial timber.

MMECD1 Management emphasis is for timber and range management at moderate intensity levels, while also emphasizing dispersed recreation and wildlife management at moderate intensity levels. Timber harvest uses the clearcut system with a lengthened rotation. Recreation setting is roaded natural.

MMECD2 Management emphasis is on timber and range management at moderate intensity levels. Dispersed recreation and wildlife management are also emphasized at moderate intensity levels. Timber harvest uses the shelterwood system with a lengthened rotation. Recreation setting is roaded natural.

MMECD3 Management emphasis is on timber and range management at moderate intensity levels. Dispersed recreation and wildlife management are also emphasized at moderate intensity levels. Timber harvest uses the selection system. Recreation setting is roaded natural.

WILDERNESS PRESCRIPTION CATEGORY

(1) Purpose - the category of wilderness prescriptions was developed to address the issue of how to manage the Forest's existing wilderness, and to examine wilderness management options on the Forest's Montana Wilderness Study Act (MWSA) areas as well as on inventoried roadless areas that may be suitable for wilderness recommendation.

(2) Criteria and Assumptions - criteria used in developing the prescriptions in this category were:

- Develop a range of management prescriptions reflecting various investment levels and management practices to be applied to existing wilderness areas.

- Under specific alternatives these wilderness prescriptions are applied to inventoried roadless areas that are suitable for wilderness recommendation.

- Develop prescriptions to be applied as interim management direction for interim management of MWSA and/or further planning areas.

- Provide for other uses compatible with wilderness management objectives.

- Develop standards, guidelines, and costs based on commonly accepted management practices currently in use.

(3) Prescriptions - the prescriptions which fall into this category are described below in two sub-groups:

Wilderness Management - applies on wilderness and recommended wilderness lands.

SWM01 Manage classified wilderness at a high intensity level with investment being limited to trail construction. Fire management will use full suppression techniques.

SWMD1 Manage classified wilderness at a high intensity level with limited investment in range management as well as trails construction. Fire management will use modified suppression techniques which allow the use of prescribed fire from unplanned ignitions.

SWM02 Manage classified wilderness at low intensity level with limited investment in trail construction. Fire management will use modified suppression techniques which allow the use of prescribed fire from unplanned ignitions.

SWMD2 Manage classified wilderness at low intensity level with limited investment in range management, as well as trails construction. Fire management will use modified suppression techniques which allow the use of prescribed fire from unplanned ignitions.

SWMD3 Manage classified wilderness at low intensity level with limited investment for dispersion of livestock and construction of trails. Fire management will use modified suppression techniques which allow the use of prescribed fire from unplanned ignitions.

Wilderness Study - applies on MWSA areas and further planning lands.

SWS01 Interim management of wilderness study areas: MWSA and RARE II further planning areas in a semi-primitive recreation setting.

SWSD1 Interim management of wilderness study areas: MWSA and RARE II further planning areas in a semi-primitive recreation setting. Range management is allowed.

RIPARIAN PRESCRIPTION CATEGORY

(1) Purpose - the category of riparian prescriptions was developed to address the issue of riparian zone protection while still maintaining some opportunities for timber management and/or grazing opportunities. The purpose was to provide options for riparian area management ranging from minimum level management (see Custodial category) to production of timber or grazing outputs subject to riparian zone protection measures.

(2) Criteria and Assumptions - criteria used in developing the prescriptions in this category were:

- Provide options for riparian area management which may include timber or livestock outputs.

- Riparian area timber or grazing prescriptions may only be applied on those lands identified as tentatively suitable for those resource activities.

- As on other lands the minimum level management prescriptions will be available for application to riparian areas in order to identify land uses which maximize economic efficiency.

- Provide for other uses compatible with riparian area management objectives.

- Develop standards, guidelines, and costs based on commonly accepted management practices currently in use.

(3) Prescriptions - the prescriptions which fall into this category are described below:

SRZ01 Manage riparian zones to protect or enhance unique resource values.

SRZD1 Manage riparian zones to protect or enhance unique resource values. Range management is permitted.

SRZED Management of riparian zones to protect or enhance unique resource values. Range and timber management are permitted, but must be in accordance with riparian guidelines.

RECREATION PRESCRIPTION CATEGORY

(1) Purpose - the category of recreation prescriptions was developed to address the question of management of developed recreation sites and areas of concentrated recreation use. These prescriptions were developed in response to issues concerning the appropriate number of developed recreation sites, and the administration and management of existing sites.

Dispersed recreation does not have prescriptions identified in this category since a full range of dispersed recreation options is available through the application of prescriptions in other categories. All of the management prescriptions have a specific recreation type associated with them.

(2) Criteria and Assumptions - criteria used in developing the prescriptions in this category were:

- Provide a range of management options including both full service levels and reduced service levels.

- New sites will be developed or existing sites will be upgraded/expanded only as use levels approach the capacity of existing facilities.

- Provide for other uses compatible with developed or concentrated recreation use management objectives.

- Develop standards, guidelines, and costs based on commonly accepted management practices currently in use.

(3) Prescriptions - the prescriptions which fall into this category are described below in two sub-groups:

Developed Recreation Management - applies to campgrounds and ski areas.

SCM01 Manage developed recreation sites at full service levels.

SCM02 Manage developed recreation sites at a reduced service level.

SCM03 Manage developed recreation sites at low reduced service level.

SCN01 Construct new developed recreation sites or upgrade or expand existing sites and manage these sites at full service level.

SNC02 Construct new developed recreation sites or upgrade or expand existing sites and manage these sites at reduced service level.

Concentrated Recreation Management - applies on lands adjacent to major roads, campgrounds, and ski areas.

SRN01 Manage concentrated dispersed recreation areas.

SRND1 Manage concentrated dispersed recreation areas. Allow some range management.

SRNE1 Manage concentrated dispersed recreation areas. Allow some timber management.

SRNED Manage concentrated dispersed recreation areas. Allow some range and timber management.

EXPERIMENTAL FOREST PRESCRIPTION CATEGORY

(1) Purpose - an experimental forest prescription was developed for the Tenderfoot Experimental Forest.

(2) Criteria and Assumptions - criteria used in developing this prescription were:

- Design prescriptions to reflect current management direction on the Experimental Forest.
- Provide flexibility in the prescription to facilitate future research proposals.
- Develop standards, guidelines, and costs based on commonly accepted management practices currently in use.

(3) Prescription

SXF01 Manage the Tenderfoot Experimental Forest for research objectives.

RESEARCH NATURAL AREA PRESCRIPTION CATEGORY

(1) Purpose - a research natural area prescription was designed to provide for continued management of the Paine Gulch Research Natural Area, and an option for proposing additional Research Natural Areas.

(2) Criteria and Assumptions - criteria used in developing this prescription were:

- Protect the existing resource that makes the area valuable as a Research Natural Area.
- Where existing uses are in effect, and no change in management is contemplated, pattern the management practices after the current approved direction.
- Develop standards, guidelines, and costs based on commonly accepted management practices currently in use.

(3) Prescription

SNA00 Manage Research Natural Areas for ecological reference points. Recreation setting will be semi-primitive.

CUSTODIAL MANAGEMENT CATEGORY

(1) Purpose - this prescription category was developed for application to nonforest lands, lands not physically suitable for timber production, lands not economically efficient for timber production, and in some instances to lands which are to be retained in an undeveloped condition to achieve specific management objectives, such as providing a semi-primitive non-motorized recreation opportunity.

(2) Criteria and Assumptions - criteria used in preparing the prescriptions in this category were:

- Structure the model such that the Minimum Level prescription is an option on essentially all analysis areas.
- Design the Minimum Level prescription in a way that maintains resource potential and outputs at a natural rate.
- Provide a low level management option that produces low levels of most forest resource outputs.
- Provide for uses compatible with low level/minimum level management of the Forest.
- Design prescriptions which provide for maintenance of the productive capacity of the Forest.
- Develop standards, guidelines, and costs based on expected low intensity management practices which would be applied with these prescriptions.

(3) Prescriptions - the prescriptions which fall into this category are described below:

LLACO Management emphasis is at a low intensity level for both market and nonmarket values, which allows only a maintenance level for recreation and wildlife.

MINLVL Management emphasis is at a low intensity for both market and nonmarket values. Forest lands are managed in a near natural condition that maintains their current productive potential.

DEVELOPMENT OF YIELD COEFFICIENTS

This portion of Appendix B briefly describes how the yields for each resource and activities such as road building and prescribed burning were developed. Some yields were developed for analysis in FORPLAN and some were developed for use outside of FORPLAN.

A more complete discussion of this subject is contained in the planning records. (See Yield Coefficients. January 1982, Lewis and Clark National Forest, Great Falls, Montana.)

(1). Timber

Yield tables for existing and regenerated stands were developed from 1970-1973 timber inventory data (except for the two MWSA areas which had more recent inventory data - 1980). Empirical stand volume tables were compiled using empirical stand data. Regenerated stand volume tables were developed based on the eastern Montana growth prognosis model. All yield tables reflect the utilization standards projected in the Regional Guide, 6 inch d.b.h. for lodgepole pine and 7 inch d.b.h. for all other species.

Existing volume table development.

Existing yield tables are for timber stands that are presently on the Forest. These tables are specific to working group and condition class and they reflect existing volumes and growth. Existing yield tables were developed by plotting the cubic foot volume per acre over age for the sampled stands in the timber inventory. The sampled stands were divided into the following groups prior to plotting:

Lodgepole pine site class 5 mature sawtimber
Lodgepole pine site class 5 pole timber
Lodgepole pine site class 5 seedling/sapling
Lodgepole pine site class 6 mature sawtimber
Lodgepole pine site class 6 pole timber
Lodgepole pine site class 6 seedling/sapling
Douglas fir mature sawtimber
Douglas fir pole timber
Douglas fir seedling/sapling
Ponderosa pine

An average volume was calculated for each age for all of the 10 groups listed. A curve was then handfitted through the average volumes. Pole timber and seedling/sapling had few or no curves were blended into mature sawtimber curves at ages greater than the last data point.

Volumes were determined by selecting the volume represented by the curve at ages ending in 5. The age was selected to represent the midpoint of a decade, since FORPLAN was to be used to model decades. The volumes were then placed in tabular form for each of the 10 curves.

Working group/condition class yields were then determined by calculating weighted averages of the individual species yields for each age based on the species composition of the working group.

Existing yield tables are used for all management prescriptions that prescribe clearcutting and/or shelterwood and no cultural treatments. In addition, thinning was not considered in pole timber or mature sawtimber since the stands are currently beyond the age where release would improve growth. Seedling/sapling stands may be available for a full range of intensities and cultural treatments. Seedling/sapling stands with management prescriptions prescribing cultural treatments are identical to the regenerated yield tables for those same stands.

Existing yield tables for the MWSA areas were developed for each condition class. The methodology followed that described above although the condition class groupings were different. Four separate yield tables were developed for lodgepole pine: low volume and high volume lodgepole pine tables for the Big Snowies MWSA area and a separate set for the Middle Fork Judith MWSA area. The mixed conifer stands for the two areas were similary treated.

Regenerated volume table development.

No data exists for the Lewis and Clark National Forest that will show the volume a managed stand will have at rotation age. The reason being that the Forest has only been managing any significant amount of timber for 40 years or less. Therefore, growth for these stands must be projected through

a growth prognosis model. The growth prognosis model is calibrated to refect Forest growth capabilities found in eastern Montana. Tables are generated which project the growth of groups of trees arranged by species and site class. In addition, a series of stocking level were run to represent the results of precommerical thinning to 200 trees/acre, 400 trees/acre, and 600 trees/acre. The 600 tree/acre runs were used since they gave the greatest volume/acre of sawtimber at rotation.

Once the species/site class table was selected then the working group regenerated yield table was developed using the process developed for the existing yield tables. That is, weighted averages based on the species composition in the working group. This assumed that stands would be regenerated to existing composition. To allow a range of management intensities a low intensity prescriptions (and regenerated yield table) was developed for all working groups which includes natural regeneration and final harvest only. The timber yield for this prescription will be the same as for the existing seedling/sapling yield table. This assumes that without stocking control the majority of the stands will be overstocked and will produce volumes similar to the existing unmanaged stands.

Selection Harvest Yield Tables.

Selection harvest is assigned as an opportunity to riparian zones, rural recreation settings, and the dry forest working group.

Yield tables were developed by using the growth prognosis model runs. So as not to require all selection harvest to begin in the first period, each yield table was recalculated to allow harvest to start in the first, second, or third period.

(2). Recreation and Wilderness

Total forest use in recreation visitor days was determined from 1963 to 1978 Recreation Information Management (RIM) data, existing and potential site inventories, RPA projections, and population estimates. Total actual use levels are projected to be more directly related to demographic changes than to management decisions, although shifts in types of recreation use are likely to occur based on management decisions.

Much of the Forests existing recreation information was based on the Recreation Opportunity Inventory and Evaluation system (ROI). During the Forest planning process, a new method of describing and managing the recreation resource was initiated. This new system known as the Recreation Opportunity Spectrum (ROS) was adopted by the Forest. Since the Forest decided to use the ROS system in planning and the inventory and data was under the ROI system it was necessary to develop a conversion procedure. This procedure is recorded in a planning record paper "A Conversion Process Between the Recreation Opportunity Inventory and Evaluation System and the Outdoor Recreation Opportunity Spectrum" by Harrison, Solem, and Kinsman. This is a detailed discussion covering instructions, procedures, process, and development of the coefficient tables. Briefly, potential use is influenced by percent of forest cover, density of roads and trails, slope, current use, and current use levels.

(3). Range Forage

The allocation of range forage to domestic livestock, wildlife, and non-consumptive uses is based on the standard Forest Service animal unit month (AUM). This is the amount of forage required to support a 1000 pound animal for one month or 780 pounds of air dried forage. Annual AUM forage allocations are indicated by prescription for domestic livestock grazing, big-game summer use, and big-game winter use. In the development of coefficients, a certain percentage of the forage (generally at least 40 percent of the herbage and 60 percent of the browse) was always allocated for non-consumptive uses such as soil cover, watershed protection, esthetics, plant physiology, etc.

Forage production figures were developed for the landtypes mapped on the Lewis and Clark Forest by Herb Holdorf. These figures were determined for the dominant habitat type which occurs in each landtype. Seperate production estimates were made for herbage and browse classes of vegetation. These figures were based on data presented in Grassland and Shrubland Habitat Types of Western Montana (Mueggler and Stewart, 1980). The figures used were revised in some cases where Forest production data based on clipped plots provided better local information. Herbage and browse production figures for all landtypes are in the Forest planning records (computer data base).

In the process of identifying analysis areas, landtypes were grouped based on similarities of climax vegetation, landform, site potential for timber production, and opportunity for domestic livestock grazing. In addition three slope classes were identified to recognize limitations to grazing use by domestic livestock. The slope classes used were as follows:

< 25 percent slopes (valley bottoms and ridgetops)
26 percent to 40 percent slopes (mid slopes)
> 40 percent slopes (steep slopes)

Based on expected forage production by landtype, mountain ranges, management intensity, and use by slope class the final aggregation of range forage allocation coefficients resulted in six production tables reflecting various market/non-market management strategies.

Additional conversion factors were developed which provide for forage production increases (transitory range) in forest habitat types during the first two decades following removal of the timber canopy by logging, wildfire, etc. These conversion factors multiplied by the coefficients indicate the total forage available for allocation on transitory range during the early successional stages.

(4). Wildlife and Fisheries

As described in item 3 forage production is modeled based on landtype, mountain range, management intensity, and use by slope class. The wildlife portion of the forage production is determined by the prescription that is applied to an area. Through constraints the Forest is able to specify certain levels of wildlife forage be available where it might be especially valuable, such as on winter range.

Other coefficients are used to model impacts/effects of management activities on wildlife. Coefficients were developed to model the amount of wildlife habitat improvement work which would be accomplished by each management prescription for both T&E species and for other wildlife. The amount of habitat improvement can in turn be roughly related to wildlife numbers.

Miles of roads and density of roads are other factors which are related to wildlife security, habitat, and numbers. Roads are examined for all FORPLAN runs and the impacts are assessed based on coefficients derived from the Elk-Logging study and other research data.

Analysis of potential to support other terrestrial wildlife was done outside of FORPLAN, sometimes using FORPLAN generated information in addition to spatial analysis. It included evaluation of old-growth, non-game species, diversity, threatened and endangered species (grizzly bear, bald eagle, peregrine falcon, gray wolf), and hunter visitor days.

Estimates of potential to support fish populations were based on estimate of stream sediment, timber harvest levels, grazing levels, and the amount and kinds of prescriptions applied to riparian areas.

(5). Roads

Local roads are modeled in FORPLAN and are reported by time period. Coefficients used to calculate the miles of road constructed are based on sideslope and the timber management emphasis/logging method.

Calculations for total miles of arterial and collector roads were completed outside the FORPLAN model for each alternative. Coefficients used to calculate the miles of arterial and collector roads constructed are based on the number of acres accessed for timber harvest by time period for each alternative.

(6). Prescribed Fire

Average annual number of acres to be burned for forage improvement is a FORPLAN output. The frequency of treatment is related to the natural fire frequency of each habitat type. Habitat type also determines which areas will receive a prescribed fire treatment and the forage response expected as a result of treatment.

(7). Sediment

Sediment is modeled outside of FORPLAN. Sediment production coefficients are based on acres of timber harvest by landtype, acres of riparian harvest occurring, and amount of domestic grazing permitted.

COST EFFICIENCY AND NET PUBLIC BENEFIT ANALYSIS (SECTION IV)

INTRODUCTION

This section describes cost-efficiency criteria and explains how net public benefits are derived. This analysis is required by National Forest Management Act regulations (36 CFR 219) and plays an important part in the development, comparison, and selection of Forest planning alternatives. The following diagram displays the factors included in net public benefits:

PRESENT NET VALUE (PNV)

Priced Outputs			
NonMarket (e.g. Recreation)	+	Market (e.g. Timber)	= Total PNV ($)

NONMARKET, NONPRICED OUTPUTS

Nonpriced Outputs			
Nonquantitative (e.g. Roadless Recreation)	+	Quantitative (e.g. Elk Habitat Potential or Number of Elk)	= Total NNO (Non $)

NET PUBLIC BENEFITS

Total PNV ($)	+	Total NNO (Non $)	= NET PUBLIC BENEFITS

NET PUBLIC BENEFITS

Maximization of net public benefit is a goal of the forest planning process. Net public benefit is the overall value to the nation of all outputs and positive effects (benefits), less all the associated Forest inputs and negative effects (costs) of producing priced and nonpriced outputs from National Forest lands. Thus, net public benefit represents the net value of priced outputs (PNV) plus the value of nonmarket, nonpriced outputs (NNO) Net public benefit cannot be expressed as a numeric quantity because PNV cannot be added to NNO. Direct dollar costs are sometimes significant in nonpriced output production. Significant opportunity costs (dollar trade-offs) can occur as priced outputs are deferred to produce nonpriced outputs.

PRESENT NET VALUE (PNV)

PNV represents the dollar difference between the discounted value of all priced outputs and all management costs over the 150-year planning period. Priced outputs include those outputs with market values and those outputs with assigned nonmarket prices (see the Priced Benefits Used in PNV discussion later in this section for additional information).

Each benchmark[1] and alternative was designated to achieve its goals and objectives in a manner that produced the greatest PNV. This was accomplished by solving FORPLAN with the objective function of maximizing PNV while meeting the specified constraints of the benchmark or alternative.

The PNV calculated in FORPLAN is modified by including benefits and costs not modeled in FORPLAN. The benefits and costs not included in FORPLAN were those which do not influence and are not significantly influenced by proposed land uses and output scheduling, and those which could not be incorporated into the FORPLAN model formulation for the Forest. This section describes how prices and costs were calculated.

Priced Output Parameters Used in PNV

Discounting

Two discount rates representing the real cost of money over time were used to solve FORPLAN and to calculate the economic consequences of the benchmarks and alternatives. The 4 percent rate approximates the real return on long-range corporate investments, above the rate of inflation. (Row and others, 1981.) Inflation was not included in the discount rates, benefits, and costs due to the difficulty of estimating future inflation rates and because inflation would equally affect both costs and prices. Four percent was used to solve FORPLAN and is the primary rate used to evaluate benchmarks and alternatives. The PNV of all benchmarks and alternatives was recalculated (using the 4 percent FORPLAN solution) at 7-1/8 percent for comparison purposes. In addition, the Proposed Action was re-optimized using the 7-1/8 percent discount rate. All costs and benefits are discounted from the midpoint of each planning period (decade).

Real Dollar Adjustments

All prices and costs are expressed in first quarter 1978 dollars, consistent with the 1980 RPA. The Gross National Product implicit price deflator index is used to inflate or deflate price and cost data to this common base (FSM 1971.32b).

Timber Demand Curve

No local demand curve for timber was used in the FORPLAN model. None of the available techniques for developing Forest level demand functions has a strong enough theoretical basis that it can be

1/ A benchmark is a reference point FORPLAN run used to determine resource output potentials and/or the trade-offs associated with constraints.

suggested for use the Northern Region. Available evidence also indicates that if a reliable Forest level demand function could be calculated, the elasticity would be such that the use in FORPLAN would not be significant. As specified by the Washington Office (1920 letter to the Regional Forester, "Downward Sloping Demand Curves," dated 2/3/81), the demand curve is assumed to be horizontal.

Real Price and Cost Increases

Some prices and costs are expected to increase faster than the general inflation rate. Indices show the estimated rates of increase from the 1978 base (1978 = 100, Ref. FSM 1970, R-1, ID No. 5). These indices are either used in the FORPLAN model or outside the model. Those used in FORPLAN influence the land use designations made and PNV. Those used outside FORPLAN influence only the PNV totals. Non-Forest Service logging costs (used in FORPLAN but not directly in PNV calculations) were the only costs assumed to increase in real terms during the first five decades. (See cost used in PNV for more explanation of how logging costs are used in FORPLAN.)

Costs Used in PNV

All agency costs were estimated for the 150-year planning period for all benchmarks and alternatives. This section discusses how costs were developed, the major expenditure categories, funding source, and the actual costs by resource.

Costs were developed by Forest personnel in conjunction with developing standards and guidelines for management prescriptions. Costs were estimated for every management activity specified by the management prescriptions. The costs were based on historical trends and professional judgement. The costs approximate the minimum amount needed to achieve the standards and guidelines in the management prescriptions.

Costs dependent on land use designation and timber harvest schedule were modeled in FORPLAN by entering them in the economic tables. By solving FORPLAN to maximize PNV, the cost-efficient level of agency expenditures for each set of objectives was identified. Other costs considered independent of land use designation were computed separately as fixed costs. The actual cost data is discussed later in this section. More detailed information on data sources and FORPLAN modeling procedures is in the Forest planning records.

Costs were put into three categories: fixed Forest Service costs, variable costs, and production costs.

Fixed costs are assumed to be constant for all alternatives and were calculated outside of FORPLAN. Fixed costs did not contribute to the FORPLAN objective information that maximized PNV and did not affect land use designations. These costs were added to FORPLAN costs to determine total cost and PNV for each alternative.

Fixed costs were broken into two classes: The first is minimum level costs necessary for non-deferrable activities for insuring public safety and environmental protection not associated with controllable outputs. The second is the protection and maintenance costs of capital assets at agreed levels of service and availability in the absence of controllable use. These costs were added to each alternative to determine the total Forest budget. This category includes costs for planning and inventory of the various resources or activities as well as the maintenance and protection of existing facilities. Also included are general administration and fire protection.

Variable costs change with the controlled outputs specified in each benchmark or alternative. These costs vary in amount and timing as well as in response to different land types and management objectives. Variable costs include investments and operations in connection with controllable outputs. Those costs are in FORPLAN and directly affect land use designation and scheduling by helping determine the economic efficiency of prescriptions.

Some variable costs were not included in the FORPLAN model, but were used in the PNV calculation. These costs were for campground construction, and arterial and collector road construction.

Production Cost

Production costs are referred to as logging costs in the FORPLAN report. These costs actually include non-Forest Service logging and manufacturing costs. They are calculated as the difference between lumber prices and stumpage value:

(production cost)=(lumber selling price, log scale)-(stumpage value).

Production costs are included in FORPLAN and influence the land designation and scheduling processes, but they are not included as Forest Service costs because they are borne by the timber purchaser. (See Regional Office Report: "The Use of Stumpage Valuation Equations in FORPLAN", June, 1981.)

The FORPLAN model included costs for most Forest management activities. Costs for the management prescriptions were determined in a three step process. First, costs were gathered for the various Forest management activities by MIH (Management Information Handbook) codes. These MIH activities had been grouped together to define management practices. The second step was to add the cost of the MIH activities that formed each management practice. Practices were defined for timber, range, wildlife, minerals, recreation, wilderness, soil and water, roads and trails, and protection. The third step was to add all the costs of the practices that were contained in a management prescription.

Priced Benefits Used in PNV

The methods used to estimate current and future values (prices) for Forest products are discussed. All priced benefits were estimated for the 150-year period for all benchmarks and alternatives. The prices used in the analysis reflect on-site values for all resources, i.e., the value of the raw resource on the Forest. The values are consistent with on-site cost estimates for activities which make these resources available.

Priced outputs include those forest products for which a dollar value may be assigned. The basis for the price is either market transaction evidence (timber and livestock) or empirical research investigation of consumers willingness to pay for a product that is not normally sold (recreation or wildlife). Prices for timber, livestock AUMs, and oil and gas leasing were included in FORPLAN. They therefore affect land use designation and the benefits from these outputs vary by alternative.

Other outputs were assumed to be constant. The price of these outputs used in present net value calculation is not necessarily that received by the Federal Treasury. Next, these relationships are discussed.

Range Benefits

The value assigned to range forage reflects potential dollar returns from the range resource to the taxpayers even though only part of the price is actually collected by the National Forest. The price is the net value to the rancher above the cash costs for grazing on the Forest. The value on the Lewis and Clark National Forest is $11.69 per AUM. Range values were obtained from studies done by Economic and Statistics Services, USDA.

Recreation Benefits

Recreation values were obtained from RPA estimates of these values. Values for dispersed and developed recreation, wilderness recreation, and hunter recreation are $3.00, $8.00, and $21.00 per RVD (recreation visitor day), respectively. Recreation values are assumed to increase in real terms during the first 5 decades and thereafter remain constant.

Oil and Gas Benefits

Oil and gas values for leased values are $1.00 per acre per year.

Timber Benefits

A multiple regression equation was developed to estimate timber values on Montana eastside Forests using timber sale data from the period 1968-1979. The form of this equation used for the Lewis and Clark Forest is:

$$Y = -217.51 + 38.59\ X_1 + 16.64\ X_2 + .9766\ X_3 + -.2918\ X_4 + 1.10\ X_5$$

where:

Y = high bid value/mbf (1978 dollars)

X_1 = the natural log of the sale dbh (diameter at breast height)

X_2 = the proportion of the sale area clearcut

X_3 = weighted average lumber price (1978 dollars)

X_4 = total haul distance in miles

X_5 = net volume/acre harvested (mbf)

The dependent or predicted variable is the high bid price per mbf (thousand board feet). The high bid includes both cash receipts and purchaser road credits. It is the value of the stumpage with the roads in place. The equation predicts that value increases at a declining rate as tree size increases.

Other variables which have a positive effect on stumpage values are lumber price, volume per acre harvested, and proportion of the volume clearcut. The model shows that greater haul distances reduce the value.

To use the equation in FORPLAN average lumber prices were calculated using 1975-1979 data. The lumber price values used are $252.59/mbf for Douglas fir sites (dry forest), and $213.00/mbf for lodgepole sites (general forest). The Forest was divided into two haul zones - 60 miles for the Rocky Mountain Division and 40 miles for the Jefferson Division.

Cable logging systems which are normally required on steeper lands have not been extensively used on the eastside Forests. The equation thus applies only to acres that can be tractor logged. A $45.00/mbf reduction in value is assumed for cable logged areas. In the Forest Planning model, areas with slopes less than 40 percent are prescribed for tractor logging; areas with slopes greater than 40 percent are prescribed for 50 percent tractor and 50 percent cable logging.

In FORPLAN timber values are contained in "economic" tables where they are shown as a function of diameter and volume per acre harvested. Separate economic tables are used to show differences due to lumber prices, haul distance, harvest method, and logging method. Timber values are given in terms of cubic feet rather than board feet, and are projected to increase in real terms for the first 5 decades.

A Regional Office report, "The Use of Stumpage Valuation Equations in FORPLAN" (Merzenich, June 8, 1981), describes how the economic tables were constructed and shows how real timber prices are projected in FORPLAN. A detailed description of the Eastside stumpage model is also included as an appendix to the report. A copy of this report and the tables that were constructed using the described computer model are included in the Forest planning records.

Further information on costs, benefits, and projected real cost and value indices, are included in the planning record, "Economic Data and Analysis."

NET SUBJECTIVE VALUE

Net subjective value (NSV) is the total qualitative value of all resources or outputs whose value cannot be measured in dollars. Market transaction evidence is not available for these outputs and therefore no basis exists for making market value estimates comparable with priced outputs. Non-priced outputs are valued subjectively. In general, as the subjective value of non-priced outputs increases, the monetary value of priced outputs as measured by PNV decreases. The magnitude of the monetary value foregone is measured and displayed as a trade-off or opportunity cost. "Net" implies that both nonpriced benefits and costs can occur. In the following discussion of outputs which have no market price, it is assumed that net subjective value increases as more of each is produced. These non-priced benefits were identified through public involvement as issues and concerns.

Different levels of nonpriced outputs are produced in the alternatives by applying management prescriptions to specific lands and/or by applying output and inventory constraints. Any dollar costs associated with nonpriced outputs are included in PNV calculations. How well an alternative addresses the issues and concerns is a general measure of its net subjective value.

The relationship between PNV and NSV is such that increases in one non-priced benefit can generally only be achieved at a cost of losing some degree of economic efficiency, if all other factors are held constant. In other words, as more emphasis is placed on non-priced benefits the contribution of priced outputs to PNV tends to decline. The magnitude of this monetary value forgone is defined as a trade-off or opportunity cost. It is weighed against changes in net subjective value in the analysis of alternatives described later in this appendix. The non-priced outputs described below do not identify all the non-dollar benefits of forest management. However, these were the major factors the interdisciplinary team felt were important to the development and evaluation of the alternatives, based on the identified issues and concerns.

Elk Hunting Quality

The quality of elk hunting varies by alternative. Elk hunting quality indicators used included the length of the hunting season and the population structure of the animals harvested. Both quality indicators are influenced by the currently unroaded

situation on much of the Forest. Timber harvesting on elk hiding cover areas would have varying impacts on elk hunting quality. Each alternative was examined to determine its impact on elk hunting quality and whether or not the PNV trade-offs are acceptable. The Forest currently provides above average elk hunting quality both in terms of the hunting environment and game animals. The RPA value used for big-game hunting does not adequately reflect the high quality hunting experience available on the Forest nor the change in quality among alternatives. The net subjective benefit of elk hunting quality is evaluated by this nonpriced benefit. Non-users also receive nonpriced benefits from having high quality elk hunting. Having big-game animals present creates additional opportunities for other forms of recreation, provides an opportunity to contemplate future hunting trips, and provides satisfaction to some individuals that an environment for big-game animals exist.

Semi-Primitive Recreation Setting Values

Based on public comments, the maintenance of a semi-primitive recreation setting in certain parts of the Forest is important to large segments of the public. Areas with well established semi-primitive use patterns are highly valued. This locational factor is not valued in FORPLAN, but the trade-offs in terms of PNV foregone need to be examined with the subjective values expressed by the public. The RPA values used for recreational use do not value semi-primitive settings any differently than roaded recreation or developed recreation. The issues and concerns identified by the Forest revealed that retention of semi-primitive settings was greatly desired by Forest users. This nonpriced benefit evaluates differences by alternative.

In addition, non-users receive non-priced benefits from these areas, knowing they are available for use, retained for their descendents, provide wildlife habitat and security, provide a natural buffer for the maintenance of soil and water resources, and provides visual quality scenery of high visual quality.

Areas of prime interest include Tenderfoot-Deep Creek-Pilgrim Creek, Middle Fork Judith, Big Snowies, and Badger-Two Medicine. Each alternative was examined in light of its impacts on these areas.

Threatened and Endangered Species Habitat	The values of maintaining or restoring viable populations of T&E species are not included in PNV. T&E species will be protected in all alternatives. Each alternative's impact on T&E species habitat is evaluated on the quantity of large semi-primitive recreation areas each alternative contains, the location of the semi-primitive areas retained, and the value of the T&E species habitat provided.
Plant Diversity	The value of maintaining long-term plant diversity is also considered as a nonpriced component of net public benefits. Scientific research opportunities, gene pool maintenance, and the reduction of insect and disease risk are some of the reasons plant diversity is worth examining. Plant diversity as discussed here refers to horizontal diversity, i.e., the acres that are contained in old-growth, post and poles, seedling-sapling stage, and in the grass forb stage. Timber harvesting is the primary method of vegetative manipulation outside of classified wilderness and wilderness study areas.
Visual Quality	The benefit of visual quality is not assigned a dollar value, and therefore does not add to PNV. Visual quality constraints have been included in the FORPLAN runs and therefore reduce the PNV. Whether the benefits produced exceed the costs involves a subjective component considered in the qualitative net public benefit analysis. The alternatives vary on their sensitivity to visual quality and each was evaluated according to how well it met visual standards.
Minerals/Oil and Gas	Potential mineral, oil, and gas resources were not given a monetary value. As a proxy for the unknown quantities, it was necessary to value in a subjective manner the approximate availability for exploration and possible development which the land assignments of the various alternatives provided. This availability for exploration was considered for each alternative in the evaluation of net public benefit.
Lifestyles and Community Stability	The opportunities for local people, ranchers, and small business to make use of posts, poles, and/or firewood are not valued in the PNV. The maintenance of existing lifestyles of ranches and businesses are often dependent on the access opportunities to such Forest products. Such oppor-

	tunities vary by alternative. Also evaluated in each alternative's impact on lifestyles and community stability were changes in employment and income.
Off-Forest Water Use	Over 300,000 acres of private lands are dependent on the Forest as a source of irrigation water. Water is also used for downstream fisheries. This value is not included in PNV but is considered as the quantity and quality of water varies with each alternative.
Human and Community Development Programs	The training and learning value to enrollees of such programs are a qualitative component of net public benefits. The physical outputs they produce on the Forest are included in the PNV.

SOCIAL AND ECONOMIC IMPACT ANALYSIS (SECTION V)

OVERVIEW

Social and economic impact analysis estimates the relationships between management of the National Forest and the public. Both short and long-term impacts are analyzed, although an emphasis is given to the first ten years.

Social and economic information provides insight into the planning issues and concerns. The Forest provides timber, forage, recreation opportunities, wildlife habitat, minerals, oil and gas opportunities, and water which results in economic effects in the local area generating issues and concerns.

Forest related economic impacts on employment, income, and state and local government revenues are directly related to the social well-being of people within the area of influence. Population size and composition, lifestyles, attitudes, beliefs, values, and social organization may be related to Forest Service activities.

Prior to the development of alternatives, information was gathered on the existing social and economic situation in the impact areas.

Area of Influence

The primary area of influence for the Lewis and Clark National Forest has been defined as 13 counties: Glacier, Toole, Pondera, Teton, Chouteau, Lewis and Clark, Cascade, Fergus, Judith Basin, Meagher, Wheatland, Golden Valley, and Musselshell. This 13 county area receives the majority of both priced and nonpriced benefits from Forest resources and has the strongest ties to the Forest.

National Forest timber is important to the communties of Livingston, Judith Gap, and Townsend, and until its mill closure in 1983, it was important to White Sulphur Springs. Livestock grazing and mining are especially important in the Jefferson Division. While oil and gas exploration and development is a growing use of the Rocky Mountain Division.

Recreation opportunities on the Forest draw people from a wide area. The Bob Marshall Wilderness complex is known nationally for its recreational opportunities while the Little Belt and Rocky Mountains attract elk hunters from throughout the State and many from out-of-state.

Economic Impact Model

An input-output model (IMPLAN) is used to estimate the employment and income impacts of various Lewis and Clark National Forest outputs and activities. Direct, indirect, induced, and total impacts are calculated.

Economic I-O (input-output) analysis is a procedure for describing the structural interdependencies of a Regional economy (impact area) and serves as a short-term predictive model for evaluating the impacts of shifts in outputs and activities.

I-O analysis is based upon the interdependence of the production and consumption sectors in the impact area. Industries must purchase inputs from other industries, as well as primary (i.e., natural resource) sources, for use in the production of outputs which are sold either to other industries or to final consumers. Thus, a set of I-O accounts can be thought of as a "picture" of an impact area's economic structure.

Flows of industrial inputs can be traced via the I-O accounts to show relationships between the industries comprising the economy. The accounts are also transformed into a set of simultaneous equations that permit the prediction of economic effects resulting from changes in outputs and activities.

IMPLAN Data Base

This I-O model has a data base consisting of; (1) a national level technology matrix, and (2) a county-by-county file of estimated activity levels for total gross outputs, six components of final demand, three components of final payments and employment for 466 industrial/business sectors. (See IMPLAN Users Manual for detailed information on the I-O model.)

The national technology matrix is based on a 1972 Commerce Department I-O model that was converted to an industry by industry basis and updated to 1977 using the RSA procedure (Clopper and others, 1974). The county level information is based on a 1977 data set constructed by Engineering Economics Associates of Berkeley, California.

National Data Base Reduction to Impact Area

Utilizing the national technology matrix and the regional control totals for the local, multi-county impact area, a data reduction method is employed to develop a regional input-output table. The method

uses the property of "openness" displayed by regional economies compared with the national economy (Richardson, 1972). Smaller regional economies exhibit much greater tendencies or are more open to import and export than is observed at the national level. Based on the assumption that trade balances are the principal difference between national and regional purchase patterns, the supply-demand pool technique for data reduction was adopted (Schaffer and Chu, 1969).

Final Demand Expenditures

The I-O model translates Forest outputs and activities into employment and income impacts. An intermediate step in this process is the translation of outputs into final demand dollars. Final demand expenditures are different from the values used in the efficiency analysis. Final demand expenditures represent the dollars spent by the final consumers of the finished products derived from Forest outputs. For instance, timber is processed into lumber which has a sale value at the mill. The sale value represents the amount of new money that will be directly generated for the local impact area--assuming that most is sold outside the impact area, this causes the local impact. In contrast, the efficiency analysis in part, examines stumpage or the market value of the raw material that leaves the Forest.

This modeling step is accomplished by applying a final demand expenditure per unit of output to total outputs and linking the resulting dollar amount to the sectors in which the direct expenditure takes place. This process determines the change that takes place in the existing economy. Expenditure information is contained in the planning records.

Base Year Employment and Income Information

Lewis and Clark National Forest outputs for 1980 were determined and run through the I-O model to provide a base situation from which employment and income changes could be measured. Table B-3 shows the effects of incremental changes in Forest uses and the effects for the base year of 1980. Table B-4 shows private sector Forest related jobs and income by alternative for decades one and two.

TABLE B-3. FOREST OUTPUTS AND ECONOMIC IMPACTS 1980

		Employment			Income		
Output	1980 Resource Production	Direct Jobs	Total Jobs	Jobs/Unit	Direct M$	Total M$	M$ Income/ Unit
Softwood Sawtimber MMBF	13.0	65	192	14.8/MMBF	1443	4116	316/MMBF
Camping MRVDs	134	11	18	.13/MRVDs	159	361	2.7/MRVDs
Dispersed Non-Motor Rec MRVDs	300	162	267	0.9/MRVDs	1708	4144	13.8/MRVDs
Dispersed Motor Rec MRVDs	300	166	276	.92/MRVDs	1708	4144	13.8/MRVDs
Big-Game Hunting MRVDs	63.9	51	87	1.36/MRVDs	666	1558	24.4/MRVDs
Cattle MAUMs	71.1	28	54	.76/MAUMs	843	1391	19.6/MAUMs
Locatable Minerals MTONs	1500	22	217	.14/MTONs	4118	8522	5/68/MTONs
Common Minerals MTONs	500	10	34	.03/MTONs	524	1012	2.02/MTONs
NF Maintenance Investments $1MM	1.87	45	100	53.46/$MM	656	1640	876.9/$MM
NFS Salaries $MM	2.0	72	129	64.57/$MM	906	2210	1105.4/$MM

TABLE B-4 PRIVATE SECTOR FOREST RELATED EMPLOYMENT AND INCOME BY ALTERNATIVE *

	Employment (persons per year)		Income (MM$)	
Alternative	Decade 1	Decade 2	Decade 1	Decade 2
Current	946	978	16.69	16.93
A-1	1132	1204	18.13	19.77
A-2-RPA	1132	1210	18.13	19.82
B-1	970	986	16.99	17.66
B-2	969	1069	16.96	18.26
C	946	978	16.70	16.84
D	946	980	16.80	17.43
E-1	962	1052	16.96	18.10
E-2	957	1051	16.98	18.16
F	969	1037	16.95	17.91
F-Departure	980	1069	17.16	18.42
G-Proposed	953	1029	16.78	17.73
H	1026	1063	18.02	18.28
I	966	1042	17.00	17.97
J	1061	1140	18.42	19.41
K	960	968	16.81	16.97
MAX PNV	1040	1185	18.29	20.06

* 1980 Base Year Employment = 632
1980 Base Year Income = 12.73

Social Measures

Social impact analysis estimates how Forest policies and actions affect the quality of life or social well-being. Future social conditions in an area influenced by Forest actions under a continuation of current management are compared to the likely results of implementing management alternatives.

Social impacts are measured by social variables and social groups. Social groups identify those who are affected by Forest Service activities, and social variables define how people are affected and the relationship between people and the natural environment.

Following is an explanation of the variables used in assessing the social impacts of each alternative.

Lifestyles

Lifestyles are the characteristic ways different segments of a population live. This concept, in part, refers to using the Forest resources to maintain a way of living that is financially dependent upon a particular resource related occupation. Logging, recreation business, ranching, guides and outfitters, and related jobs are major concerns in the Region. Without the Forest resources, many of these individuals would have a difficult time maintaining their preferred lifestyle.

Another aspect of this variable refers to the more amenity oriented leisure activities in which people participate, such as hunting, fishing, backpacking, picnicking, berry picking, and gathering wood. These activities are also dependent upon the resources, although the impact may be more subtle and less quantifiable than jobs or income. However, these activities are important to the lifestyle of many local, regional, and national people.

Attitudes, Beliefs and Values

Attitudes, beliefs, and values are reflected in people's likes, dislikes, perceptions, hopes, aspirations, and fears. Changes in Forest Service policy may result in practices that affect people's feelings about and understandings of the Forest. This variable includes four concepts as discussed below.

First, this variable refers to the emotional and cognitive attachment people have for the places and resources on, or from, the Forest. People, locally, regionally, and nationally, often perceive or use the National Forests on a symbolic level. Although these people may not be economically dependent upon the Forest, they receive psyschological benefits from its resources.

Control

A second component is a sense of freedom or the belief that one has control by others, such as outside or government interference. People often view the lack of local control over resource decisions as a problem. Local control over programs or proposals is often perceived as limited or nonexistent because policies come from Washington.

Self-Sufficiency

Third is self-sufficiency or the ability to live one's life in one's own way and use whatever resources are necessary to get along without any,

or a minimum of, outside help. Certain quantities and qualities of Forest resources may be necessary for people to be independent.

Certainty and uncertainty, a fourth component, refers to the probability that certain things can be counted on in living a desired way. It refers to the lack of confidence (uncertainty) or confidence (certainty) people may have about being able to stay in a community because of the changes in use of resources, or because the resources are in limited supply. Loggers, guides and outfitters, ranchers, and recreational businesses are often quite dependent upon the natural resources for their livelihood.

Social Organization

Social organization is the way society and its subunits are structured. Major considerations for analysis include: institutions, community cohesion and stability, population characteristics, and land use patterns.

Social institutions are the systems of customary practices people have developed in a community or society to survive and prosper. Changes which affect this include increased capacity or demand for Forest related aspects of community life such as municipal and domestic watersheds, recreational facilities, transmission sites, corridors, energy sources, and scenic backdrops. Other concerns include changes in direct Forest Service contributions to communities such as payments to States, cooperative agreements and services, direct employment, and Forest Service employee participation in the community.

Community Cohesion

Community cohesion, another component, is the degree of unity and cooperation exhibited by various segments of a community toward realizing certain shared goals or toward their approach to certain problems. Changes in community cohesion can occur with an influx of people with differing philosophies of life. Issues, like differing lifestyles, can partition communities into factions, decreasing community unification. Other issues of local, regional, and national interest are the classification of certain land areas as either wilderness or nonwilderness, amount of timber harvested, and methods of logging.

Social organization also includes community stability which is the rate of change that people can accept without exceeding their capability to deal with it. The rate of social change and the institutional structure of a community are key variables in the analysis of the effects of Forest Service actions.

Social stability and economic stability are not necessarily the same, but both related to community stability. Economic stability might be retained through full employment; but if there is a rapid change in the composition of the employment (for example, jobs taken by newcomers to the community with different cultural backgrounds), social instability might result. Yet stability is not stagnation. Stable communities are usually going through relatively gradual changes, with people adapting to these new conditions.

Population and Crowding

Population characteristics refer to the number of people who can comfortably live in a defined geographic area. In numerical terms, it signifies the rate of decline or growth in the population.

"Too many" people refers not only to the number of, but also to the kind of people who move into the area. A "few" different people as seen as too many, while a larger number of people "like the locals" may be perceived as being acceptable.

Land Use Patterns

This factor accesses the compatibility of proposed changes in land uses such as timber, wildlife habitat, recreation, and grazing with present uses and how the uses affect the social and economic life of communities.

A comparison of the social effects of each alternative is included in Chapter II of this FEIS.

Returns to U.S. Treasury and Local Government

Planning alternatives are predicted to generate different levels of revenue to the U.S. Treasury and to the State. Approximately 25 percent of all revenues from National Forest System lands are authorized to be returned to the State for financing schools and roads. Any planning alternative which produces a change in the expected revenue stream will also directly result in a change in the expected payments under this fund. Activities which generate revenue include timber harvesting, road purchaser credits, livestock

grazing, mineral leases and royalties, special land use fees, and recreation fees. Projected revenues from different National Forest resources in the alternatives were calculated and returns to the U.S. Treasury and to the State as shown in Chapter II, Table 2.3.

Forest Service Employment

Forest Service employment in the different alternatives was also calculated, and is shown in Table 2.3. The Forest Service budget (minus capital investment costs) was divided by employment (work year equivalents) for the base year of 1981 and converted to 1978 dollars for a figure of $21,208 per work year equivalent. Projections of employment for each alternative were then made based on each alternative's first decade projected budget. Note that the coefficient used does not equate to the inverse or average salary because the total budget includes more than salaries.

ANALYSIS PRIOR TO DEVELOPMENT OF ALTERNATIVES (SECTION VI)

INTRODUCTION

The primary analysis prior to developing alternatives was the Analysis of the Management Situation -- a determination of the ability of the Forest to supply goods and services in response to societies demands. This analysis process included compiling data (i.e., issues/concerns, demand projections, and current situation assessment), and using the FORPLAN model to process and/or develop information on Forest output production capability, economics, and resource interrelationships.

During the analysis of the management situation, resource supply potentials were determined by using FORPLAN to establish minimum and maximum production levels called benchmarks. Production capabilities were determined for single resources as well as for sets of multiple resource outputs produced in the most cost-efficient way. This analysis established the benchmark levels required by national planning direction. The benchmarks serve as references from which the costs and effects of various objectives and constraints used in developing alternatives are evaluated.

The Analysis of the Management Situation provided a basis for assessing the need to change management direction and incorporating various approaches in developing a broad range of alternatives aimed at resolving the issues and concerns in various ways. The purpose for the benchmark analysis were to:

- Estimate the schedule of management activities, resource outputs, effects, discounted benefits and costs, PNV, and acreages of prescription assignments appropriate to achieving the purposes of the benchmark.

- Define the resource production levels associated with maximizing single resource outputs.

- Analyze the implications of legal and policy constraints.

- Comply with the analysis of minimum management requirements as outlined in 36 CFR 219.27.

To fulfill these requirements, the Forest developed four types of benchmarks. These are:

(1) Maximize Present Net Value Benchmarks - Maximizes present net value for various combinations of Forest constraints and displays the associated

resource outputs. The benchmark with the highest PNV that meets minimum management requirements also serves as a point of reference from which the costs and effects of constraints are determined.

(2) Resource Benchmark - Defines the maximum potentials for timber production, recreation, wildlife (elk), wilderness, and livestock.

(3) Minimum Level Benchmark - Defines the minimum outputs associated with custodial management of the Forest and the unavoidable costs and benefits of maintaining the Forest in public ownership.

(4) Current Level Benchmark - Specifies the management most likely to be implemented in the future if the current management direction is followed. It forms the basis for the Current Plan (No Action) alternative.

Several variations of the Maximum Present Net Value and Maximum Resource Benchmarks were run to determine the opportunity costs and resource tradeoffs of meeting specific constraints, objectives, regulations, and policies. In addition to these requirements, all benchmarks were designed to be implementable from a physical standpoint, were not constrained by budgets (except Minimum Level and Current Level), and used maximization of PNV as the objective function to obtain a fixed analytical base.

The results of this analysis form the framework within which alternatives were developed.

DEVELOPMENT OF MANAGEMENT REQUIREMENTS

In order to perform the stepwise analysis of the benchmarks, various sets of management requirements were modeled in FORPLAN. These management requirements can be divided into three categories (a) minimum management requirements; (b) timber policy requirements; and (c) maximum resource output constraints. The management requirements were incorporated into the FORPLAN model in two ways. First, many of the standards and guidelines for prescriptions were developed to include specific management requirements. These requirements are included in FORPLAN as cost and yield table variations reflecting management under those assumptions. Second, various management requirements were incorporated into FORPLAN by imposing

constraints on the linear program. These constraints were used to insure that outputs, effects, and forest conditions would be produced in the preparation required to achieve the particular purposes of a benchmark.

In linear programming analysis, constraints override the objective function. Thus, if a predetermined level of outputs or minimum physical condition is entered as a constraint, it is always achieved (or no feasible solution is reached). Output levels and other desired effects entered as constraints are implicitly assumed to contribute more to public benefits than the sum of their cost of production plus the foregone contribution to public benefits of any outputs they may have replaced. In the design of benchmarks, care was taken to insure that the effects of various constraints or sets of constraints on PNV could be quantified.

Minimum Management Requirements (see 36 CFR 219.27) were identified and incorporated into the planning process. Several of the Minimum Management Requirements are a part of the design for management prescriptions assigned in the FORPLAN model to benchmarks and alternatives. In addition, modeling constraints were developed for FORPLAN to approximate the effects of Minimum Management Requirements which could not be tied to management prescriptions. Some Minimum Management Requirements were achieved without the use of FORPLAN modeling.

Following is a discussion of how each Minimum Management Requirement was addressed.

Minimum Management Requirements

The Minimum Management Requirements in 36 CFR 219.27 are as follows:

(a) Conserve soil and water resources.
(b) Minimize hazards from flood, wind, wildfire, erosion, and other natural physical forces.
(c) Reduce hazards from pest organisms.
(d) Protect riparian zones.
(e) Provide diversity.
(f) Provide fish and wildlife habitat to maintain viable populations.
(g) Adhere to multiple-use laws.
(h) Protect threatened and endangered species habitat.
(i) Provide for rights-of-way and corridors.
(j) Develop road construction standards.

(k) Revegetate temporary roads.
(l) Maintain air quality.
(m) Reforest timber harvest areas in 5 years.
(n) Limit openings to 40 acres.

The methods used to meet the Minimum Management Requirements include:

- Developing standards and guidelines and appropriate practices for management prescriptions.

- Assignment of management prescriptions and intensities to analysis areas in FORPLAN.

- Applying access, scheduled output, and inventory constraints to analysis areas or groups of analysis areas in FORPLAN.

(a) Conserve Soil and Water Resources - Research and local experience indicates that timber harvest timing, location, and acreage disturbed by associated activities (including raod construction, slash disposal, and site preparation), as well as grazing are the primary activities which affect soil productivity and water quality.

A portion of this Minimum Management Requirement is reflected in costs which recognize application of management practices which attempt to mitigate damage to soil and water resources. For example, road costs reflect construction standards that include drainage facilities which may reduce the amount of erosion. In addition, higher mitigation costs are included in the cost of timber management on steeper slopes. The added logging and roading costs associated with timber harvest on steep slopes are included in the FORPLAN model. This requirements was also modeled by; 1) limiting riparian zone harvesting to selection harvesting (no clearcutting along streambanks), 2) ensuring that riparian zone grazing prescriptions had practices reflecting the standards in the Forest Service Manual, 3) using accessibility constraints to ensure that no more than 20 percent of a watershed is harvested each decade, and 4) using best management practices with any activities that might affect the soil and water resource.

(b) Minimize Hazards from Flood, Wind, Wildfire, Erosion, or Other Natural Physical Forces - The soil and water Minimum Management Requirement discussed previously outline the steps needed to minimize hazards from flood and erosion.

Wind can cause unneccessary damage to residual trees in timber sale areas if improper silvicultural systems are applied. This hazard is minimized by prescribing silviculturally sound systems by working group or habitat type. In most cases, more than one system is provided to assure proper field application.

Fire management is modeled by using practices which minimize value lost based on cost of the practice. Management prescriptions contain standards for fuel management and fire suppression tactics which are intended to reduce the risk of wildfire.

(c) Reduce Hazards from Pest Organisms - Trees on the Forest are susceptible to mountain pine beetle, spruce budworm, dwarf mistletoe, and other pest organisms. Rather than let the natural process create favorable conditions for these pest organisms, several different management practices or standards help prevent hazards from pest organisms.

This issue is treated the same in all alternatives and is resolved by Forest-Wide Management Standard P-1, Protection, which emphasizes the harvest of stands that exhibit characteristics of high risk. Timber sales are to be located to break up continuous natural fuel accumulations. Project silvicultural prescriptions emphasize treatments that reduce losses to insects and/or diseases.

Forest standards are developed for eliminating noxious weed infestations.

The minimum management requirements for reducing the hazard of noxious weed infestations is also addressed by Forest-Wide Management Standards which apply to all

alternatives. These standards include; Management Standard F-3, Soil and Water Protection, requiring prompt revegetation of disturbed sites, seeding where necessary with native species; Management Standard D-2, Noxious Weeds and Other Pests, which emphasizes preventing noxious weeds by reseeding soil exposed by Forest activities, identifying areas where noxious weed and/or pest control is needed, annually reviewing spray projects for opportunities to replace spraying with other Integrated Pest Management methods, support of basic research for biological control of noxious weeds and other pests, and cooperation with other agencies, contractors, permittees, and individuals to control noxious weed and pest infestations.

(d) Protection of Riparian Zones - As described in the soil and water conservation requirement, the riparian requirement was modeled by limiting riparian zone harvesting to selection harvesting and meeting all riparian grazing standards in the Forest Service Manual.

Protection of fish and wildlife habitat in riparian areas is addressed in the development of allotment management plans. Forest standards restrict the use of grass/forb vegetation to no more than 40 percent in areas with little or no shrub cover adjacent to low gradient streams, in order to maintain acceptable levels of shrub vigor and total streambank damage. For additional information see Forest-Wide Management Standard D-3 in the Lewis and Clark Forest Plan.

Riparian areas are also protected through grazing management prescriptions. The grazing prescriptions were developed only after considering landtype limitations as given in the Lewis and Clark National Forest Soil Resource Inventory (Holdorf, 1981). Grass/forb allocation to livestock use is limited to 40 percent or less in all prescriptions, except one where 49 percent is allotted to livestock use. All prescriptions require at least 40 percent be allotted to

non-consumptive use, though some prescriptions allot 50, 60, or 70 percent to non-consumptive uses. Descriptions of the various prescriptions and forage allocations to domestic livestock, wildlife, and non-consumptive use may be found in the planning records document "Yield Coefficients" (January, 1982).

Finally in addressing protection of riparian zones, as well as soil and water protection, 159,407 total acres (34,264 suitable range acres) were excluded from livestock grazing because of higher priority uses for the land. This includes:

Priority Use	Suitable Range Excluded From Livestock Grazing
Municipal Watersheds	480 acres
Research Natural Areas and Experimental Forest	280 acres
Riparian/Fishery	474 acres
Wildlife/Watershed	33,030 acres

Appendix Q of the Forest Plan lists specific areas where livestock grazing is excluded.

(e) Diversity - Animal and vegetative diversity is extensive and well distributed throughout the Forest. However, the current age class of commercial forest stands is not balanced, being high in the mature age classes. Timber harvest could be used to provide balance to the age class distribution.

A minimum of 5 percent of the commercial forest land within a timber compartment is to be maintained in an old-growth forest condition. This ensures the retention of old-growth in commercial forest stands to go along with the old-growth conditions which will continue to exist in other land use designations.

Since diversity generally is not a problem on the Forest, inventory constraints were used in FORPLAN to track old-growth and seed-sap acres.

(f) Adequate Fish and Wildlife Habitat to Maintain Viable Populations - The Minimum Management Requirements for soil and water conservation and protection of riparian zones discussed above to assure adequate water quantity and quality to provide the habitat needed to maintain viable fish populations.

Adequate habitat to maintain wildlife habitat is provided for through a variety of management actions including:

(1) Minimum Management Requirement direction for soil and water, riparian zones, diversity, and protection of threatened and endangered species.

(2) Application of the Montana Cooperative Elk-Logging Study research findings and recommendations which are applicable to the Lewis and Clark National Forest, see Forest Plan Appendix F for further details.

(3) Coordination between the USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Montana, and Montana Department of Fish, Wildlife, and Parks through an Interagency Rocky Mountain Front Wildlife Monitoring/Evaluation Program began in November 1980. The objectives of this program included; identify management indicator species to monitor; recommend monitoring procedures and start/continue data collection; recommend specific areas and monitoring needs where the monitoring procedures will be implemented; identify responsibilities for various aspects of the monitoring program; and recommend target dates and personnel for the development of resource management guidelines. Monitoring priorities and procedures were established for the following indicator species: grizzly bear, gray wolf prey base - mule deer and elk; mountain goat; bighorn sheep; furbearers - mink, beaver, and muskrat; cliff raptors - peregrine falcon, prairie falcon, and golden eagle; tree raptors - merlin falcon, goshawk, red tailed hawk, and barred owl; and passerine birds and small mammals. See Forest Plan Appendix H for more detailed information.

(4) Application of Wildlife Management Guidelines developed by the Interagency Rocky Mountain Front Wildlife Monitoring/Evaluation Program. These guidelines, accepted by the four agencies in April 1984, include general management guidelines as well as species specific management guidelines for grizzly bear, elk, mule deer, mountain goat, bighorn sheep, and raptors. Procedures are specific for adding or modifying guidelines. See Forest Plan, Appendix I for complete management guideline information.

(g) Consistency with Multiple-Use Laws - The Secretary of Agriculture under various laws is directed to administer National Forests for multiple-uses. The Secretary is also directed to develop and administer renewable surface resource.

Forest planning and environmental analyses require that processes formerly used to make individual resource decisions must now be combined into intergrated management decisions. The FORPLAN model with its construction based upon land suitabilities and capabilities was given a wide choice of prescriptions to insure that a variety of multiple-uses are considered and properly applied on the Forest.

(h) Protecting Threatened and Endangered Species Habitat - No constraints were applied since T&E species habitat was adequately protected in all alternatives and benchmarks. The grizzly bear, found throughout the Rocky Mountain Division, is the major T&E species present on the Forest. With the majority of the Rocky Mountain Division in wilderness or in roadless management, habitat for the grizzly bear can be adequately protected.

Grizzly habitat will be managed according to the Grizzly Bear Recovery Plan (January, 1982) as applied to the Northern Continental Divide Ecosystem. The Forest also has incorporated the Yellowstone Guidelines for grizzly bear management into all alternatives.

Northern bald eagle, gray wolf, and peregrine falcon may inhabitat part of the Forest. No special prescriptions were developed for these species. However, the application of other prescriptions can accomodate these species in their essential habitat. Protecting nest sites, perch sites, and roost sites for eagles and falcons can be accomplished within the context of each of the alternatives. Survival of the gray wolf depends partly upon the availability of prey which is linked to the Minimum Management Requirement for wildlife species described in (f).

There are no known threatened or endangered plant species on the Forest. At the present time, no systematic techniques are being utilized on the Forest to rule out the possible presence of rare plants where development is proposed.

(i) Providing for Utility and Transportation Rights-of-Way and Corridors - Planning was done in accordance with the memo 1950 Special Plans and Studies, Corridor Planning Guidance, October 7, 1982. No constraints were used in the model for this Minimum Management Requirement.

(j) Road Construction Standards - Access roads are necessary for efficient timber harvest and other activities, but road construction affects the soil, water, visual, and riparian resources. Safe road conditions for public and administrative use are necessary. Road standards vary depending upon the purpose of the road, the amount of anticipated use, and the terrain traversed by the road.

Forest development roads, at a minimum, will be single lane, native surface, contour alignment roads with turnouts at approximately 1/4 mile intervals. Road width can be 12 feet without ditch, 12 feet with ditch, or 14 feet without ditch depending on such factors as logging systems, drainage needs, and functional class of road. Grades do not normally exceed 8 percent.

Mitigating measures built into Forest standards and FORPLAN prescriptions are applied to newly constructed roads and road maintenance activities. These mitigation measures help maintain water quality and reduce damage to stream fisheries by limiting the amount of sediment that enters a stream.

Forest direction is to construct the minimum number of roads to efficiently manage Forest resources at the minimum standard necessary to meet the soil and water requirement and provide a safe facility. The standards and guidelines provide the necessary flexibility in design standards to accomplish this objective.

Local roads are modeled in FORPLAN. Arterial and collector road construction and reconstruction is analyzed outside of the FORPLAN model.

(k) Revegetating Temporary Roads - This requirement is modeled in timber harvest prescriptions as a cost coefficient for revegetating roads. The objective is to re-establish grass cover by seeding.

(l) Maintaining Air Quality - This requirement was not modeled in FORPLAN. The Northern Regional Guide directs the Forest to work through cooperative agreements with the State of Montana to manage smoke emissions. Scheduling the time and number of prescribed fires is done outside the FORPLAN model and in cooperation with the State of Montana.

Management objectives comply with State Air Quality Standards (Montana Smoke Management, Memorandum of Agreement, 1978).

(m) Reforestation - In order to have reasonable assurance of regeneration in 5 years, regeneration capability was considered in determining the areas of the Forest that were considered tentatively suitable for timber management. This was done in landtyping and timberland classification. Lands where the knowledge and technology does not exist to reforest the land within 5 years were classified as unsuitable.

On the Lewis and Clark National Forest natural regeneration wil reforest most acres harvested. The Forest modeled 10 percent of the harvested acres for hand planting. This was used to calculate the costs of reforestation in all alternatives due to lack of natural regeneration resulting from possible long periods between cone crops, vegetation competition, or damage to seed sources or seedlings.

(n) 40 Acre Clearcut Limit - Clearcutting is one silvicultural system used on the Forest for even-aged timber harvest. The Northern Regional Guide established that the openings created by even-aged silviculture normally will be 40 acres or less. Costs and practices used are based on even-aged cutting units of 40 acres or less and are included in the management prescriptions. Since the FORPLAN model harvests on the basis of analysis areas rather than stand it is nearly impossible to assess the achievement of this Minimum Management Requirement from FORPLAN output directly. However, by maintaining flexibility in the timber land base available for harvest, spacial placement of individual sale offerings should be possible while meeting this Minimum Management Requirement. Attainment of this Minimum Management Requirement will be tracked in the monitoring phase of the Plan.

Timber Policy Requirements

(a) Nondeclining Yield (NDY) - This constraints on timber outputs limits the periodic harvests to levels greater than or equal to the preceding period level. It was used on some benchmark iterations and on all alternatives, except F-Departure, to insure a constant even flow of timber harvest throughout the planning period.

(b) Sequential Upper and Lower Bounds - Instead of the Nondeclining Yield constraint on timber outputs, sequential upper and lower bounds and minimum harvest limits (harvest floors) were used to constrain harvest flows to reasonable levels in specific benchmarks. Harvest floors were used to establish timber harvest levels which would not substantially change local consumption patterns. Harvest

floors were a lower limit which were necessary to set a level of reasonableness in a benchmark. The harvest floor utilized in specific benchmarks constrained the timber harvest level to be 80 percent or greater of the current level.

The sequential upper and lower bounds, when applied, constrained timber harvest levels to local mill capacity for the first decade. Thereafter increases were limited to 30 percent and decreases limited to 20 percent of the timber harvest volume of the previous decade. These levels were designed, based upon Northern Regional Office direction, to prevent an overly rapid change in the local economies.

c) Rotation Based on 95 Percent CMAI - Timber rotation lengths based on 95 percent of the CMAI (culmination of mean annual increment) for existing and regenerated stands is required by 36 CFR 219.16(2)(iii). The Forest Service is directed to analyze timber rotation lengths based on the time required for stands to reach the culmination of net growth. CMAI assures that all stands scheduled for harvest have reached this level. CMAI was used to constrain the FORPLAN model with regard to when timber harvests could actually occur.

d) Ending inventory constraints were applied so that the Forest would have sufficient timber remaining at the end of the planning horizon to equal or exceed the long-term sustained yield volumes of a regulated forest. This constraint was used to ensure timber harvest stability beyond the 150-year planning horizon of the FORPLAN model.

Maximum Resource Output Objectives

Maximum resource output constraints were used to determine the maximum PNV (present net value) and the impacts on other resources and programs resulting from producing specific resources at their physical or biological potential. The outputs chosen for this analysis were timber volume, elk numbers, AUMs, and wilderness acres. Resource outputs were maximized by first assigning FORPLAN an objective function to maximize the particular

output, locking in the resulting resource outputs as constraints, and re-running FORPLAN with the new objective function of maximizing PNV. In the case of wilderness, the maximum potential wilderness acres were known so it was not necessary to use the first FORPLAN run and objective function that would identified these lands.

DISPLAYED BENCHMARKS

Eight benchmarks were developed to define the production potentials and economic interrelationships associated with management of the Forest. The efficient schedule of management activities, resource outputs, environmental effects, economic consequences, and prescription assignments to meet the purpose of each benchmark were estimated.

Following are descriptions of the benchmarks developed and considered in the Lewis and Clark National Forest planning process. The objectives and major constraints are displayed in Table B-5.

Four types of benchmarks were developed for the Forest:

- Benchmarks that maximized present net value and displayed the efficient levels of resource outputs.

- Resource benchmarks that defined the maximum potential for production of timber, elk, livestock, wilderness, and recreation.

- A minimum level benchmark which defines the minimum outputs associated with custodial management of the Forest and the unavoidable costs and benefits of public ownership.

- The current level benchmark, later developed into an alternative, which defines the management most likely to be implemented in the future if current direction is followed.

All benchmarks were:

- Developed using FORPLAN.

- Developed using an objective function of maximizing PNV, though the resource potential benchmarks for timber, livestock, and elk

first were run with an objective function of maximizing a particular resource.

- Unconstrained by budget levels except the Current Direction Benchmark (115 CDB) and also the Maximum Wilderness Benchmark (115 MWA) which inadvertently had a maximum budget constraint applied. This constraint however, was nonbinding and did not limit the objective function so the benchmark run was retained without modification.

- Designed to comply with minimum management requirements.

- Designed to be legally implementable, except for 115 MWA which has roadless lands modeled for wilderness classification which are considered unavailable for wilderness classification because of Blackfeet Treaty rights on the area. These Treaty rights place a lien on the land which is incompatible with wilderness classification.

- Constrained to preclude timber harvest from 384,407 acres of existing wilderness, 41,838 acres of further planning area, and 63,304 acres of recommended wilderness. Except in the maximum timber benchmark (115 MTA) which considered the recommended wilderness acres as being available for timber harvest if the lands were physically suitable.

- Constrained to preclude timber management on all unsuitable timberland.

- Constrained to harvest timber at an age greater than or equal to 95 percent of CMAI.

- Constrained so the timber inventory in 150 years will equal or exceed the volume of a regulated Forest.

Several variations of the present net value and resource benchmarks were analyzed to determine the opportunity cost and resource trade-offs meeting specific constraints, objectives, regulations, and policies.

TABLE B-5 BENCHMARKS OBJECTIVES AND CONSTRAINTS

Benchmark	Objectives	Objective Function	Timber Harvest Constraints: Harvest Flow	Tentatively Suitable Timber Land (Macres)	Decade 1 Harvest Floor or Ceiling	MMR
Maximum PNV	Identify fixed cost of public landownership and incidental outputs.	Maximize PNV required use of custodial prescriptions	None	0	None	Yes
Minimum Level	Define the PNV of market and nonmarket values. MMRS are met.	Maximize PNV with market and nonmarket values	+30 -20	640	Floor 10.4 MMBF (80% of current levels)	Yes
Maximum Timber	Define benefits and trade-offs and timber volumes associated with maximum timber production.	Maximize PNV (after fixing MAX timber levels)*	+30 -20	666	Floor 10.4 MMBF (80% of current levels)	Yes
Maximum Elk	Identify maximum elk forage production potential and PNV.	Maximize PNV (after fixing MAX elk levels)*	NDY	207	Ceiling 12.5	Yes
Maximum Range	Identify maximum live-stock forage production levels and PNV.	Maximize PNV (after fixing MAX livestock levels)*	+30 -20	654	None	Yes
Maximum Recreation	Identify maximum level of RVDs in either a dispersed or developed recreation setting and PNV.	Maximize PNV (after fixed MAX recreation levels)*	+30 -20	640	None	Yes
Maximum Wilderness	Identify maximum amount of wilderness and PNV of such management.	Maximize PNV (after fixed MAX wilderness acres)*	+30 -20	266	None	Yes
Current Direction	Identify the outputs and economic trade-offs of continuing current direction and land allocations with a budget constraint.	Maximize PNV with market and nonmarket values	NDY	196	Harvest = 13.0	Yes

* FORPLAN or other analysis was done prior to this benchmark to determine the maximum resource output. The maximum volume was then used in this run as a minimum constraint in order to compute the maximum PNV.

Benchmark descriptions are as follows:

1. Maximum Present Net Value Benchmark - This benchmark established "the mix of resource uses, combined with a schedule of outputs that have an established market price or are assigned a monetary value" as required by 36 CFR 219.12(e) and Chief's letter of May, 1983. Minimum management requirements were met. The resource outputs, scheduling, benefits, and costs were used as reference points for benchmark and alternative comparisons. The maximum PNV benchmark, since it has the highest PNV, provides the basis for determining the opportunity cost of implementing the alternatives, each of which is constrained to meet specific resource management objectives.

2. Minimum Level Benchmark - This benchmark defines the minimum costs of public ownership and the resource outputs which are incidental to Forest Service management. The objective function is to maximize PNV with only three management prescriptions available for selection, minimum level, wilderness study, and wilderness management. Wilderness management occurs at reduced service levels. No timber is harvested and grazing permits are phased out so that costs and outputs are zero by the end of the decade. The minimum level benchmark is also required by 36 CFR 219.12(e). It serves as a minimum reference point to develop and/or test alternative activities. It also provides a basis for evaluating the economic costs and benefits of National Forest management in the alternatives and other benchmark runs.

3. Maximum Timber Benchmark - This benchmark explores the costs and benefits of maximizing timber production on the Lewis and Clark National Forest. It was analyzed using maximum present net value as an objective function. After an initial FORPLAN run to determine maximum timber outputs for each decade, the benchmark was then rerun with these outputs as constraints. This second run determined how the Forest could achieve these outputs in the most cost-efficient manner. Inventory and scheduled output constraints were used to protect soil and water resources. Harvest flow constraints were the same as the maximum PNV benchmark. Ending

inventory constraints were used to ensure the long-term timber production capacity of the Forest. Only available and capable lands were used to produce timber. In this benchmark the MWSA areas are considered available for harvest. The economic trade-offs of maximizing timber can be assessed by comparing this benchmark with the maximum PNV benchmark. This benchmark was used to develop, test, and evaluate a range of alternative timber levels.

4. Maximum Wilderness Benchmark - This benchmark maximized the amount of land to be recommended as classified wilderness. The objective function is to maximize PNV, after setting wilderness management as a constraint on all roadless areas identified in the roadless area. This benchmark defines the maximum wilderness acreage and management costs and benefits. The opportunity costs of maximizing wilderness designation and management are established by comparing this benchmark with the maximum PNV benchmark.

5. Maximum Elk Benchmark - The purpose of this benchmark was to analyze the Forest potential to produce elk. This potential is based on the availability of forage and cover on summer and winter habitat. A minimum floor constraint on elk population was set at 80 percent of the current level. No scheduled timber harvest was permitted on winter range to ensure adequate thermal cover. Timber harvest on nonwinter range was constrained to 12.5 million board feet per year. This harvest level would retain necessary hiding cover yet also create additional forage for elk. Nondeclining yield and ending inventory constraints were applied. Livestock grazing on all elk winter range would be eliminated.

6. Maximum Range Benchmark - This benchmark maximizes forage production for domestic livestock. Forage production is maximized by improving range production through investments and by creating transitory range through timber harvest. Timber harvest constraints were the same in the maximum timber benchmark except no timber harvest floor was used. A minimum floor constraint on forage production was set at 80 percent of current level. Productive timberlands were retained for timber management,

but harvest scheduling optimized forage production. Maximum livestock production levels reflect: (1) the highest consumptive use by domestic livestock that can be achieved on the ground without mechanical damage and/or vegetative damage, and (2) forage production which must be left for nonconsumptive allocations. The AUM outputs calculated in the FORPLAN run were adjusted downward after ground truthing and IDT review. These adjustments were made since FORPLAN output levels did not account for area location and practicality of domestic livestock using a particular area. Some areas cannot be reached by domestic livestock or are so small and scattered they are impratical to graze. In other areas, the lack of opportunity to develop water sources prevent domestic livestock grazing. This benchmark, by providing the upper limit of range production, helped the IDT establish different forage production levels for domestic livestock and was used to test the feasibility of meeting RPA targets.

7. Maximum Recreation Benchmark - The benchmark defines the maximum number of RVDs (recreation visitor days) that can be produced on the Forest for both dispersed or developed recreation setting. This number represents a maximum opportunity level, not an actual or projected use level. Timber harvest constraints were the same as the maximum timber benchmark, except no harvest floor constraint was used. Most semi-primitive settings changed to a roaded natural appearing setting (which has a higher RVD opportunity per acre) through timber harvest activities. All potential campgrounds were developed. This benchmark was useful in determining how much recreation the Forest could provide.

8. Current Direction Benchmark - This benchmark defines "the current level of goods and services provided by the unit and the most likely amount of goods and services expected to be provided in the future if current management direction continues" (36 CFR 219.12(e)). The modeling was accomplished by assigning prescriptions to analysis areas that most closely fit current management direction and by constraining output levels. This benchmark was carried forward as the Current Plan (no action) alternative and is more fully displayed and discussed in the comparison of alternatives (Chapter II).

COMPARISON OF BENCHMARKS

The monetary and resource management trade-offs of the management opportunities explored during the Analysis of the Management Situation can be discussed by comparing the benchmarks discussed above. The discussion of monetary trade-offs is limited to priced benefits. In this section the focus is on trade-offs associated with the constraints and objectives of the various benchmarks. This section also discusses the costs of implementing current direction and the costs of minimum level management.

Table B-6 shows selected resource outputs and economic data for the benchmarks. Table B-7 shows the allocation of acres to management emphasis by benchmark. Table B-8 shows the economic effects by resource group for each of the benchmarks. Figure B-1 displays a flow chart of the PNV trade-offs associated with the benchmarks.

TABLE B-6 SELECTED RESOURCE OUTPUTS AND EFFECTS BY BENCHMARK

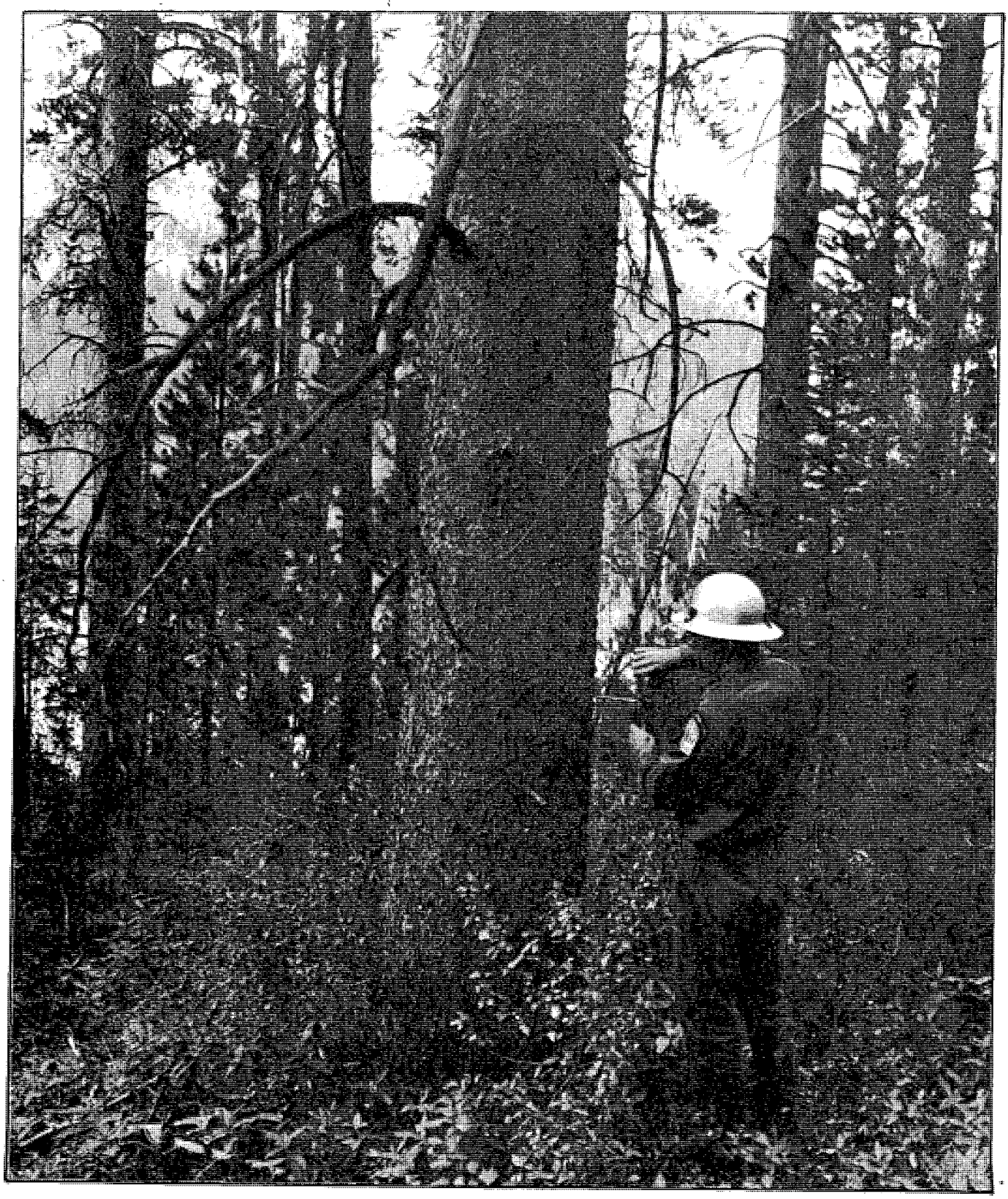
RESOURCE USE AND DEVELOPMENT FACTORS	UNITS	MIN LEVEL	CURRENT DIRECTION	MAX TIMBER	MAX RANGE	MAX RECREATION	MAX ELK	MAX WILDERNESS	MAX PNV
Recreation Opportunity by 2030	Thousand RVDs								
-Rural		194	194	194	194	194	194	194	194
-Roaded Natural		1905	2119	2435	2478	2521	1905	1905	2521
-Semi-Primitive		223	193	168	166	164	218	0	164
-Primitive		47	52	47	47	47	47	270	47
-Developed		0	198	198	198	230	198	230	198
Wilderness Opportunity	Thousand Acres	384	448	384	426	426	490	1387	384
Elk Population Potential	Animals								
-1982-1990		8500	8500	8500	8500	8500	8500	8500	8500
-1991-2000		8800	8500	8700	8300	8700	9500	8600	8700
-2001-2010		9200	8500	8900	8100	9000	10500	8700	9000
-2011-2020		9600	8500	8700	7800	8800	11500	8700	8800
-2021-2030		10000	8500	8500	7500	8600	12500	8600	8600
Range	Thousand AUMs								
-1982-1990		71.0	71.0	29.4	78.0	26.7	26.7	64.8	26.7
-1991-2000		0	71.0	31.0	85.0	27.2	27.2	64.9	27.2
-2001-2010		0	71.0	31.6	90.0	27.0	27.0	64.9	27.0
-2011-2020		0	71.0	33.0	90.0	29.2	29.2	64.9	29.2
-2021-2030		0	71.0	33.7	90.0	33.5	33.5	64.8	33.5
Timber	Thousand								
-Lands, Suitable	Acres	0	196	676	654	640	207	266	640
-Timber Sale Program	Million								
-1982-1990	Board Feet	0	13.0(3.8)	24.0(7.1)	24.0(7.1)	24.0(7.1)	12.5(3.7)	19.8(5.8)	24.0(7.1)
-1991-2000	(Million	0	13.0(3.8)	31.2(9.2)	31.2(9.2)	31.2(9.2)	12.5(3.7)	25.5(7.5)	31.2(9.2)
-2001-2010	Cubic Feet)	0	13.0(3.8)	40.5(11.9)	40.5(11.9)	40.5(11.9)	12.5(3.7)	33.1(9.7)	40.5(11.9)
-2011-2020		0	13.0(3.8)	52.7(15.5)	52.7(15.5)	52.7(15.5)	12.5(3.7)	43.1(12.7)	52.7(15.5)
-2021-2030		0	13.0(3.8)	69.5(20.4)	69.5(20.4)	69.5(20.4)	12.5(3.7)	49.5(14.6)	69.5(20.4)
-Long Term Sustained Yield Capacity	Million Board Feet (Million Cubic Feet)	0	14.3(4.2)	68.8(20.2)	56.3(16.6)	43.8(12.9)	18.1(5.3)	23.4(6.9)	43.8(12.9)
-Budget Required to Implement	Million Dollars								
-1982-1990		2.67	3.89	4.70	4.94	4.19	4.13	4.91	4.49
-1991-2000		2.60	3.69	5.14	5.40	5.83	3.93	4.69	5.00
-2001-2010		2.60	3.84	6.55	6.88	7.21	3.80	5.09	6.07
-2011-2020		2.60	4.03	7.26	7.62	8.34	4.03	6.20	7.11
-2021-2030		2.60	4.03	9.60	10.08	9.35	4.00	6.33	8.62
-Present Net Value 1/									
-at 4%		127.0	182.6	256.8	289.8	301.6	199.7	241.3	308.0
-at 7 1/8%		60.8	82.2	92.9	106.3	113.7	94.2	101.6	112.7

1/ Values given in 1978 Dollars

TABLE B-7 ACRES OF MANAGEMENT EMPHASIS BY BENCHMARK

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resource activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by benchmark.

	MIN LEVEL	MAX TIMBER	MAX RANGE	MAX RECREATION	MAX ELK	MAX WILDERNESS	MAX PNV
Min. Level Mgmt	1458990	611847	586300	744604	1032273	87993	744604
Range Mgmt	0		99547	23532		98915	23532
Timber Mgmt	0	488433	423738	462552	168124	114246	462552
Timber/Range Mgmt	0	159647	124033	85073	18575	60785	85073
Timber/Wildlife Visual Mgmt	0	2904	78147	85287	12024	75290	85287
Timber/Range/Wildlife/Visual Mgmt	0			0		3985	0
Wildlife Mgmt	0	386		310		175	310
Wildlife/Range Mgmt	0			101			101
Wilderness Mgmt	384407	528032	469929	384407	552516	1336269	384407
Wilderness Study Mgmt	0	41838	41838	41838	41838	41838	41838
Campground Mgmt	0	4169	4169	1734	1734	4169	1734
Concentrated Recreation Mgmt	0	6141	11984	14930	15284	4011	14930
Concentrated Recreation/Range Mgmt	0		3712	1029	1029	2683	1029
Concentrated Recreation/Timber Mgmt	0			0		6124	0
Concentrated Recreation/Timber/Range Mgmt	0			0		6914	0
TOTAL	1843397	1843397	1843397	1843397	1843397	1843397	1843397



Forest Employee taking a core sample from a tree.

Range of Investments Opportunities

The parameters of the analysis of investment opportunities are defined by the minimum level benchmark and the maximum present net value benchmark. The minimum level benchmark models custodial land management for the Forest, reflecting the costs and benefits associated with maintenance of public ownership. The maximum PNV benchmark represents a management regime which maximizes PNV when both market and nonmarket resources are assigned values. The PNV of the minimum level benchmark is $127 million, compared to a PNV for the maximum PNV benchmark of $308 million. Thus the opportunity cost of minimum management is $181 million, the highest opportunity cost of all benchmarks and alternatives. The range of investment opportunities which meets legal obligations will fall between $127 million for minimum level and $308 million for the maximum PNV benchmark.

First Decade Timber Harvest

The trade-offs of timber harvest are determined by comparing the maximum PNV and maximum timber benchmarks. The total volume harvested over the 150-year planning horizon, however, is lower for the PNV benchmark as it does not schedule timber management on economically inferior lands. The long-term sustained yield for the maximum PNV benchmark is 43.8 million board feet compared with 68.8 million board feet for the maximum timber benchmark. About 640,000 acres are scheduled for timber management in the PNV benchmark. The opportunity cost of the maximum timber benchmark is $51 million.

Timber harvest levels are the same for the first period for the maximum timber and maximum PNV benchmarks.

Roadless and Wilderness Management

The relationship between roadless/wilderness management and present net value is defined by comparing the maximum PNV and maximum wilderness benchmarks. The only difference among these benchmarks is the amount of area precluded from timber management and the intensity of roadless/wilderness management. All tentatively suitable timberlands are available for timber management (94 percent are actually utilized) in the maximum PNV benchmark, while only about 39 percent of the tentatively suitable timberlands are utilized for timber management in the maximum wilderness benchmark. Precluding timber management from 61 percent of tentatively suitable timberlands reduces the total volume harvested by 50 percent over 150 years.

The opportunity cost of increasing from 426 thousand acres of wilderness and further planning, to 1387 thousand acres of wilderness is $67 million. This opportunity cost is directly attributable to the reduction of timber harvest within the additional wilderness acres and the loss of mineral leases on these acres.

Livestock Forage Production

Livestock forage production is maximized in the maximum range benchmark. Production of forage occurs on rangelands, often enhanced by investments in range improvements, and on transitory rangeland created primarily through timber harvest. Timber harvest is allowed to depart from nondeclining even flow to achieve the greatest outputs in forage over the planning horizon.

The maximum range benchmark produces a high level of 90,000 AUMs annually while the maximum PNV benchmark has a high output of 33,500 AUMs annually. The opportunity cost between these two benchmarks is $18 million.

Elk Forage Production

The trade-offs of elk forage production are defined by comparing the maximum elk and maximum PNV benchmarks. In the maximum elk benchmark timber harvest and domestic livestock grazing are limited to ensure forage and cover for elk. The maximum elk benchmark produces an elk population potential of 12,500 animals compared with 8,600 animals in the maximum PNV benchmark. The maximum elk benchmark opportunity cost is $108 million.

Current Direction

The economic trade-offs of implementing Current Direction is analyzed by comparing the maximum PNV benchmark to the current direction benchmark/alternative. The opportunity cost of implementing Current Direction is $125 million. Much of this cost is associated with the implementation of a management regime that was developed without cost-efficiency as the primary objective, and with the requirement for a timber harvest schedule with nondeclining yield. Timber revenues are the primary source of the difference. These trade-offs reflect the different harvest schedules and the difference between the long-term sustained yield of Current Direction (14.3 million board feet) and the long-term sustained yield of the maximum PNV benchmark (43.8 million board feet).

RELATIONSHIPS AMONG RESOURCES

1. Timber Harvest/Roadless and Wilderness - Timber harvest levels and roadless/wilderness designations are inversely related. Timber management reduces the naturalness of an area due in large part to associated road construction activities. Road construction alters the basic character of the land. Undeveloped lands that are roaded lose their wilderness characteristics and wildland values. Opportunity for wilderness classification is foregone. All alternatives have a reduction in roadless acreage due to timber management. This reduction ranges from 0 to -4200 acres in the first decade (-19,000 to -881,000 acres by the fifteenth decade) for Alternatives H and A-2 respectively. The current amount of wilderness roadless acreage includes 384,407 acres of classified wilderness, and 1,002,232 acres of land inventoried as roadless. Chapter II of the FEIS has a complete alternative comparison on wilderness acreages, as well as roadless area management. All alternatives recommend some additions to the wilderness system. These recommendations have a negative impact on timber harvest since commercial forest lands are included within the areas recommended for wilderness and are necessarily excluded from timber harvesting and are dropped from the timber base.

2. Timber Harvest/Livestock Forage - Livestock forage production levels can be increased if timber harvest is used to create transitory range. Intensive timber thinning regimes may also be used to extend the usable life of transitory range. The Forest currently provides approximately 71,000 AUMs of forage for domestic livestock. The maximum range benchmark would produce 90,000 AUMs. To produce these AUMs, timber harvest would equal those of the maximum timber benchmark. The long-term sustained yield for the maximum range benchmark would be 56.3 million board feet, compared with 68.9 million board feet, 43.8 million board feet, and 14.3 million board feet for the maximum timber, maximum PNV, and Current Direction benchmarks, respectively. The contributions of the transitory range displayed in the benchmarks may be overstated, depending on the unit size, location, and timing of forage availability. While forage may be available it may not

be usable by domestic stock because of physical limitations (size, location, type of forage, water) or management problems (allotment conflicts, class of livestock, season of use, user conflicts).

3. Timber Harvest/Elk Forage - Elk forage production levels can be increased through the use of timber harvest to produce transitory range. However, elk populations unlike domestic livestock are not projected to increase under high levels of timber production. The maximum elk benchmark actually limits timber level to 12.5 million board feet for the first five decades. This level of timber harvest provides some transitory range, but more importantly for the elk populations it ensures substantially more cover and fewer miles of road access than the maximum PNV, timber, or range benchmarks. Forage increases resulting from timber harvest are modeled only within habitat types that have the potential to produce forage.

4. Livestock Forage/Roadless and Wilderness Designation - Roadless allocation may have the effect of increasing some costs of management, but would have little effect on the potential for livestock forage. Wilderness allocation, however, does have an effect on potential forage for livestock depending on the location and habitat types. Transitory range could not be created through timber harvesting because no timber harvesting would be allowed. Structural improvements to increase forage availability would be limited in wilderness as would be management practices that influence forage such as seeding and prescribed burning. All of these practices would be allowed within roadless allocations. The reduction in AUMs between the maximum range benchmark (90,000 AUMs) and the maximum wilderness benchmark (64,800 AUMs) is primarily a result of the reduced timber harvest and less available transitory range in the wilderness benchmark.

5. Elk Forage/Roadless and Wilderness Designation - Elk forage production would not be significantly affected by wilderness or roadless area designation, though roadless and wilderness designations do reduce the opportunities available to maintain or enhance the habitat

components used by elk. These designations however, would provide a measure of habitat security not found in other areas of the Forest. Wilderness classification is more restrictive than roadless management in that use of prescribed fire is limited to protection of the wilderness ecosystem, not always synonymous with enhancement of elk habitat. Old-growth habitats which may evolve over time in wilderness are not the habitats favored by elk. However, given the habitat types and vegetative communities present on the Forest and the fire history of the area, roadless or wilderness designation would not likely affect elk forage production.

PRODUCTION POTENTIAL

Production Potential benchmarks provide information about production and economic potentials of the Forest. This section discusses the maximum production potential for key resources on the Forest as well as the cost efficient production potential for these resources.

1. Economic Potential of Market and Nonmarket Values (maximum PNV benchmark).

   Using market and assigned values for timber, range, mineral leases, recreation, wildlife, and other outputs, this benchmark established the mix of resource uses combined with a schedule of outputs and costs that maximizes present net value. This benchmark produced a present net value of $308 million based primarily on a large timber harvest program. Timber management would be practiced on 640,000 acres, producing a long-term sustained yield of 43.8 million board feet annually. Harvest volumes would rise from 24 million board feet annually in the first decade to 69.5 million board feet annually in the fifth decade. Wilderness would be increased by about 42,000 acres to provide for additional wilderness recreation use, which is assigned a higher value than nonwilderness use.

   There is no opportunity cost associated with this benchmark since by definition it has the maximum PNV which other benchmarks and alternatives are measured against.

2. Fixed Costs of Public Landownership (minimum level benchmark) - The minimum annual budget for the Forest is $2.7 million for the first decade and $2.6 million for later decades.

   Outputs which are incidental to management include timber and livestock grazing under contracts, recreation use, water, and elk forage. Timber harvest, road construction, livestock grazing activities, and most special uses are limited to completing current contracts. Recreation use would be restricted as trails, roads, and facilities are closed. All lands would receive a minimum level management emphasis. The present net value of minimum management is $127 million.

3. Timber Potential (maximum timber benchmark) - The first decade harvest is 7.1 MMCF/year (24.0 million board feet/year). This harvest level rises to 20.4 MMCF/year (69.5 million board feet/year) by the year 2030. The long-term sustained yield for this benchmark is 20.2 MMCF/year (68.8 million board feet/year). All of the suitable timber base is given timber emphasis prescriptions. Timber management is scheduled for 666,000 acres of the Forest. The PNV is $257 million, with an opportunity cost of $51 million.

4. Wilderness Potential (maximum wilderness benchmark) - The maximum wilderness designation is 1,386,639 acres (75 percent of the Forest). This includes designating all available inventoried roadless areas to wilderness, along with the existing wildernesses and MWSA areas. The PNV is $241 million, with an opportunity cost of $67 million.

5. Range Potential (maximum range benchmarks) - The maximum range benchmark shows an average production of 90,000 AUMs/year (85,000 in the first decade. This grazing level requires intensive utilization of existing rangelands, high investment levels in structural and nonstructural range improvements, and creation of transitory range through timber harvest. The PNV is $290 million and the opportunity cost is $18 million.

6. Elk Potential (maximum elk benchmark) - The maximum elk benchmark shows an increase in elk population potential from 8,500 animals in the first decade to 12,500 animals in 2030. This occurs primarily as a result of limits on timber harvest, domestic grazing, and road construction. The population potential is based primarily on the Forest's ability to provide forage for the elk. Additional summer forage is available on the Forest but further increases in the elk population potential was not projected due to uncertainty of additional winter range on non-Forest lands. The PNV of this benchmark is $200 million. The opportunity cost is $108 million.

7. Resource and Economic Potential Under Current Management (Current Plan) - Continuing current management on the Forest provides for a timber harvest level of 13.0 million board feet/year with a long-term sustained yield of 14.3 million board feet/year. Over 447,700 acres are designated as wilderness. Lands in a roadless situation would decrease from 913,000 acres in the first decade to about 530,000 acres by the end of the planning horizon.

   Grazing levels would remain near 71,100 AUMs/year. The fish and elk populations would also remain at their present levels.

   The PNV of Current Direction is $183 million with an opportunity cost of $125 million.

FORMULATION OF ALTERNATIVES (SECTION VII)

INTRODUCTION

A Forest planning alternative is a mix of multiple-use management prescriptions applied in specific amounts and locations to achieve a desired management emphasis as expressed in goals and objectives. To be viable (NFMA - 36 CFR 219.12f), the alternative must:

(1) Exist between maximum and minimum resource potential of the Forest.

(2) Facilitate analysis of opportunity costs and of resource use and environmental trade-offs among alternatives.

(3) Facilitate evaluation of present net value, benefits, and costs of achieving various outputs as well as values that are not assigned monetary values.

(4) Show a different way to address and respond to major public issues, management concerns, and resource opportunities.

(5) Represent the most cost-efficient combination of management prescriptions that can meet the objectives of the alternative.

(6) State the condition and uses that will result from implementation.

(7) State what goods and services will be produced including timing and flow of outputs and the costs and benefits generated.

(8) State the resource management standards and guidelines used.

(9) State the purpose of the management direction used.

Formulating alternatives was planning action number 5 in the Forest planning process, following the Analysis of the Management Situation. During the Analysis of the Management Situation a determination was made of the ability of the Forest to supply goods and services. Maximum and minimum output levels were established. These levels form the range within which the alternatives were developed. Two specific alternatives are required. One alternative must be developed which responds to and incorporates the Resource Planning Act program

Step 8: Supply potentials were determined using the FORPLAN computer model. Various assumptions, constraints, and objectives were used to establish benchmarks for supply potentials of each resource. Benchmarks were established for the minimum, maximum, and constraint resource levels and maximum present net value. Existing resource supply and projected demand were compared to supply potentials of each benchmark. Opportunities to resolve issues and concerns were identified for each resource by comparing existing and projected demand to potential production levels. These potentials, when compared to the Current Plan Alternative, indicate opportunities and/or need for change. This step concluded the analysis of the management situation - benchmark analysis.

Step 9: Alternative objectives were established to provide a broad range of options for future management of the Forest. Selected benchmarks were used to define upper and lower limits for the production of each resource. These upper and lower limits outlined the decision space boundaries for the resources involved. The IDT considered expected use, supply, potential (upper and lower limits), and evaluated public comments to establish the range of alternatives within the decision spaces.

Step 10: The FORPLAN model was again used to estimate the outputs and costs for each alternative by reflecting the objective of the alternative through a given set of constraints.

Step 11: The results of the FORPLAN analysis for each alternative were evaluated to assure conformance with laws, policies, and guidelines. Refinements were made to insure that each alternative could be achieved.

Further information on the FORPLAN model is presented in the Cost Efficiency and Net Public Benefit Analysis section of this appendix.

The IDT incorporated cost-efficiency into the planning process. First, objectives, standards, and guidelines were established for each prescription by resource element. Second, given the objective of the prescription, costs were estimated for resource elements to meet the standards and guidelines of the prescription. Third, costs of producing the outputs that would result from implementing the prescription were developed and compared to the benefit values produced. Prescriptions were carried forward if they were cost efficient in achieving prescription goals. These prescriptions were applied to suitable analysis areas and were combined with the necessary constraints and incorported into FORPLAN to form different alternatives. Each alternative produces a different combination of priced and nonpriced outputs. The technical feasibility of each alternative is analyzed with FORPLAN. All constraints must be satisfied or an infeasibility will result. The methodology used to account for both priced and nonpriced outputs in alternative formulation and evaluation is discussed in the Cost Efficiency and Net Public Benefit section of this appendix.

COMMON CONSTRAINTS

The constraints used in the Maximum PNV benchmark formed the basis for constraints applied to all alternatives except current management (Alternative -Current Plan). Common benchmark constraints were developed, examined, and tested to see how well they addressed their stated purpose. They also represent the most cost-efficient approach to meeting the intended purpose. These constraints were previously analyzed in this appendix in Section VI. The benchmark constraints common to all alternatives were as follows:

Nondeclining Yield

Constraint: All alternatives, except the departure (Alternative F-Departure), require nondeclining yield for timber harvests.

Purpose: Provides a sustained yield of timber harvests and generally results in positive social effects by providing an economy with consistent and relatively stable growth potential.

tentative resource objective (Alternative A-2). Another alternative was developed to reflect the current and expected level of goods and services produced should current management be continued (Alternative - Current Plan). This is also the "no action" alternative. The process for formulating alternatives can best be explained in a series of steps.

Step 1: Major public issues and concerns were identified through public involvement. These issues and concerns were reviewed by an interdisciplinary team and consolidated into a set of planning questions to be answered.

Step 2: A comprehensive multi-resource data base was formed based on the identified issues and concerns and stored in a computer retrieval system.

Step 3: Land areas with similar physical and biological attributes were identified and mapped as analysis areas. The capability, suitability, and management opportunities of specific areas of the Forest were considered in this step.

Step 4: A set of management prescriptions was prepared to represent a variety of possible ways and intensities to manage the Forest.

Step 5: The 530 analysis areas identified in Step 3 were assigned management prescriptions. Some analysis areas were assigned only one prescription while others were assigned a variety of prescriptions that could be applied depending upon the capability, suitability, and management opportunities of the analysis area. Single prescription assignments, which are applied because of limited capabilities of the land, limit the model's choices.

Step 6: Resource outputs and the associated costs and dollar values that would result when a prescription was implemented were calculated and entered into the computer model FORPLAN.

Step 7: Demand was estimated for the resources involved in the planning questions.

	Rationale:	Assures a constant supply or upward trend in timber supply (required by NFMA with some specified exceptions).
	Trade-off:	Small reduction in PNV and base timber harvest schedule (see Section VI).
Ending Inventory Constraint	Constraint:	Require an appropriate level of timber inventory at the end of the planning horizon.
	Purpose:	Assure that harvestable timber will be available in the decades immediately following the end of the planning horizon, and in an amount expected from a regulated forest.
	Rationale:	The suitable timber land should be retained in a productive condition throughout and beyond the 150-year planning horizon.
	Trade-off:	Small reduction in PNV and timber harvest schedule (see Section VI).
Culmination of Mean Annual Increment Constraint	Constraint:	Timber rotations are based on the culmination of mean annual increment for existing and regenerated stands. This constraint is applied by limiting potential harvest periods in every harvest prescription to times at or after culmination of mean annual increment for the particular type of stand.
	Purpose:	Assure that timber is harvested at or beyond its maximum mean annual growth rate.
	Rationale:	Provide rotation ages that maintain high productivity and abide by Forest Service Manual direction.
	Trade-off:	Lengthened rotation, reduction in timber yields and an associated reduction in PNV.

Visual Quality Constraint	Constraints: Types of management activities and intensity of those activities were limited in certain areas to address visual concerns. Purpose: Limit the impact of management activities on visual quality. Rationale: Ensures visual quality is maintained in those areas identified as having high visual benefit. Trade-off: Small reduction in timber yields and PNV.
Wilderness Constraint	Constraint: Apply wilderness management emphasis and intensity constraints to all designated wilderness acres. Purpose: Assure that these areas are not available for timber harvest or other activities not compatible with wilderness designation. Rationale: Ensures that those areas which are part of National Wilderness Preservation System are only scheduled for activities and outputs which are permissable under the Wilderness Act. Trade-off: Reduction in timber yield, domestic grazing potential, and PNV due to existing land classification and legal restrictions on management activities.
DEVELOPMENT OF ALTERNATIVES Current Plan Alternative-No Action	Goal - The purpose of the Current Plan Alternative is to display the results of continuing to manage the Forest under existing plans. Current plans include Ranger District Multiple-Use Plans, Timber Management Plans for the Four Rivers and Belt Working Circles, Allotment Management Plans, Area Transportation Plans, and Part 1 of the Forest Multiple-Use Plan.

Criteria and Assumptions - The criteria and assumptions underlying this alternative are:

- Two areas have been added to the National Wilderness Preservation System (Scapegoat and Great Bear addition to the Bob Marshall Wilderness) after a number of the plans providing current direction were developed.

- Renshaw and Silver King-Falls Creek roadless areas are recommended for wilderness classification.

- Deep Creek-Reservoir North roadless area is designated as a further planning area.

- Middle Fork Judith and the Big Snowies are legislatively identified as MWSA (Montana Wilderness Study Act) areas.

- Advances in technical knowledge about land capability have taken place.

- Present level of outputs (over the past 5 years) is assumed to continue for the next 15 decades.

Constraints - The constraints used to meet the criteria and assumptions are:

- Minimum management requirement constraints.

- Constraints common to all alternatives.

- Wilderness management emphasis constraints applied to the following roadless area acres:

Renshaw	31,304 acres
Silver King-Falls Creek	32,000 acres

- Further study management emphasis constraints applied to the following roadless area acres:

Deep Creek-Reservoir North	41,838 acres

- Scheduled output constraints to continue current output levels for the next 5 decades.

Timber	=	3.8 million cubic feet annually
Range	=	77,280 AUMs annually
Wildlife	=	2,170 acre equivalents
Budget	=	2.55 million dollars (1978 dollars)

Rationale - The NFMA regulations (36 CFR 219.12(f)(7)) require an alternative which reflects "the current level of goods and services provided by the unit and the most likely amount of goods and services expected to be provided in the future if current management direction continues". The current plans for the Forest have a set of land uses that are reproduced in this alternative with some alterations to reflect recent policy changes which would be carried into the future. Constraints were developed which would force this alternative to schedule activities to match what could be expected in the future if current management were continued. Recreation and wildlife outputs are in general a function of the way in which land is designated and management prescriptions are applied. By attempting to match activities occuring under existing plans this alternative should also closely match the current direction recreation and wildlife outputs. The specific numbers used as output constraints for timber, range, wildlife acre equivalents, and budget dollars were determined based on current levels (past 5 years) and expected trends if current management were continued.

Alternative A-1

Goal - This alternative was designed to respond to and incorporate the 1980 Forest and Rangeland Renewable Resource Planning Act (RPA) program targets for the Lewis and Clark National Forest. In this alternative the two MWSA areas on the Forest are recommended for wilderness designation.

Criteria and Assumptions - The criteria and assumptions underlying this alternative are:

- Production of market outputs from areas outside of wilderness, recommended wilderness, and further planning areas will be based on cost-efficiency.
- Resource outputs will attempt to meet the RPA program targets.
- Renshaw and Silver King-Falls Creek roadless areas are recommended for wilderness classification.
- Deep Creek-Reservoir North roadless area is designated as a further planning area.

- Middle Fork Judith and the Big Snowies MWSA areas are recommended for wilderness classification.

Constraints - The constraints used to meet the criteria and assumptions are:

- Minimum management requirement constraints.

- Constraints common to all alternatives.

- Wilderness management emphasis constraints applied to the following roadless area acres:

Renshaw	31,304 acres
Silver King-Falls Creek	32,000 acres
Middle Fork Judith	92,000 acres
Big Snowies	97,885 acres

- Further Study management emphasis constraints applied to the following roadless area acres:

  Deep Creek-Reservoir North 41,838 acres

- Scheduled output constraints to meet RPA program outputs through the first five decades.

Decade	Timber (MMCF /Yr)	Range (AUMs /Yr)	Wildlife (A.E. /Yr)	Budget (Million $/Yr)
1	5.9	73,000	5490	4.7
2	8.8	75,500	5490	4.7
3	10.0	81,500	5480	4.7
4	10.9	84,500	5480	4.7
5	12.1	86,400	5370	4.7

Rationale - This alternative was developed to examine the feasibility of meeting or exceeding RPA goals while also recommending wilderness designation for the two MWSA areas on the Forest. The constraints applying wilderness and further study management to other specific areas model the RARE II proposals which were incorporated into the RPA program. Specific numbers used in the scheduled output constraints are based directly on the 1980 RPA program.

Alternative A-2

Goal - The purpose of this alternative is the same as Alternative A-1 except the two MWSA areas are considered available for development. This provides an opportunity to examine some of the effects of a wilderness versus nonwilderness designation for the two areas. This alternative is considered the full RPA alternative.

Criteria and Assumptions - The criteria and assumptions for this alternative are the same as for Alternative A-1 except the two MWSA areas are now made available for development. Development in the MWSA areas could include timber management, more intensive range management, or wildlife habitat manipulation, as well as other activities.

Constraints - This alternative has the same constraints as Alternative A-1 except for the MWSA area management emphasis constraint and the range and wildlife output constraints. The MWSA areas are available for development. Range and wildlife outputs were changed because of the more intensive management activity levels permitted under a non-wilderness designation and the additional MWSA areas available for development. The changed range and wildlife outputs are:

Decade	Range (AUMs/Yr)	Wildlife (Acre Equivilents/Yr)
1	72,800	5920
2	76,200	5920
3	82,230	5910
4	87,500	5900
5	87,500	5860

Rationale - This alternative was developed as required in 36 CFR 219.12(f)(6). It examines the Forest's ability to respond to the RPA program and meet or exceed output targets. RARE II recommendations were incorporated into the RPA program and are also incorporated into this alternative. The MWSA areas on the Forest are available for development and production of outputs in response to the RPA program.

Alternative B-2

Goal - The purpose of this alternative is to increase the commodity use of Forest resources above current levels while maintaining a variety of dispersed recreation opportunities. The two MWSA areas would be recommended for wilderness designation.

Criteria and Assumptions - The criteria and assumptions that apply to this alternative are:

- Production of market outputs from areas outside of wilderness, recommended wilderness, and further planning areas will be based on cost-efficiency.

- Renshaw and Silver King-Falls Creek roadless areas are recommended for wilderness classification.

- Deep Creek-Reservoir North roadless area is designated as a further planning area.

- Middle Fork Judith and Big Snowies MWSA areas are recommended for wilderness designation.

- Commodity outputs would be increased to a midpoint between current management and the 1980 RPA program.

- More dispersed recreation opportunities would be maintained than in the RPA alternative.

Constraints - The constraints used to meet the criteria and assumptions are:

- Minimum management requirement constraints.

- Constraints common to all alternatives.

- Wilderness management emphasis constraint applied to the following roadless area acres:

Renshaw	31,304 acres
Silver King-Falls Creek	32,000 acres
Middle Fork Judith	92,000 acres
Big Snowies	97,885 acres

- Further study management emphasis constraints applied to the following roadless area acres:

Deep Creek-Reservoir North	41,838 acres

- Scheduled output constraints to moderate increases in commodity outputs and retain dispersed recreation opportunities.

Decade	Timber (MMCF /Yr)	Range (AUMs /Yr)	Wildlife (A.E. /Yr)	Budget (MM$ /Yr)
1	4.1	72,700	1980	2.7
2	5.4	75,000	1970	2.7
3	6.0	77,850	1960	2.7
4	6.4	79,500	1930	2.95
5	7.0	81,350	1890	3.05

Rationale - The undeveloped land and roadless areas on the Forest provide an abundance and variety of recreational opportunities. The benchmark runs and the RPA alternative demonstrate the Forest's ability to increase production of commodity outputs but frequently with a major decrease in the number of roadless acres. This alternative attempts to moderately increase commodity output and at the same time maintain more of the roadless lands. The scheduled output constraints raise outputs to a level midway between current management and the RPA program.

Alternative B-2

Goal - The purpose of this alternative is the same as Alternative B-1 except that the two MWSA areas are considered available for development. This allows an examination of the effects of wilderness or nonwilderness designation on outputs, scheduling and PNV.

Criteria and Assumptions - The criteria and assumptions for this alternative are the same as for Alternative B-1 except the two MWSA areas are now made available for development. Development in the MWSA areas could involve timber management, more intensive range management, or wildlife habitat manipulation, as well as other activities.

Constraints - Same constraints as Alternative B-1 except the management emphasis for the two MWSA areas is nonwilderness, and the range and wildlife output constraints change as a result of the nonwilderness recommendation.

Decade	Range (AUMs/Yr)	Wildlife (A.E./Yr)
1	72,700	2060
2	75,000	2060
3	78,000	2050
4	80,000	2050
5	81,500	2040

Alternative C

Rationale - The same as for Alternative B-1 except this alternative provides the opportunity to examine some of the impacts of making a wilderness or nonwilderness recommendation for the MWSA areas. Range and wildlife outputs are changed based on the greater amount and intensity of management activities that can occur on the nonwilderness MWSA areas.

Goal - The purpose of this alternative is to place an increased emphasis on the Forest's wildlife program.

Criteria and Assumptions -

- Production of market outputs from areas outside of wilderness, recommended wilderness, and further planning areas will generally be based on cost-efficiency but may be constrained to meet wildlife objectives.
- Renshaw and Silver King-Falls Creek roadless areas are recommended for wilderness classification.
- Deep Creek-Reservoir North roadless area is designated as a further planning area.
- Middle Fork Judith and Big Snowies MWSA areas are to be managed for semi-primitive recreation and wildlife habitat, especially elk habitat.
- Timber harvesting would be precluded in many areas that are currently in a semi-primitive condition.
- Management emphasis is on maintaining and improving wildlife habitat.
- Assume there would be increases in recreation opportunities.
- Assume there would be a slight decrease from the current timber harvest levels.

Constraints - The constraints used to meet the criteria and assumptions are:

- Minimum management requirement constraints.
- Constraints common to all alternatives.

- Wilderness management emphasis constraints applied to the following roadless area acres:

Renshaw	31,304 acres
Silver King-Falls Creek	32,000 acres

- Further study management emphasis constraints applied to the following roadless area acres:

Deep Creek-Reservoir North	41,838 acres

- Scheduled output constraints to achieve desired output levels.

Decade	Timber (MMCF /Yr)	Range (AUMs /Yr)	Wildlife (A.E. /Yr)	Budget (MM$ /Yr)
1	3.7	72,000	5820	2.55
2-5	3.7	71,420	5820	2.55

Rationale - Controlling the type and intensity of management activity directly impact wildlife. Wildlife and wildlife habitat can benefit from these constraints which limit or lower timber and range outputs, and increase the number of wildlife acre equivalents (through habitat improvement projects). Combined with the application of timber prescriptions on currently roaded areas, this alternative serves to maintain and improve wildlife habitat and populations and also increase dispersed recreation opportunities.

Alternative D

Goal - This alternative emphasizes increases in livestock grazing and outdoor recreation opportunities.

Criteria and Assumptions - The criteria and assumptions that apply to this alternative are:

- Production of market outputs from areas outside of wilderness, recommended wilderness, and further planning areas will generally be based on cost-efficiency but may be constrained to meet particular recreation objectives.

- Renshaw and Silver King-Falls Creek roadless areas are recommended for wilderness classification.

- Deep Creek-Reservoir North roadless area is designated as a further planning area.

- Big Snowies MWSA area is to be managed for semi-primitive recreation (not available for timber harvest).

- Middle Fork Judith MWSA area is to be managed partly for semi-primitive recreation (53,760 acres, no timber harvesting allowed), and partly as a roaded natural appearing recreation setting (38,240 acres, 12,000 acres available for timber harvesting).

- Range outputs would be increased to the maximum potential production level of nearly 90,000 AUMs by the fifth decade.

- Semi-primitive recreation settings are emphasized.

Constraints - The constraints used to meet the criteria and assumptions are:

- Minimum management requirement constraints.

- Constraints common to all alternatives.

- Wilderness management emphasis constraints applied to the following roadless area acres:

Renshaw	31,304 acres
Silver King-Falls Creek	32,000 acres

- Further study management emphasis constraints applied to the following roadless acre acres:

Deep Creek-Reservoir North	41,838 acres

- Management emphasis constraints applied to maintain semi-primitive recreation settings with no timber harvesting.

- Scheduled output constraints to limit timber harvest levels and provide a manageable rate of increase in range outputs.

Decade	Timber (MMCF /Yr)	Range (AUMs /Yr)	Wildlife (A.E. /Yr)	Budget (MM$ /Yr)
1	3.7	73,000	2100	2.6
2	3.7	77,000	2100	2.6
3	3.7	83,000	2100	2.6
4	3.7	83,000	2080	2.6
5	3.7	89,900	2040	2.6

Rationale - This alternative attempts to produce a high level of nontimber commodity and amenity outputs. AUMs are increased through the application of intensive management practices and systems primarily on existing and idle grazing allotments. Transitory range is utilized on an opportunity basis, but timber harvest levels are not increased to create additional grazing opportunities. AUM increases are necessarily spread over time to permit the planning, construction, and management activities to occur which will allow increased outputs without unacceptable resource damage. Semi-primitive recreation opportunities are maintained by keeping large blocks of land in an unroaded condition. This is possible because of the low level of timber harvesting.

Alternative E-1

Goal - The purpose of this alternative is to obtain moderately high outputs of timber and livestock grazing from those areas most suitable considering biological and economic factors and current land use activities and output mixes.

Criteria and Assumptions - The criteria and assumptions associated with this alternative are:

- Production of market outputs from areas outside of wilderness, recommended wilderness, and further planning areas will be based on cost-efficiency.
- Renshaw and Silver King-Falls Creek roadless areas are recommended for wilderness classification.
- Deep Creek-Reservoir North roadless area is designated as a further planning area.
- Middle Fork Judith and the Big Snowies MWSA areas are recommended for wilderness classification.

- Timber harvesting and domestic grazing would be emphasized on the Jefferson Division, along with dispersed recreation in a roaded natural setting.

- Wildlife and semi-primitive recreation opportunities would be emphasized on the Rocky Mountain Division.

Constraints - The constraints used to meet the criteria and assumptions are:

- Minimum management requirement constraints.

- Constraints common to all alternatives.

- Wilderness management emphasis constraints applied to the following roadless area acres:

Renshaw	31,304 acres
Silver King-Falls Creek	32,000 acres
Middle Fork Judith	92,000 acres
Big Snowies	97,885 acres

- Further study management emphasis constraints applied to the following roadless area acres:

Deep Creek-Reservoir North	41,838 acres

- Management emphasis constraints and prescriptions applied to limit timber production to the Jefferson Division.

- Scheduled output constraints to provide for a "moderately high" level of outputs from the Forest.

Decade	Timber (MMCF /Yr)	Range (AUMs /Yr)	Wildlife A.E. /Yr)	Budget MM$ /Yr)
1	4.1	72,700	3320	3.5
2	5.0	74,000	3320	3.5
3	6.7	79,500	3310	3.5
4	8.7	82,000	3260	3.5
5	9.7	84,370	3230	3.7

Rationale - This alternative attempts to recognize and model some of the historical production and use patterns that have developed on the Forest due to

variations in biological capability and resource extraction costs. The Jefferson Division has historically produced the majority of the timber and range outputs primarily due to lower access costs and available markets for those products locally. The Rocky Mountain Division has traditionally had nonextractive uses (other than big-game hunting). This alternative attempts to create a cost-efficient, moderately high output program based on the same biological and economic factors that fostered the current use patterns.

Alternative E-2

Goal - The purpose of this alternative is the same as Alternative E-1 except that the two MWSA areas are considered available for development. This allows another examination of the effects on outputs, scheduling, and PNV of designating the MWSA areas as wilderness or nonwilderness.

Criteria and Assumptions - The criteria and assumptions for this alternative are the same as for Alternative E-1 except the two MWSA areas are now available for development. Development in the MWSA areas could involve timber management, more intensive range management, or wildlife habitat manipulation, as well as other activities.

Constraints - This alternative has the same constraints as Alternative E-1 except the management emphasis for the two MWSA areas is nonwilderness and the range and wildlife constraints change as a result of the nonwilderness recommendations.

Decade	Range (AUMs/Yr)	Wildlife (A.E./Yr)
1	72,700	3410
2	74,000	3400
3	79,800	3390
4	82,000	3340
5	84,670	3270

Rationale - The same as for Alternative E-1 except this alternative now provides the opportunity to examine some of the impacts of a wilderness or nonwilderness recommendation for the MWSA areas. Range and wildlife outputs are changed based on the greater amount and intensity of management activities that can occur on the nonwilderness MWSA areas.

Alternative F

Goal - The goal of this alternative is to increase the use of Forest resources and maintain dispersed recreational opportunities in a semi-primitive setting.

Criteria and Assumptions - The criteria and assumptions that apply to this alternative are:

- Production of market outputs from areas outside of wilderness, recommended wilderness, and further planning areas will generally be based on cost-efficiency but may be constrained to provide additional dispersed recreational opportunities.
- Renshaw and Silver King-Falls Creek roadless areas are recommended for wilderness classification.
- Deep Creek-Reservoir North is designated as a further planning area.
- Big Snowies MWSA area would be managed for semi-primitive recreation (no timber harvesting allowed).
- Middle Fork Judith MWSA area would be managed partly for semi-primitive recreation (67,840 acres, no timber harvesting allowed), and partly for timber products in a roaded natural setting (24,160 acres, 13,312 acres available for harvesting timber).
- Semi-primitive recreation settings are emphasized.
- Timber and range outputs increase from current levels.
- Timber harvesting is concentrated in presently roaded areas.
- Harvesting of lodgepole pine would be emphasized in the Little Belts to mitigate potential losses from the mountain pine beetle.

Constraint - The constraints used to meet the criteria and assumptions are:

- Minimum management requirement constraints.

- Constraints common to all alternatives.

- Wilderness management emphasis constraints applied to the following roadless area acres:

Renshaw	31,304 acres
Silver King-Falls Creek	32,000 acres

- Further study management emphasis constraints applied to the following roadless area acres:

Deep Creek-Reservoir North	41,838 acres

- Management emphasis constraints applied to maintain semi-primitive recreation settings with no timber harvesting.

- Scheduled output constraints to produce the desired mix of resource increases.

Decade	Timber (MMCF /Yr)	Range (AUMs /Yr)	Wildlife (A.E. /Yr)	Budget (MM$ /Yr)
1	4.1	72,600	3250	3.4
2	5.0	73,780	3230	3.4
3	5.9	75,490	3230	3.4
4	6.8	77,260	3210	3.4
5	7.1	79,200	3150	3.4

Rationale - In response to publically identified issues and concerns for retention of semi-primitive recreation opportunities and maintaining big-game hunting opportunities while providing commodity outputs higher than the current level, upper limits were placed on commodity outputs. Increases in timber and range outputs were scheduled over 5 decades. This scheduling was done to ease the budgetary and environmental impacts of trying to implement these increases in the first or second decade. About 63,304 acres of previously identified recommended wilderness was constrained to a wilderness management emphasis while other nontimber/nondevelopment constraints were applied to maintain semi-primitive recreation settings and habitat for wildlife. Due to the objective function of maximizing PNV the FORPLAN model would select much higher levels of commodity outputs and leave fewer acres in a wilderness and semi-primitive condition if constraints such as these were not applied.

Alternative F-Departure

Goal - The goal of this alternative is the same as Alternative F except that timber harvest is accelerated in an effort to reduce or prevent high mortality of lodgepole pine which could result from potential epidemic infestations of mountain pine beetle. Through a departure from the nondeclining yield constraint this alternative provides for an increase in timber harvest levels while maintaining the approximately same level of outputs as Alternative F.

Criteria and Assumptions - The constraints and assumptions underlying this alternative are the same as those of Alternative F, with the following exceptions:

- Timber harvest would be accelerated to reduce the risk of mortality from potential epidemic infestations of mountain pine beetle particularly in high risk lodgepole pine stands. This accelerated schedule would result in increased timber harvest volume.

- The timber harvest schedule would be free to depart from the nondeclining yield constraint for the first five decades.

Constraints - The constraints applied to meet the criteria and assumptions of this alternative are the same as those used in Alternative F except for the following:

- Nondeclining yield constraint is applied after the fifth decade.

- Sequential upper and lower bounds are applied so that timber harvest volume may increase or decrease by no more than 20 percent each of the first five decades.

Rationale - The NFMA regulations specify that timber harvest departures from nondeclining yield are allowed under certain conditions. One of these conditions is if high mortality from any cause can be significantly reduced or prevented. The Forest has a large amount of high risk lodgepole pine that is susceptible to epidemic attacks by the mountain pine beetle. Creating diversity in the age structure and timber stand distribution is a method used to reduce the risk of epidemic infestations.

Accelerating the rate of timber harvest, on a temporary basis through departure, provides a means to treat a larger percentage of the high risk lodgepole pine stands. Maintaining the other outputs at the same level as Alternative F helps to assure that the goals of the alternative will be met.

Alternative G

Goal - Alternative G is the Preferred Alternative. The purpose of this alternative is to increase the use of Forest resources above current management levels while providing diverse wildlife habitat and maintaining dispersed recreation opportunities in a semi-primitive setting.

Criteria and Assumptions - The criteria and assumptions that apply to this alternative are:

- Production of market outputs from areas outside of wilderness, recommended wilderness, and further planning areas will generally be based on cost-efficiency but may be constrained to provide additional wildlife habitat protection and dispersed recreational opportunities.
- Portions of Renshaw, Silver King-Falls Creek, Teton, and Benchmark-Elk Creek roadless areas are recommended for wilderness designation.
- Deep Creek-Reservoir North is designated as a further planning area.
- Big Snowies MWSA area would be managed for semi-primitive recreation (no timber harvesting allowed).
- Middle Fork Judith MWSA area would be managed partly for semi-primitive recreation (80,400 acres, no timber harvesting allowed), and partly for timber products in a roaded natural setting (11,600 acres, 10,900 acres available for harvesting timber).
- Semi-primitive recreation settings are emphasized.
- Range and timber outputs increase from current levels but less than Alternative F.
- Timber harvesting is concentrated in presently roaded areas.

- Harvesting in lodgepole pine would be emphasized in the Little Belts to mitigate potential losses from the mountain pine beetle.

- Timber sale program on the Rocky Mountain Division is limited to .5 million board feet per year.

Constraints - The constraints used to meet the criteria and assumptions are:

- Minimum management requirement constraints.

- Constraints common to all alternatives.

- Wilderness management emphasis constraints applied to the following roadless area acres:

Renshaw	19,144 acres
Silver King-Falls Creek	19,030 acres
Teton	5,040 acres
Benchmark-Elk Creek	3,630 acres

- Further planning management emphasis constraints applied to the following roadless area acres:

Deep Creek-Reservoir North	41,838 acres

- Management emphasis constraints applied to maintain semi-primitive recreation settings with no timber harvesting (including both MWSA areas).

- Scheduled output constraints to direct the resource outputs.

Decade	Timber (MMCF /Yr)	Range (AUMs /Yr)	Wildlife (A.E. /Yr)	Budget (MM$ /Yr)
1	3.82	71,000	3020	4.3
2	5.00	71,800	3020	4.3
3	5.88	72,400	3020	4.3
4	6.47	73,000	3020	4.3
5	6.47	73,600	3020	4.3

Rationale - This alternative is designed to produce a slightly different mix of outputs than Alternative F due to comments received on that

alternative and additional information. As a result timber and range outputs are slightly lower while there is an increased emphasis on wildlife habitat management. A management area emphasizing semi-primitive, non-motorized recreation was created to ensure the retention of that recreation opportunity. Timber harvest on the Rocky Mountain Division was limited to .5 million board feet per year. This alternative also recommended a smaller amount of roadless area for wilderness designation. This was due to management input, new planning regulations directing that a range of wilderness recommendations be examined for all roadless areas, and the availability of new resource information from some roadless areas. In this alternative all of the Big Snowies and most of the Middle Fork Judith MWSA areas are recommended to be managed for semi-primitive recreation and/or wildlife management. The Harrison Creek drainage in the Middle Fork Judith is identified as an area to be designated for timber management. However, pending a Congressional decision on both of these areas they are being modeled as wilderness study areas. No timber management activities are modeled or scheduled in these areas.

Alternative H

Goal - The goal of this alternative is to significantly increase the opportunity for wilderness classification, while increasing the production of other outputs to levels approximately equal to Alternative G. Of all the alternatives, Alternative H has the greatest amount of roadless area acres recommended for wilderness classification.

Criteria and Assumptions - The criteria and assumptions for this alternative are the same as for Alternative G with the following exception:

- 664,326 acres from inventoried roadless areas would be recommended for wilderness classification.

Constraints - The constraints applied to meet the criteria and assumptions in this alternative are the same as those used in Alternative G with the following exceptions:

- Wilderness management emphasis constraints applied to the following roadless area acres:

Teton	63,133 acres
Renshaw	57,591 acres
Benchmark-Elk Creek	32,314 acres
Silver King-Falls Creek	35,568 acres
Sawtooth	15,500 acres
Crazy Mountains	16,600 acres
Tenderfoot-Deep Creek	88,400 acres
Pilgrim Creek	49,500 acres
Paine Gulch	8,500 acres
Sawmill Creek	12,800 acres
TW Mountain	8,500 acres
Big Baldy	44,000 acres
Granite Mountain	10,580 acres
Tollgate-Sheep	26,800 acres
Mount High	32,300 acres
Highwood Baldy	15,600 acres
Highwoods	24,100 acres
Bluff Mountain	37,120 acres
Spring Creek	19,800 acres
Box Canyon	9,900 acres
Castle Mountains	29,600 acres
North Fork of Smith	8,800 acres
Calf Creek	11,020 acres
Eagle Park	6,300 acres

- Scheduled output constraints approximating Alternative G.

Decade	Timber (MMCF /Yr)	Range (AUMs /Yr)	Wildlife (A.E. /Yr)	Budget (MM$ /Yr)
1	3.68	63,150	3050	5.0
2	4.16			5.0
3	4.64	63,150	2940	5.0
4	5.12			5.0
5	5,59	63,150	2825	5.0

Rationale - This alternative recommends the most area for wilderness designation of all the alternatives considered in detail. Two roadless areas and the two MWSA areas are not included in the wilderness recommendation. The MWSA areas have been examined for wilderness designation in three other alternatives. In this alternative the MWSA areas are handled as in Alternative G.

The two roadless areas which are not recommended for wilderness in this alternative are Deep Creek-Reservoir North and Badger-Two Medicine. They will be managed the same as in Alternative G. Badger-Two Medicine was not recommended for wilderness due to wilderness incompatability with existing Indian treaty rights. Deep Creek-Reservoir North is designated for further planning with any wilderness recommendation delayed until further resource information is obtained.

In response to demands for other outputs from the Forest, lands not recommended for wilderness designation are to be managed for a high level of commodity outputs. Output constraints were adjusted to account for impacts from the larger wilderness recommendations made in this alternative. The minimum levels of range AUMs and wildlife acre equivalent were lowered to reflect the lower intensity of management activity possible in wilderness. The maximum budget constraint was raised to 5 million dollars annually to facilitate achievement of a feasible computer solution. This increase proved to be unnecessary as the budget ceiling constraint from Alternative G would have been sufficiently high for FORPLAN to schedule an optimal solution for this alternative.

Alternative I

Goal - The goal of this alternative is to increase the use of Forest resources, while providing diverse wildlife habitat and maintaining dispersed recreation opportunities in a primitive or semi-primitive setting. This alternative is one of several which examine varying amounts of wilderness management recommendations. The 235,704 acres of recommended wilderness in this alternative is patterned after specific recommendations made to the Forest by various individuals and public groups.

Criteria and Assumptions - The criteria and assumptions of this alternative are the same as for Alternative G with the following exception:

- 235,704 acres from inventoried roadless areas would be recommended for wilderness classification.

Constraints - The constraints applied to meet the criteria and assumptions in this alternative are the same as those in Alternative G with the following exceptions:

- Wilderness management emphasis constraints are applied to the following roadless area acres:

Teton	39,845 acres
Renshaw	45,864 acres
Benchmark-Elk Creek	26,027 acres
Silver King-Falls Creek	35,568 acres
Tenderfoot-Deep Creek	88,400 acres

- Output constraints approximating Alternative G.

Decade	Timber (MMCF /Yr)	Range (AUMs /Yr)	Wildlife (A.E. /Yr)	Budget (MM$ /Yr)
1	3.25	71,100	3020	5.0
2	4.26			5.0
3	5.00	72,350	3020	5.0
4	5.25			5.0
5	5.25	73,600	3020	5.0

Rationale - This alternative would increase the primitive recreation opportunity. About 235,704 acres of roadless areas, which have received high public interest, would be recommended for wilderness classification. These acres include many of the undeveloped lands on the Rocky Mountain Division and the Tenderfoot-Deep Creek area on the Jefferson Division.

The two MWSA areas are managed as described in Alternative G. Some output constraints changed slightly from Alternative G. This was done to reach an optimal solution that approximates the nonwilderness outputs of Alternative G.

Alternative J

Goal - The goal of this alternative is to increase the use of Forest resources, maintain dispersed recreation opportunities in a primitive or semi-primitive setting, and provide a diversity of wildlife habitat. This alternative recommends approximately 79,000 acres for wilderness classification. These acres represent areas of high public interest and having little resource conflict.

Criteria and Assumptions - The criteria and assumptions of this alternative are the same as for Alternative G except that:

- 79,005 acres from inventoried roadless areas would be recommended for wilderness classification.

Constraints - The constraints applied to meet the criteria and assumptions are the same as those in Alternative G with the following exceptions:

- Wilderness management emphasis constraints are applied to the following roadless area acres:

Renshaw	21,880 acres
Silver King-Falls Creek	7,625 acres
Tenderfoot-Deep Creek	49,500 acres

- Output constraints approximating Alternative G.

Decade	Timber (MMCF /Yr)	Range (AUMs /Yr)	Wildlife (A.E. /Yr)	Budget (MM$ /Yr)
1	3.25	71,100	3020	5.0
2	4.25			
3	5.00	72,350	3020	5.0
4	5.25			
5	5.25	73,600	3020	5.0

Rationale - This alternative was developed as one of a series examining different levels of wilderness management on the Forest. This alternative recommends 79,005 acres of high public interest which have relatively few resource conflicts with wilderness classification. The nonwilderness lands are managed as they would be in Alternative G. The constraints applied are intended to approximate the outputs obtained in Alternative G after taking into account the additional acres recommended for wilderness classification in this alternative.

Alternative K

Goal - The purpose of this alternative is to emphasis the Forest wildlife program, while maintaining dispersed recreation opportunities in a primitive or semi-primitive setting. Areas of high public interest totaling 387,106 acres would be recommended for wilderness classification.

Criteria and Assumptions - The criteria and assumptions of this alternative are the same as Alternative C with the following exception:

- 387,106 acres from inventoried roadless areas would be recommended for wilderness classification.

Constraints - The constraints applied to meet the criteria and assumptions of this alternative are the same as those in Alternative C with the following exceptions:

- Wilderness management emphasis constraints are applied to the following roadless area acres:

Teton	63,133 acres
Renshaw	57,591 acres
Benchmark-Elk Creek	32,314 acres
Silver King-Falls Creek	35,568 acres
Crazy Mountains	16,600 acres
Tenderfoot-Deep Creek	88,400 acres
Pilgrim Creek	49,500 acres
Big Baldy	44,000 acres

- Output constraints intended to approximate the outputs from Alternative C.

Decade	Timber (MMCF /Yr)	Range (AUMs /Yr)	Wildlife (A.E. /Yr)	Budget (MM$ /Yr)
1	3.09	70,270	3680	2.55
2	3.09			2.55
3	3.09	70,270	3680	2.55
4	3.09			2.55
5	3.09	70,270	3680	2.55

Rationale - In emphasizing a Forest wildlife program this alternative will harvest less timber, provide fewer AUMs of grazing for domestic stock, and have a higher level of wildlife management than under current management. In addition, dispersed recreation opportunities in a primitive setting will be maintained at a higher level than under the current management direction. This is a direct result of 387,106 acres of undeveloped land being recommended for wilderness classification in this alternative. The wilderness recommendations are based on public input on the Forest's roadless areas and include most of the areas which received support for wilderness classification. Other outputs and management are approximately the same as Alternative C, the other alternative which emphasizes the wildlife program, in order to achieve the goals of this alternative.

SUMMARY OF EFFECTS OF CONSTRAINTS, SELECTED BENCHMARKS & ALTERNATIVES (SECTION VIII)

OVERVIEW

The purpose of estimating and displaying these effects is to compare present net value, social and economic impacts, outputs of goods and services, and overall protection and enhancement of environmental resources. This comparative analysis is the basis for evaluating alternatives and selecting a proposed action, which are planning steps 7 and 8. This section focuses on the economic effects and trade-offs of alternatives and benchmarks. The constraints are discussed in Appendix B, Section VII, and social and environmental effects are discussed in Chapter II.

PROCESS FOR EVALUATING SIGNIFICANT CONSTRAINTS

Management objectives of benchmarks and alternatives were achieved by constraining FORPLAN as described in Section VII of this appendix. The efficiency trade-offs of individual objectives can be determined by comparing the PNV of a FORPLAN solution which meets the objective and one which does not. The change in PNV is a measure of efficiency for the achievement of a specific objective if both solutions have efficient prescriptions, both solutions maximize PNV, and the constraints are cost-efficient. The efficiency trade-off was not determined for individual alternative objectives because of the prohibitive costs of analyzing every constraint used to develop alternatives. By comparing alternatives, however, the economic trade-offs of the group of objectives which have the most significant impact on PNV can be estimated. These efficiency trade-offs can then be compared to environmental and social consequences and other nonpriced outputs produced to help decision-makers identify the alternative which maximizes net public benefits.

A major factor in the trade-off analysis is the order in which the objectives are analyzed. For example, the economic trade-off of meeting management objectives A and B can be determined by comparing FORPLAN solutions with various combinations of the two objectives. The change in PNV due to meeting only A may be $5 million, and the change due to meeting only B may be $11 million. However, the change due to meeting both A and B will probably be less than $16 million. In addition, the cost of meeting A in one alternative will not necessarily be the same as meeting the same objective in another alternative. Therefore, the economic trade-offs discussed in this section are only relevant to the actual alternative where the objectives were analyzed.

SUMMARY OF EFFECTS OF CONSTRAINTS, SELECTED BENCHMARKS & ALTERNATIVES (SECTION VIII)

TRADE-OFFS AMONG ALTERNATIVES	This discussion focuses on how alternatives respond to the various issues and concerns and the various trade-offs (both priced and non-priced) that occur. Though the discussion includes some resource trade-offs, it focuses on economic trade-offs. Resource outputs and socioeconomic effects are displayed in Chapter II, and environmental effects are discussed in Chapter II and IV.
Response to Issues and Concerns	Alternatives were designed to address the major issues, management concerns, and opportunities. A single alternative cannot fully resolve all issues because of the conflicts among issues. Nor can most issues be resolved to the satisfaction of all interested parties simply because of differences of opinions and viewpoints of the participants. Table B-9 compares the response of each alternative to the major issues and concerns. However, these indicators alone cannot be assumed to be fully indicative of the responsiveness of an alternative to the issue. More discussion of the alternatives' responses to issues is incorporated in the DEIS in Chapter II and IV. A detailed discussion of issues is in Appendix A.

TABLE B-9 INDICATORS OF RESPONSIVENESS OF ALTERNATIVES TO MAJOR ISSUES AND NATIONAL CONCERN

	Quantified Costs & Benefits				Timber Issues		
ALTERNATIVE	PNV	Average Annual Net Receipts by Decade 1/5	Average Annual Non-Cash Benefits by Decade 1/5	Average Annual Budget Decade 1	Average Annual Harvest Decade 1	LTSY	Suitable Timber Lands
	$ Millions				Million Board Feet		M Acres
MAX PNV	308.01	-.94/17.35	12.33/38.51	4.49	24.0	43.8	640
A-1	280.89	-2.30/6.78	11.28/25.78	4.98	20.0	41.1	473
E-1	262.41	-2.17/8.72	9.96/24.04	4.21	14.0	34.6	434
A-2	256.80	-1.77/9.95	9.81/19.81	4.82	20.0	43.5	542
B-1	242.61	-2.09/6.17	10.04/20.20	4.10	14.0	32.6	453
E-2	242.48	-2.02/9.43	9.77/23.72	4.23	14.0	38.8	534
B-2	235.20	-1.95/6.43	9.81/19.81	4.16	14.0	33.6	466
F-Departure	229.60	-2.39/3.72	10.46/19.69	4.94	15.5	26.4	309
H	224.48	-2.01/3.70	10.66/18.77	4.14	14.7	23.7	255
F	223.04	-2.59/3.06	10.86/22.28	4.62	14.0	25.4	286
I	219.37	-2.23/3.29	10.14/18.35	4.17	13.0	20.3	281
J	218.86	-2.23/3.35	10.11/18.27	4.18	13.0	20.3	281
G	215.77	-2.29/2.77	10.37/17.92	4.35	14.0	23.8	282
K	200.14	-2.25/0.91	10.07/15.14	4.13	12.4	14.4	202
D	184.47	-1.96/0.54	9.52/14.70	4.07	12.5	16.0	227
Current	182.62	-2.01/0.96	9.38/14.40	3.89	13.0	14.3	196
C	180.30	-2.23/0.99	9.38/14.48	4.11	12.5	18.3	209
MIN	121.18	-2.27/-2.20	5.93/9.31	2.67	0	0	0

	Range	Wilderness & Roadless Areas		Fisheries & Wildlife Issues			Community Effects Issues		
ALTERNATIVE	Livestock Use By Decade Thousand AUMs) 1/5	Recommended Wilderness	Roadless Decade 15	Catchable Trout Potential By Decade 1/5	Elk Population Potential By Decade 1/5	Hunter Days By Decade 1/5	Payments To State Decade 1 $MM/YR	Changes Jobs & Income Decade 1 Jobs Person Years	Income $M/YR
		M Acres		M Potential					
MAX PNV	26.7/33.5	0	0	202/186	8.5/8.6	63.9/53.7	.89	94	1,596
A-1	73.0/86.4	253	59	202/167	8.5/8.1	63.9/50.4	.67	186	1,438
E-1	71.8/84.4	253	282	202/192	8.5/8.2	63.5/55.0	.51	16	266
A-2	73.0/87.5	64	58	202/174	8.5/8.0	63.3/51.6	.76	186	1,438
B-1	73.0/81.4	253	120	202/186	8.5/8.3	63.9/56.3	.50	24	297
E-2	71.8/84.7	64	285	202/192	8.5/8.1	63.4/53.0	.55	13	287
B-2	73.0/81.5	64	255	202/186	8.5/8.2	63.9/56.3	.55	23	266
F-Depature	71.8/79.2	64	714	202/190	8.5/8.4	63.9/57.3	.64	34	472
H	71.1/64.8	664	319	202/204	8.5/8.8	63.0/67.0	.53	80	1,332
F	71.8/79.2	64	716	202/190	8.5/8.4	63.9/60.1	.51	23	260
I	71.6/73.6	235	649	202/202	8.5/8.5	63.4/61.2	.49	20	307
J	71.6/73.6	79	777	202/202	8.5/8.5	63.7/60.5	.49	115	1,733
G	71.1/73.6	52	857	202/202	8.5/8.5	63.7/60.2	.51	7	94
K	71.1/69.9	387	510	202/208	8.5/9.2	63.9/71.9	.47	14	124
D	73.0/89.9	64	676	202/170	8.5/7.8	62.9/56.9	.53	1	110
Current	72.3/72.3	64	531	202/202	8.5/8.5	63.9/63.9	.47	0	0
C	71.1/70.0	64	730	202/208	8.5/9.3	65.9/71.9	.47	1	9
MIN	71.1/0	0	1002	202/212	8.5/10.0	65.0/82.8	.10	-246	-2970

SUMMARY OF EFFECTS OF CONSTRAINTS, SELECTED BENCHMARKS & ALTERNATIVES (SECTION VIII)

Economic Trade-Offs

This discussion identifies the economic consequences of implementing the alternatives by comparing each alternative to the maximum present net value benchmark and to at least 2 other alternatives: the alternative with the next highest PNV and the Current Plan alternative. In some cases, alternatives with similar objectives or greatly different costs are also compared. The comparisons between all these analyses form the analysis base for balancing economic trade-offs with non-priced resource outputs.

One measure of the cost of an alternative is its discounted cost. This represents the equivalent payment required by the government to implement an alternative. The minimum cost for Federal ownership is defined by the minimum level benchmark as $77 million. Table B-10 displays the discounted costs, discounted benefits, and PNV in order of increasing costs. These discounted costs and benefits do not include non-Forest Service logging costs and benefits. In general, the costs of alternatives increase with the size of the timber and road construction programs. By comparing the benefits and costs of an alternative with the next cheapest alternative. The economic consequences of the additional expenditure can be compared to the additional non-priced benefit values (often subjectively measured). Detailed comparisons of discounted costs by alternative are not discussed in this section since many of the alternatives have little difference in cost from the next higher or lower cost alternative and these differences are primarily due to levels of timber production and roading.

TABLE B-10 DISCOUNTED COSTS, BENEFITS, AND PRESENT NET VALUE BY ALTERNATIVE

(Ordered by Increasing Costs)

Alternative	Discounted Costs $MM	Discounted Benefits $MM	Present Net Value $MM
MIN LEVEL	77.31	204.31	127.00
Current Plan	109.39	292.01	182.62
K	114.81	314.95	200.14
C	118.92	299.22	180.30
D	120.08	304.55	184.47
I	128.19	347.57	219.38
H	128.20	352.67	224.47
J	128.29	347.15	218.86
G (Proposed)	129.28	345.05	215.77
B-1	131.54	374.16	242.62
F	135.66	358.70	223.04
B-2	137.06	372.26	235.20
E-1	138.31	400.72	262.41
E-2	149.10	391.58	242.48
F (Departure)	168.98	398.58	229.60
A-1	177.26	458.15	280.89
A-2	179.01	435.81	256.80
MAX PNV	188.54	496.55	308.01

Another measure of the cost of an alternative is the change in PNV between alternatives. The maximum present net value is defined by the maximum PNV benchmark as $308 million. The difference between $308 million and the PNV of an alternative represents the foregone investment opportunity (opportunity cost) to the government for implementing that alternative. Table B-11 displays the PNV discounted costs, and discounted benefits for the alternatives in order of decreasing PNV. These discounted costs and benefits do not include non-Forest Service logging costs and benefits respectively. In general the PNV of alternatives increases with the size of the timber program and decreases as constraints are applied to the timber program to protect or enhance other resources. For example, changes in PNV can be caused by constraints which: preclude regulated timber harvest from a tentatively suitable area because of other resource

values; disperse timber harvest over the landscape decreasing the amount of timber harvest opportunities; or regulate the harvest schedule to ensure maintenance of hiding cover for elk. By comparing each alternative with the alternative having the next highest PNV, the incremental economic trade-offs can be compared to the incremental nonpriced benefits.

TABLE B-11 PRESENT NET VALUE, DISCOUNTED COSTS, AND DISCOUNTED BENEFIT BY ALTERNATIVE
(Ordered by Decreasing PNV)

Alternative	PNV $MM	Discounted Costs $MM	Discounted Benefits $MM
MAX PNV	308.01	188.54	496.55
A-1	280.89	177.26	458.15
E-1	262.41	138.31	400.72
A-2	256.80	179.01	435.81
B-1	242.62	131.54	374.16
E-2	242.48	149.10	391.58
B-2	235.20	137.06	372.26
F (Departure)	229.60	168.98	398.58
H	224.47	128.20	352.67
F	223.04	135.66	358.70
I	219.38	128.19	347.57
J	218.86	128.29	347.15
G (Proposed)	215.77	129.28	345.05
K	200.14	114.81	314.95
D	184.47	120.08	304.55
Current Plan	182.62	109.39	292.01
C	180.30	118.92	299.22
MIN LEVEL	127.00	77.31	204.31

The economic consequences of changing from the current land uses, output schedule, and budget are defined by comparing the PNV of the alternatives with the PNV of the Current Plan alternative. All alternatives, except C, allow for a more economically efficient assignment of prescriptions and priced resource output schedule than the Current Plan alternative. However, associated with the

potential to increase efficiency are higher costs including: higher levels of road maintenance, fire protection, timber sale preparation and administration, facilities maintenance, general administration, forage improvement, and wildlife protection. The lower PNV of Alternative C results from efforts made to address wildlife enhancement issues and concerns by providing net public benefits that do not have priced values to contribute to PNV (such as elk habitat security).

Current Plan Alternative

This alternative was designed to continue management under existing management plans, policies, and standards; and to provide outputs consistent with current budget levels. Because of budget constraints, some programs and services are at a reduced level. These include trail, road, and campground maintenance, wildlife habitat improvement, and range improvements.

The Current Plan alternative is the lowest of the sixteen alternatives in terms of discounted benefits. However, it is also the least expensive in terms of discounted costs. Overall this alternative ranks fifteenth in PNV.

The PNV of this alternative is $183 million, compared to the maximum PNV benchmark of $308 million. The opportunity cost is $125 million.

The opportunity cost is primarily due to a low level of timber harvest (a long-term sustained yield level of 14.3 million board feet on a timber land base of 196,000 acres compared with 43.8 million board feet on 640,000 acres for the maximum PNV benchmark) and a moderate level of other positive economic outputs such as domestic grazing AUMs, hunter RVDs, or wilderness RVDs.

Alternative D has the next highest PNV. The difference ($2 million) is a result of increased benefits from domestic grazing increases, Alternative D provides for a 25 percent increase in AUMs, and an increase in the long-term sustained yield of timber to 16.0 million board feet.

Alternative A-1

This alternative was designed to respond to and incorporate the 1980 Forest and Rangeland Renewable Resource Planning Act program targets for the Lewis and Clark National Forest. In this alternative, the two MWSA areas are recommended for wilderness.

This alternative ranks first in PNV. It ranked second in discounted benefits but also had high costs, ranking fifteenth out of sixteen.

Alternative A-1 would be a significant change from current management. Timber harvest levels would nearly triple, livestock grazing would increase by 20 percent, nonwilderness roadless recreation opportunities would drop from 708,000 acres to 59,000 acres although wilderness designation would be recommended for an additional 253,000 acres, and elk and fish populations would decline. These changes would produce $140 million more in discounted benefits than the Current Plan while requiring a $68 million increase in expenditures.

The PNV of this alternative is $281 million which is a decrease in PNV of $27 million from the maximum PNV benchmark. This opportunity cost is primarily due to a reduction in timber harvest and assigning acre equivalent goals and AUMs for wildlife to mitigate some timber management activities.

No alternative has a higher PNV than this alternative.

Alternative A-2

This alternative has the same design and philosophy as Alternative A-1 except that in Alternative A-2 the MWSA areas are available for development. This alternative is considered the full RPA alternative.

Alternative A-2 is the most valuable in terms of discounted benefits, but is also the second highest in terms of discounted costs. Alternative A-2 ranks third in PNV.

Alternative A-2 would be a significant change from current management, as was Alternative A-1. Alternative A-2 would have the same types of change as Alternative A-1 only to a greater degree. The long-term sustained yield harvest would increase by about 2.5 million board feet, livestock grazing would increase by another 1,000 AUMs, nonwilderness roadless acres would fall to 58,000 acres, only 63,304 acres would be recommended for addition to the wilderness system, and elk and trout numbers would also drop further. Alternative A-2 would produce $144 million more in discounted benefits than the Current Plan and would require $70 million more in expenditures.

The PNV of this alternative is $256 million which is a reduction of $52 million from the maximum PNV benchmark. This opportunity cost is due to the same factors that caused the reduction in Alternative A-1.

The alternative with the next higher PNV is Alternative E-1. The $6 million decrease in PNV from Alternative E-1 is a result of lower timber harvest level (41.0 million board feet compared to 33.1 million board feet).

Alternative B-1

This alternative is designed to increase the commodity use of Forest resources above current levels while maintaining a variety of dispersed recreation opportunities. The two MWSA areas would be recommended for wilderness designation.

Alternative B-1 is the sixth highest in discounted benefits, the eighth most costly in terms of discounted costs, and is the fourth most valuable in terms of PNV.

Like Alternatives A-1 and A-2, Alternative B-1 represents a significant change from current management. The long-term sustained yield harvest level would more than double, the area scheduled for timber management would go from 196,000 acres to 453,000 acres, domestic grazing would increase by 1,000 AUMs/year, elk and trout populations would decline, nonwilderness roadless lands would shrink to 120,000 acres by the end of the planning horizon, and an additional 253,000 acres would be recommended for wilderness designation (as compared to 63,000 acres recommended by the Current Plan alternative).

Alternative B-1 produces discounted benefits which are $82 million more than the Current Plan primarily from the increased timber, grazing, and wilderness RVD outputs. To reach these output levels and to mitigate some of the negative impacts to fish and wildlife habitat requires expenditures of $22 million more than the Current Plan.

The PNV of this alternative is $242 million, which is a reduction of $66 million from the maximum PNV benchmark. This reduction in PNV is

due primarily to reductions in the timber harvest level and to a much lesser degree increased costs due to wildlife habitat improvement activities.

Alternative A-2 has the next higher PNV. The $14 million difference is a result of Alternative B-1 having a lower timber harvest level though Alternative B-1's PNV would increase slightly due to less wildlife improvement.

Alternative B-2

Alternative B-2 is the same as Alternative B-1 except that the two MWSA areas would not be recommended for wilderness. Outputs are essentially the same except for wilderness and recreation.

Alternative B-2 is the seventh most valuable to implement in terms of discounted benefits, the sixth most expensive in terms of discounted costs, and is the sixth most valuable in terms of PNV.

The comparison to the Current Plan alternative would be the same as that described for Alternative B-1 except that the wilderness recommendations in Alternative B-2 would be the same as in the Current Plan alternative. The differences in discounted benefits, discounted costs, and PNV would be $80 million, $28 million, and $52 million, respectively.

The PNV of this alternative is $235 million, an opportunity cost of $73 million compared to the maximum PNV benchmark. Again this reduction in PNV is due primarily to timber harvest reductions.

Alternative E-2 has the next higher PNV. The difference ($7 million) is due to lower timber and domestic grazing outputs in Alternative B-2.

Alternative C

Alternative C is designed to emphasize the wildlife program on the Forest. Timber harvest levels would be restricted. Much of the nonwilderness roadless acreage on the Forest would be retained.

This alternative is ranked fifteenth in terms of discounted benefits, fourteenth in expenditures, and ranks last (sixteenth) in PNV.

Compared to the Current Plan alternative, this alternative would produce slightly less timber volume through the fifth decade, would decrease

domestic grazing by 1,000 AUMs/year (primarily on winter ranges, and riparian zones), would retain twelve times as many roadless acres, and would increase the numbers of elk and fish by about 9 percent and 3 percent, respectively. The difference in discounted benefits is $7 million, while the difference in discounted costs is $10 million. The overall difference in PNV between these two alternatives is $2 million.

The PNV of Alternative C is $180 million, which is a reduction of $128 million compared to the maximum PNV benchmark. PNV reductions are due to very low timber harvest levels, reduced livestock grazing, higher wildlife habitat improvement costs, and retaining large blocks of land in a roadless undeveloped status.

The Current Plan alternative has the next higher PNV than this alternative. The comparison of these two alternatives was previously discussed.

Alternative D

This alternative was developed to emphasize increases in livestock grazing and outdoor recreation opportunities. It models the production of a high level of nontimber commodity and amenity outputs.

Alternative D is the fourteenth lowest alternative in terms of discounted benefits, is the thirteenth most costly in discounted costs, and is ranked fourteenth in terms of PNV.

Alternative D is quite similar to the Current Plan alternative in outputs except for domestic grazing which increases by 25 percent (to 89,900 AUMs) and elk populations which would decrease by 9 percent. Discounted benefits are $13 million higher in Alternative D, discounted costs are $11 million higher, and PNV is $4 million higher. The difference in PNV between these two alternatives is due to the much higher level of domestic grazing in Alternative D.

The PNV of this alternative is $180 million, with an opportunity cost of $128 million. The large opportunity cost is due primarily to low timber harvest levels and retaining areas in a semi-primitive recreation setting. The increase in domestic grazing AUMs result in some increase in PNV.

Alternative K is the alternative with the next higher PNV. The $16 million difference results from the higher levels of wilderness recreation and hunter RVDs produced by Alternative K.

Alternative E-1

This alternative strives to obtain moderately high outputs of timber and domestic grazing from those areas of the Forest most suitable considering biological and economic factors and current land use activities and output mixes. The two MWSA areas are recommended for wilderness designation.

Alternative E-1 is the third highest in terms of discounted benefits, the fifth most expensive in terms of discounted costs, and the second most valuable in terms of PNV.

Compared to the Current Plan alternative, Alternative E-1 is quite different. Timber harvest is more than doubled in Alternative E-1. Elk populations drop by 300, domestic grazing is 13,000 AUMs higher, and 189,000 more acres are recommended for wilderness classification. Alternative E-1 would produce $109 million more in discounted benefits than the Current Plan alternative, while expenditures for Alternative E-1 would only be $29 million greater. The difference in PNV is $79 million.

The PNV of this alternative is $262 million, which is a reduction of $46 million from the maximum PNV benchmark. This reduction is due to reduced timber harvest levels and increased wildlife habitat improvement costs.

Alternative A-1 has the next higher PNV. The difference is $.18 million. Alternative A-1 has much higher timber levels and slightly higher grazing levels.

Alternative E-2

Alternative E-2 is essentially the same as Alternative E-1, except that Alternative E-2 does not recommend the MWSA areas for wilderness classification.

Alternative E-2 ranks fifth highest in discounted benefits, is the fourth most expensive in terms of discounted costs, and is the fifth most valuable alternative in terms of PNV.

Comparisons with the Current Plan alternative are the same as discussed under Alternative E-1, except that Alternative E-2 makes the same wilderness recommendations as the Current Plan alternative. Alternative E-2 has $40 million more in expenditures than the Current Plan alternative, produces $99 million more in discounted benefits, and $59 million more in PNV.

The PNV of this alternative is $242 million, which represents an opportunity cost of $66 million when compared to the maximum PNV benchmark. Timber harvest reductions and wildlife habitat improvement costs account for most of this opportunity cost.

Alternative B-1 has the next higher PNV. The difference is only $0.2 million. Alternative E-1 has higher timber harvest levels, but Alternative B-1 has less wildlife improvement and developed recreation costs.

Alternative F

This alternative is designed to increase the use and output levels of Forest resources and maintain dispersed recreational opportunities in a semi-primitive setting.

Alternative F is the eighth most valuable in terms of discounted benefits, the seventh most expensive in terms of discounted costs, and ranks ninth in terms of PNV.

This alternative is similar to the Current Plan alternative. The main difference is in the timber program. In Alternative F, the harvest schedule increases by nearly 85 percent by 2030. The long-term sustained yield would be set at 25.4 million board feet based on managing 286,000 suitable acres. In addition to the timber increases, Alternative F would also produce 1,100 more domestic livestock AUMs/year than does the Current Plan. These extra outputs would produce $67 million more in discounted benefits than the Current Plan alternative. Different expenditures would amount to $27 million, and the PNV of Alternative F would be $40 million greater than the Current Plan alternative.

The PNV of this alternative is $223 million, which is a reduction of $85 million from the maximum PNV benchmark. These opportunity costs are the

result of reduced timber harvest, retention of lands in a semi-primitive setting, and increased wildlife costs.

Alternative H has the next higher PNV. The difference ($1 million) results from reduced costs in Alternative H.

Alternative F - Departure

The goal of this alternative is the same as Alternative F except that timber harvest is accelerated in an effort to reduce or prevent high mortality of lodgepole pine which could result from potential epidemic infestations of Mountain Pine Beetle. Through a departure from the nondeclining yield constraint, this alternative provides for an increase in timber harvest levels while maintaining approximately the same level of other outputs as Alternative F.

Alternative F - Departure is the third highest alternative in terms of discounted benefits, is the fourth most expensive in terms of discounted costs, and ranks seventh in PNV.

The comparison with the Current Plan alternative is the same as the previous discussion for Alternative F, except the harvest volume is greater for Alternative F - Departure, and the nondeclining yield constraint is not applied. The differences between Alternative F - Departure and Current Plan alternative in discounted benefits, discounted costs, and PNV are $107 million, $60 million, and $47 million, respectively.

The PNV of this alternative is $230 million, which is a reduction of $78 million from the maximum PNV benchmark. The opportunity cost is primarily due to lower timber harvest levels resulting from the decision to retain many areas in a semi-primitive recreation setting. This classification holds down the PNV by reducing the amount of land used for timber management or for producing more highly valued wilderness RVDs.

Alternative B-2 has the next higher PNV. The difference ($5 million) results from reduced levels of timber harvest and grazing than in Alternative B-2. Costs of F-Departure are also considerably higher, because of increased roading in early decades.

Alternative G	The purpose of this alternative is to increase the use of Forest resources above current management levels while providing diverse wildlife habitat and maintaining dispersed recreation opportunities in a semi-primitive setting. Alternative G is the twelfth highest alternative in terms of discounted benefits, is the ninth most expensive in terms of discounted costs, and is the twelfth most valued in terms of PNV. Alternative G is similar to the Current Plan alternative particulary in terms of types of activities that will occur and where those activities will take place. The Forest will be managed more intensively to produce a greater quantity of outputs. Timber harvest levels increase approximately 50 percent by the fifth decade. Elk and fish populations will be maintained at current levels, and a high percentage (92 percent) of the inventoried roadless lands will remain in a roadless setting. Due to this more intensive management, Alternative G produces $53 million more discounted benefits than the Current Plan alternative. This alternative also requires $20 million more in discounted costs to implement. The PNV of Alternative G is $33 million higher than the Current Plan alternative. The PNV of Alternative G is $216 million, which is a decrease of $92 million from the maximum PNV benchmark. This reduction is due to reduced timber harvest levels, retention of large areas of land in a semi-primitive setting, wildlife habitat improvement costs, and spatial constraints applied for implementation purposes. Alternative J has the next higher PNV. The difference in PNV is $3 million. Alternative G would have a higher timber harvest level than Alternative J, but due to more roading costs and fewer wilderness RVDs, the PNV of Alternative G would be lower.
Alternative H	The goal of this alternative is to significantly increase the opportunity for wilderness classification, while producing a high level of commodity outputs on other lands.

Alternative H is the ninth most valuable to implement in terms of discounted benefits, the eleventh most expensive in terms of discounted costs, and the eighth most valued in terms of PNV.

Alternative H would represent a significant change from the Current Plan alternative. It would almost triple the Forest's wilderness opportunity, while attempting to increase other outputs from those lands that are presently developed. To implement this alternative would require $19 million more in expenditures than the Current Plan alternative, however, the discounted benefits would also be greater ($61 million).

The PNV of this alternative is $224 million, which represents an opportunity cost of $84 million when compared with the maximum PNV benchmark. This opportunity cost is primarily due to lower timber harvest levels, lower range outputs, and reduced lease and permit revenues. The negative effect of these lower output levels on PNV is partially offset by the increase in wilderness RVDs due to most roadless areas being recommended for wilderness classification.

Alternative F-Departure is the alternative with the next higher PNV. The difference in PNV of $5 million between Alternative H and Alternative F-Departure can be totally accounted for due to the higher timber harvest level in Alternative F-Departure.

Alternative I

This alternative was designed to increase the use of Forest resources, while providing diverse wildlife habitat and maintaining dispersed recreation opportunities in a primitive or semi-primitive setting. This alternative is one of several which examine varying amounts of wilderness management recommendations. The 235,704 acres of recommended wilderness in this alternative is patterned after specific recommendations made to the Forest by various individuals and public groups.

Alternative I is the tenth most valuable to implement in terms of discounted benefits, the twelfth most costly in terms of discounted costs, and the tenth most valuable in terms of PNV.

Alternative I does not vary significantly from the Current Plan alternative except for the 235,704 acres recommended for wilderness management in

Alternative I. There would be a slight increase in domestic grazing and an increase in timber harvest to 22.0 million board feet by 2030.

This alternative would produce $56 million more in discounted benefits and would require $19 million more in expenditures than the Current Plan alternative.

The PNV of Alternative I is $219 million, which is a reduction of $89 million from the maximum PNV benchmark. This reduction results from lower timber harvest levels and retaining large blocks of land in nonwilderness semi-primitive recreation settings. The extra wilderness RVDs in this alternative did partially offset the lower timber volumes.

Alternative F is the alternative with the next higher PNV. Alternative F PNV is $4 million higher which is due to differences in timber harvest levels between the two alternatives.

Alternative J

This alternative was designed to increase the use of Forest resources, maintain dispersed recreation opportunities in a primitive or semi-primitive setting, and provide a diversity of wildlife habitat. This alternative recommends approximately 79,000 acres for wilderness classification. These acres represent areas of high public interest and having little resource conflict.

Alternative J is the eleventh most valuable to implement in terms of discounted benefits, the tenth most costly in terms of discounted costs, and the eleventh most valuable in terms of PNV.

Like Alternative I, Alternative J does not vary significantly from the Current Plan alternative. Alternative J recommends 79,000 acres to wilderness management which is about 25 percent more than the Current Plan recommends. Again there would be a slight increase in domestic grazing and an increase in timber harvest to 22.0 million board feet by 2030.

This alternative would produce $55 million more in discounted benefits and would require $19 million more in expenditures than the Current Plan alternative.

The PNV of Alternative J is $219 million, which is a reduction of $89 million from the maximum PNV benchmark. This reduction results from lower timber harvest levels and retaining land in non-wilderness semi-primitive recreation settings.

Alternative I is the alternative with the next higher PNV. The difference in PNV is only $.5 million which is due to the different amounts of wilderness RVDs being provided for/produced in Alternatives I and J.

Alternative K

This alternative was designed to emphasize an increase in the Forest wildlife program, increase wilderness opportunities, retain the remaining semi-primitive areas, and maintain current timber harvest levels. Areas of high public interest totaling 387,106 acres would be recommended for wilderness classification.

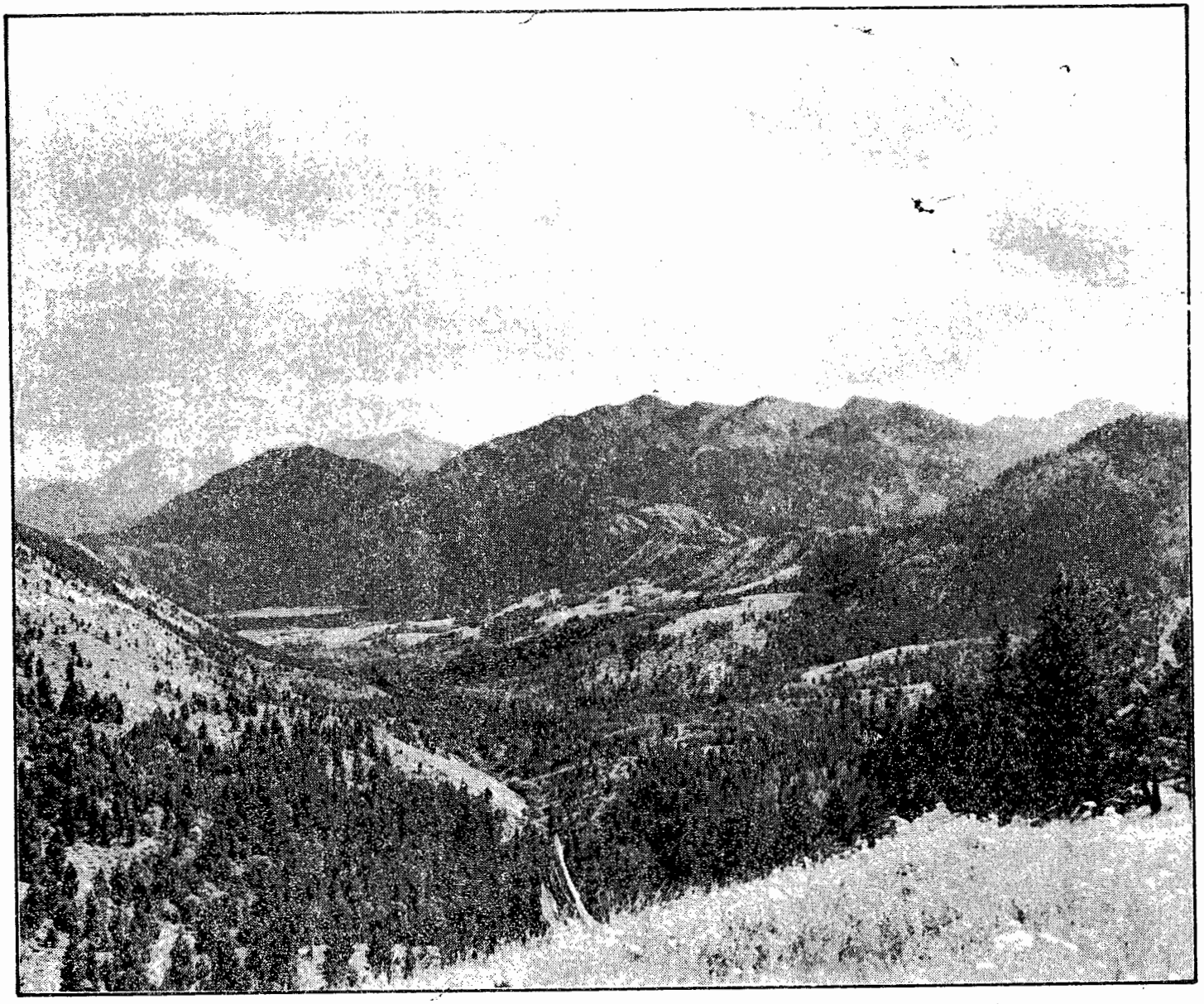
Alternative K is the thirteenth most valuable in terms of discounted benefits, the fifteenth most costly in terms of discounted costs, and the thirteenth most valuable in terms of PNV.

Alternative K would differ from the Current Plan alternative slightly. The mix of resource outputs would be different. Timber and range outputs would decrease slightly, six times as much land would be recommended for wilderness designation, elk populations would increase by 700, and trout numbers should increase as compared to the Current Plan alternative. This alternative would produce $23 million more in discounted benefits, would require $5 million more in expenditures, and have a PNV that is $17 million more than the Current Plan alternative.

The PNV of Alternative K is $200 million, which is a reduction of $108 million. This reduction is due to the low levels of timber harvest, reduced grazing levels, increased wildlife habitat improvement costs, and retaining lands in a semi-primitive recreation setting.

Alternative G (Preferred) is the alternative with the next higher PNV. The PNV for Alternative G (Preferred) is $15 million higher because of the higher levels of timber and range outputs and fewer costs for wildlife habitat improvement.

SUMMARY OF EFFECTS OF CONSTRAINTS, SELECTED BENCHMARKS & ALTERNATIVES (SECTION VIII)



Looking South down Mortimer Gulch toward the Sun River.

FEIS
Appendix C
Wilderness Evaluation

The following appendix describes the site specific wilderness evaluation of the Lewis and Clark roadless areas. The first section of the appendix discusses the roadless areas in the Rocky Mountain Division. The second section discusses the roadless areas in the Jefferson Division. The wilderness evaluation describes each roadless area being analyzed, the wilderness suitability of each area, its resources, and compares how resources would be managed under the various alternatives. At the end of the appendix there is a more detailed discussion on wilderness need.

The Bear-Marshall-Scapegoat-Swan (1-485), Crazy Mountains (1-541), and Box Canyon (1-742) Roadless Areas are shared with other adjacent Forests. The evaluation includes the entire roadless area followed by site specific information for the Lewis and Clark National Forest.

The appendix was updated in September, 1985 to reflect the latest conditions and to incorporate final wilderness recommendations.

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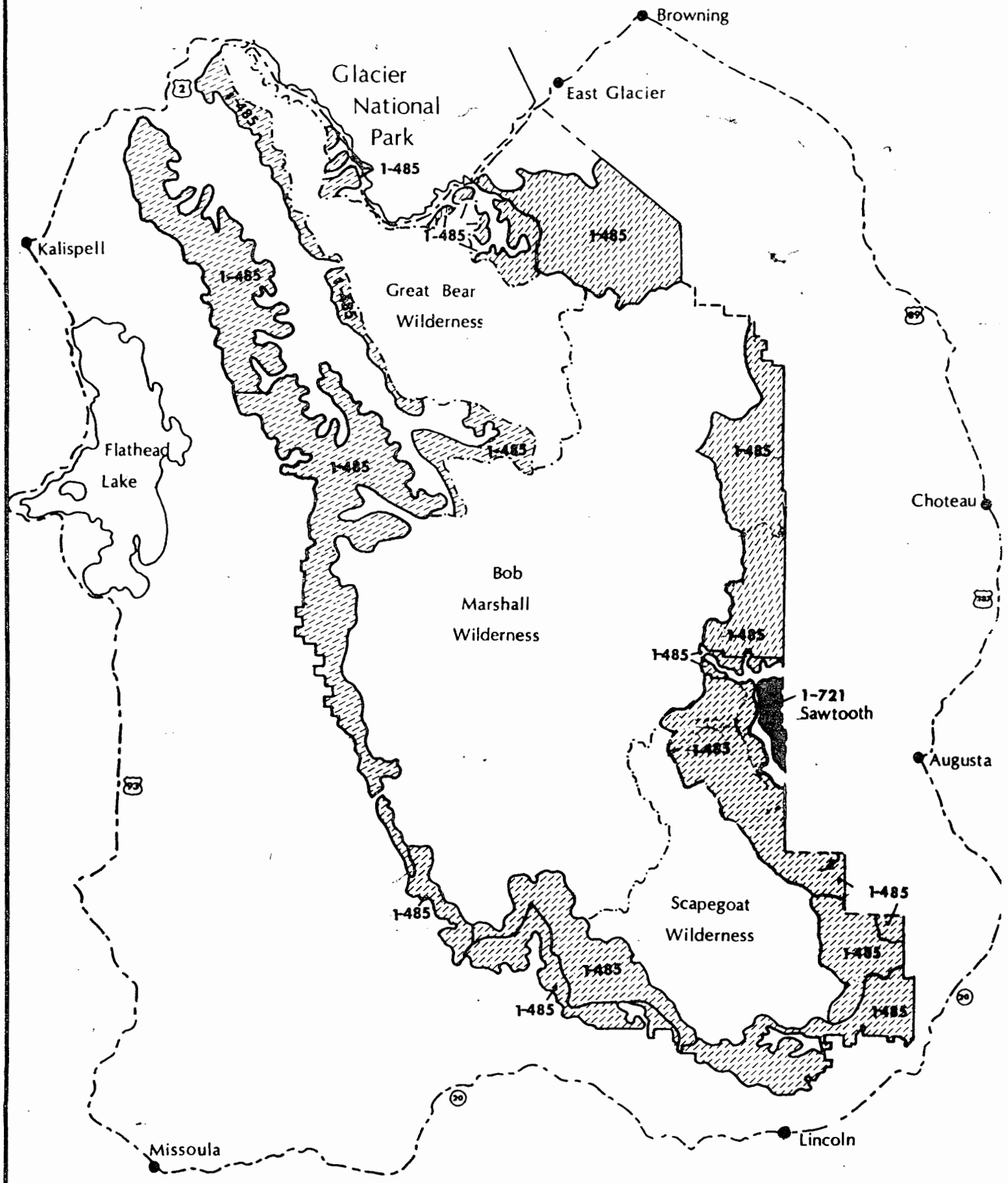

Total Gross Acres:	866,330	Total Net Acres:	865,178
Flathead National Forest	348,950	Flathead National Forest	348,950
Helena National Forest	58,752	Helena National Forest	58,700
Lolo National Forest	121,940	Lolo National Forest	120,900
Lewis & Clark National Forest	336,668	Lewis & Clark National Forest	336,628

I. DESCRIPTION

The Bear-Marshall-Scapegoat-Swan Roadless Area is located in the Northern Continental Divide Ecosystem. This roadless area surrounds the Bob Marshall, Great Bear, and Scapegoat Wildernesses. It also includes portions of the Swan Range north of the Bob Marshall Wilderness near Inspiration Point and Alcove Mountain to the Columbia Mountain locale near Columbia Falls, Montana.

This area includes portions of Flathead, Lake, Missoula, Glacier, Pondera, Teton, Lewis and Clark, and Powell Counties in the Flathead, Lewis and Clark, Helena, and Lolo National Forests.

From the east side, access is very limited. Less than a dozen access points exist in the 75 miles of Forest boundary. Much of the roadless area boundary is adjacent to private land; thus right-of-way is required for any new access points. The eastern portion can be accessed by the North Fork Teton River Road, South Fork Teton River Road, Sun River Canyon Road, Beaver/Willow Creek Road, Benchmark Road, and Elk Creek Road. Major access to the northeast portion can be gained by roads and trails that originate from U.S. Highway 2.

On the west side, access is less restricted. National Forest or State lands border much of this portion of the roadless area. In the north, access can be gained by trails which begin at U.S. Highway 2. Roads paralleling Hungry Horse Reservoir provide access to the Swan Crest and other portions east of the South Fork Flathead River. Many other roads provide access to the west side; Holland Lake is the most popular of these. On the south side, the road near Monture Creek, North Fork Blackfoot River Road, Copper Creek Road, and Alice Creek Road provide access to this portion of the roadless area.

The topography and vegetation in the eastern portion differ dramatically from the western portion. These changes occur at the Continental Divide. On the east side, the topography was formed by overthrust faulting and local glaciation. Generally, the area is steep and dissected with numerous valleys. On the west side, the terrain is steep as a result of uplifting of the Swan Range along the Swan Fault. Glaciers have scoured the sides and tops of these mountains, leaving them well rounded on the top.

Major ecosystems on the east side (Kuchler, 1966*) are the western spruce-fir forest and the Douglas-fir forest, with alpine meadows and foothill prairie occurring in lesser amounts. Mountains are characterized by long linear ridges called reefs with forests or grasslands on the gentle backslopes and barren rock cliffs on the front of the thrust sheet. Major tree species on the east side are Douglas-fir, lodgepole pine, ponderosa pine, Engelmann spruce, and subalpine fir. The area is not densely forested and has low productivity, with south facing slopes often open or in a mosaic of forest and meadows that are a result of wildfire. Large grasslands (parks) occur in most major drainages. Major ecosystems on the west side are the western spruce-fir forest with some Douglas-fir forest and alpine meadow in the southern portion. Major tree species are Douglas-fir, larch, lodgepole pine, western white pine (in the north), Engelmann spruce, subalpine fir, and whitebark pine. The area is densely forested with trees thinning out to alpine meadows toward the higher elevations.

Precipitation varies from 20 to 40 inches or more per year on the east side; from 40 to 60 inches or more per year on the west side.

The roadless area provides habitat for many wildlife species, including grizzly bear, black bear, cougar, lynx, fisher, marten, elk, deer, whitetail deer, mule deer, wolf, moose, mountain goat, and bighorn sheep. Whitetail deer are found mostly on the west side, mule deer on the east. This roadless area, with most of the area at high elevations, contains important summer range habitat for big game species.

The grizzly bear is a threatened species. The majority of the roadless area is considered occupied grizzly bear habitat and classified as Situation 1, or necessary for the survival and recovery of the grizzly bear. The gray wolf is classified as an endangered species. Sightings of gray wolf are rare. Potential habitat exists in the majority of the roadless area, but it is not currently considered to be occupied. The area also provides habitat for the threatened bald eagle and the peregrine falcon.

Significant fisheries include the Middle Fork Flathead River in the northern portion, and the Dearborn River in the southeast portion. The Middle Fork Flathead River contains important bull trout spawning areas. The Dearborn River is known for its excellent cutthroat trout fishing.

This roadless area has special importance to many people because it is adjacent to the Great Bear, Bob Marshall, and Scapegoat Wildernesses. Much of the use in these areas is either by horse or foot, and involves hiking, backpacking, hunting, cross-country skiing, and horseback riding. In order to get to one of the three wilderness areas, one usually travels several miles through this roadless area. Some people view parts of this roadless area as part of their wilderness experience in the Bob Marshall or Scapegoat Wildernesses. Two of the most popular access points to the Bob Marshall Wilderness, Holland Lake and Benchmark, are in this roadless area.

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*Kuchler, A. W., 1966, Potential Natural Vegetation of the Conterminous United States. American Geographical Society, NY.

Livestock grazing, motorized recreation, timber harvesting, and oil and gas development represent other uses of this roadless area to other people. Most grazing occurs on the east side. Timber harvesting potential is not very high for the entire area because most of the area is high elevation, steep, and has low productivity sites. The better timber sites are on the west side. Probably the most important resource with the highest potential for development is the oil and gas resource. Much of this roadless area is over the overthrust belt. This area is rated as having a very high potential for oil and gas; much of it is leased.

To describe and analyze this roadless area in greater detail, twelve different locations are identified (see location map or Bear-Marshall-Scapegoat-Swan Roadless Area map in map package). The east side is considered part of the Rocky Mountain Front. From north to south, included are:

Badger/Two Medicine
Teton
Deep Creek/Reservoir North
Renshaw
Benchmark/Elk Creek
Silver King/Falls Creek

The eastern portion of this roadless area is managed by the Lewis and Clark and Helena National Forests.

On the west side, most of the roadless area is in the Swan Mountain Range. From north to south, included are:

Middle Fork Flathead
East South Fork Flathead
Swan Crest
Swan Front
Monture
Stonewall Mountain

The western portion is managed by the Lolo, Flathead, and Helena National Forests.

Badger/Two Medicine - This area consists of the Badger Creek and South Fork-Two Medicine River drainages. Badger Creek and its tributaries flow east. The Badger Creek drainage consists of steep, rocky mountains dissected by numerous narrow canyons and waterways. The South Fork of the Two Medicine River flows north towards Glacier National Park. Two Medicine is a broad, glaciated valley with moderate slopes.

Snowmobilers and motorcyclists are the predominate users of the area's transportation system. The Elk Calf-Two Medicine Trail is a National Recreation Trail.

These lands were once part of the Blackfoot Indian Reservation. This area was ceded from the reservation in 1896. The Blackfoot Indian Nation retains certain use rights on these lands under the Agreements of 1888 and 1896, and the Treaty of 1855. The Treaty and Agreements also accorded to the United States certain rights and privileges.

Teton - This area includes Blackleaf Canyon and the North, South, and Middle Forks of the Teton River. The Middle Fork Teton River and the eastern sides of several high peaks along the Teton-Sun River Divide are found here. The area borders the Bob Marshall Wilderness for 32 miles. Two heavily used trails, Route Creek and Headquarters Pass, provide access to the Bob Marshall. This area consists of high rugged mountains formed by thrust faults with steep front slopes and gentle backslopes bisected by numerous valleys and streams.

The Blindhorse Creek Wilderness Study Area, managed by the Bureau of Land Management, and the Montana Department of Fish, Wildlife and Parks' Blackleaf Game Range are located adjacent to this area.

The high peaks found along the divide are Rocky Mountain Peak, at 9,392', the highest mountain within the Bob Marshall Wilderness; Old Baldy, 9,156'; Teton Peak, 8,416'; and Mt. Lockhart, 8,691'. Mountain goats are found within the area. Our Lake, one of the few alpine lakes in the eastern portion, is heavily used by backpackers and fishermen.

Blacktail-South Fork Teton, Crown Mountain-Petty Creek, and Jones Creek are National Recreation Trails which pass through the area.

Deep Creek/Reservoir North - This area, which is 25 miles northwest of Choteau, is south of the Teton area. Deep Creek/Reservoir North borders the eastern side of the Bob Marshall Wilderness for 15 miles, and consists of high parallel overthrust limestone reefs separated by deep valleys. Sheep Reef, Arsenic Mountain, and other unnamed features separate Deep Creek from the Sun River drainage. Chute Mountain and Castle Reef along the eastern boundary rise abruptly from the adjacent prairie foothills. The extensive south facing valleys, such as Hannan, Blacktail, Mortimer, Big George, Wagner Basin, and Arsenic Mountain serve as winter habitat for elk, whitetail deer, mule deer, and bighorn sheep. Large numbers of elk use the southern portion of the area for seasonal migration and winter habitat. The area is the wintering range for the Sun River Rocky Mountain bighorn sheep herd, numbering around 1,000. This is one of the largest herds in the lower 48 states.

The southwestern portion of the area is used extensively by commercial outfitters and guides and private recreationists during the general hunting season. Visitor use in the area is light during the spring and summer and consists of day hiking, hoseback riding, and traffic enroute to the Bob Marshall Wilderness. Use increases dramatically during hunting season. A National Recreation Trail runs north/south through the area along Blacktail Creek and the South Fork of the Teton River. Two adjacent Bureau of Land Management Wilderness Study Areas, Chute Mountain and Deep Creek/Battle Creek, are found on the eastern boundary of this area.

Renshaw - This area is bordered on the north and west by the Bob Marshall and Scapegoat Wildernesses. It contains three distinct areas - Patricks Basin, which consists of Lange Creek draining north to Gibson Reservoir through a broad, heavily timbered valley; the plateau area, which consists of Fairview and Ford Creek Plateaus; and the South Fork of the Sun River. The Sun River elk herd, one of the largest in Montana, uses the Lange Creek drainage, along with the Bob Marshall and Scapegoat Wildernesses to the west and the Sun River Game Range to the east. The Fairview-Ford Creek Plateau provides winter habitat for bighorn sheep and elk. The third area, the valley of the South Fork of the Sun River, is a popular access route to the Bob Marshall Wilderness.

A small subalpine lake, Renshaw Lake, is frequented by fishermen and youth groups. Two major landmarks of this area are Renshaw Mountain, 8,264', and Fairview Mountain, 8,245', whose impressive eastern face is seen far out on the plains. Steep limestone reefs border the eastern boundary of the area, giving way to sharp peaks, high mountain grasslands, and trees to the west. Parts of the area were burned in the 1920's and are now large grasslands.

Benchmark/Elk Creek - This area is south of Benchmark and borders the Scapegoat Wilderness. Three mountains border its western edge: Patrol Mountain, at 8,031'; Crown Mountain, at 8,401'; and Steamboat, at 8,565'. The area consists of high rugged mountains formed by thrust faults with steep side slopes bisected by numerous valleys and streams. It contains occupied grizzly bear habitat. The Benchmark Road to the north of this area is the most popular access route to the Bob Marshall on the east side. Elk Creek Road is becoming a popular access point to the Scapegoat Wilderness. Patrol Mountain and Steamboat, both popular day hikes, provide spectacular views of the surrounding wilderness to the west and foothills prairie to the east.

Silver King/Falls Creek - This area is located about 20 miles southwest of Augusta and lies to the east of the Scapegoat Wilderness. It includes the Falls Creek drainage and the Dearborn River drainage east of the Scapegoat Wilderness, and also another Falls Creek drainage southwest of the Continental Divide. This area straddles the Continental Divide. Twin Buttes, Caribou Peak, Burned Point, and Steamboat Mountain are found here. Falls Creek drainage, which is dominated by Caribou Peak (8,773') high on the Continental Divide, is located in the area. Silver King Mountain, at 7,771', dominates the area south of the Continental Divide. The Dearborn River drainage consists of a steep-walled canyon with a scenic gorge in the Devil's Glenn area. The river itself is a series of rapids and deep pools which offer excellent cutthroat trout fishing. The Falls Creek drainage consists of the open, broad-valleyed east fork and the heavily timbered west fork. Both drainages have steep, rugged headwalls along the Continental Divide.

Middle Fork Flathead - This area, located in the northern portion of the Bear-Marshall-Scapegoat-Swan Roadless Area, contains steep to very steep terrain with broken and diverse country, especially the areas bordering the Great Bear Wilderness. It contains important grizzly bear habitat and travel corridors. Areas within 1/2 mile of the Middle Fork River have been designated as bald eagle habitat. A small mountain goat population inhabits Slippery Bill Mountain. Some important bull trout spawning area in the

Middle Fork drainage is located in portions of this roadless area. Challenge, Granite, Dodge, Morrison, and Puzzle Creeks are closed to fishing by the Montana Department of Fish, Wildlife and Parks and designated as spawning streams.

Recreation use is light to moderate depending on the locale and access availability. The majority of the use in the area is by hunters, fishermen, snowmobilers, cross-country skiers, hikers, and people using stock to gain access into the Great Bear Wilderness. The Big Bill, Granite Creek, and Morrison Creek Trails are the major routes to the Great Bear Wilderness. Numerous smaller trails are used as access to lakes within the Great Bear Wilderness. They provide good day hike opportunities.

East South Fork Flathead - This area is located within the South Fork Flathead River drainage. It is bordered to the northeast by the Great Bear Wilderness and to the south by the Bob Marshall Wilderness. The area to the southwest is managed for timber with main access roads in the valley bottoms.

The area is moderately steep to steep, reaching from heavily timbered to subalpine land forms with scattered rock outcroppings. The higher elevations have shallow soils and are low in productivity. Some open ridges exist along the Great Bear Wilderness boundary. Hungry Horse Reservoir is the dominant feature seen from this area. Great Northern Mountain dominates the view to the east. Some extensive lodgepole pine stands regenerated from the 1929 Half Moon fire occur near Desert Mountain. Elk migrating out of the Middle Fork and a portion of the Bob Marshall Wilderness use part of this area as their migration route to and from winter habitat. The area also includes important spring grizzly bear habitat.

The major dispersed recreation use of this area is hiking or big game (elk, deer, and bear) hunting. The Big Bill Trail which accesses the Great Bear Wilderness and the Spotted Bear Trail which accesses the Bob Marshall Wilderness are heavily used. Other access trails are available but receive little use. Outstanding views can be seen from the high ridges.

Extensive limestone caves are found in the southeast portion just north of Sargeant Mountain.

Swan Crest - This area extends from Badrock Canyon on the north to Sixmile Mountain on the south. The east side parallels the Hungry Horse Reservoir and borders on timber managed land. The area varies from 3 to 5 miles in width and is approximately 30 miles long. It is an extension of the Swan Front and is not adjacent to any designated wilderness.

A variety of scenes surround this roadless area. Directly to the east, Hungry Horse Reservoir and existing logging activities dominate the view. Past logging activities, parts of the Great Bear Wilderness, and Glacier National Park can be seen further to the east and northeast. To the west, the Flathead and Swan Valleys, the Whitefish Range, and the Mission Mountains Wilderness can be seen. The Jewel Basin Hiking Area is in the center of the area.

The terrain is steep as a result of uplifting that occurred when the Swan Range was formed along the Swan Fault. The break in topography in the Strawberry Lake area is a result of two cross-faults. Although the basin walls are steep, the east side of the divide is more gentle than the west slope. Elevation varies from 3,500' to over 7,500'.

The Jewel Basin Hiking Area is a specially designated back-country use area consisting of 15,349 acres of high mountains. It includes 28 alpine lakes, many picturesque mountain streams, meadows, rocky peaks, subalpine timber, and a variety of flowers. The Alpine Trail, which runs along the top of the Swan Divide, offers spectacular views of both the Flathead Valley and Hungry Horse Reservoir. Other trails and lakes outside the Jewel Basin are also special features. This area is easily accessed for day and weekend use. The Strawberry Lake area, just outside Jewel Basin, is also a popular day use area.

Major uses in the area include hunting, fishing, hiking, horseback riding, snowmobiling, and trail bike use. Most trail bike use occurs around Columbia Mountain.

Swan Front - This area extends from Sixmile Mountain south to Morrell Mountain. It is bounded on the east by the Bob Marshall Wilderness for approximately 2/3 of its length and by the South Fork of the Flathead River and Hungry Horse Reservoir to the northeast. The area involves the west facing slope of the Swan Range down to private land and presently roaded areas. It also includes the Bunker Creek-Sullivan Creek drainages.

A continuous chain of high, and often treeless, rugged mountains form the backbone of the Swan Front. Among the highest are Swan Peak (9,289'), Union Peak (8,825'), and Holland Peak (9,356'). Below the high peaks and ridges lie a series of alpine and subalpine basins or hanging valleys. Most of the lakes in this area are found here, several of which are stocked with fish. Below the high basins is an area that is often called the canyon zone. Here the streams of the Swan Front plunge down narrow bottoms between steep side slopes until they reach the gentler terrain of the Swan Valley. Rocks and cliffs prevail in much of the canyon zone. On the northern end, the east facing slopes are broken by major drainages with high ridges leading toward Hungry Horse Reservoir.

Grizzly use the area for summer habitat and winter denning sites. Important mountain goat habitat is also found here.

The major dispersed recreation use of this area is hiking, horseback riding, or big game hunting. Gorge Creek Trail, Napa Point, Smith Creek, and Holland Lake Trails are major access points to the Bob Marshall Wilderness. The Holland Lake Trail is the most used trail into the Bob Marshall Wilderness. Several outfitters operate within the Hall-Trinkus Lake and Lion Creek areas. The Alpine Trail passes through this area from north to south along the crest of the Swan Range, ending at Inspiration Point. Here it enters the Bob Marshall Wilderness and ties to the Gorge Creek Trail. A variety of outstanding views can be seen from the Swan Divide.

Several falls are found in Bond, Lion, Condon, Rumble, Morrell, and Holland Creeks. Best known is Holland Falls. The trails to Holland Falls and Morrell Falls are popular National Recreation Trails. In the Lion Creek Canyon is a mature cedar grove. Lion Creek passes through the grove in a series of cascades and falls.

The Swan Front is considered to be an important part of the Swan Valley watershed. Likewise, the Bunker and Sullivan Creek drainages are considered important to the water quality of the South Fork of the Flathead River.

Monture - This area is adjacent to the Bob Marshall Wilderness on the north and the Scapegoat Wilderness on the east side. Terrain ranges from steep barren mountain slopes to heavily timbered valleys. Elevations range from 4,600' to 8,700'. Monahan Mountain, Morrell Mountain, and Fenn Mountain rise above 8,000', along with numerous other mountains which border along the two adjacent wildernesses. Approximately 60 percent of the area is forested. The remainder of the area is evenly divided between a mosaic of forest, shrubs, and rockland. Cirque basins, tarn lakes, U-shaped valleys, and serrated ridges caused by alpine glaciation can be seen at the head of the Monture Creek drainage. All of the major streams drain into the Blackfoot River.

Fisheries are good in the area, with Monture Creek and the North Fork Blackfoot River the main fishable streams. Lake Otatsy, Canyon Lake, and Camp Lake are fishable lakes. Monture is also critical for wildlife. It contains important grizzly bear habitat as well as elk migratory routes between the Bob Marshall Wilderness and the Blackfoot-Clearwater Game Range.

Portions of the area receive heavy use, especially around some of the lakes and entrances to the Bob Marshall Wilderness. Use includes backpacking, horseback riding, and hunting. Several outfitter base camps are located here. During the summer and fall, outfitters use the trails in the valleys to access the Bob Marshall and Scapegoat Wildernesses. A few trails receive light levels of trailbike and snowmobile use.

Stonewall Mountain - This area is situated along the southern boundary of the Scapegoat Wilderness. Topography varies widely within the area, from rolling mountains in the Alice Creek portion to more rugged mountain peaks, cliffs, avalanche paths, and tallus slopes in the rest of the area. Glacial cirque basins and steep glaciated valleys occur in all portions of the area except for Alice Creek. Most of the area west of Stonewall Mountain and Copper Creek is very steep and rocky. The area east of Stonewall Mountain to Copper Creek is steep and well timbered on north facing slopes. It contains open growing stands of timber with small grassland parks on south and west facing slopes. The Alice Creek drainage is a moderately steep area. Elevations range from 4,900' in the Blackfoot Valley to 9,411' on Red Mountain. Red Mountain is the highest peak for this part of the Rockies south of Glacier National Park. Numerous peaks are over 7,500' in elevation.

A unique vegetative community exists on the southeast slopes of Red Mountain consisting of both whitebark and limber pine. These two species are growing together at an elevation of about 8,000'. This area has been recommended for a 4,000 acre Research Natural Area by the Intermountain Experiment Station.

Fisheries are very good in the area. Arrastra Creek and Landers Fork of the Blackfoot River are the main fishable streams. Copper Lakes and Silver King Lake (mostly on private land) are the only fishable lakes. Cutthroat trout is the principle species in both streams and lakes.

Recreation use consists mainly of hunting, with hiking and horseback riding also popular. Snowmobilers use the Stonewall Mountain Trail to travel to the Upper Copper Creek Basin and use the Alice Creek/Lewis and Clark Pass area. Most of the drainage bottoms have access trails with the Reservoir Lake Trail in Arrastra Creek receiving the most use. Fishermen regularly visit Copper Lake.

II. CAPABILITY

A. Wilderness Attributes

The Bear-Marshall-Scapegoat-Swan surrounds the Bob Marshall, Scapegoat, Great Bear Wilderness Complex. It contains 866,330 acres with all but 1,152 acres in National Forest System land. It has had some disruption in natural integrity and natural appearance. Human activities in some of the area are evident, although most impacts are concentrated along road corridors and the exterior boundaries. In other areas the only disruptions are trails which access the Bob Marshall, Scapegoat, or Great Bear Wildernesses.

Most of the plant and animal species that existed in this roadless area when the Lewis and Clark Expedition passed south of here nearly 200 years ago are still present. Most mammal species present then are still present now; however, some are considered threatened or endangered. The integrity of the fisheries has been altered by the stocking of grayling and rainbow trout. Rainbow trout hybridizes readily with the native cutthroat trout. Many miles of unaltered cutthroat streams remain. Some plant species, such as spotted knapweed, leafy spurge, thistle, and clover have been introduced accidentally into the area through livestock use. These species are found mainly along the trails. Off trail, the plant community has changed little except for successional changes and those brought about by naturally occurring fires. To the untrained eye, the natural appearance of this area is high.

In general, the Bear-Marshall-Scapegoat-Swan Roadless Area possesses high opportunities for solitude because of its size and the influence of the adjacent Bob Marshall, Scapegoat, and Great Bear Wildernesses. Much of it contains highly dissected topography that easily screens people from one another in a short distance. Some portions are influenced by adjacent roads and other developments.

The area offers high opportunities for primitive recreation. A variety of topography challenges the visitor with its high mountain tops and steep valleys. The large size of the area offers the opportunity to get away from the man-influenced environment and experience excellent primitive recreation activities such as fishing, camping, hunting, backpacking, hiking, and horseback riding.

Other features include a high diversity of wildlife and wildlife habitat; spectacular views; unique geographical features and vegetation; an extensive trail system; outstanding hunting; important, high quality watersheds; and a specially designated hiking area. Wildlife species include all the major game species. The Sun River elk and bighorn sheep herds (some of the largest in Montana) migrate through the eastern portions of this roadless area. The entire area contains essential habitat for the threatened grizzly bear and endangered gray wolf. Views of Glacier National Park; the Bob Marshall, Scapegoat, Great Bear, and Mission Mountain Wildernesses; and the surrounding prairies and valleys can be seen from many of the peaks and ridges in this area. Limestone caves are found near the South Fork Flathead River and a unique cedar grove exists in the Lion Creek drainage in the Swan Front. Many miles of National Recreation Trails have been designated here. People nationwide are attracted by the outstanding hunting and backcountry experiences here and in the adjacent wildernesses. The area contains important watersheds for the Sun River, Dearborn River, Swan River, and the South Fork Flathead River. The heavily used Jewel Basin Hiking Area is located in this roadless area.

B. Manageability and Boundaries

Because this area surrounds the Bob Marshall, Scapegoat, Great Bear Wilderness Complex, it consists of several long narrow segments which are usually separated by road corridors. The boundary along the adjacent Bob Marshall, Scapegoat, and Great Bear Wildernesses are usually well defined by high ridges and major topographic features. Other boundaries parallel existing roads or land survey lines which are sometimes difficult to identify.

In 1977 the Forest Service inventoried 758,454 acres in the Bear-Marshall-Scapegoat-Swan Roadless Area for RARE II. Currently, the inventory contains 865,178 acres. The following chart displays how the inventory changed.

RARE II #	RARE II Name	National Forest	Net Acres	Change in Acreage	Reason for Change	Revised Net Acres
A1485	Bear-Marshall-Scapegoat-Swan	Flathead	176,479	-8,939 60,350	Timber sales and roads. Addition of Unit Plan roadless acres.	227,890
A1485	Bear-Marshall-Scapegoat-Swan	Helena	54,700	-2,580 -635	Timber sales and roads. Acreage recalculation.	51,485
A1485	Bear-Marshall-Scapegoat-Swan	Lewis & Clark	219,775	-1,600 9,828	Timber sales and roads. Addition of acres released from Great Bear Wilderness Study.	228,003
A1485	Bear-Marshall-Scapegoat-Swan	Lolo	14,596	-2,290	Acreage recalculation.	12,306
B1485	Bear-Marshall-Scapegoat-Swan	Lolo	18,474	152	Acreage recalculation.	18,626
B1485	Bear-Marshall-Scapegoat-Swan	Lolo	3,800	25	Acreage recalculation.	3,825
E1485	South Fork Willow Creek	Lewis & Clark	1,732			1,732
F1485	Silver King/Falls Creek	Helena	6,300	915	Acreage recalculation.	7,215
F1485	Silver King/Falls Creek	Lewis & Clark	32,000			32,000
H1485	Deep Creek	Lewis & Clark	15,770			15,770
N1485	Reservoir South	Lewis & Clark	1,751			1,751
P1485	Reservoir North	Lewis & Clark	26,068			26,068
Q1485	Clearwater-Monture	Lolo	66,945	2,113	Manageable boundary acreage recalculations.	67,783
S1485	Swan	Flathead	70,400	-1,275 -1,831 31,680 20,811	Acreage recalculation. Timber sales and roads. Addition of Unit Plan roadless acres. Boundary adjustment to meet roadless criteria.	121,060
T1485	Leavitt Creek	Lewis & Clark	2,400			2,400
U1485	Packbridge	Lewis & Clark	3,255			3,255
W1485	Renshaw	Lewis & Clark	25,649			25,649
Z1485	Dunham Point	Lolo	18,360			18,360
		TOTAL	758,454	106,724		865,178

From this inventory, the Bear-Marshall-Scapegoat-Swan Roadless Area was combined into 12 areas instead of 18. The 18 areas were based on administrative boundaries and divided the A1485 roadless portion into noncontiguous areas. The 12 areas listed below are based on geographic differences only.

ID	ROADLESS AREA	NATIONAL FOREST	NET ACRES	GROSS ACRES
C1485	Badger/Two Medicine	Lewis & Clark	102,100	102,100
T1485	Teton	Lewis & Clark	63,133	63,133
P1485	Deep Creek/Reservoir North	Lewis & Clark	45,922	45,962
W1485	Renshaw	Lewis & Clark	57,591	57,611
A1485	Benchmark/Elk Creek	Lewis & Clark	32,314	32,314
F1485	Silver King/Falls Creek	Lewis & Clark	35,568	35,568
F1485	Silver King/Falls Creek	Helena	7,215	7,215
MF485	Middle Fork Flathead	Flathead	42,450	42,450
ES485	East South Fork Flathead	Flathead	57,640	57,640
SC485	Swan Crest	Flathead	106,870	106,870
SF485	Swan Front	Flathead	141,990	141,990
SF485	Swan Front	Lolo	20,840	21,540
Q1485	Monture	Lolo	100,060	100,400
A1485	Stonewall Mountain	Helena	51,485	51,537
	TOTAL		865,178	866,330

In the Rocky Mountain Front, adjacent to National Forest lands, are three roadless areas being studied for their wilderness potential by the Bureau of Land Management. The three areas are: Blindhorse Creek, Chute Mountain, and Deep Creek/Battle Creek. These areas comprise 11,218 acres and are adjacent to the Teton and Deep Creek/Reservoir North portions of the Bear-Marshall-Scapegoat-Swan Roadless Area. They have been recommended for Outstanding Natural Area designation in the Headwaters Final Environmental Impact Statement published by the Bureau of Land Management's Butte District in November 1983. Management of these areas emphasizes roadless management and scenic values.

In discussions between the Bureau of Land Management and Forest Service, it was agreed that the two agencies would consider complementary management alternatives for their adjacent lands and that coordinated recommendations be submitted to Congress. The range of alternatives in the Bureau of Land Management Final Environmental Impact Statement are within the range of alternatives in this study.

Current uses which may not conform with wilderness management include oil and gas leasing. Of the 865,178 acres, 718,481 acres have been leased.

C. Highlights of Wilderness Attributes and Wilderness Manageability for Individual Areas

Wilderness suitability of the individual areas in the Bear-Marshall-Scapegoat-Swan area are now discussed beginning with the areas east of the Continental Divide.

Badger/Two Medicine - The Badger/Two Medicine area is a contiguous parcel of National Forest System land. Boundaries are well defined by existing wildernesses, major terrain features, and the Forest boundary. An old road system and present motorized use would make wilderness management difficult.

Human activity in this area has left extensive impacts. A primitive road system, resulting from seismic activity during the late 1950's and early 1960's, is located within the area. Although much of the system is now designated for administrative purposes and trail vehicles, snowmobilers and motorcyclists use this system. Human activity is evident although most impacts are concentrated along roads and the exterior boundaries.

The area is large enough and the topography such that persons visiting the area feel they are in a natural area, away from ordinary human activity and development. Old seismic roads and motorized use distract from the natural appearance of the area.

In the southeast Two Medicine valley, opportunities for primitive recreation and solitude are high. Natural integrity and apparent naturalness have been impacted by the extensive unimproved road system, trail oriented use, and livestock grazing. In the Badger Creek drainage, opportunities for solitude and primitive recreation are very high. Apparent naturalness and natural integrity have been impacted by seismic roads, but these impacts can be easily excluded by boundary adjustments.

The Badger/Two Medicine roadless area is within the area that was once part of the Blackfoot Indian Reservation. The Treaty of 1855 and Agreements of 1888 and 1896 between the Blackfoot Indian Nation and the United States established for members of the Blackfoot Indian Nation certain use rights on these lands. The Agreement of 1896 specifically provides to the Blackfoot Tribe the following:

> "Provided, that said Indians shall have, and do hereby reserve to themselves, the right to go upon any portion of the lands hereby conveyed so long as the same shall remain public lands of the United States, and to cut and remove therefrom wood and timber for Agency and school purposes, and for their personal uses for houses, fences, and all other domestic purposes: and provided further, that the said Indians hereby reserve and retain the right to hunt said lands and to fish in the streams thereof so long as the same shall remain public lands of the United States under and in accordance with the provisions of the game and fish laws of the State of Montana."

These treaty rights place a lien on the land which is incompatible with wilderness classification or would make management of wilderness and these uses very difficult. This was borne out by Congress in the passage of PL-94-557 requiring the Great Bear Wilderness Study. The original bill (S.392) included 20,000 acres of treaty rights area; however, the 20,000 acres were removed by Congress from the Great Bear Study Area before passage of the final law.

Oil and gas leases have been granted for this entire area with some restrictions on occupancy. Seismic activity in recent years has been extensive and oil and gas potential is very high. These leases grant the operator a reasonable opportunity to explore for and develop oil and gas resources. Leases grant pre-existing rights that could reduce natural integrity and appearance and would make wilderness management difficult.

Teton - This area is a contiguous parcel of National Forest System land. Boundaries along the western and northern edge of this area are well defined along topographic features of the adjacent Bob Marshall Wilderness. The eastern boundary is defined along the Forest boundary and by road corridors which intrude into the area and are difficult to identify.

The Teton area consists of three units. The North Fork Teton drainage offers moderate opportunity for solitude and high opportunities for primitive recreation. Natural integrity and apparent naturalness are impacted by trail oriented use, livestock grazing, and seismic roads along Blackleaf Creek. Opportunities for boundary adjustments to exclude man's activities are limited because the North Fork Teton Road traverses the entire drainage. The Middle Fork Teton drainage offers high opportunities for solitude and primitive recreation. Natural integrity and apparent naturalness are impacted by trail use. The South Fork is similar to the North Fork in wilderness attributes. Opportunities for solitude are only moderate due to heavy recreational use at Our Lake and Headquarters Pass. The headwaters of the South Fork and Middle Fork drainages, which form the spectacular Teton Peaks, would rate very high in all the wilderness attributes.

The Teton River area is separated by two major road corridors. The southeast roads provide access which would help in administration, but decrease the wilderness attributes.

Oil and gas leases have been granted for this entire area with some restrictions on occupancy. Seismic activity in recent years has been extensive and oil and gas potential is very high. These leases grant the operator a reasonable opportunity to explore for and develop oil and gas resources. Leases grant pre-existing rights that could reduce natural integrity and appearance and would make wilderness management difficult.

Deep Creek/Reservoir North - Deep Creek/Reservoir North is a sizable, compact unit. Boundaries are fairly well definable on major terrain features or proclaimed Forest boundaries. In a few locations, terrain features are less prominent and boundaries will be difficult to locate on the ground.

Deep Creek/Reservoir North shows some disruption of natural integrity and apparent naturalness. Opportunities for solitude and primitive recreation are high.

Human activity impacted some drainages. The area contains two roads (constructed in the 1960's for seismic exploration) and two recreation residences. The roads are located in Hannan Gulch and Deep Creek, but can be excluded by major boundary adjustments. The recreation residences are scheduled for termination by 1992.

Deep Creek/Reservoir North possesses opportunities for solitude because of its large size and topographic relief. The area offers a variety of topography to challenge the visitor with its narrow valley bottoms, rolling hills, and high mountain peaks. There are excellent recreation opportunities such as hunting, scenic viewing, hiking, and horseback riding in primitive recreation settings.

There are some opportunities to modify the boundary. The north/south and east/west ridgetops provide several alternative locations. The size of the area would be greater than 30,000 acres. Boundary adjustments to reduce conflict with possible oil and gas activities would reduce the area to about 10,000 acres.

This area has been designated a Wilderness Study Area. It has been leased for oil and gas with restrictions on occupancy and only permits exploratory drilling and not production of oil and gas. This leasing decision was based on the need to acquire more information on the area's oil and gas resources. These leases will expire in 1991 if no discoveries are made. Once the oil and gas potential of the area is determined, a recommendation regarding wilderness will be made through an amendment or revision of the Lewis and Clark National Forest Plan.

Renshaw - The Renshaw area is a contiguous parcel of National Forest System lands. It is a long, narrow unit. Boundaries are defined by existing wildernesses and major and minor terrain features.

This area consists of three basic units. Patricks Basin (Lange Creek) is a broad, forested drainage that offers high opportunities for solitude and primitive recreation. Natural integrity and apparent naturalness are high and man's activities and influence are not apparent. The South Fork Sun River unit is a large valley with extensive use by recreationists. Opportunities for solitude are moderate because of large numbers of recreationists traveling through the area to the adjacent Bob Marshall Wilderness. Natural integrity and apparent naturalness are high, with most influences resulting from trail oriented use and use along the river. The Plateau area consists of large open hillsides and timbered riparian areas. Opportunities for

primitive recreation and solitude are high. Apparent naturalness and natural integrity have been impacted by livestock grazing. Driveways, drift fences, and watershed protection fences are located throughout the area and detract from apparent naturalness.

The area offers a variety of topography to challenge the visitor with its high mountain tops and broad plateaus. The large size of the area offers the opportunity to get away from the man-influenced environment and experience excellent primitive recreation activities.

Benchmark/Elk Creek - The Benchmark/Elk Creek area is a long narrow unit. The western boundary is defined by the high ridges and major topographic features along the Scapegoat Wilderness. The eastern boundary parallels the Benchmark Road and the Forest boundary. This boundary is difficult to identify.

The Benchmark/Elk Creek area has had some disruption in natural integrity and natural appearance. Solitude and primitive recreation opportunities are high because of its size and the influence of the adjacent Bob Marshall and Scapegoat Wildernesses. Much of the area contains highly dissected topography that easily screens people from one another in a short distance. Some areas are influenced by adjacent roads and other developments.

Human activity in the area is evident although most impacts are concentrated along roads and the exterior boundaries. Human activity and influences in the area include timber cutting along the Beaver-Willow and Benchmark Roads.

Seismic activity in recent years has been extensive and oil and gas potential is very high. Oil and gas leases have been granted for this entire area with restrictions on occupancy. These leases grant the operator a reasonable opportunity to explore for and develop oil and gas resources. Leases grant pre-existing rights that could reduce natural integrity, appearance, and would make wilderness management difficult.

Silver King/Falls Creek - The Silver King/Falls Creek area is a contiguous parcel of National Forest System lands. The area is a compact unit with boundaries well defined by existing wildernesses, major terrain features, and on proclaimed Forest boundaries. The eastern boundary is very difficult to define and identify on the ground. Vegetation management and range use in some areas may be a wilderness management problem. The area has had little disruption in natural integrity, natural appearance, and solitude. Solitude and primitive recreation opportunities are high becase of its size and the influence of the adjacent Scapegoat Wilderness.

The Dearborn Canyon in the Devil's Glenn area offers very high opportunities for primitive recreation and provides high opportunities for solitude. Natural integrity and apparent naturalness are impacted only by an old logging road constructed in the 1920's that is used as a trail along the Dearborn River. Some livestock grazing also occurs in the lower portions of the canyon. The Falls Creek area consists of the East and West Forks of Falls Creek. The East Fork is open and lightly

forested and offers moderate opportunities for solitude and primitive recreation. Natural integrity and apparent naturalness have been impacted by trail oriented use and domestic livestock grazing and range improvements. The West Fork of Falls Creek is heavily timbered and offers high opportunities for solitude and primitive recreation. Trail oriented use and limited livestock grazing in the lower reaches of the drainage have impacted apparent naturalness and natural integrity. Another Falls Creek drainage, south of the Continental Divide, is very remote and offers high opportunities for solitude and primitive recreation.

Middle Fork Flathead - West of the Continental Divide, the natural integrity and appearance of the Middle Fork Flathead portion remains high. Maintained trails which access the Great Bear Wilderness detract from the area's natural integrity. Other impacts on the natural integrity of this roadless area are the television antenna site and an old 4-wheel-drive trail located on Mule Ridge. Noise from the railroad and Highway 2 along the Middle Fork River detracts from the naturalness of the area.

Opportunities for solitude are few due to the off-site intrusion of noise from the highway and railroad along the Middle Fork River. Heavy use in the area during certain times of the year, especially hunting season, makes it hard to get away from other users.

Opportunities for primitive recreation are present in this area but lessened due to the evidence of past activities in the adjacent areas. The winter climate and steep terrain provide opportunities for challenging recreation activities.

Portions of this area were studied during the Great Bear Wilderness Study and not recommended for wilderness. This area may be difficult to manage due to boundaries which parallel existing roads that were built to access timber harvest activities.

East South Fork Flathead - The natural integrity of this area is high except for several trails and a mining claim in the Silver Basin area. The area has retained its natural appearance due to the difficulty of access. The natural appearance is impacted somewhat by the activities along the Hungry Horse Reservoir.

Opportunities for solitude are limited due to the close proximity of timber management and main access roads used by fishermen, campers, outfitters, as well as by administrative traffic. Except in some of the hidden basins, man's activities can usually be seen or heard throughout most the area.

Primitive recreation includes big game hunting or hiking in steep and rugged terrain.

Portions of this area were studied during the Great Bear Wilderness Study and not recommended for wilderness.

Swan Crest - The natural integrity of the Swan Crest is very high except for the existing trails and the scars of skid trails used to haul materials to the electronic site near Jewel Basin. The Jewel Basin Hiking Area includes six pit toilets and several fire pits. Being the closest roadless area to population centers in the Flathead Valley, this area receives heavy use. It is impacted only slightly by the developments in the area. The view of man's activities within the Flathead Valley or east along Hungry Horse Reservoir do not detract from the natural appearance of the area itself. There is presently one special use electronic site on the Divide overlooking Jewel Basin which is quite evident to users of Jewel Basin.

Opportunities for solitude exist on the major portion of this roadless area but may be compromised due to the proximity to timber management access roads. The area is narrow with projecting fingers of unroaded land providing limited opportunity for solitude. The area does have good topographic screening in some areas and good vegetative screening near Columbia Mountain.

Opportunities for primitive recreation in the form of hiking, cross-country skiing, fishing, or hunting are present in this area. Hiking to the high alpine lakes can offer a challenging experience to some people, especially to those lakes not accessed by trails. Because this roadless area is located at higher elevations, drastic weather changes can offer the hiker and camper a wide range of experiences. The abundance of lakes along the Swan Crest is a major attraction to the area.

Boundaries along the east side of this area follow roads and existing timber harvest units. Large, continuous areas do exist, especially in the Columbia Mountain/Lake Blaine area to the north. Much of the area consists of high elevation lands with boundaries following old harvest activity areas which make it difficult to manage.

Swan Front - The Swan Front's natural appearance has been altered only along the established trails cutting through to the Bob Marshall Wilderness. Generally, the natural integrity of this area is still very high.

Due to the narrowness of the area at some points, natural appearance is low when a visitor is near off-site logging activities or along major access trails. An administrative cabin and a snow course are located near Upper Holland Lake; also, an old lookout shelter exists on the main ridge just to the north of Thunderbolt Mountain, and a cabin exists on the Divide near Trinkus Lake.

Opportunity for isolation from the sights and sounds of man and his activities are high in this area. Some areas, such as Lion Creek, Lost Creek, Upper Holland Lake Basin, and Squeezer Creek, provide some outstanding chances for solitude.

The steep and rugged terrain, along with drastic weather changes, can offer the visitor a challenging experience in mountaineering. The views from the Swan Divide into the Bob Marshall Wilderness and across the Swan Valley to the Mission Mountain Wilderness are spectacular.

The area around Napa Point and south to the Swan Peak area is notable due to the glacial activity that has occurred, and is still occurring.

The western boundary of this area is delineated by past harvest practices and private ownership. The northeastern boundary winds its way up and down drainages following roads and existing timber harvest units. The remaining eastern boundary, adjacent to the Bob Marshall Wilderness, is easily defined by the crest of the Swan Range.

Monture - The Monture area is relatively free of external influences. Natural integrity and appearance are high. A few past management activities impact the area. These activities include logging and roading of an area near Coopers Lake, two patented mining claims in West Fork Lake Creek, several trapper cabins, and a radio repeater on Lake Mountain. Overall, these activities have had very little impact on the natural appearance of the area.

There is an outstanding opportunity for solitude due to high topographic screening, dense vegetative screening, and the large size of the area. The adjacent wildernesses add significantly to the area's value for solitude as well as primitive recreation and wildlife. In the southeast portion, background views of logging, ranching, and U.S. Highway 200 may affect the feeling of solitude.

Primitive recreation opportunities are outstanding due to very diverse terrain and many challenging situations for the visitor. The unit is also in close proximity to the Clearwater Valley chain of lakes which is a popular recreation area.

The Monture portion is basically linearly shaped. It will add almost 50 miles of boundary crossing 33 travel routes (16 trails, 1 road, and 16 streams and ridges). About half the boundary is on prominent topographic features. Much of the remaining boundary traverses broken terrain. Many sectors (about 23 miles) are point-to-point directions. A 5-mile sector in Monture Creek is defined as 300 feet back from the trail. About 7 1/2 miles in Lake Creek and McDermott Creek are defined by contour lines. Potential for nonconforming vehicle use is mostly limited to the trail access points; cross-country vehicle travel is seldom practical. Motorcycles use the trails in the Lake Creek-Lake Otosky area. Although defining the boundary would be relatively difficult, controlling motorized use should be relatively easy.

Stonewall Mountain - The impact from human activity is evident in some places. In the past, and more recently (the 1960's), some hardrock mining exploration has occurred. These areas are located in the Cotter Basin, Copper Camp, Alice Creek, and Stonewall Creek areas. Most of this activity lies on the fringes of the area. There are old roads associated with these activities. The area with the largest impact is Bear Creek in the Alice Creek drainage. Most roads are still driveable

but only with off road vehicles. Evidence of past earth moving activity is present in all these areas. Some clearcuts are in the Alice Creek, Beaver Creek, and Arrastra Creek drainages. These logging units are on the edge of the roadless area. Silver King Lookout is the only Forest Service maintained structure in the area. One special use cabin is in the Alice Creek drainage, as well as fences used for controlling livestock. Seismic exploration has occurred here in recent years.

The area is large enough and the topography is such that any person visiting the area would gain the feeling that they are in a natural area free from human activities and development. The high peaks afford the viewer with vistas of part of the Scapegoat Wilderness mountain ranges to the south and many of the major drainages in the district. Some distant roads and timber harvesting areas can be seen from these high points.

This area possesses very high opportunities for solitude. Screening of the more developed areas occurs over most of the area. Sounds of vehicles, chainsaws, and logging activity are screened from most of the area due to the topography and lay of the terrain.

The area offers a variety of topographic features to challenge the visitor. The high peaks, steep slopes, flat valley bottoms, and numerous streams, offer a different primitive recreation experience to visitors.

This area is also noted for other features. Red Mountain is the highest peak from Lincoln to Glacier National Park, rising 9,411' above sea level. It is one of the few sites in the United States where limber pine and whitebark pine grow together.

The Lewis and Clark Trail passes up Alice Creek over Lewis and Clark Pass. This is of historical interest to many Forest users.

The area also supports a small herd of Rocky Mountain goats near Red Mountain.

III. AVAILABILITY

A. Resource Potentials

See Resource Summary Tables.

The discussion that follows refers to resources present within this roadless area other than the previously discussed wilderness resource.

The Resource Summary Table displays a summary of the different resources for the Bear-Marshall-Scapegoat-Swan Roadless Area and each of its portions.

All of the area offers high opportunity for primitive recreation.

RESOURCE SUMMARY TABLES

	Gross Acres	Net Acres	Recreation - Current Use (RVD's/Year) Primitive	Semiprimitive Nonmotorized	Semiprimitive Motorized	Roaded Natural
TOTAL	866,330	865,178	7,600	162,950	136,650	5,240
Badger/Two Medicine	102,100	102,100	0	3,600	11,200	700
Teton	63,133	63,133	0	18,000	56,300	500
Deep Creek/Reservoir North	45,962	45,922	0	2,900	1,500	300
Renshaw	57,611	57,591	200	0	2,150	0
Benchmark/Elk Creek	32,314	32,314	0	9,200	28,900	300
Silver King/Falls Creek	42,783	42,783	100	250	2,300	20
Middle Fork Flathead	42,450	42,450	0	800	500	20
East South Fork Flathead	57,640	57,640	400	1,300	300	400
Swan Crest	106,870	106,870	2,600	11,300	1,400	2,300
Swan Front	163,530	162,830	1,900	20,600	5,800	700
Monture	100,400	100,060	0	95,000	25,000	0
Stonewall Mountain	51,537	51,485	2,400	0	1,300	0

	Range Suitable Acres	Range AUM's	Timber Suitable Acres	Timber Standing Volume	Timber Max. Potential Yield-MMBF/Yr.
TOTAL	35,620	7,713	275,608	1,629.1	43.80
Badger/Two Medicine	4,594	1,092	16,136	63.0	1.94
Teton	6,754	1,100	6,278	29.7	.75
Deep Creek/Reservoir North	3,160	615	4,575	36.5	.55
Renshaw	10,460	2,735	15,870	118.1	1.90
Benchmark/Elk Creek	2,854	1,109	10,925	79.9	1.31
Silver King/Falls Creek	1,567	644	11,929	89.2	1.43
Middle Fork Flathead	0	0	16,910	100.5	3.92
East South Fork Flathead	0	0	22,700	179.2	5.27
Swan Crest	610	0	33,120	305.5	7.68
Swan Front	0	0	44,303	297.1	8.40
Monture	800	64	59,304	157.9	4.78
Stonewall Mountain	4,821	354	33,558	182.5	5.87

RESOURCE SUMMARY TABLES

	Fisheries		Lakes		Water	Grizzly Situation	
	Stream Miles	Stream Habitat	Number	Acres	Developments	1	2
TOTAL	329.5	769.3	53	898.7	1	755,059	83,561
Badger/Two Medicine	43.9	160.0	0	0	0	102,100	0
Teton	18.1	439	1	14.0	0	63,133	0
Deep Creek/Reservoir North	13.6	33.0	0	0	0	45,922	0
Renshaw	17.8	32.4	1	5.0	0	57,591	0
Benchmark/Elk Creek	6.0	14.6	0	0	0	32,314	0
Silver King/Falls Creek	95.5	283.5	0	0	0	42,783	0
Middle Fork Flathead	18.5	15.7	1	18.3	0	42,450	0
East South Fork Flathead	20.0	56.8	2	21.0	0	50,140	7,500
Swan Crest	12.0	18.8	22	540.5	0	73,050	33,820
Swan Front	17.5	9.1	9	157.8	1	157,710	0
Monture	38.6	37.5	10	47.1	0	79,926	0
Stonewall Mountain	28.0	64.0	7	95.0	0	7,940	42,241

	Big Game Winter Range	Minerals				
		Very High	High	Moderate	Low	Claims
TOTAL	44,405	0	3,677	84,525	778,901	153
Badger/Two Medicine	6,407	0	0	0	102,100	0
Teton	5,993	0	0	0	63,133	0
Deep Creek/Reservoier North	4,530	0	0	0	45,922	0
Renshaw	6,292	0	0	0	57,591	0
Benchmark/Elk Creek	1,230	0	0	0	32,314	0
Silver King/Falls Creek	556	0	0	3,200	42,760	0
Middle Fork Flathead	0	0	0	0	42,450	0
East South Fork Flathead	7,600	0	0	57,640	0	37
Swan Crest	3,960	0	0	0	106,870	0
Swan Front	2,880	0	0	0	162,830	0
Monture	1,103	0	2,177	23,045	74,838	0
Stonewall Mountain	3,854	0	1,500	640	48,093	116

RESOURCE SUMMARY TABLES

	Oil and Gas					
	Potential				# of	Area
	Very High	High	Moderate	Low	Leases	Leased
TOTAL	353,312	511,866	0	0	481	718,481
Badger/Two Medicine	102,100	0	0	0	42	102,100
Teton	63,133	0	0	0	43	62,957
Deep Creek/Reservoir North	45,922	0	0	0	19	41,838
Renshaw	57,591	0	0	0	17	26,287
Benchmark/Elk Creek	32,314	0	0	0	19	30,314
Silver King/Falls Creek	42,783	0	0	0	0	0
Middle Fork Flathead	0	42,450	0	0	42	42,450
East South Fork Flathead	0	57,640	0	0	58	57,640
Swan Crest	0	106,870	0	0	67	104,230
Swan Front	0	162,830	0	0	93	155,940
Monture	0	100,060	0	0	49	46,450
Stonewall Mountain	9,469	42,016	0	0	32	48,275

Currently, a total of 7,713 AUM's are produced on 35,620 acres of suitable range. Most cattle and sheep grazing occurs on the east side. Some of the grazing is by recreational pack stock.

Of the 864,000 acres in the Bear-Marshall-Scapegoat-Swan, 276,000 acres are classified as tentatively suitable. Timber opportunities are much greater on the west side than on the east. Less than 20 percent of the land on the east side is classified as tentatively suitable as opposed to over 42 percent on the west side. The east side usually contains "pockets" of commercial timber (mostly spruce and lodgepole pine) in drainages on north facing slopes. On the west side the area is much more heavily forested, on more productive sites and on lower slopes. The total potential yield for the area is 44 MMBF/year, with 82 percent from the west side. This is the maximum yield if every tentatively suitable acre was scheduled for timber management.

Most of the area is classified as Management Situation 1 for the grizzly bear. This roadless area is part of the Northern Continental Divide Ecosystem. The population for grizzly bears is estimated to be 440 to 680 bears for this ecosystem. About 15 percent of the occupied habitat in this ecosystem is found here. This area also provides habitat for the gray wolf.

The diversity and abundance of wildlife, both game and nongame species, is an important resource for this roadless area. Some habitat improvement can be done to increase wildlife populations. This is especially true on the east side, where 25,000 acres of winter range exist. Improving winter range, which is considered the limiting factor for big game species, would improve the habitat for many species, especially elk and deer.

Hardrock potential is generally moderate or low, although in the Stonewall Mountain area some portions are rated high.

The potential for oil and gas is rated very high on the east side and high on the west side. The entire roadless area is part of the Overthrust Belt, a zone that is currently considered as having some of the highest oil and gas potential in the Rocky Mountain region. The unique combination of source and reservoir rocks and favorable orientation of trapping rocks may allow for accumulation of large amounts of oil and gas. Opportunity for oil and gas exploration and development is generally in valley bottoms and side slopes. Occupancy opportunities are limited in certain areas by no-surface occupancy and limited use stipulations.

Of particular interest on the east side are the Teton, Deep Creek/Reservoir North, Renshaw, and Silver King/Falls Creek areas. All these areas have been leased except for the RARE II recommended wilderness portions in Renshaw and Silver King/Falls Creek. An active drill site in Blackleaf Canyon in the Teton portion indicates that productive source reservoir rocks are adjacent to these areas.

On the west side, all the roadless area has been leased except for the RARE II recommended wilderness portion in the Monture area. The Swan Crest, Swan Front, and the Monture areas have had seismic surveys recently, although presently no drill sites are active here.

The following is a summary of significant resource potentials and important management considerations of individual portions of the Bear-Marshall-Scapegoat-Swan Roadless Area.

Badger/Two Medicine - Cattle use most of this area. In one allotment, sheep grazing is scheduled to be phased out because of possible conflicts with grizzly bears.

Water from Birch Creek is impounded for irrigation use into Swift Reservoir to the southeast of the roadless area. This project is being studied for possible hydro power production.

The Upper Two Medicine Valley is suitable for timber management activities. Other areas are marginal or contain a large percentage of noncommercial forest land.

Fire burned portions of the area between 1889 and 1910. Part of the area was burned in the Hungry Man Creek Fire in 1941. Although large fires occurred in the area, the number of fires occurring annually is low. Natural vegetation succession is replacing many open/grassland areas with trees and shrubs. This encroachment is beginning to limit the amount of forage and browse production for wildlife and livestock. These trends are expected to continue.

Teton - Nine developed sites such as the Teton Pass Ski Area and Waldon Creek Snowmobile Parking Area, plus many special use permit recreation residents and resorts are immediately adjacent to the area. These provide "jump-off" points for most of the recreation activity in the area.

As in the Badger/Two Medicine portion, shrub encroachment limits forage and browse production for livestock.

Deep Creek/Reservoir North - This area is very lightly forested, with only about 10 percent classified as commercial forest land.

Big game winter habitat is found at lower elevations throughout the area. Big George Gulch and Hannan Gulch/Wagner Basin provide major opportunities for wildlife habitat improvement through burning.

The RARE II study concluded that even though Deep Creek/Reservoir North rated very high in wilderness attributes, a rational decision as to whether or not wilderness classification is in the National interest could not be made until the oil and gas resources of the area are determined. The oil and gas leases include 34,664 acres of no-surface occupancy. Approximately 25,000 acres have timing restrictions to protect big game concentration areas. The leases contain the "Further

Planning Stipulation" which allows for exploration but no production or field development until a decision on wilderness classification is made. A suit has been filed in U.S. District Court to review these leases.

Access to the area along the eastern boundary would be a problem as no right-of-ways exist.

Renshaw - Approximately 28 percent of the area is classified as commercial forest land. Very little of the Renshaw area is suitable for timber management activities. Most areas are marginal or contain a large percentage of noncommercial forest land.

Watersheds within the Renshaw, Deep Creek/Reservoir North, and Teton areas are characterized by steep slopes, shallow soils, and sparse vegetative cover. This combination severely limits the on-site storage capacity with rapid runoffs frequently resulting in floods. Major floods were in 1894, 1906, 1916, 1927, 1938, 1948, 1953, 1964, and 1975.

Portions of these areas provide water to several reservoirs. Water from these reservoirs irrigate approximately 233,000 acres of land in north central Montana each year. Gibson and Diversion Dams in the Sun Canyon are potential hydro power producers.

Benchmark/Elk Creek and Silver King/Falls Creek - These areas have very little land suitable for timber management activities. Most areas are marginal or contain a large percentge of noncommercial forest land.

Water from the Dearborn River is diverted for irrigation just outside the Forest boundary.

Middle Fork Flathead - In this area, improvements are possible for bull trout spawning habitat.

Timber harvesting is possible in some portions of the area, but logging methods would be expensive and, in most cases, would not be considered economical. The mountain pine beetle and the spruce bark beetle are major problems within the area. Because of the large amounts of fuel buildups caused by insects and diseases, and because of varied wind conditions, most of the area is considered high risk to fire.

East South Fork Flathead - The stands of timber consist of smaller trees and, for the most part, less desireable species. Timber harvesting is possible in some portions of the area but logging methods would be expensive. The mountain pine beetle, the Douglas-fir bark beetle, and the spruce bark beetle are currently the major problems in the area. Root rots are also affecting some species of trees.

Swan Crest - Along the lower slopes, wildlife populations may be increased through wildlife habitat improvement. The upper basins and alpine areas are good habitat for grizzly and black bears.

Several productive sites within this roadless area consist of stands of timber which could be harvested in the future, especially those stands on the west side facing Hungry Horse Reservoir. Road building and harvest systems will be expensive in most of these areas.

The spruce bark beetle is currently active in some of the higher basins. The Douglas-fir bark beetle is also affecting some of the Douglas-fir in the lower areas. Certain root rots can also be found on some sites.

Swan Front - Timber resources are limited, as is site suitability. Minor or no timber values exist in the high elevations and moderate to good timber values exist on lower slopes and valley floors. Road building and harvest systems will be expensive in most of these areas.

This unit contains the headwaters that form numerous major fish spawning streams flowing into the South Fork of the Flathead River. Sullivan Creek, which flows into Hungry Horse Reservoir, and Bunker Creek are the two major streams. A few small lakes form the headwaters but in most cases the lakes found in this unit are sinkholes resulting from glacial action.

Monture - In this area, the timber potential is greater than in other portions of the Bear-Marshall-Scapegoat-Swan Roadless Area. About 1/3 of this area can be managed cost efficiently for timber management.

All the Monture area is leased for oil and gas except for the RARE II recommended wilderness areas.

Stonewall Mountain - Most of this area has low timber production potential because of high elevation, rocky terrain, and severe climate; however, there are some areas with moderate timber production potential located in the valley bottoms.

IV. NEED

A. Proximity to Other Designated Wildernesses

Table C-1, at the end of this appendix, lists the approximate airmiles from roadless areas to Wildernesses in Montana. Wilderness use has risen rapidly through the 1970's; wilderness use is projected to continue to rise, although not as rapidly, in the next few decades. Recreation use projections for the surrounding National Forests show that in the next few decades Forests will be unable to meet the quantity of use demanded for wilderness recreation with the existing wilderness allocation.

The Bear-Marshall-Scapegoat-Swan Roadless Area is currently not a heavily used area, with the exception of the Swan Crest which receives heavy day use from Kalispell. From a National view point, the adjacent wildernesses (Bob Marshall, Scapegoat, and Great Bear) are not heavily used. According to estimates in 1983, the Bob Marshall ranked fourteenth in the Nation and second in Montana (behind the Absaroka-Beartooth Wilderness) in recreation visitor days. This is

probably due to the remoteness and the fact that the Bob Marshall complex receives very little or no day use. Nonetheless, the Bob Marshall complex, which has been called the "Crown Jewel" of the National Wilderness Preservation System, remains a very popular place to visit for people from all parts of the country.

B. Contribution to National Wilderness Preservation System

Nearly all habitat types found in this roadless area are also found in the adjacent Bob Marshall, Scapegoat, and Great Bear Wildernesses. In some cases habitat types would be enhanced by the addition of portions of the roadless areas. For example, the cedar grove in the Lion Creek area of the Swan Front would add to the western red cedar/queencup beadlily habitat type which is found only as an ecotone in the Bob Marshall Wilderness. The high elevation Fairview and Ford Creek Plateaus in the Renshaw area are also excellent examples of mountain grassland habitat types. Plateaus with these habitat types are not found in any of the adjacent wildernesses. Also, a unique vegetative community exists on the southeast slopes of Red Mountain in the omewall Mountain area. Both whitebark pine and limber pine grow in the same area at an elevation of 8,000'.

This roadless area contains essential habitat for the grizzly bear and the gray wolf. Most of the habitat has been classified as Situation 1 for the grizzly bear. Activities in Situation 1 habitat must maintain or benefit the grizzly bear.

The wildlife in the eastern portion of this roadless area is unique. It is one of the few places in the country where elk, bighorn sheep, and deer are found in high densities and in adjacent habitats. The bighorn sheep herd which uses the Deep Creek/Reservoir North and Renshaw areas is one of the largest in the country.

C. Public Involvement

The Bear-Marshall-Scapegoat-Swan Roadless Area and the Bob Marshall Wilderness complex, which includes the Great Bear, Bob Marshall, and Scapegoat Wildernesses, have had controversial pasts. Originally, most of the area that was later to become the Bob Marshall Wilderness was set aside in the early 1930's in three primitive areas - the South Fork, Pentagon, and Sun River. Establishment of these primitive areas received wide, general public support. A 31,000 acre strip of National Forest System land was not included in the original Pentagon Primitive Area because of the possibility of constructing a road connecting Spotted Bear on the South Fork of the Flathead across the Continental Divide to Benchmark on the Sun River. This area, following considerable controversy and discussion, was added to the Pentagon Primitive Area in 1939. In 1940, the Bob Marshall Wilderness area was created by combining and reclassifying the three existing primitive areas.

In 1954, the Forest Service proposed harvesting the heavily insect infested timber in the Bunker Creek drainage. This included some areas presently in the Swan Front portion of the Bear-Marshall-Scapegoat-Swan Roadless Area. The Flathead Lake Wildlife Association opposed this action and, with support from outside groups, presented a petition to the Secretary of Agriculture requesting that 279,000 acres of roadless National Forest System land between the northern boundary of the wilderness and near the southern boundary of Glacier National Park, including the Bunker Creek drainage, be added to the Bob Marshall Wilderness. The Forest Service, at that time, determined that the area would better serve the needs of the Nation if it were not managed as wilderness. However, late in 1954 salvage and road plans were dropped.

Other groups wished to extend the southern boundary of the Bob Marshall Wilderness to include another 50,000 acres of roadless area on the North Fork of the Blackfoot River. A memorandum to Congress from the Montana Legislature asking for this extension was unsuccessful.

Roading and timber harvesting began in the Middle Fork Flathead River area in the 1960's. In 1964, the Wilderness Act was passed, formally designating the Bob Marshall a unit of the National Wilderness Preservation System. A Coordinated Resource Management Study was instigated in 1969 which resulted in a moratorium on timber harvest activities in the Middle Fork Flathead River area. In 1971, the Forest Service's Roadless Areas Review and Evaluation (RARE I) selected this area, along with other areas north of the Bob Marshall Wilderness, as new Wilderness Study Areas. However, Congress directed that these areas were to be studied for wilderness under the Omnibus Wilderness Act of 1976. The Great Bear Wilderness was designated as wilderness in 1978 as a result of this study. Many people supported wilderness classification. Most of the controversy was over the proposed boundaries and power transmission corridor. Lands not designated as wilderness have been included in this roadless evaluation.

Also, in the 1950's, controversy over the management of the area known as the Lincoln Backcountry began. This area had never been classified as a primitive area and had not been managed for wilderness purposes by the Forest Service. Consequently, the area had not been subject to wilderness review procedures. Plans to develop the area were rejected by the public. In 1972, the Scapegoat Wilderness was established.

Past public involvement in 1979 for RARE II showed varying amounts of support for wilderness designation of the different portions of the Bear-Marshall-Scapegoat-Swan Roadless Area. Public response for all the portions showed no moderate or strong support for either wilderness or nonwilderness designation; response was generally split.

The final recommendation from RARE II allocated 140,349 acres to wilderness, 41,838 to Further Planning, and 513,365 to nonwilderness. Areas recommended for wilderness were Renshaw (31,304 acres), Silver King/Falls Creek (38,300 acres), south end of the Swan Front (3,800 acres), and Monture (66,945 acres). Deep Creek/Reservoir North (41,838 acres) was recommended for Further Planning and all other acres were recommended for nonwilderness.

In the summer and autumn of 1983, the public was again asked to comment on the portions of the Bear-Marshall-Scapegoat-Swan Roadless Area. Again, response was generally split. Areas receiving the most interest for wilderness designation were the upper part of the Swan Crest, the Swan Front, Monture, Silver King/Falls Creek, Renshaw, Deep Creek/Reservoir North, and the western part of the Teton area. This proposal, commonly called Alternative "W", involves boundary adjustments in many of the areas to lessen management conflicts. Of particular interest is Deep Creek/Reservoir North which conservation groups have declared as one of the first places to protect as part of the Nation's wilderness heritage.

Support for wilderness classification has been mixed. Local landowners and residents adjacent to the area have expressed strong support for managing the area to retain its present characteristics and uses. This group has expressed desire for a much smaller area of wilderness to be added to the Bob Marshall than Alternative "W". This would include a portion of Deep Creek/Reservoir North and the Lange Creek and South Fork Sun River portion of Renshaw.

Many people who do not support wilderness advocate road closures for wildlife if an area is roaded; others want to see the area open to most uses. Oil and gas interests support nonwilderness status until the oil and gas potential of the area is determined. Timber interests also support nonwilderness status for this roadless area. Even though boundaries may be adjusted so that very little commercial timber may be involved in a wilderness recommendation, they feel more land designated as wilderness would increase pressure on commercial forest lands to meet wildlife or other nontimber targets.

The Governor's wilderness recommendation for the State of Montana proposed 294,440 acres as wilderness in this roadless area. This included: 15,360 acres, Swan Crest; 64,000 acres, Swan Front; 39,040 acres, Teton; 42,240 acres, Silver King/Falls Creek; 40,320 acres, Deep Creek/Reservoir North; 36,480 acres, Renshaw; and 57,000 acres, Monture. The completion of certain ecosystems partially represented by existing wilderness areas was a key aspect of this recommendation of which the most notable among these is the Bob Marshall Complex. This recommendation also emphasized restoring big game habitat "of the Sun River and Rocky Mountain Front."

Public comments were again received in the spring and summer of 1985 on this roadless area when the four Forests published the roadless area analysis in supplemental and draft EISs. The Bear-Marshall-Scapegoat-Swan Roadless areas was one of the most commented on areas of all the roadless areas analyzed for wilderness suitability. Very few responses were concerned with the roadless area

in its entirety; instead, most people commented on specific areas that they were familiar with, with many of these areas being the same areas in Alternative "W". On the east side of this roadless area, many people wanted these unroaded lands added to the wilderness system. High wilderness quality and a desire to protect the area from development were stated. Several reviewers felt wilderness values outweighed any possible economic return. Other reviewers felt that the grizzly bear, other wildlife, and recreation values would be better protected under wilderness classification. One reviewer stated that there is no guideline in the wilderness act stipulating that oil and gas potential should eliminate an area from wilderness consideration. Many reviewers identified specific areas they felt should be classified as wilderness, such as Renshaw and Silver King/Falls Creek. Other reviewers felt that the careful nonwilderness management of the areas would protect these areas as well as provide the opportunity to explore for oil and gas resources and provide for diverse recreational opportunities. On the west side, many people agreed on the Forest Service recommendation for the Swan Front and the Monture areas. The Swan Crest also received strong wilderness support; however, some people were concerned wilderness classification would reduce motorized recreation opportunities. Also some people were concerned that the Jewel Basin Hiking area would be opened to horse use if wilderness classification included this area. Elimination of horse use in the hiking area was controversial and continues to be so.

V. ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

A. Management Prescription Assignments by Alternative

The Bear-Marshall-Scapegoat-Swan Roadless Area is managed by four National Forests - the Lewis and Clark, Flathead, Lolo, and Helena. In formulating alternatives for this roadless area, 12 alternatives were developed which correspond to the Forest Plan alternatives from each Forest. The following is a brief discussion of each alternative.

Alternative I - This alternative allocates all the inventoried roadless area to wilderness, except for the Badger/Two Medicine area and the Deep Creek/Reservoir North area (see discussion under II. Capability for reasons for not recommending wilderness for these two areas).

Alternative II (Current Direction) - This alternative is the current direction of managing the roadless area. The portion of the roadless area designated as wilderness would follow the RARE II recommendation (16 percent of the area).

Alternative III - This alternative emphasizes the development of the roadless area. Only a minimal amount is allocated to wilderness.

Alternative IV (Preferred Alternative) - This alternative is the combination of the Forests' preferred alternatives. Approximately 25 percent of the roadless area is recommended for wilderness. Total forest outputs are at the level of the preferred alternative.

Alternative V - This alternative emphasizes the amenity values of the Forest. The Forest is not intensively managed for commodity outputs. Approximately 42 percent of the roadless area is managed for wilderness.

Alternative VI - This alternative emphasizes a moderate to high level of Forest outputs with 42 percent of the roadless area managed for wilderness.

Alternative VII - This alternative emphasizes a moderate to high level of outputs with 31 percent of the roadless area managed for wilderness.

Alternative VIII - This alternative emphasizes a moderate to high level of outputs with 57 percent of the roadless area managed for wilderness.

Alternative IX - This alternative emphasizes a moderate to high level of outputs with 67 percent of the roadless area managed for wilderness.

Alternative X - This alternative emphasizes intensive management of the Forests' resources. The portion of the roadless area managed for wilderness follows the RARE II recommendation. The portion not recommended for wilderness is developed for other uses.

Alternative XI - This alternative emphasizes the RARE II recommendation with limited development in the portion of the roadless area not recommended for wilderness management. The forest is managed at a moderate intensity.

Alternative XII - This alternative emphasizes the RARE II recommendation with low or no development in the portion of the roadless area not recommended for wilderness management. The forest is managed at a low intensity for commodity values.

The following table displays the crosswalk of each Forest Plan alternative with the roadless area alternative. For example, Alternative IV (Preferred) for this roadless area corresponds to Alternative 11 in the Flathead Forest Plan alternatives; Alternative G for the Lewis and Clark; Alternative D for the Lolo; and Alternative E for the Helena. Each Forest studied their portion of this roadless area in the Forest Plan alternatives. The roadless area alternatives (I through XII) combine Forest Plan alternatives with the same emphasis so that this area may be studied in its entirety.

Crosswalk of Forest Alternatives

Bear-Marshall Scapegoat-Swan	Flathead	Lewis & Clark	Lolo	Helena
I	9	H	g	J
II (Current Direction)	2,7	Current Plan	a	A
III	4,6	J	e	C
IV (Preferred)	17	G	d	E
V	10	I	b	G
VI	14	I	d	G
VII	11,12,13	G	c	G
VIII	15	K	d	F
IX	16	H	f	F
X	6,4	A,B	c	B
XI	8,3	D,F	d	D
XII	1,5	C,E	b	H

Allocation of Bear-Marshall-Scapegoat-Swan Roadless Area
by Alternative

Management Emphasis*	ALTERNATIVES I	II	III	IV	V	VI
	(Current Dir)			(Preferred)		
Wilderness	717,156	139,769	29,505	219,164	367,012	366,915
Wilderness Study	41,838	41,838	41,838	41,838	41,838	41,838
Roadless	84,321	369,349	546,666	399,878	291,202	269,149
Wildlife/Range	21,863	59,883	76,495	73,069	68,960	72,948
Timber Without Roads	0	4,430	24,889	21,541	4,637	16,196
Timber With Roads	0	249,909	145,785	109,688	91,529	98,132
TOTAL	865,178	865,178	865,178	865,178	865,178	865,178

Summary of Management Emphasis:

	Decade					
Roaded	1	0	29,846	33,483	25,293	12,570	25,663
	5	7,600	331,454	212,335	167,140	99,303	128,883
Roadless	1	148,022	695,563	802,190	620,721	485,596	472,600
	5	140,422	393,955	623,338	478,874	398,863	369,380
Wilderness		717,156	139,769	29,505	219,164	367,012	366,915

	ALTERNATIVES VII	VIII	IX	X	XI	XII
Wilderness	266,561	492,871	583,149	139,769	139,769	139,769
Wilderness Study	41,838	41,838	41,838	41,838	41,838	41,838
Roadless	360,799	196,140	143,831	424,250	464,758	455,283
Wildlife/Range	64,826	36,770	69,852	81,723	79,206	197,318
Timber Without Roads	16,186	15,716	124	3,578	26,230	431
Timber With Roads	114,968	81,843	26,384	174,020	113,377	30,539
TOTAL	865,178	865,178	865,178	865,178	865,178	865,178

Summary of Management Emphasis:

	Decade						
Roaded	1	23,858	14,930	10,100	33,483	25,933	12,650
	5	162,828	99,313	39,757	288,986	206,386	50,411
Roadless	1	574,759	357,377	271,929	691,926	699,476	712,759
	5	435,789	272,994	242,272	436,423	519,023	674,998
Wilderness		266,561	492,871	583,149	139,769	139,769	139,769

* Mineral resource development is subject to the General Mining Law, Mineral Leasing Laws, and related laws and regulations. See Section V, Part B, Manangement Prescription - Roadless, of this roadless area writeup for further discussion.

ALTERNATIVE I

	Wilder-ness	Wilder-ness Study	Road-less	Wild-life/ Range	Timber W/Out Roads	Timber With Roads	Total
Badger/Two Medicine	0	0	80,674	21,426	0	0	102,100
Teton	63,133	0	0	0	0	0	63,133
Deep Creek/Reservoir North	0	41,838	3,647	437	0	0	45,922
Renshaw	57,591	0	0	0	0	0	57,591
Benchmark/Elk Creek	32,314	0	0	0	0	0	32,314
Silver King/Falls Creek	42,783	0	0	0	0	0	42,783
Middle Fork Flathead	42,450	0	0	0	0	0	42,450
East South Fork Flathead	57,640	0	0	0	0	0	57,640
Swan Crest	106,870	0	0	0	0	0	106,870
Swan Front	162,830	0	0	0	0	0	162,830
Monture	100,060	0	0	0	0	0	100,060
Stonewall Mountain	51,485	0	0	0	0	0	51,485
TOTAL	717,156	41,838	84,321	21,863	0	0	865,178

ALTERNATIVE II (Current Direction)

	Wilder-ness	Wilder-ness Study	Road-less	Wild-life/ Range	Timber W/Out Roads	Timber With Roads	Total
Badger/Two Medicine	0	0	83,022	13,330	0	5,748	102,100
Teton	0	0	44,170	13,386	0	5,577	63,133
Deep Creek/Reservoir North	0	41,838	3,263	821	0	0	45,922
Renshaw	31,304	0	18,169	5,752	0	2,366	57,591
Benchmark/Elk Creek	0	0	22,462	6,979	0	2,873	32,314
Silver King/Falls Creek	39,215	0	2,410	821	0	337	39,215
Middle Fork Flathead	0	0	10,072	0	0	32,378	42,450
East South Fork Flathead	0	0	26,360	330	3,390	27,560	57,640
Swan Crest	0	0	52,925	0	0	53,945	106,870
Swan Front	3,690	0	93,217	2,653	1,040	62,230	162,830
Monture	65,560	0	6,328	5,339	0	22,833	100,060
Stonewall Mountain	0	0	6,951	10,472	0	34,062	51,485
TOTAL	139,769	41,838	369,349	59,883	4,430	249,909	865,178

ALTERNATIVE III

	Wilder-ness	Wilder-ness Study	Road-less	Wild-life/ Range	Timber W/Out Roads	Timber With Roads	Total
Badger/Two Medicine	0	0	85,466	13,460	3,174	0	102,100
Teton	0	0	46,318	13,865	0	2,950	63,133
Deep Creek/Reservoir North	0	41,838	3,261	823	0	0	45,922
Renshaw	21,880	0	28,572	5,882	0	1,257	57,591
Benchmark/Elk Creek	0	0	23,653	7,143	0	1,518	32,314
Silver King/Falls Creek	7,625	0	27,087	2,357	0	5,714	42,783
Middle Fork Flathead	0	0	26,958	457	6,293	8,742	42,450
East South Fork Flathead	0	0	33,842	738	2,533	20,527	57,640
Swan Crest	0	0	68,530	0	1,089	37,251	106,870
Swan Front	0	0	112,470	2,390	11,800	36,170	162,830
Monture	0	0	69,996	11,339	0	18,725	100,060
Stonewall Mountain	0	0	20,513	18,041	0	12,931	51,485
TOTAL	29,505	41,838	546,666	76,495	24,889	145,785	865,178

ALTERNATIVE IV (Preferred)

	Wilder-ness	Wilder-ness Study	Road-less	Wild-life/ Range	Timber W/Out Roads	Timber With Roads	Total
Badger/Two Medicine	0	0	89,427	12,728	0	0	102,100
Teton	10,870	0	38,416	12,810	0	1,037	63,133
Deep Creek/Reservoir North	0	41,838	3,461	623	0	0	45,922
Renshaw	19,144	0	32,016	5,435	0	996	57,591
Benchmark/Elk Creek	3,630	0	21,551	6,599	0	534	32,314
Silver King/Falls Creek	18,190	0	23,970	623	0	0	42,783
Middle Fork Flathead	6,295	0	26,728	167	2,462	6,798	42,450
East South Fork Flathead	5,187	0	24,965	79	3,133	23,695	57,640
Swan Crest	31,783	0	37,608	1,396	9,490	26,593	106,870
Swan Front	54,815	0	6,893	6,893	6,456	31,898	162,830
Monture	65,560	0	17,222	5,462	0	11,816	100,060
Stonewall Mountain	0	0	25,491	19,673	0	6,321	51,485
TOTAL	215,474	41,838	399,878	73,069	21,541	109,688	865,178

ALTERNATIVE V

	Wilder-ness	Wilder-ness Study	Road-less	Wild-life/ Range	Timber W/Out Roads	Timber With Roads	Total
Badger/Two Medicine	0	0	68,429	25,100	0	8,571	102,100
Teton	39,845	0	17,175	5,042	0	1,071	63,133
Deep Creek/Reservoir North	0	41,838	3,402	682	0	0	45,922
Renshaw	45,864	0	4,239	5,711	0	1,777	57,591
Benchmark/Elk Creek	26,027	0	940	4,078	0	1,269	32,314
Silver King/Falls Creek	42,783	0	0	0	0	0	42,783
Middle Fork Flathead	0	0	32,143	343	2,827	7,137	42,450
East South Fork Flathead	0	0	37,295	602	0	19,743	57,640
Swan Crest	60,826	0	22,707	0	1,810	21,527	106,870
Swan Front	86,107	0	49,945	1,218	0	25,560	162,830
Monture	65,560	0	29,183	2,451	0	2,866	100,060
Stonewall Mountain	0	0	25,744	23,733	0	2,008	51,485
TOTAL	367,012	41,838	291,202	68,960	4,637	91,529	865,178

ALTERNATIVE VI

	Wilder-ness	Wilder-ness Study	Road-less	Wild-life/ Range	Timber W/Out Roads	Timber With Roads	Total
Badger/Two Medicine	0	0	68,429	25,100	0	8,571	102,100
Teton	39,845	0	17,175	5,042	0	1,071	63,133
Deep Creek/Reservoir North	0	41,838	3,402	682	0	0	45,922
Renshaw	45,864	0	4,239	5,711	0	1,777	57,591
Benchmark/Elk Creek	26,027	0	940	4,078	0	1,269	32,314
Silver King/Falls Creek	42,783	0	0	0	0	0	42,783
Middle Fork Flathead	0	0	32,933	167	3,402	5,948	42,450
East South Fork Flathead	0	0	33,794	258	1,393	22,195	57,640
Swan Crest	60,826	0	20,839	0	5,608	19,597	106,870
Swan Front	86,010	0	44,432	2,715	5,793	23,880	162,830
Monture	65,560	0	17,222	5,462	0	11,816	100,060
Stonewall Mountain	0	0	25,744	23,733	0	2,008	51,485
TOTAL	366,915	41,838	269,149	72,948	16,196	98,132	865,178

ALTERNATIVE VII

	Wilder-ness	Wilder-ness Study	Road-less	Wild-life/ Range	Timber W/Out Roads	Timber With Roads	Total
Badger/Two Medicine	0	0	84,845	12,728	0	4,527	102,100
Teton	5,040	0	41,134	12,810	0	4,149	63,133
Deep Creek/Reservoir North	0	41,838	3,461	623	0	0	45,922
Renshaw	19,144	0	31,253	5,435	0	1,759	57,591
Benchmark/Elk Creek	3,630	0	19,948	6,599	0	2,137	32,314
Silver King/Falls Creek	26,245	0	15,915	623	0	0	42,783
Middle Fork Flathead	0	0	32,933	167	3,402	5,948	42,450
East South Fork Flathead	0	0	33,794	258	1,393	22,195	57,640
Swan Crest	60,826	0	20,839	0	5,608	19,597	106,870
Swan Front	86,116	0	40,830	614	5,783	29,487	162,830
Monture	65,560	0	10,103	1,236	0	23,161	100,060
Stonewall Mountain	0	0	25,744	23,733	0	2,008	51,485
TOTAL	266,561	41,838	360,799	64,826	16,186	114,968	865,178

ALTERNATIVE VIII

	Wilder-ness	Wilder-ness Study	Road-less	Wild-life/ Range	Timber W/Out Roads	Timber With Roads	Total
Badger/Two Medicine	0	0	69,824	28,022	0	4,254	102,100
Teton	63,133	0	0	0	0	0	63,133
Deep Creek/Reservoir North	0	41,838	3,513	571	0	0	45,922
Renshaw	57,591	0	0	0	0	0	57,591
Benchmark/Elk Creek	32,314	0	0	0	0	0	32,314
Silver King/Falls Creek	42,783	0	0	0	0	0	42,783
Middle Fork Flathead	8,839	0	24,909	0	3,443	5,259	42,450
East South Fork Flathead	24,220	0	15,467	0	882	17,071	57,640
Swan Crest	60,826	0	20,839	0	5,608	19,597	106,870
Swan Front	86,120	0	44,366	2,715	5,783	23,846	162,830
Monture	65,560	0	17,222	5,462	0	11,816	100,060
Stonewall Mountain	51,485	0	0	0	0	0	51,485
TOTAL	492,871	41,838	196,140	36,770	15,716	81,843	865,178

ALTERNATIVE IX

	Wilder-ness	Wilder-ness Study	Road-less	Wild-life/ Range	Timber W/Out Roads	Timber With Roads	Total
Badger/Two Medicine	0	0	80,674	21,426	0	0	102,100
Teton	63,133	0	0	0	0	0	63,133
Deep Creek/Reservoir North	0	41,838	3,647	437	0	0	45,922
Renshaw	57,591	0	0	0	0	0	57,591
Benchmark/Elk Creek	32,314	0	0	0	0	0	32,314
Silver King/Falls Creek	42,783	0	0	0	0	0	42,783
Middle Fork Flathead	34,746	0	6,989	0	0	715	42,450
East South Fork Flathead	57,640	0	0	0	0	0	57,640
Swan Crest	60,826	0	24,415	15,276	0	6,353	106,870
Swan Front	115,102	0	13,166	27,402	124	7,036	162,830
Monture	67,529	0	14,940	5,311	0	12,280	100,060
Stonewall Mountain	51,485	0	0	0	0	0	51,485
TOTAL	583,149	41,838	143,831	69,852	124	26,384	865,178

ALTERNATIVE X

	Wilder-ness	Wilder-ness Study	Road-less	Wild-life/ Range	Timber W/Out Roads	Timber With Roads	Total
Badger/Two Medicine	0	0	79,547	19,687	0	2,866	102,100
Teton	0	0	40,907	19,446	0	2,780	63,133
Deep Creek/Reservoir North	0	41,838	3,198	886	0	0	45,922
Renshaw	31,304	0	16,808	8,299	0	1,180	57,591
Benchmark/Elk Creek	0	0	20,804	10,077	0	1,433	32,314
Silver King/Falls Creek	39,215	0	2,514	886	0	168	42,783
Middle Fork Flathead	0	0	25,476	0	409	16,565	42,450
East South Fork Flathead	0	0	38,060	0	830	18,750	57,640
Swan Crest	0	0	68,530	0	1,089	37,251	106,870
Swan Front	3,690	0	102,162	614	1,250	55,114	162,830
Monture	65,560	0	10,103	1,236	0	23,161	100,060
Stonewall Mountain	0	0	16,141	20,592	0	14,752	51,485
TOTAL	139,769	41,838	424,250	81,723	3,578	174,020	865,178

ALTERNATIVE XI

	Wilder-ness	Wilder-ness Study	Road-less	Wild-life/ Range	Timber W/Out Roads	Timber With Roads	Total
Badger/Two Medicine	0	0	87,380	12,265	0	2,455	102,100
Teton	0	0	48,216	12,536	0	2,381	63,133
Deep Creek/Reservoir North	0	41,838	3,364	720	0	0	45,922
Renshaw	31,304	0	19,958	5,306	0	1,023	57,591
Benchmark/Elk Creek	0	0	24,630	6,458	0	1,226	32,314
Silver King/Falls Creek	39,215	0	2,702	722	0	144	42,783
Middle Fork Flathead	0	0	32,933	167	3,402	5,948	42,450
East South	0	0	33,794	258	1,393	22,195	57,640
Swan Crest	0	0	65,582	1,396	13,759	26,133	106,870
Swan Front	3,690	0	107,659	15,738	7,676	28,067	162,830
Monture	65,560	0	17,222	5,462	0	11,816	100,060
Stonewall Mountain	0	0	21,318	18,178	0	11,989	51,485
TOTAL	139,769	41,838	464,758	79,206	26,230	113,377	865,178

ALTERNATIVE XII

	Wilder-ness	Wilder-ness Study	Road-less	Wild-life/ Range	Timber W/Out Roads	Timber With Roads	Total
Badger/Two Medicine	0	0	82,860	19,240	0	0	102,100
Teton	0	0	43,395	19,738	0	0	63,133
Deep Creek/Reservoir North	0	41,838	2,964	1,120	0	0	45,922
Renshaw	31,304	0	17,924	8,363	0	0	57,591
Benchmark/Elk Creek	0	0	22,159	10,155	0	0	32,314
Silver King/Falls Creek	39,215	0	3,348	220	0	0	42,783
Middle Fork Flathead	0	0	39,365	150	0	2,935	42,450
East South Fork Flathead	0	0	48,280	3,260	220	5,880	57,640
Swan Crest	0	0	70,728	26,207	0	9,935	106,870
Swan Front	3,690	0	73,760	82,124	211	3,045	162,830
Monture	65,560	0	29,183	2,451	0	2,866	100,060
Stonewall Mountain	0	0	21,317	24,290	0	5,878	51,485
TOTAL	139,769	41,838	455,283	197,318	431	30,539	865,178

B. Impacts

Each of the four Forests had many different management prescriptions applied to this roadless area in various alternatives. These management prescriptions were grouped into six different management emphases. This grouping is based on how the wilderness attributes (natural integrity, natural appearance, opportunities for solitude, and opportunities for primitive recreation) are affected by each management emphasis. The six emphases are listed below.

Wilderness - Includes wilderness management.

Wilderness Study - Includes management activities which preserve the roadless resource until a recommendation can be made for wilderness.

Roadless - Includes management activities where the intent is to preserve the roadless resource. Some roading may occur due to development of subsurface resources, such as oil and gas. Management prescriptions include Wild and Scenic River management, Jewel Basin Hiking Area management, dispersed recreation management, and minimum level management.

Wildlife/Range - Includes mangement activities where investments are made for wildlife or range management. Management activities, such as prescribed burning, watering tanks, and fencing would be evident. Some unscheduled roading may occur. Management prescriptions include wildlife management, grizzly bear management, and range management.

Timber Without Roads - Includes management activities where timber may be removed with aerial logging systems. No road construction would occur, although road construction may occur in adjacent areas. This managment prescription is only found west of the Continental Divide for this roadless area.

Timber With Roads - Includes management activities where roads and timber removal are scheduled. Timber management may not be the only intent of the presription; wildlife management prescriptions may involve timber harvesting but with constraints. Management prescriptions include timber management, timber/wildlife management, riparian timber management, mule deer and elk management, and whitetail deer management.

1. Designation: Wilderness
   Management Prescription: Wilderness

Alternatives I through XII examine a wide range of management options. Alternative I recommends nearly all (83 percent) of the roadless area to wilderness. Alternatives II through IX allocate varying amounts of the roadless area to wilderness. Alternatives X through XII examine nonwilderness management options with wilderness allocations following RARE II recommendations. Wilderness would preserve or enhance wilderness attributes. Current uses involving

motorized recreation, trail maintenance, wildlife habitat improvement, and other uses or facilities not compatible with wilderness management would be eliminated. Timber harvest would not be permitted.

Current oil and gas leases, special uses, or grazing permits and other pre-existing rights and uses would continue. Because most of the roadless area is leased for oil and gas, wilderness attributes could be affected. Options to retain the wilderness characteristics under the recommended wilderness management emphasis are:

1) Honor the lease until expiration. If no discovery was made, then the area would be withdrawn (FLPMA Section 204). If discovery is made in or near the roadless area, then oil and gas development could preclude the retention of the wilderness characteristics in some or all of the area.

2) Buy back the lease through Congressional initiative.

3) Negotiate with leaseholder to relinquish lease or accomodate wilderness resource to the extent possible.

Within the wilderness management emphasis, the area would be withdrawn after expiration if a discovery is not established.

The effects on nonpriced components are as follows:

-- Existing visual conditions would be maintained.
-- Grizzly bear, elk, and other wildlife species would have continued security.
-- Diversity would tend towards climax vegetation. This would depend on what type of fire management programs were implemented.
-- Water quality and fisheries quality would be maintained at natural levels.
-- Local employment and income may decrease from current levels due to a reduced timber base and motorized recreational opportunities.
-- Use of prescribed fire may be restricted to natural fires and would result in decreases in cover/forage ratios and available wildlife forage.
-- Nonrecreation wilderness values, such as clean air and water, natural landscapes, and spiritual fulfillment, would be maximized.
-- Tourism may increase due to the increased primitive recreation opportunities.

The economic and social effects would be greatest in Alternative I which allocates all the roadless area to wilderness. The future capacity of the Forest to produce timber and accommodate semiprimitive recreation use would be reduced more than in other

alternatives. Maximum displacement of existing uses would occur. Primitive recreation opportunities would increase, while semiprimitive motorized recreation opportunities would decrease.

Alternative IV (Preferred) projects no significant adverse economic or social consequences from allocating approximately 19 percent of the area to wilderness. Social and economic effects of Alternatives VII through IX range between Alternative I and IV (Preferred).

Effects of alternative allocations of wilderness on local geographic areas are discussed below:

Badger/Two Medicine - The Badger/Two Medicine area is considered unavailable for wilderness classification because of the Blackfoot Treaty Rights on the area.

Teton - Alternatives I, VIII, and IX would fully protect and enhance all wilderness attributes. Some boundaries would be difficult to identify because they would follow limited development along the North and South Forks of the Teton Roads. Alternatives V and VI recommend wilderness classification for the Choteau Mountain and the upper drainages of the Teton River. Alternatives IV (Preferred) and VII allocate the Teton Peaks area to wilderness. These alternatives protect the areas with the highest wilderness values, including Route Creek and Headquarters Passes. All of the area is leased for oil and gas.

Deep Creek/Reservoir North - This area was not considered for wilderness classification under any alternative. It was selected for Further Planning.

Renshaw - Alternatives I, VIII, and IX would fully protect and enhance all wilderness attributes. Alternatives V and VI would exclude areas of limited development and would improve management boundaries. Alternatives II, X, XI, and XII allocate the Renshaw RARE II area to wilderness. Boundaries along the Ford and Fairview Plateaus would be difficult to identify. Alternatives IV (Preferred) and VII would allocate the Allen Mountain-Lange Creek-Patricks Basin area to wilderness. These alternatives protect the area with the highest wilderness values and least resource conflicts. A small part of the area is leased for oil and gas, with no-surface occupancy.

Benchmark/Elk Creek - Alternatives I, VIII, and IX would fully protect and enhance wilderness attributes. The Benchmark Road penetrates about 12 miles into the area, making wilderness boundaries and conflicts along this area difficult to manage. Alternatives V and VI would establish a more manageable boundary and some conflicts would be reduced. Alternatives IV (Preferred) and VII allocate only the area with significant wilderness values, few conflicts, and manageable boundaries.

Silver King/Falls Creek - Alternatives I, V, VI, VIII, and IX would fully protect and enhance all wilderness attributes. Alternatives II, X, XI, and XII, which follow the RARE II wilderness recommendation, would exclude areas of limited development and would improve some management boundaries. Alternatives IV (Preferred) and VII would protect the highest wilderness attributes while providing some opportunity to explore for oil and gas resources. Only a small part of the area is currently leased.

Middle Fork Flathead - Alternative I allocates the roadless area to wilderness. Impacts on existing uses and potential social and economic effects are the highest under this alternative. All wilderness attributes would be protected. Alternative IX allocates all the area to wilderness except the area adjacent to the Lewis and Clark National Forest. Both Alternatives I and IX recommend wilderness designation for areas adjacent to the Great Bear Wilderness which were considered in Forest Service and Congressional reviews of the Great Bear Wilderness but were not designated by Congress. The Slippery Bill Mountain portion of this area was allocated to wilderness in Alternatives IV (Preferred) and IX. This would change the range of recreation opportunities in the area.

East South Fork Flathead - Most of this area is adjacent to the Great Bear Wilderness and was considered for wilderness during Forest Service and Congressional reviews leading to designation of the Great Bear Wilderness. Alternative IV (Preferred) proposes the Limestone Cave area as wilderness. This area would be added to the Bob Marshall Wilderness. There would be little adverse social or economic effect from this recommendation and the boundary would offer improved manageability over the current situation. Most of the area does not contain lands capable of timber management and the tentatively suitable lands would not be managed for timber in all nonwilderness alternatives. Alternative VIII expands the wilderness allocation to include all the roadless lands south and east of Spotted Bear. This alternative increases conflicts with future timber and big game habitat management needs, but provides additional security for elk and grizzly bear. Alternative VIII would have significant effects on potential economic and social use of the area but less than Alternatives I and IX which allocates the area to wilderness. Alternatives I and IX would offer maximum protection of wilderness attributes, but would be difficult to manage due to boundary locations.

Swan Crest - Alternative I would fully protect and enhance all wilderness attributes of the area, including designating the Jewel Basin Hiking Area wilderness. The change to wilderness would require additional controls, especially on motorized use, being placed on recreational use. Alternatives V, VI, VIII, and IX recommend wilderness allocation on 60 percent of the Swan Crest area. These alternatives recommend classification of the portion of the area with the highest value wilderness attributes, minimizes the conflicts with timber production, and establishes the most

manageable boundary for wilderness purposes. The Jewel Basin Hiking Area would be managed as wilderness in all these alternatives. Effects of these alternatives on the Jewel Basin area would be similar to Alternative I. Social and economic effects of these alternatives would result in less adverse change than Alternative I but significantly more than Alternative IV (Preferred). Alternative IV (Preferred) designates 30 percent of the area to wilderness.

Swan Front - Five alternatives (Alternatives I, and V through VIII) would allocate wilderness in the Swan Front. Portions of the roadless area not included in this wilderness proposal are fringe areas with high timber values and areas with undesireable management boundaries. Alternative IV (Preferred) recommends wilderness from Bunker Creek south along the same boundary as in Alternatives V through VIII. This area includes the lands with the highest value wilderness attributes in Lion Creek, Upper Squeezer, Bethal, and Lost Creeks and Grizzly Basin. It minimizes displacement of existing use which are incompatible with wilderness. The manageability of the boundary for Alternative IV is improved over other wilderness alternatives from a fire management and protection standpoint. Alternative IX proposes additions in the Bunker Creek, Bruce Ridge, and Upper Sullivan Creek areas providing additional security for grizzly bear and elk. This alternative would affect social and economic relationships less than Alternative I, but more than Alternatives VII through IX.

Monture - Alternatives X through XII propose about 1/2 of the area for wilderness based on the RARE II recommendation. Portions of this area not recommended for wilderness are those areas with high timber values. The upper drainages of Lake, Falls, Monture, Lodgepole, and Dunham Creeks are recommended for wilderness. Alternative III recommends none of the area for wilderness; however, over 1/2 of the area is allocated to roadless management because of steep terrain and inaccessibility to timber in the area, consequently protecting the wilderness values. Alternative IX deletes a portion of the unit between McCabe Peak and East Spread Mountain and adds the Monture drainage to the wilderness recommendation. Alternative I would fully protect and enhance all wilderness attributes by allocating all acres to wilderness.

Stonewall Mountain - Alternatives I, VIII, and IX would fully protect and enhance all wilderness attributes of the area. These alternatives would designate the entire area as wilderness.

2. Designation: Wilderness Study
   Management Prescription: Wilderness Study

   Deep Creek/Reservoir North is designated Wilderness Study in all alternatives. It has been leased for oil and gas with restrictions on occupancy and only permits exploratory drilling and not production of oil and gas. This leasing decision was based on the need to acquire more information on the area's oil and gas resources. These leases will expire in 1991 if no discoveries are

made. Once the oil and gas potential is determined, a recommendation regarding wilderness will be made through an amendment or revision to the Lewis and Clark National Forest Plan.

3. Designation: Nonwilderness
Management Prescription: Roadless

Management of areas for roadless recreation would maintain wilderness attributes.

Vegetation management practices for wildlife habitat or other purposes involving prescribed burning may occur. Motorized equipment such as chainsaws, helicopters, motorbikes, and snowmobiles, are often used to facilitate cost efficient management or maintenance of recreation opportunities. These activities are short-term and limited in scope and would maintain wilderness attributes.

The effects on nonpriced components are as follows:

-- Existing visual conditions would be maintained. Man's activities would not dominate the natural landscape and would not be noticed by the average visitor.
-- Semiprimitive and primitive recreation opportunities would be maintained.
-- Grizzly bear and other wildlife security would be high. Prescription fire would provide for maintenance or improvement of wildlife forage.
-- Diversity would be maintained at current or higher levels.
-- Water quality and fisheries would be maintained or improved.
-- Employment and income from wood products would not be provided.
-- Many nonpriced benefits of the roadless resource, such as landscapes, spiritual values, and high quality watersheds, would be provided.

The roadless resource could be impacted by exploration and development of mineral resources. This resource development is subject to the General Mining Law, Mineral Leasing Laws, and related laws and regulations. The Bureau of Land Management is the final authority for Federal mineral management. If such development is proposed and implemented, it would be integrated into surface resource management to the extent that is reasonable. The most probable mineral development in this area is oil and gas. Oil and gas activity is highly speculative and seldom proceeds beyond preliminary exploration or exploratory drilling. The probability of occurrence of a particular activity sharply diminishes with each step.

Although these activities would be mitigated to be consistent with roadless management objectives, some of the nonpriced components would be affected in the field development stage as follows:

-- Existing visual conditions may be temporarily lowered.
-- Introduction of roads and exploration activities adversely affect the quality of the recreation setting.
-- Wildlife security would be reduced and temporary displacement from normal seasonal ranges may occur.
-- Employment and income from the oil and gas resource would be provided.

All alternatives provide for varying amounts of roadless management areas. Effects on local area wilderness attributes are discussed below.

Badger/Two Medicine - All alternatives range between 67 and 85 percent of the area for roadless recreation. In addition, Alternatives I, IV (Preferred), and XII manage about 20,000 acres for range and wildlife in a roadless setting. Under these Alternatives, the entire area would be roadless.

Teton - Alternatives II, III, IV (Preferred), VII, and X through XII allocate 63 to 76 percent of the Teton area to roadless recreation. In addition, Alternative XII allocates the rest of the area to wildlife and range in a roadless setting. Under this alternative the entire area would be roadless. Alternatives V and VI allocated 27 percent of the area to roadless recreation.

Deep Creek/Reservoir North - All alternatives allocate a small portion of the area to roadless recreation. Most of the area is in wilderness study.

Renshaw - Alternatives II, III, IV (Preferred), VII, X, XI, and XII allocate 28 to 54 percent of the Renshaw area to roadless recreation. In addition, Alternative XII allocates the rest of the area to wildlife and range in a roadless setting. Under this alternative the entire area would be roadless. Alternatives V and VI allocate 7 percent of the area to roadless recreation (83 percent is allocated to wilderness). All alternatives, except I, VIII, IX, and XII allocate a small part of the area to development for timber management purposes.

Benchmark/Elk Creek - Alternatives II, III, IV (Preferred), VII, and X through XII allocate 59 to 75 percent of the Benchmark area to roadless recreation (0 to 11 percent is allocated to wilderness). In addition, Alternative XII allocates the rest of the area to wildlife and range in a roadless setting. Under this alternative the entire area would be roadless. Alternatives V and VI allocate 3 percent of the area to roadless recreation (81 percent is allocated to wilderness).

Silver King/Falls Creek - Alternatives II, IV (Preferred), and VII allocate 36 to 64 percent to roadless. In addition, Alternatives IV (Preferred) and VII allocate the rest of the area to wildlife and range in a roadless setting. Under these alternatives the entire area would be roadless. Alternatives II, X, XI, and XII allocate 6 percent of the area to roadless recreation.

Middle Fork Flathead - Most areas that would be managed as roadless in Alternatives X through XII are areas unsuitable for timber management. Alternative XII maintains wilderness attributes in the Slippery Bill Mountain area.

East South Fork Flathead - Alternatives X through XII allocate from 46 to 85 percent of the roadless area for roadless recreation. Most areas that would be managed as roadless are not capable of timber production except the Dean Ridge area on the Spotted Bear River where a large area of tentatively suitable lands are allocated to roadless because of economic unsuitability. Alternatives V through VIII allocate from 26 to 62 percent of the inventoried roadless acres as roadless. In general, wilderness attributes are maintained in a roadless emphasis in all alternatives.

Swan Crest - Alternatives X through XII maintain a roadless resource from Columbia Mountain to Sixmile Mountain contiguous to the Swan Front area and would not change management of the Jewel Basin Hiking Area. All alternatives that do not recommend wilderness for the Swan Crest maintain the wilderness attributes. Alternatives differ in how the lower elevation fringe areas would be managed. Alternatives II and III would have the most potential to reduce wilderness attributes by allocating less area to roadless management and more to timber management.

Swan Front - Alternative XII would manage the Swan Front as roadless. Areas in Grizzly Basin, Lion Creek, and Upper Rumble, Pony, Bethal, and Lost Creek drainages would have high wilderness attributes maintained. Alternative III would manage for roadless recreation along ridgetop trails. Alternatives II and III allocate areas which are not capable for timber management for roadless management. Wilderness attributes would be affected by management activities on adjacent lands. Alternative V and Alternatives VII through IX allocate ridges unsuitable for timber outside the wilderness recommendations for roadless management. Wilderness attributes would be maintained in most areas. Alternative IV (Preferred) allocates high ridges to roadless management from Inspiration Point to Sixmile Mountain.

Monture - Alternatives I, IV (Preferred), and VI through XI allocate from 7 to 15 percent of the area to roadless management. Alternative V proposes another 36 percent to roadless, protecting wilderness values in nearly the entire unit. Alternative III recommends over 1/2 of the unit to roadless management, with the remainder of the area allocated to a variety of management prescriptions allowing development.

Stonewall Mountain - Alternatives II through VII and X through XII allocate from 14 to 50 percent to roadless management. Areas to the north and west of Stonewall Mountain are managed as roadless in all these alternatives. These alternatives also allocate from 20 to 47 percent of the area to wildlife and range which would also be managed in a roadless setting.

4. Designation: Nonwilderness
Management Prescription: Wildlife/Range

All alternatives, except Alternative I, allocate some roadless areas in which commodity outputs or recreation uses are subordinate to wildlfe and range management. Development and vegetative manipulation may be required to achieve the habitat and forage management objectives. In areas with commercial timber stands, timber may be a byproduct of achieving or maintaining habitat objectives. Timber harvest would occur if enough timber is available and could be used to achieve habitat objectives. Other management activities may include prescribed burning for wildlife or range. On the east side, structural improvements such as installation of watering tanks and fences, may be required to maintain or increase grazing.

Wildlife security and cover requirements include restrictions on human activities and development. Although habitat management activities result in some reductions in wilderness attributes, they are usually short term and limited in scope. Opportunities for solitude and primitive recreation would remain high.

The effects on nonpriced components are as follows:

-- Existing visual conditions would change. Man's activities would be noticed by the average visitor but would not dominate the natural landscape.
-- Semiprimitive recreation opportunities would be provided.
-- Grizzly bear and other wildlife species would have a high level of security and habitat management would maintain, or improve, cover/forage ratios and increase forage.
-- Diversity and nongame species habitat would be provided.
-- Water quality and fisheries habitat would be maintained or improved.
-- Employment associated with livestock production would be maintained or increased.

Oil and gas activity may occur even though it is not allocated. Effects from this activity would be the same as discussed under the Roadless Management prescription.

Local effects of the management designation are discussed below:

Badger/Two Medicine - All alternatives allocate between 14 and 23 percent of the area to range and wildlife management. Emphasis is on the Badger, Little Badger, and Sawmill areas.

Teton - Alternatives II, IV (Preferred), V, VI, VII, X, XI, and XII allocate between 5 and 20 percent of the area to range and wildlife management. Emphasis is on the Deep Creek, Middle Fork Teton, Jones Creek, and Clary Coulee areas.

Deep Creek/Reservoir North - Wildlife habitat management and range management are an important part of the Deep Creek/Reservoir North area; however, most of the area is allocated to wilderness study. Small acreages are allocated to wildlife under all alternatives.

Renshaw - Alternatives II, III, IV (Preferred), VII, X, XI, and XII allocate between 7 and 12 percent of the area to range and wildlife management. Alternatives V and VI allocate about 3 percent of the area to range and wildlife management. Emphasis is on the Willow Creek and Ford Plateau areas.

Benchmark/Elk Creek - Alternatives II, III, IV (Preferred), V, VI, VII, X, XI, and XII allocate between 14 and 23 percent of the area to range and wildlife management. Emphasis is on the Smith Creek, Cyanide-Baily, Elk Creek, and Steamboat areas.

Silver King/Falls Creek - Alternatives II, III, IV (Preferred), VII, X, XI, and XII allocate between 1 and 6 percent of the area to range and wildlife management. Emphasis is on the East Fork of Falls Creek.

Middle Fork Flathead - Only small areas in Challenge Creek are allocated in some of the alternatives. No impact on wilderness attributes would occur.

East South Fork Flathead - Alternative XII would manage roadless lands in the Spotted Bear area for grizzly bear habitat. No impact on roadless lands would occur.

Swan Crest - Alternatives IX and XII allocate significant areas to grizzly bear habitat south and east of Jewel Basin. The wilderness attributes would be maintained. In addition, all alternatives, except Alternative I, allocate some land on the west side of Columbia Mountain as big game habitat. Prescribed burning to increase forage production would have little effect on wilderness attributes.

Swan Front - All alternatives, except Alternatives II, III, and XII, allocate large areas to wildlife. The Bunker Creek drainage would be managed for grizzly bear habitat in Alternatives IV (Preferred), VI, VII, VIII, and XI. No management activities would occur that would modify wilderness attributes. Alternatives IX and XII expand the grizzly emphasis north from Bunker Creek to include all the Bruce Ridge and Upper Sullivan drainage to Sixmile Mountain. These management practices, which include prescribed burning, would have little effect on wilderness attributes.

Monture - None of the alternatives allocate large areas for these uses. However, Alternatives III and IV (Preferred) emphasize management within essential grizzly bear habitat. Alternative I allocates all acres to wilderness. Some wildlife needs are met through wilderness and roadless allocations.

Stonewall Mountain - Alternatives II through VII and X through XII allocate between 20 and 47 percent of the area to range/wildlife. Most of the area under this management would remain roadless.

5. Designation: Nonwilderness
Management Emphasis: Timber Management Without Roads

Only the west side has areas allocated to timber management without roads. This includes areas with commercial timber on steep, rugged terrain mostly within 1 mile of a road. Logging would employ aerial yarding systems, and no roads would be constructed. Implementation would impact the vegetation and would not reach long distances into roadless areas. Because the land would not be roaded, wilderness attributes could be easily reclaimed after implementation by vegetative growth. Implementation would proceed slowly for all alternatives with this emphasis. Only a few hundred acres would be affected in Decades 1 and 2. Most areas would schedule harvesting by Decade 5 when economic efficiency is the best. This management would not have any significant economic or social effects until Decade 4, when implementation would increase. The first decade timber harvest scheduled under this prescription could be relocated to other areas without affecting objectives or outputs of the alternative.

The effects on nonpriced components are as follows:

-- Existing visual conditions would change and would be noticed by the average visitor. Man's activities may dominate the landscape in some local areas.
-- Semiprimitive nonmotorized recreation opportunities would be provided. Wilderness attributes would be retained.
-- Elk and grizzly security would be maintained.
-- Diversity of plant and animal communities would be maintained or improved in the long term.
-- Water quality and fisheries would not be affected.
-- Some support of local employment and income would occur in Decade 4 and later.

All alternatives, except Alternative I, manage portions of this area for timber management without roads. Alternatives which make the most extensive use of these prescriptions are Alternatives IV (Preferred), VII, X, and XI. Alternatives IV (Preferred), VII, and XI would have the greatest effect. This prescription would not be implemented in the Swan Front or Swan Crest until after the first decade. Alternative III would affect the Slippery Bill, Lion Creek, and Squeezer Creek drainages of the Swan Front in Decade 5.

Oil and gas activity would be limited to seismic surveys. Because all slopes in this management prescription are greater than 60 percent, all areas leased contain no-surface occupancy stipulations.

6. Designation: Nonwilderness
Management Emphasis: Timber Management With Roads

All alternatives, except Alternative I, allocate some portions of the area for timber. The consequences of this management decision are a loss of wilderness attributes at the time timber harvest and roading occurs. The wilderness attributes are foregone if this management direction is implemented.

The effects on nonpriced components are as follows:

-- Existing visual conditions would change and man's activities may dominate the landscape and would be noticed by the average visitor.
-- Wilderness attributes would be foregone.
-- Elk security and big game hunting opportunities would be reduced.
-- Diversity would increase.
-- Water quality and fisheries would be adversely affected.
-- Grizzly bear and gray wolf habitat would become less effective.
-- Local economic stability would be provided by supporting the highest level of wood products industry jobs.

Oil and gas activities would be compatible with this emphasis.

These prescriptions provide for a wide range of multiple use benefits, both priced and nonpriced.

Badger/Two Medicine - Alternative X would develop all of the Badger/Two Medicine area. Alternative XI would develop about 50 percent of the area. Alternative II and VIII would develop about 25 percent of the area. Alternatives I, III, V, VI, VII, and IX would develop about 7 percent of the area. Road construction and timber harvest would take place in the Two Medicine drainage. Mitigation measures would be implemented to protect the grizzly bear. Lodgepole pine and Douglas fir stands would be accessed with roads and harvesting would be scheduled starting in the second decade. All of the area would be available for wilderness reevaluation during the next planning period. Alternatives V, VI, and VII allocate some acres (3,000 to 4,000) to wildlife where timber harvest is used to achieve habitat objectives. Alternatives II, III, VIII, X, and XI allocate small acres (136 to 370) to a wildlife/timber prescription.

Teton - Alternative X would develop all of the Teton area, Alternative II would develop 90 percent of the area, Alternative XI would develop about 50 percent of the area, Alternatives IV (Preferred) and VII would develop about 30 percent, and Alternatives V and VI would develop about 10 percent of the area. Road construction and timber harvest would be extended into the West Fork and South Fork of the Teton. Mitigation measures would be implemented to protect grizzly bear habitat. Lodgepole pine and Douglas-fir stands would be accessed with roads and harvesting would be scheduled starting in the second decade.

Deep Creek/Reservoir North - Timber management activities are not scheduled in the Deep Creek/Reservoir North area.

Renshaw - Alternative X would develop 45 percent of the Renshaw area. Alternative II would develop about 35 percent of the area. Alternative XI would develop about 23 percent of the area. Alternatives III, IV (Preferred), and VII would develop about 14 percent and Alternatives V and VI would develop about 5 percent of the area. Road construction and timber harvest would take place along the Beaver-Willow Road. Mitigation measures would be implemented to protect grizzly bear habitat. Lodgepole pine and Douglas-fir stands would be accessed with roads and harvesting would be scheduled starting in the second decade.

Benchmark/Elk Creek - Alternative X would develop all of the Benchmark/Elk Creek area. Alternative II would develop about 90 percent of the area. Alternative XI would develop about 50 percent of the area. Alternatives IV (Preferred) and VII would develop about 30 percent, and Alternatives V and VI would develop about 10 percent of the area. Most development would take place along the Benchmark Road. Roads would also be constructed into the Elk Creek drainage. Mitigation measures would be implemented to protect grizzly bear habitat. Lodgepole pine and Douglas-fir stands would be accessed with roads, and harvesting would be scheduled stocking in the second decade. All of the area would be available for wilderness reevaluation during the next planning period.

Silver King/Falls Creek - Alternative X would develop a small portion of the Silver King/Falls Creek area. About 3,500 acres in the lower Falls Creek drainage would be developed starting in the second decade. The topography of much of the area consists of high elevation alpine ridges not capable of commercial timber production. These lands form the bulk of the area. Lower elevation fringe areas and stringers of tentatively suitable timber lands in drainages intrude into the area. These lands are usually located along roads. Areas may have future opportunities to be evaluated for inclusion in the wilderness system. All of the area would be available for wilderness reevaluation during the next planning period.

Middle Fork Flathead and East South Fork Flathead - Timber harvest would affect fringes of the East Side and Middle Fork geographic areas in all alternatives except Alternatives I and IX. Economic and social effects would be greatest under Alternative III. Alternative III would implement the highest level of timber harvest and roading. It would provide the highest level of support to local employment and income and the most significant reduction of roadless acres and wilderness attributes. Alternative IV (Preferred) recommends areas with high timber values and lowest wilderness values for timber management. Other alternatives examine variations within the roadless area of the effects of timber management on local areas.

Swan Crest - Portions of the Swan Crest are allocated to timber management in all alternatives except Alternative I. Alternatives II, III, and X would make significant intrusions into this area. This includes the Fawn Creek/Aurora Creek drainages which would be accessed in Decade 1. All other alternatives allocate timber harvesting in the highly productive fringe areas, leaving at least 70 percent in a roadless setting.

Swan Front - Implementation of these prescriptions in Lion Creek and the upper reaches of Squeezer and Bethal Creeks would make significant intrusions into areas considered high in roadless values. Alternative II, III, and X would schedule timber harvest in Lion Creek below the falls in Decade 1. The mature cedar grove would not be included in the timber harvest area, but wilderness attributes of the grove would be affected. Morrell Falls is protected in all alternatives.

Monture - The Monture drainage, which serves as an important entrance to the established wilderness area, is not developed in any alternative. Alternatives II and X propose development in the timber areas located at the lower elevations along the boundary of the roadless area. Alternative II also applies visual prescriptions in most timber management areas. In all alternatives which allocate acreage to timber management, a core in the upper drainages of this area remains roadless. Timber management would include lower elevation and fringe areas.

Stonewall Mountain - Alternative II develops about 2/3 of the area and only excludes high elevation, nonproductive land. Alternatives III through VII and X through XII allocate the fringe areas of highly productive land to timber management. This includes Yukon Creek, Telegraph Creek, and Porcupine Basin. The majority of the area would remain in a roadless setting in these alternatives.

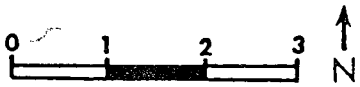
Table 2 lists the average annual output by alternative for the Lewis and Clark National Forest.

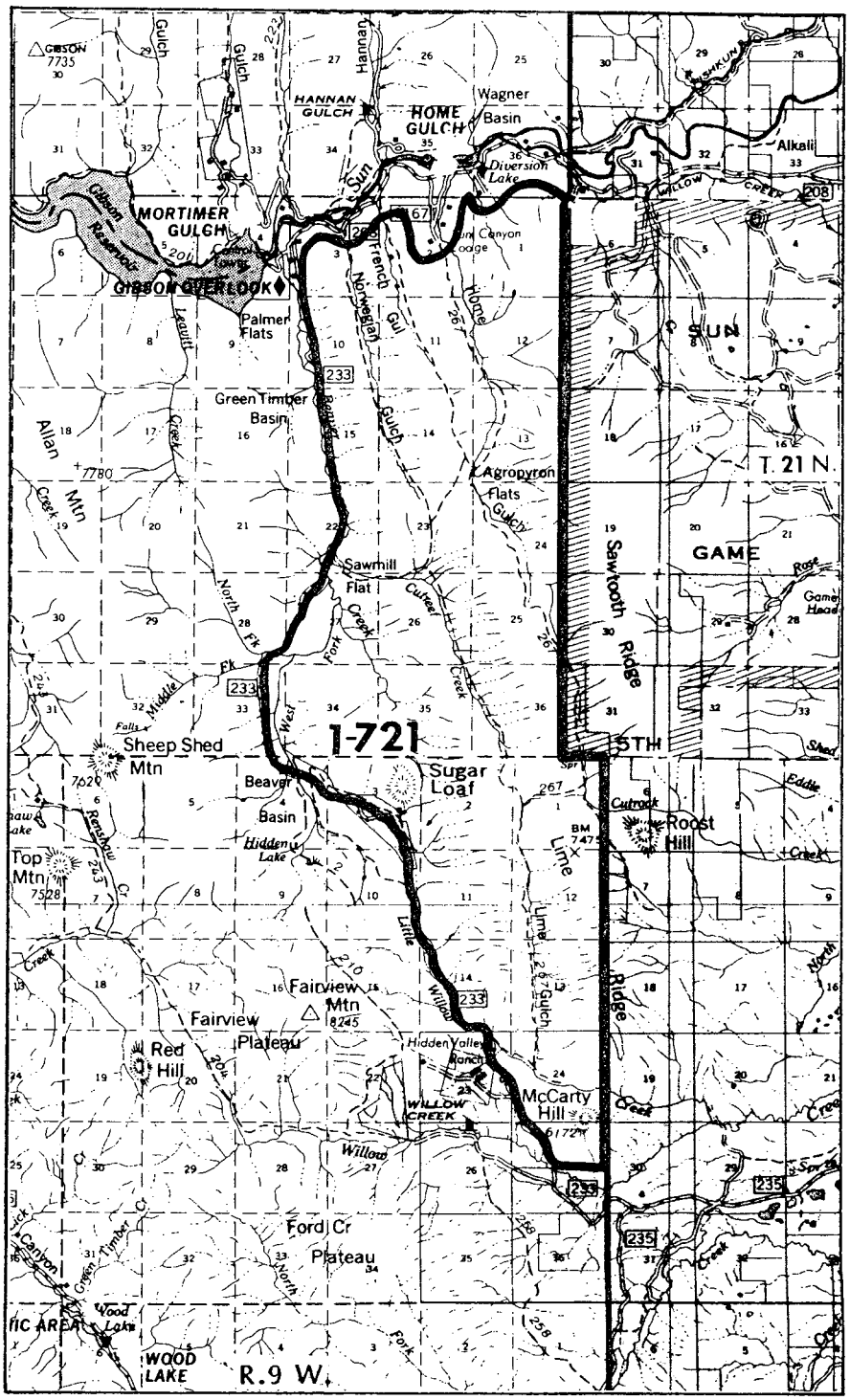
TABLE 2
Average Annual Output - 2030 by Alternative
Bear-Marshall-Scapegoat-Swan

Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		63,304	63,304	63,304	63,304	63,304	63,304	63,304	63,304	63,304	63,304	63,304	51,834	188,606	147,304	29,505	188,606
Semi-Primitive		148,676	52,896	52,896	115,696	115,696	174,844	146,944	250,344	250,344	221,264	221,264	271,144	140,482	171,984	267,483	123,682
Roaded Natural		124,708	220,488	220,488	157,688	157,688	98,540	126,440	23,040	23,040	52,120	52,120	13,710	7,600	17,400	39,700	24,400
Recommended Wilderness	Acres	63,304	63,304	63,304	63,304	63,304	63,304	63,304	63,304	63,304	63,304	63,304	51,834	188,606	147,304	29,505	188,606
Roadless	Acres	148,676	52,896	52,896	115,696	115,696	174,844	146,944	250,344	250,344	221,264	221,264	271,144	130,594	171,894	267,483	123,682
Decade 1		273,384	273,384	273,384	273,384	273,384	273,384	273,384	273,384	273,384	273,384	273,374	289,844	138,194	179,496	307,183	138,194
Decade 2		196,276	220,448	220,448	163,346	163,346	190,564	166,264	250,344	250,344	221,264	221,264	271,144	130,594	189,384	267,483	148,082
Developed		124,708	20,488	220,488	157,688	157,688	98,540	126,400	23,040	23,040	52,120	52,120	13,710	7,600	17,400	39,700	24,400
Decade 1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decade 2		77,108	52,936	52,936	110,038	110,038	82,820	107,120	23,040	23,040	52,120	52,120	13,710	7,600	17,400	39,700	24,400
Range	AUMs	6,014	7,217	7,217	6,917	6,917	5,894	7,397	6,014	6,014	6,675	6,675	6,255	5,112	5,534	6,255	5,112
Timber																	
Suitable Acres	Acres	16,901	8,427	6,926	20,150	20,150	8,403	13,326	0	0	7,216	7,309	4,175	0	12,688	8,932	2,540
Volume	MMBF	1.357	.677	.556	1.618	1.618	.675	1.070	0	0	.579	.587	.33	0	1.019	.717	.341
Wildlife-Big Game	Acres																
Summer Habitat		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Winter Habitat		25,008	25,008	25,008	25,008	25,008	25,008	25,008	25,008	25,008	25,008	25,008	25,008	25,008	25,008	25,008	25,008
Fisheries	Miles																
Impacted		70	122	122	88	88	54	70	13	13	28	28	7	4	17	21	15
Unimpacted		118	66	66	100	100	134	108	170	170	160	160	181	184	171	167	173
Minerals	Acres																
Category A		63,304	63,304	63,304	63,304	63,304	63,304	63,304	63,304	63,304	63,304	63,304	51,834	188,606	147,304	29,505	188,606
Category B		273,384	273,384	273,384	273,384	273,384	273,384	273,384	273,384	273,384	273,384	273,384	284,854	148,082	189,384	307,183	148,082
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Employment	Person Years	106	117	115	118	118	91	104	66	66	80	80	45	64	63	86	42
Income	Millions of $	1.79	1.90	1.86	1.99	1.99	1.49	1.73	1.04	1.04	1.33	1.33	.73	1.02	1.08	1.42	.70
Return to Gov.	Dollars	8,268	5,927	5,419	9,750	9,750	5,353	7,654	2,570	2,570	5,284	5,284	3,449	2,185	6,644	5,684	3,617

SAWTOOTH 1-721

Roadless Area





	Gross Acres	Net Acres
Lewis and Clark National Forest	15,500	15,500

DESCRIPTION

Location and Access

The Sawtooth Roadless Area, in the Rocky Mountain Division, is in Lewis and Clark County, Montana. Located approximately 65 miles west of Great Falls, this area is immediately south of Gibson Reservoir on the Sun River.

This area is accessed from either the Beaver-Willow Road or Sun Canyon Road. The Beaver-Willow Road is one of the few through roads on the Rocky Mountain Division and is closed each fall to allow elk to migrate from the Bob Marshall Wilderness to the Sun River Game Range and to provide for public safety during the general hunting season. This road separates the Sawtooth Roadless Area from Roadless Area 1-485. The area has 11 miles of trail.

General Description

Topography in the Sawtooth Roadless Area is characterized by rugged, parallel, overthrust faulting and consists of a series of parallel limestone reefs typical throughout the Rocky Mountain Division. The roadless area is bordered on the west by the Beaver-Willow Road, on the north by the Sun Canyon Road, on the east by the Forest boundary on the east (seven miles of the Sun River Game Range and two miles of the private land), and on the south by private land. Major mountains are Sugar Loaf and McCarty Hill. The area consists of steep north-south drainages formed by thrust faulting including Home Gulch, French Gulch, Norwegian Gulch, Lime Gulch, and Cutreef Creek. There are no dominant mountains in the area. Sawtooth Mountain is not located in this area.

All streams in this area experienced severe flooding in 1964 and 1975. Disturbance by the floods is still evident in the stream courses and flood plains.

CAPABILITY

Natural Integrity and Appearance

Human activity in this area has left extensive impact. Seismic exploration in the early 1960s resulted in the construction of low standard roads throughout the area up most major drainages. Many roads can still be used by two-wheel drive vehicles although vehicle restrictions and closures have been instituted to restrict access to trail vehicles. There are about 16 miles of seismograph roads and 13 miles of trails in the area. One recreation residence under special use permit is in Home Gulch. This permit will expire in 1986 and will not be reissued.

The area is large enough and the topography such that persons visiting the area sometimes feel they are in a natural area, away from ordinary human activity and development. However, roads constructed for seismic exploration detract from the apparent naturalness of the area.

Opportunities for Solitude

The Sawtooth area possesses moderate opportunities for solitude because of its moderate size and narrow shape. The area contains a diversity of highly dissected topography that easily screens people from one another in a short distance, however, the proximity to roads, activities, and private land can detract from this opportunity.

Primitive Recreation Opportunities

The area offers a variety of topography to challenge the visitor with its valley bottoms, high mountains, and steep cliffs. The size of the area offers some opportunity to get away from the man influenced environment and experience primitive recreation activities such as fishing, hunting, camping, hiking and horseback riding.

Other Features

The entire area is occupied grizzly bear habitat (threatened species). Observation of gray wolves (endangered species) are occasionally reported.

Manageability and Boundaries

The Sawtooth is a compact unit all within Federal jurisdiction. Boundaries are defined by existing roads or proclaimed Forest boundary. The open roads throughout the area, with little vegetative screening, would make it difficult to prevent motorized use of the area. The boundaries and the acres have not been adjusted since the RARE II inventory.

AVAILABILITY

Resource Potential

Recreation - The primary use of this area is big game hunting. Fishing is poor in the area because of stream quality and availability of "catchable" fish. Vehicle travel on old seismograph roads in connection with big game hunting has been a concern, but now these roads are closed to all motorized vehicles during the hunting season.

Wildlife - Bighorn sheep in varying numbers inhabit the area yearlong. Mule deer are found throughout, and some elk, mule, and whitetail deer winter in the area during mild winters. The entire area is occupied grizzly bear habitat. Perennial streams in the area support limited populations of rainbow, cutthroat, or brook trout, however, fishing is poor because of stream damage resulting from the 1964 and 1975 floods.

This area contains several elk migration routes. Elk which summer throughout the Rocky Mountain Division, gather in the fall on the Sun River Game Preserve. From there as winter storms increase, the elk travel to the Sun River Game Range and other private land along the eastern boundary of the roadless area. This process is reversed and repeated in the late spring.

Range - Two permittees graze 55 cattle and horses annually on two allotments and two commercial packer permits allow 62 horses and mules. Little potential exists for expanding existing use. Developments consist of drift fences and water improvements.

Timber - The Sawtooth Roadless Area has 2,633 acres with low timber production potential, capable of an annual .211 million board feet harvest. Approximately 17 percent is classified as commercial forest land. The balance of the area represents noncommercial forest and nonforest.

Water - Watersheds within the area are characterized by steep slopes, shallow soils and generally sparse vegetative cover. This combination severely limits the on-site storage capacity, with rapid runoffs frequently resulting in floods. This area supplies some water to Nilan, Willow Creek, Piskun, and Gibson Reservoirs. Water from these reservoirs irrigates approximately 180,000 acres of land in north central Montana annually.

Minerals - Oil and gas potential is very high. The area is on the leading edge of the Overthrust Belt trend an area in which major oil and gas discoveries have recently been made. This particular area is within the Montana Disturbed Belt, a zone that is currently considered as having some of the highest oil and gas potential in the Overthrust Belt. Complex folded and thrust faulted structures could cause multiple trapping mechanisms similar to those found in the Blackleaf Canyon gas field to the north. The entire area has been leased, but occupancy opportunities are limited in certain areas by no-surface occupancy and the limited use stipulations. Timing restrictions minimize impacts on big game wintering areas. Opportunity for oil and gas exploration and development is generally in valley bottoms and slide slopes. The potential for locatable minerals is low.

Table 1 lists the resources of the Sawtooth Roadless Area.

Table 1
Sawtooth Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 15,500
NF Acres 15,500

RECREATION - RVDs
- Primitive - 0
- SPNM - 4,900
- SPM - 9,460
- Roaded Natural - 100
- Rural - 0

RANGE
- Suitable Acres - 2,323
- No. of Allotments - 4
- Permitted AUMs - 728

TIMBER
- Tentative Suitable Acres - 2,633
- Standing Volume - MMBF - 22.9

CORRIDORS
- No. of Existing & Potential - 1
- Potential - Gibson Dam

WILDLIFE - T&E
- Occupied Grizzly Bear Habitat Acres - 15,500
- Occupied Wolf Habitat Acres - N/A
- Unoccupied Bald Eagle Habitat Acres - 200
- Unoccupied Peregrine Falcon Habitat Acres - 300

WILDLIFE - BIG GAME
- Important Elk Summer Range Acres - N/A
- Elk Winter Range Acres - 1,750
- Mule Deer Winter Range Acres - 1,009
- Whitetail Deer Winter Range Acres - 882
- Bighorn Sheep Winter Range Acres - 2,905

WILDLIFE - FISHERIES
- Stream Miles - 9
- Stream Acres - 17

WATER DEVELOPMENTS
- No. of Existing - 0

MINERALS
- Hardrock Potential - Low
- No. of Claims - None
- Oil & Gas Potential - Very High
- No. of Oil & Gas Leases - 6
- Oil & Gas Lease Acres - 15,500

Proximity to Other Designated Wilderness

The Sawtooth Roadless Area is about 65 miles west of Great Falls. Within one day's drive of Great Falls, there are 13 classified wildernesses containing 4.4 million acres. This area is located about 6 miles west of the Bob Marshall Wilderness.

Contribution to National Wilderness Preservation System

The area contains habitat for the threatened grizzly bear and the endangered gray wolf.

Public Interest and Concerns

Because of the extensive road system within the area and the isolation from the larger roadless area surrounding the Bob Marshall, Scapegoat, and Great Bear Wildernesses, this area has received moderate public attention and interest. During the 1977 and 1983 public review 2,124 and 8 comments, respectively, were received. Most comments supported wilderness classification. During the 1985 review, 3 comments were received. They supported wilderness classification.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

Management Designation

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Sawtooth Roadless Area is allocated as follows:

	Area managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	0	15,500
A-1	0	0	15,500
A-2	0	0	15,500
B-1	0	0	15,500
B-2	0	0	15,500
C	0	4,620	10,880
D	0	0	15,500
E-1	0	5,900	9,600
E-2	0	5,900	9,600
F	0	11,020	4,480
F(Departure)	0	11,020	4,480
G(Preferred)	0	11,660	3,840
H	15,500	0	0
I	0	11,660	3,840
J	0	11,660	3,840
K	0	4,620	10,880

Management Emphasis

The term management emphasis is used to indicate which activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resource activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Sawtooth Roadless Area, the major emphasis will be on minimum level management. Alternative H put all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/Wildlife Visual	Wildlife	Wildlife/ Range	Wilderness
Current Plan	11,684	1,602	1,113	0	25	1,076	0	0
A-1	10,978	789	440	101	25	2,183	985	0
A-2	10,978	1,117	440	0	25	2,085	856	0
B-1	11,579	1,279	1,273	53	25	1,181	111	0
B-2	11,579	1,293	1,270	53	25	1,182	111	0
C	11,034	535	440	99	25	2,721	648	0
D	12,183	1,228	815	53	25	942	255	0
E-1	11,502	984	0	0	0	2,768	246	0
E-2	11,502	984	0	0	0	2,768	246	0
F	12,475	835	71	412	0	1,528	179	0
F(Departure)	12,417	576	77	412	0	1,837	181	0
G(Preferred)	12,059	740	546	17	279	1,348	512	0
H	0	0	0	0	0	0	0	15,500
I	9,630	1,215	944	98	337	2,490	786	0
J	12,020	1,272	576	23	10	1,541	57	0
K	10,537	3,765	622	0	20	555	0	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Sawtooth is allocated to wilderness in Alternative H. This is the only alternative that the total area or any position is allocated to wilderness.

Wilderness allocation can enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The motorized recreation use of existing low standard roads and other motorized activities associated with range management and trail maintenance could be eliminated.

The 2,633 acres of forest land tentatively suitable for timber production would not be available under this prescription. This would remove about 23 million board feet of standing volume with an annual harvest of up to .211 million board feet.

Current livestock grazing, 728 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production will be foregone. Over the long run grazing would be reduced by 108 AUMs because of a reduction of available forage.

Big game habitat would be similarly affected since much of the forage produced on this area is produced on lands that is capable of supporting stands of trees. Thus, cover/forage relationships would continue to change over time except as influenced by wildfire and winter range would decrease.

Under this allocation primary recreation use would continue to be big game hunting.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. The entire area is currently leased for oil and gas exploration and development.

The nonpriced costs and benefits of this management are as follows:

- Existing visual condition would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth without wildfire, but could be improved by letting fire play a more natural role.
- Water quality and fisheries would be maintained at their present natural levels.

Economic and social effects would be slight since the area represents less 1 percent of the land base suitable for timber. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized means of travel. Other resource values such as hunting would be retained.

The less 1 percent loss in timber volume can be mitigated by practicing intensive forestry elsewhere on the Rocky Mountain Division.

Management Designation: Roadless
Management Emphasis: Range-Wildlife-Minimum Level

Alternatives F, F(Departure), G(Preferred), I, and J, allocate much of the Sawtooth Roadless Area to range, wildlife, and minimum level management under a roadless designation.

Alternatives C, E-1, E-2, and K allocated about 30 to 78 percent of the Sawtooth Roadless Area to range, wildlife and minimum level management under a roadless designation.

Allocation to range, wildlife and minimum level management will not effect the wilderness attributes. These management prescriptions limit road access. Timber harvest is not scheduled, but tree mortality can be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes of this area. The area would be open to natural entry with the use of special stipulations to protect grizzly bear and other resources. Mineral development may affect the wilderness attributes.

The nonpriced cost and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.
- Prescription fire can be used to maintain or improve existing grassland and cover/forage ratios.

Management Designation: Developed
Management Emphasis: Timber

All alternatives, except H, allocate some of the Sawtooth Roadless Area to timber management.

Allocation to timber management would forego the possibility of wilderness allocation. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest will be starting in the second decade.

The harvest scheduled in Sawtooth could be shifted to other parts of the Rocky Mountain Division.

The nonpriced benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised in 50 years.
- Elk security would be reduced.
- Diversity would tend towards younger age classes, with less old-growth.
- Water quality and fisheries would be affected.
- These prescriptions would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since less than 1 percent of the land suitable for timber and about 1 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range-Wildlife-Minimum Level

All alternatives, H, allocate some of the Sawtooth Roadless Area to range, wildlife, and minimum level management under a developed designation. Under these prescriptions there will be additional range improvements and burning to increase forage production.

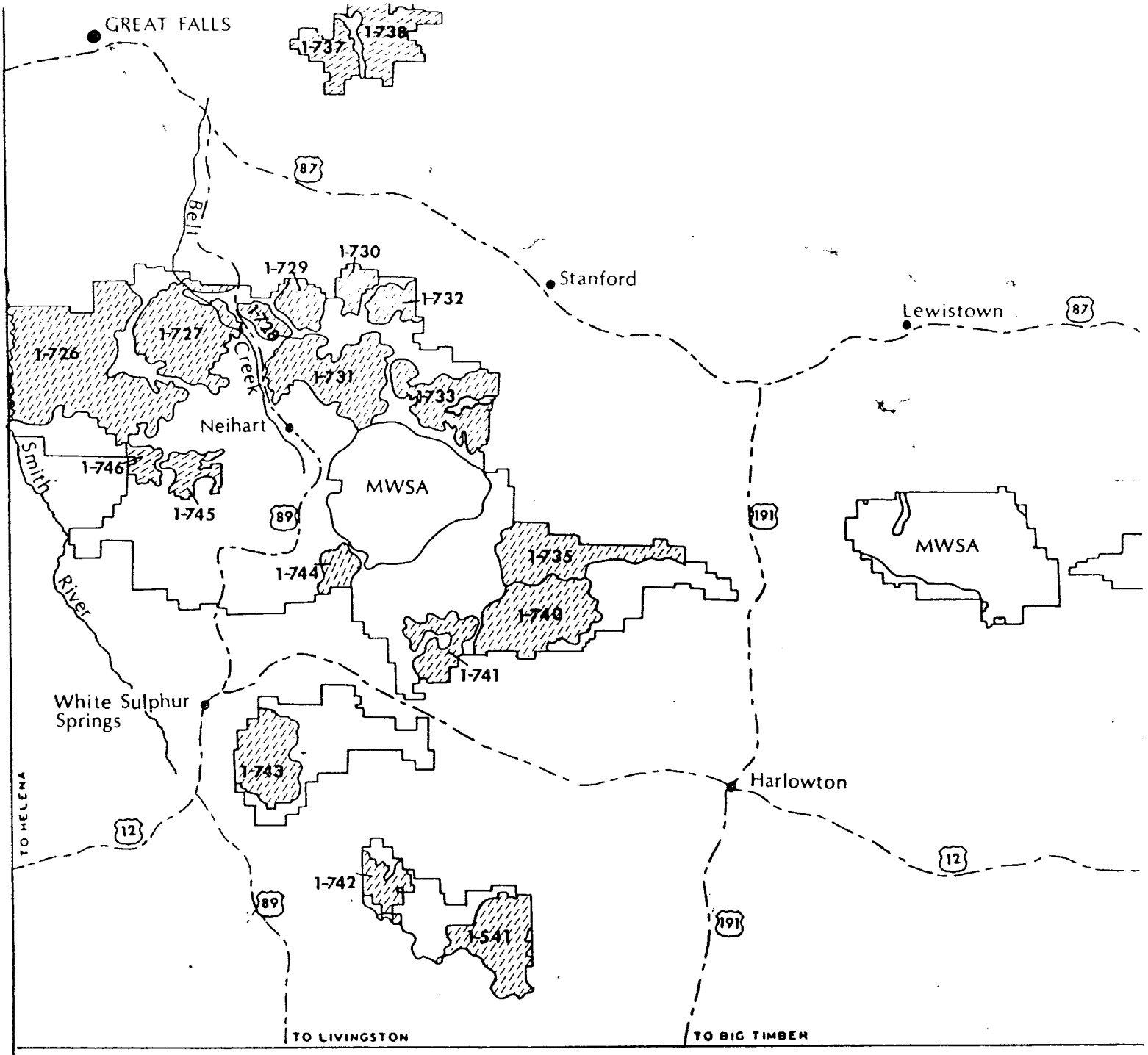
The nonpriced costs and benefits of this management are:

- Existing visual conditions would change and many activities may dominate portions of the landscape.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced, but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected, but not substantially.
- Prescription fire can be used to maintain or improve existing grassland and cover/forage ratios.

Table 2 lists the average annual output by alternative.

TABLE 2
Average Annual Output - 2030 by Alternative

Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	15,500	0	0	0
Semi-Primitive		0	0	0	0	0	4,620	0	9,600	9,600	11,020	11,020	11,660	0	11,660	11,660	4,620
Roaded Natural		15,500	15,500	15,500	15,500	15,500	10,880	15,800	5,900	5,900	4,480	4,480	3,840	0	3,840	3,840	10,880
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	15,500	0	0	0
Roadless	Acres	0	0	0	0	0	4,620	0	9,600	9,600	11,020	11,020	11,660	0	11,660	11,660	4,620
Decade 1		15,500	15,500	15,500	15,500	15,500	15,500	15,500	15,500	15,500	15,500	15,500	15,500	0	15,500	15,500	15,500
Decade 5		5,000	5,000	5,000	5,000	5,000	4,620	0	9,600	9,600	15,500	15,500	11,660	0	11,660	11,660	4,620
Developed		15,500	15,500	15,500	15,500	15,500	10,880	15,500	5,900	5,900	4,480	4,480	3,840	0	3,840	3,840	10,880
Decade 1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decade 5		10,500	10,500	10,500	10,500	10,500	10,880	15,500	5,900	5,900	4,480	4,480	3,840	0	3,840	3,840	10,880
Range	AUMs	728	873	873	837	837	713	845	728	728	808	808	757	619	757	757	757
Timber																	
Suitable Acres	Acres	1,138	566	465	1,351	1,348	564	893	0	0	473	479	842	0	1,379	609	644
Volume	MMBF	.091	.045	.037	.108	.108	.045	.072	0	0	.038	.038	.068	0	.111	.049	.052
Wildlife-Big Game	Acres	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Summer Habitat		2,905	2,905	2,905	2,905	2,905	2,905	2,905	2,905	2,905	2,905	2,905	2,905	2,905	2,905	2,905	2,905
Winter Habitat																	
Fisheries	Miles																
Impacted		0	0	9	9	9	6	9	3	3	3	3	3	0	2	2	3
Unimpacted		0	0	0	0	0	3	0	6	6	6	6	6	9	7	7	6
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	15,500	0	0	0
Category B		15,500	15,500	15,500	15,500	15,500	15,500	15,500	15,500	15,500	15,500	15,500	15,500	0	15,500	15,500	15,000
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Employment	Person Years	4.1	3.7	3.5	4.6	4.6	6.1	1.98	5.2	5.2	4.1	4.1	4.3	1.4	3.9	4	6.3
Income	Millions of $	.205	.219	.216	.239	.239	.228	.222	.211	.211	.215	.215	.211	.136	.301	.205	.239
Return to Gov.	Dollars	693	561	528	811	811	493	663	311	311	504	504	609	264	789	529	529



Lewis and Clark National Forest
Jefferson Division

Roadlesss Areas

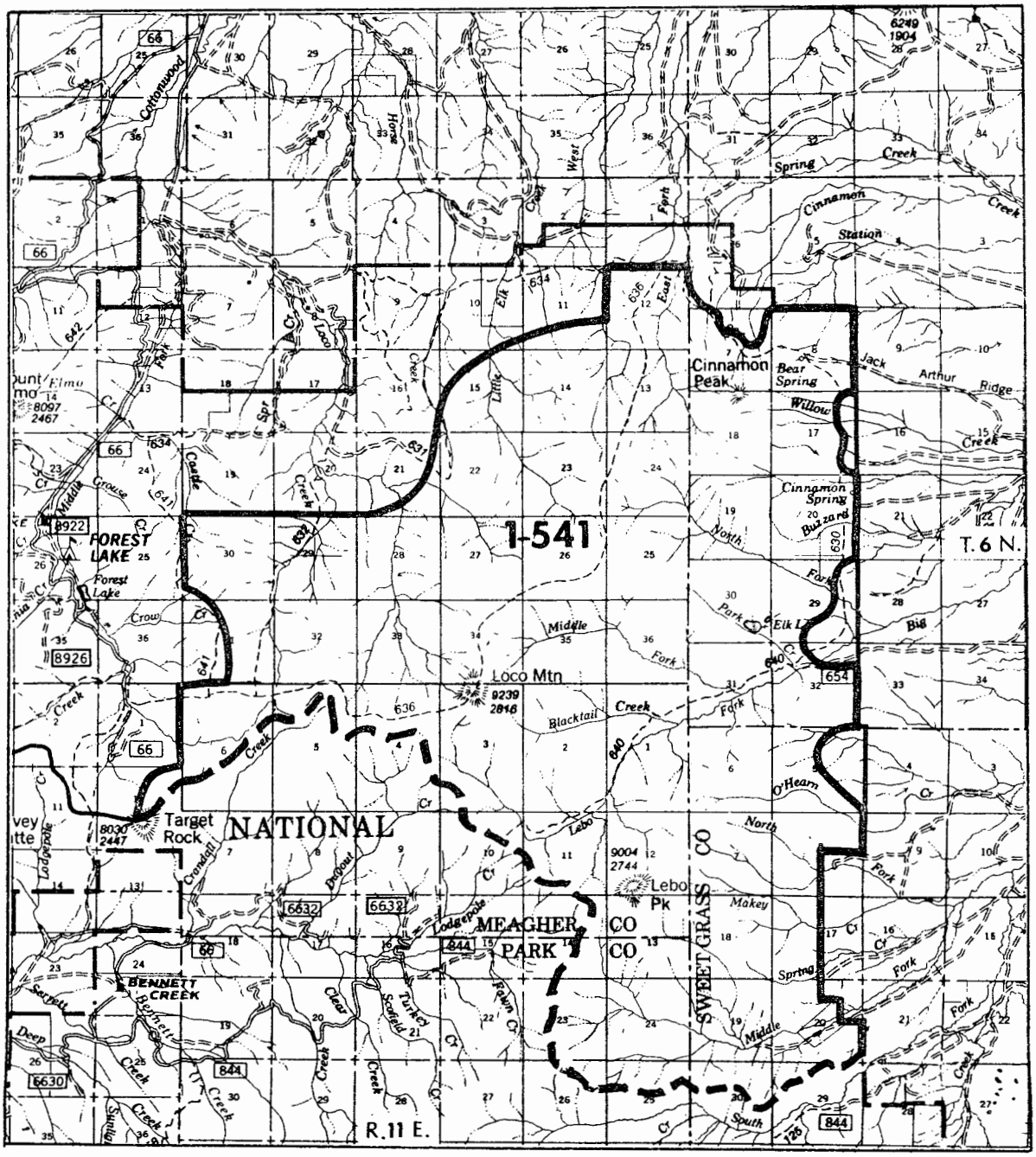
MWSA Montana Wilderness Study Act Area

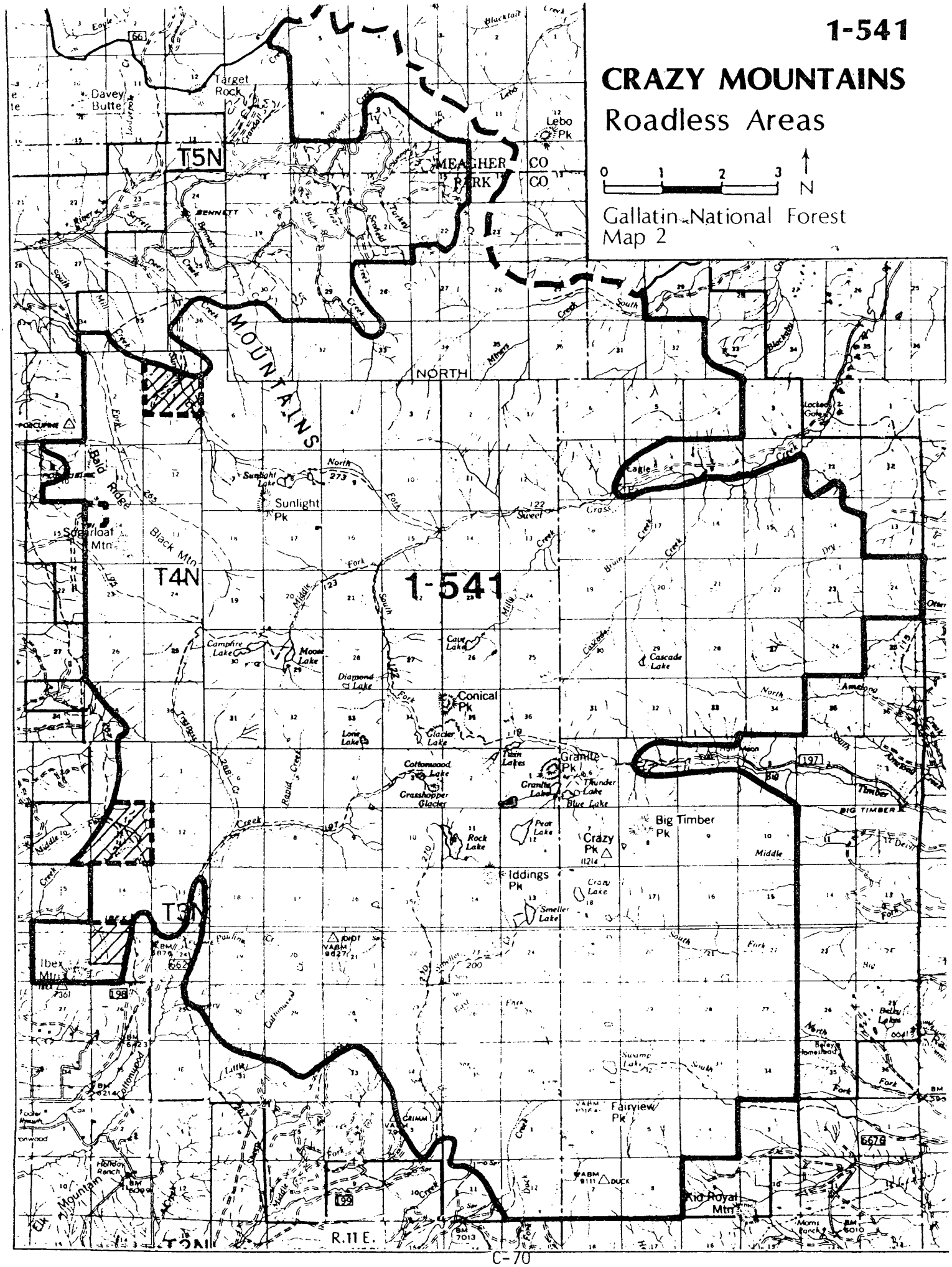
CRAZY MOUNTAINS 1-541

Roadless Area

0 1 2 3 N

Lewis & Clark National Forest
Map 1




1-541
CRAZY MOUNTAINS
Roadless Areas
0 1 2 3
N
Gallatin National Forest
Map 2
T5N
T4N
T3N
MEAGHER CO
PARK CO
NORTH
MOUNTAINS
1-541
Davey Butte
Target Rock
Lebo Pk
Sunlight Pk
Sunlight Lake
Spearloat Mtn
Bald Ridge
Black Mtn
Campfire Lake
Moose Lake
Diamond Lake
Cave Lake
Cascade Lake
Conical Pk
Glacier Lake
Lone Lake
Cottonwood Lake
Grasshopper Glacier
Twin Lakes
Granite Pk
Granite Lake
Thunder Lake
Blue Lake
Big Timber Pk
Crazy Pk
Rock Lake
Pear Lake
Iddings Pk
Crazy Lake
Smeller Lake
Ibex Mtn
Swamp Lake
Fairview Pk
Kid Royal Mtn
Holiday Ranch
Mountain
R.11 E.

	Gross Acres	Net Acres
Gallatin National Forest	107,647	70,500
Lewis and Clark National Forest	28,900	16,600
Totals	136,547	87,100

DESCRIPTION

Location and Access

The Crazy Mountains Roadless Area begins 20 miles northeast of Livingston, Montana, and extends about 25 miles northward to about 25 miles southwest of Harlowton. The area is in Meagher, Park and Sweetgrass Counties. The north-facing slopes at the lower elevations are timbered with lodgepole pine and spruce. South-facing slopes tend to be either sparsely timbered or covered with grass and brush. The interior of the area is high elevation grassland/rock with pockets of timber.

Road access to the boundaries of this area is limited. The boundaries of the area can be reached via the Cottonwood Road from the west, the Big Timber Canyon Road from the east, and the Forest Lake Road to the north. Numerous private roads (mostly two-wheel tracks) from the east, north and northwest enter the area. However, the few public access points available are not adequate for an area this size.

General Description

The Crazy Mountains are an isolated range which rises abruptly from rolling ranchlands in southcentral Montana. The Crazies are in two National Forests--the north half is in the Lewis and Clark and the south half in the Gallatin National Forest. The Crazy Mountains Roadless Area is also in both Forests. To the west the mountains overlook the Shields River Valley. The peaks have been deeply carved by past glacial action and present a jagged, rocky profile. The highest of the central core of peaks is 11,214-foot Crazy Peak. The area is all in checkerboard ownership--landownership by section alternating between private and public.

This area is popular with hikers and backpackers who enjoy rugged, challenging terrain. Snowmobiling and motorbiking also take place in the area. High mountain lakes with fishing are a popular destination of recreationists. The periphery of the area includes a small amount of foothills country on the Gallatin, and somewhat more on the Lewis and Clark.

CAPABILITY

Natural Integrity and Appearance

Natural integrity at present is mostly unimpaired, but may be impacted in future years. A low-standard road to access private land has been constructed in the Cottonwood Creek drainage on the west side of the area. Numerous other private inholdings throughout the area may require further access roading in

the future. The Lewis and Clark portion has several miles of low standard roads on private sections plus some livestock improvements scattered throughout the area at lower elevations. In the Shields River drainage, on the southwest border, there has been logging activity to the roadless area boundary.

Natural appearance of the area is mostly unimpaired. Because the area is approximately 11 miles across for most of its length, the sights and sounds of human activities outside the area do not intrude. The rugged terrain also provides topographic screening. No towns or other centers of development are easily seen from much of the area. The Cottonwood Creek and Big Timber Canyon roads could offer some impact of disturbing sights and sounds when in use. Also, some mining activity has been taking place close to the area's southeast boundary near Big Timber Canyon, and can be expected to continue off and on in future years. Unpatented mining claims within the area could possibly be developed in future years. Some of the many private inholdings could some day be used for summer homes or other development. Livestock activities on the low grasslands detract from natural appearance.

Opportunities for Solitude

Because of the area's size, removal from development, and broad expansive subalpine ridges there is an opportunity for solitude. Opportunities for solitude are unimpaired in the core of the area but would be somewhat diminished by moderate to heavy levels of recreational use in the more easily accessed and popular places such as Bennet Creek, Big Timber Canyon, or camping sites near the more popular lakes. From the high peaks and ridges the agriculture land does not dominate the landscape. Instead the view of distant ranges or looking into other parts of the Crazies is most notable.

Primitive Recreation Opportunities

About 17 percent of the estimated 27,000 RVDs of recreation that now take place annually are classified as primitive, and about 77 percent are classified as semiprimitive nonmotorized. Generally, the area would meet all criteria for primitive recreation except for the presence of trails presently open to motorized use.

Activities popular in the area fall in the primitive and semiprimitive categories and include hiking, backpacking, horseback use, fishing the high lakes, and hunting. The high elevations offer much more primitive recreation than the lower slopes. A considerable amount of motorized use by snowmobiles and motorbikes is also taking place in the area. For example, the trails to Smeller and Cottonwood lakes are popular with motorized users.

Big game populations add to the appeal of the area for recreationists. Elk, moose, mule deer, and mountain goats are found in the area. The Crazy Mountains also contain some distinctive geologic features, including examples of glaciation such as arretes and high cirque lakes. The area also offers good examples of an uncommon geologic feature termed radiating dikes.

Manageability and Boundaries

The chief impediment to the area's manageability as wilderness is the presence of 54,100 acres of private land within the boundaries. These private lands occur in a checkerboard pattern that traces back to old 19th century railroad

grants. This land is owned by many different individuals, and this plurality of ownership would render any future efforts at land exchanges very difficult.

The shape of the area, most of which is roughly oval, would lend itself to manageability. The integrity of the area is good; no roads or corridors split the area or otherwise impede management except for some penetration of the Cottonwood Creek road from the west side.

The area has been reduced by 540 acres of timber harvest activities since the RARE II inventory.

AVAILABILITY

Resource Potential

Recreation - Recreation use draws from Big Timber, Livingston, Harlowton, and Bozeman. Big game, bird hunting, and hiking are the major recreation uses. The perennial-stream bottoms along with the lower forested slopes, interspersed with parks, provide good habitat for elk, mule deer, whitetail deer, black bear, and grouse. Hiking in this country gives expansive views of the Crazies, surrounding countryside, and distant mountain ranges because most of the ridges are opened. However, access limits recreation use.

Most of the area has been rated as "distinctive" for visuals. Presently, impacts to the visuals from human activities are rated as "unnoticed." Scenic values of the area are part of its appeal to recreationists.

Wildlife - The area provides habitat for elk, mule deer, whitetail deer, black bear and grouse. Little big game winter habitat exists within the area. Only about 1,300 acres of elk and mule deer winter range are within the boundaries. Almost all of the winter range is on the Lewis and Clark segment. The big game animals summer in the area and move out to lower elevation lands to winter. There are about 48 miles of stream fisheries and 3 lakes.

Range - The area also contains 4,555 acres of suitable livestock range with current use amounting to 1,463 AUMs.

Timber - The Crazy Mountain Roadless Area contains 25,580 National Forest acres inventoried as capable of timber production, with a standing inventory of 175.2 MMBF. About 28 MMBF of this timber is on the Lewis and Clark portion.

Water - The area supplies a portion of the water in the Martinsdale Reservoir and Martin and C Bar J Reservoir, which is used for irrigation. Five water-use developments presently exist within the area, with the prospect of more in future years.

Minerals - About 74,600 acres of the National Forest portion of the area are leased for oil and gas development and another 2,000 acres are under lease application. Most of the private ownership has been leased for oil and gas. The oil and gas potential is unknown. Tertiary and cretaceous volcanics and igneous intrusives are present and may have destroyed the hydrocarbon potential of Paleozoic or Mesozoic rocks at depth. There has been little exploration activity. Hardrock or metallic mineral potential is low. There are presently 30 unpatented mining claims located within the boundaries of the area.

Table 1 lists the resources for the Crazy Mountain Roadless Area.

Table 1
Crazy Mountains Roadless Area Resource Summary
Existing Situation
Lewis and Clark and Gallatin National Forests

Gross Acres 136,547
NF Acres 87,100

RECREATION - RVDs
- Primitive - 4,300
- SPNM - 20,400
- SPM - 2,100
- Roaded Natural - 0
- Rural - 0

RANGE
- Suitable Acres - 4,555
- No. of Allotments - 22
- Permitted AUMs - 1,463

TIMBER
- Tentative Suitable Acres - 25,580
- Standing Volume MMBF - 175.2

CORRIDORS
- No. of Existing & Potential - 0

WILDLIFE - T&E - None

WILDLIFE - BIG GAME
- Important Elk Summer Range Acres - N/A
- Winter Range Acres - 1,300

WILDLIFE - FISHERIES
- Stream Miles - 48
- Stream Acres - 96
- No. of Lakes - 8
- Lake Acres - 152

WATER DEVELOPMENTS
- No. of Existing - 5

MINERALS
- Hardrock Potential - Low
- No. of Claims - None
- Oil & Gas Potential - Low
- No. of Oil & Gas Leases - 29
- Oil & Gas Lease Acres - 74,600
- Oil & Gas Lease Application Acres - 2,000

NEED

Proximity to Other Designated Wilderness

The nearest wilderness to the Crazy Mountains is the Absaroka Beartooth, about 30 miles away. The area is also about 2 hours drive from the newly created Lee Metcalf Wilderness. Yellowstone National Park is within about 3 hours drive.

With regard to the area's distance from population centers, the Crazy Mountains are about 20 miles from Livingston and Big Timber, Montana, about 40 miles from Bozeman, and about 100 miles from Billings and Great Falls. The area is about 130 miles from Butte.

Contribution to National Wilderness Preservation System

Area 1-541 would contribute the following habitat types to the National Wilderness System:

Alpine fir series (chiefly ABLA-PIAL/VAS and ABLA/VAGL), about 45,000 acres.

Douglas fir series (chiefly PSME/SYAL-CAR), about 8,000 acres.

Grasslands (chiefly MTN GRASSLANDS and MTN MEADOWS), about 14,000 acres.

The remainder of the National Forest System acreage in the area tends to be rocklands or scattered small pockets of other habitat types.

Public Interest and Concerns

A number of individuals and groups have expressed concern about the future of this area. The chief issue centers around management for recreation versus possible future development and roading. Other issues involve need for improved public access and some conflict between primitive and motorized recreationists. Individuals and groups interested in additional wilderness for this area have supported wilderness designation for the Crazies. For instance, the area has been advocated for wilderness under Alternative W as proposed by the Montana Wilderness Association.

During the 1977 and 1983 public review 3,014 and 30 comments, respectively, were received. During the 1985 review period, 16 comments were received on the Lewis and Clark DEIS-Supplement and about 250 comments on the Gallatin DEIS. All comments supported wilderness classification.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

The Crazy Mountain Roadless Area is managed by two different National Forests--the Gallatin and Lewis and Clark. In formulating alternatives for this roadless area seven alternatives were developed which correspond to the Forest Plan alternatives from each Forest. The following is a brief discussion of each alternative. The crosswalk of each Forest Plan alternative with the roadless area alternatives is displayed on the next page.

Alternative I - This alternative allocates all of the inventoried roadless area to wilderness.

Alternative II - This alternative models the current direction of managing the roadless area.

Alternative III - This alternative emphasizes the development of the roadless area.

Alternative IV - This alternative emphasizes managing the roadless area for its economic return.

Alternative V - This alternative models a low level of Forest output.

Alternative VI - This alternative emphasizes the amenity values of the Forests.

Alternative VII (Preferred Alternative) - This alternative is the combination of the Forests' preferred alternative. None of the area is recommended for wilderness.

Crosswalk of Forest Alternatives

	Gallatin	Lewis and Clark
I	9,5,8	H,K
II	1	Current Plan
III	2	A
IV	4	B,E
V	3	C,D
VI	6	F,I,J
VII	7,10	G

The seven management alternatives developed for the Crazy Mountains Roadless Area allocate the area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Crazy Mountains Roadless Area is allocated as follows:

	Acres managed as: Wilderness	Roadless	Developed
I	87,100	0	0
II (Current Plan)	0	53,900	33,200
III	0	54,500	32,600
IV	0	61,200	25,900
V	0	72,100	15,000
VI	0	85,300	1,800
VII (Preferred)	0	65,300	21,800

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resource activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Crazy Mountains Roadless Area, under all alternatives but I and IV, the major emphasis will be on minimal level management. Alternative I puts all acres under a wilderness emphasis. Alternative IV put the most acres into Timber management. Although wilderness would be the most emphasized resource, activites which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA I-541
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/Wildlife Visual	Dis Rec Nonroaded	Wildlife	Wildlife/ Range	Wilderness
I	0	0	0	0	0	0	0	0	87,100
II	49,974	12,849	20,539	0	0	0	5,738	0	0
III	12,134	6,151	20,392	905	0	37,500	8,363	1,655	0
IV	14,240	8,178	16,893	932	0	39,208	7,649	0	0
V	12,424	4,863	3,761	657	0	38,500	26,007	888	0
VI	15,857	7,570	925	634	0	42,500	19,424	190	0
VII	32,893	9,035	11,150	336	101	25,900	7,659	26	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Crazy Mountains is allocated to wilderness in Alternative I. This is the only alternative that the total area or any portion is allocated to wilderness.

Wilderness allocation could enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing low standard roads which are used for motorized recreation and other motorized activities associated with range management and trail maintenance could be eliminated.

The acres of land tentatively suitable for timber production would not be available under wilderness management. This would remove about 175 million board feet of standing volume with an annual harvest of up to 1.3 million board feet.

Current livestock grazing, 1,463 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production will be foregone. Over the long run grazing would be reduced by 229 AUMs because of a reduction of available forage.

Effects on big game habitat would be similar since much of the forage produced on this area is produced on lands that are capable of supporting stands of trees. Thus, cover/forage relationships would change and winter range will decrease.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. Almost the entire area is currently leased for oil and gas exploration and developement.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth, but could be improved by letting fire play a more natural role.
- Water quality and fisheries would be maintained at their present levels.

Economic and social effects would be slight since the area represents about 1 percent of the Forest suitable timber base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized means of travel. Other resource values such as hunting would be retained.

The 1 percent loss in timber volume in this roadless area can be mitigated by practicing intensive forestry elsewhere on the Lewis and Clark and Gallatin National Forests.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Wildlife/Range, Dispersed Recreation/Nonroaded, and Minimum Level

All alternatives, except Alternative I, allocated a large percent of the Crazy Mountains Roadless Area to range, wildlife, dispersed recreation, and minimum level management under a roadless designation. Alternative VI allocates most of the area to roadless management.

Allocation to range, wildlife, dispersed/recreation, and minimum level management would not effect the wilderness attributes. These management prescriptions limit new road construction. Timber harvest is not scheduled, but tree mortality can be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes in much of the area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range, and Timber/Wildlife/Visual

All alternatives, except I, allocate some of the Crazy Mountains Roadless Area to timber management. Under Alternative II, III, IV, V, and VII between 25 and 38 percent of the area would be developed. Alternative VI develops 2 percent of the area.

Allocation to timber management would forego the possibility of wilderness allocation. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the first decade. About 3,100 acres would be developed during the first decade. About 84,000 acres would be available for wilderness reevaluation during the next planning period.

The harvest scheduled in Crazy Mountains could be shifted to other parts of the Lewis and Clark and Gallatin National Forests.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised within 50 years.
- Elk security would be reduced due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.

- Water quality and fisheries would be affected slightly by roading and timber harvest.
- These alternatives would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since about 2 percent of the Forests suitable timber base and about 2 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Range/Wildlife, and Minimum Level

All alternatives, except I, allocate some of the Crazy Mountains Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment. Under these prescriptions there would be additional range improvements and burning to increase forage production.

The nonpriced costs and benefits of this management are:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced, but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected, but not substantially.

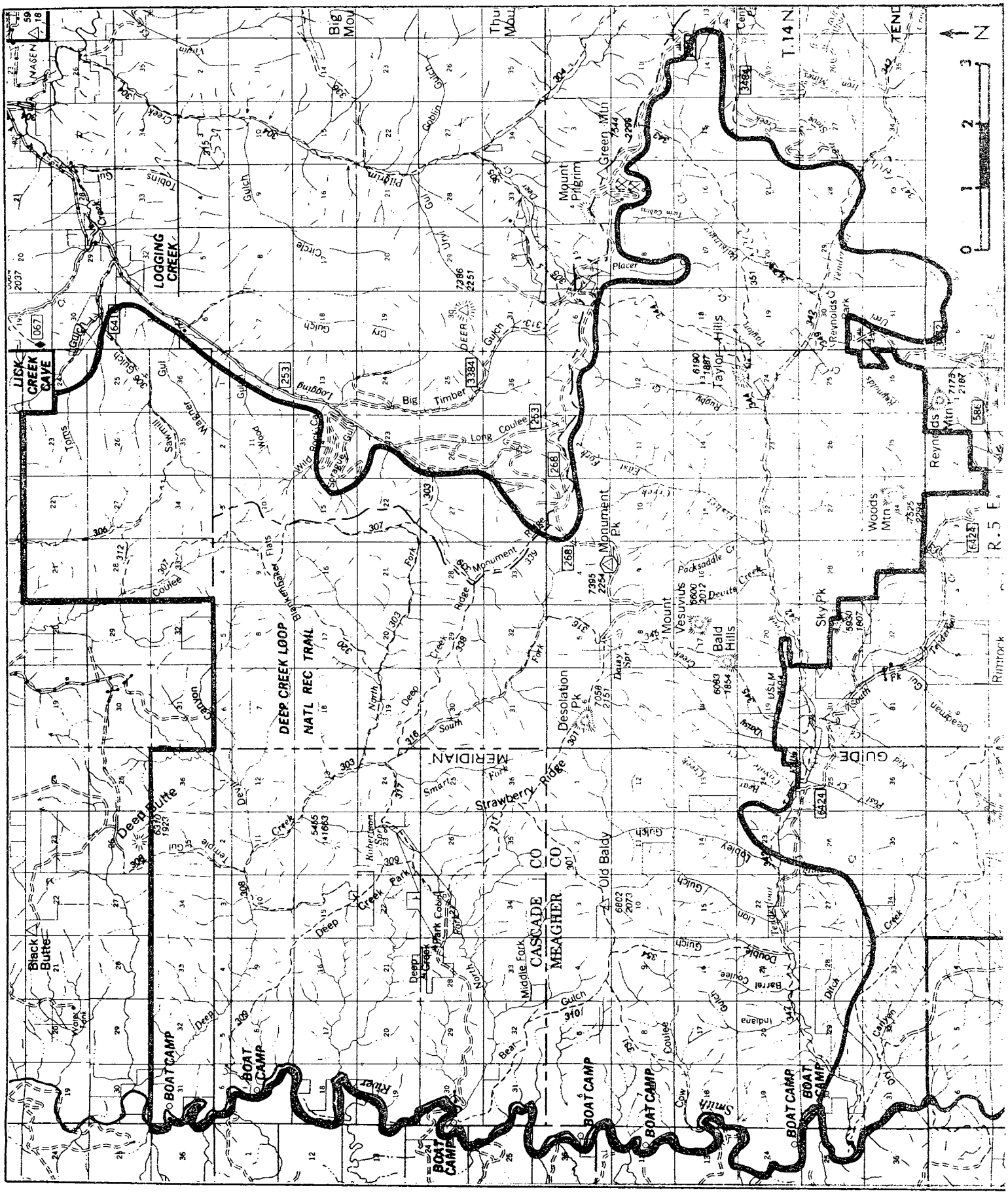
Table 2 lists the average annual output by alternative for the Lewis and Clark National Forest.

TABLE 2
Average Annual Output - 2030 by Alternative
Lewis and Clark National Forest

Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	16,600	0	0	16,600
Semi-Primitive		15,400	0	0	0	5,540	10,040	0	0	0	14,800	14,800	14,800	0	14,800	14,800	0
Roaded Natural		1,200	16,600	16,600	16,600	11,060	6,560	16,600	16,600	16,600	1,800	1,800	1,800	0	1,800	1,800	0
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	16,600	0	0	16,600
Roadless	Acres	15,400	0	0	0	5,540	10,040	0	0	0	14,800	14,800	14,800	0	14,800	14,800	0
Decade 1		16,000	15,600	15,600	16,000	16,000	16,100	16,000	16,000	16,000	16,000	16,000	16,000	0	16,000	16,000	0
Decade 5		15,400	3,800	3,800	10,200	14,700	10,800	6,200	10,200	9,560	14,800	14,800	14,800	0	14,800	14,800	0
Developed		1,200	16,600	16,600	16,800	11,060	6,560	16,600	16,600	16,600	1,800	1,800	1,800	0	1,800	1,800	0
Decade 1		600	6,00	1,00	600	600	500	600	600	600	600	6000	600	0	600	600	0
Decade 2		1,200	12,800	12,800	6,400	1,900	5,800	12,400	6,400	7,040	1,800	1,800	1,800	0	1,800	1,800	0
Range	AUMs	600	720	720	690	690	588	738	720	720	666	666	510	510	666	666	510
Timber																	
Suitable Acres	Acres	1,439	3,497	3,497	3,925	2,590	3,018	2,383	3,925	3,925	1,738	1,708	1,387	0	1,559	1,559	0
Volume	MMBF	.115	.281	.281	.315	.208	.242	.191	.315	.315	.139	.137	.111	0	.125	.125	0
Wildlife-Big Game	Acres																
Summer Habitat		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Winter Habitat		940	940	940	940	940	940	940	940	940	940	940	940	940	940	940	940
Fisheries	Miles																
Impacted		6	8	8	8	3	5	8	8	8	1	1	1	0	1	1	0
Unimpacted		2	0	0	0	5	3	0	0	0	7	7	7	8	7	7	8
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	16,600	0	0	16,600
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		16,600	16,600	16,600	16,600	16,600	16,600	16,600	16,600	16,600	16,600	16,600	16,600	0	16,600	16,600	16,600
Employment	Person Years	4.1	8.5	8.5	12	8.7	7.7	10.3	12	12	4.6	4.6	4.1	1.5	4.4	4.3	4.9
Income	Millions of $	.077	.206	.206	.216	.156	.143	.178	.216	.216	.087	.087	.079	.028	.086	.083	.089
Return to Gov.	$	289	1,487	1,487	1,617	1,168	1,267	1,117	1,630	1,630	891	859	684	218	809	809	218

TENDERFOOT-DEEP CREEK 1-726

Roadless Area



	Gross Acres	Net Acres
Lewis and Clark National Forest	98,500	88,400

DESCRIPTION

Location and Access

The Tenderfoot-Deep Creek Roadless Area lies in the northwest corner of the Little Belt Mountains, in Cascade and Meagher Counties, Montana. White Sulphur Springs is approximately 35 road miles southeast and Great Falls is approximately 40 road miles north of the area.

Secondary dirt and gravel roads access all sides. However, only the east side has public access. On the east side is a network of Forest roads, which are passable by passenger car but recommended for trucks. To the south and north two-wheel track roads cross private land access the area. Because this adjacent private land is prairie and there are no natural barriers along the perimeter of the area, nearly all of the northern and southern border have motorized access. The western border is the Smith River and adjacent private land. Several two-wheel track roads cross private land to access the river.

Two roads penetrate the Tenderfoot-Deep Creek Area. The first fords the Smith, at the center of the western boundary and penetrates east about four miles to private land in Deep Creek Park. A second road, at the center of the eastern boundary, extends about three miles to access an abandoned fire lookout on Monument Peak and Daisey Spring.

The area is laced with trails, which follow the major creeks and ridges. Among these is the Deep Creek Loop National Recreation Trail (No. 309), in the northern part of the area. All of the trails, or connecting trails, are accessible from the Forest Service roads along the eastern boundary.

General Description

Overall the Tenderfoot-Deep Creek Area is timbered benches that drop abruptly into creeks which flow west, to the 300 to 400 foot limestone cliffs that form the banks of the Smith River. An exception is the northeast corner, which drains northeast into Logging Creek. The area is approximately boot-shaped--looking similar to the profile of Louisiana. The foot is the Tenderfoot drainage, with the creek running west near the bottom. The front of the boot is part of Logging Creek drainage, which flows northeast. The top half is the Deep Creek drainage, which flows northwest. The majority of the benches and ridges run north-south or northwest-southeast. However, parts of the topography defy any order. The highest points in the area are wooded mountains in the southcentral portion--Desolation Peak, Monument Peak, and Mount Versuvios. Most of the major ridges and creeks--Strawberry Ridge, Deep Creek Ridge, North and South Forks of Deep Creek, Tenderfoot Creek--have trails.

The vegetation is a mosaic of meadow and timber. The meadows are at all elevations and range from less than one acre to 400 acres. The majority of the area is timbered. Lodgepole pine, Douglas fir, and spruce, on the wetter sites,

are the major species. At the higher elevations the major species give way to scrubby limber pine.

Where the benches drop into Tenderfoot and Deep Creeks are steep canyons with exposed limestone along the walls. The lower parts of Deep Creek are formed by limestone cliffs. Tenderfoot Creek is known for good fishing, access, and scenery. A trail follows the length of the creek from the Smith River east to the headwaters, which are beyond the roadless area in the Tenderfoot Experimental Forest.

At the western boundary is the highlight of the area, the Smith River. The river winds north with a gentle gradient and current, cutting through the limestone, leaving 300 to 400 foot cliffs along the western bank. This section of river, which has received National recognition for outstanding fishing and scenery, is part of a popular three-day float trip.

The Smith River and adjacent land have several recorded cultural sites. Teepee rings, pictographs, tools, and projectile points are signs of the prehistoric activity.

The Little Belt Mountains have an average annual precipitation of 28 to 30 inches. The lowest elevations, along the perimeter, average 16 inches of precipitation per year, whereas the peaks average 40 inches per year. Precipitation in the Tenderfoot-Deep Creek Area is probably the Forest average.

About one half of the boundary adjoins public land, and the balance adjoins private land. To both the north and west is the proclaimed Forest boundary and non National Forest land. The view to the north is of agricultural land on the plains, and several gravel roads. Most of the land to the north is private, but scattered sections are State or BLM land. The cliffs along the west side block most of the view. But in parts of the west border, where the cliffs are back from the river, summer houses are adjacent to the water. To the south is checkerboard ownership--alternating sections of Forest and private land--which is all within the proclaimed Forest boundary. The view to the south is of undeveloped mountainous terrain. To the southeast some logging activity is visible. To the east the area connects with the rest of the Little Belt Mountains and adjoins Forest land. The view is of undeveloped, mountainous terrain. Two roadless areas are near the eastern and southern border. Within one mile of most of the eastern border is Pilgrim Creek Roadless Area, which is separated from Tenderfoot-Deep Creek by a network of Forest development roads. To the southeast, and separated by timber harvest activity and a Forest road, is Eagle Park Roadless Area.

Current uses of the area are recreation and grazing, with lesser amounts of mining and post and pole cutting. Most of the private land and approximately one tenth of the National Forest land is used for livestock grazing. Deep Creek Park, the private land at the center, has numerous range developments--stock ponds, spring developments, and drift fences. In the rest of the area there are few fences, because the topography and water separate the allotments.

Main recreation attractions are hunting, fishing, and floating. The area is very popular for elk and deer hunting. Fishing in both Tenderfoot Creek and the Smith River is good for cutthroat, brook, brown, and rainbow trout. And much of the fishing is done while floating on the Smith River. The adjacent area along Logging Creek, to the east, and the Smith River, to the west, has

several summer homes. There is some motorized recreation. Occasionally recreationists drive to Monument Peak and there is some motorcycle and snowmobile use on the trails.

Minor amounts of post and poles and firewood are cut from land adjacent to Forest roads on the east side. In 1990 a 3.7 MMBF sale is scheduled around Wood Mountain, which is south of Tenderfoot Creek.

There are minor amounts of prospecting on National Forest land, mostly in Tenderfoot drainage. But this has little noticeable ground disturbance. The private land at the east end of the drainage is from patented mining claims, and there are minor amounts of development on this private land.

Overall the area shows little disturbance from past or present land use. As classified by the Forest Service Visual System the area has a variety class A along the major creeks--Tenderfoot, Deep, and the Smith--and B in the rest of the area. The existing visual class is 1, except for Deep Creek Park having a 4, because of livestock development. (See Appendix N - Forest Plan)

CAPABILITY

Natural Integrity and Appearance

Overall, the area has had little change from development. The recreation use is not developed and leaves little impact. The most intensive livestock use is along Tenderfoot Creek and in Deep Creek Park. But, overall the area has little livestock use.

Opportunity for Solitude

The area's size and isolation from development provide an opportunity for solitude. Although portions of the Tenderfoot-Deep Creek are adjacent to nonforest agriculture land, the outside land uses are not noticeable from most parts of the area.

Primitive Recreation Opportunities

The area provides a feeling of isolation, but the terrain does not give a high degree of challenge to the recreationist, The excellent fishing, good trail system, scenery, and floating are the major recreation attractions. The area is large enough that recreationists can stay within the area for several days.

Manageability and Boundaries

The north and west boundaries follow either surveyed land lines or the Smith River, which are both definable on-the-ground. The south and east boundaries do not always follow topographic features and could be difficult to locate on-the-ground. Steep terrain or cliffs around the perimeter of the area create a natural barrier for motorized access. The southwest corner is checkerboard ownership. The area was considered in the RARE II process. Since that time the boundary has been adjusted on the south side. The area was reduced by 6,200 acres because of the William Mountain Timber Sale (1982).

AVAILABILITY

Resource Potential

Recreation - Recreation is the greatest use of the area. In addition to floating on the Smith River, backpacking, fishing, trailbike travel, and big game hunting are the main recreation uses of the area. The Smith River during June and early July, or until the water level drops, is a spectacular river for floating (canoe or raft) and fishing. The river has a gentle current and several S-curves, which can be negotiated by the novice. About 25 miles of the 60 mile float trip on the Smith River are within the Tenderfoot-Deep Creek Area. There are some recreation residents, agriculture, and other developments on the west side of the river.

Wildlife - The area is good wildlife habitat for deer, elk, moose, black bear, and grouse. Rainbow, brook, and cutthroat trout inhabit Deep and Tenderfoot Creeks. These fish in addition to brown trout and mountain whitefish also inhabit the Smith River.

Range - Nine permittees graze about 800 cattle annually. Also, one permittee has an alternating sheep permit every other year. If intensively managed, livestock use could increase. Developments now include drift fences and some water developments.

Timber - About 50,000 acres are tentatively suitable forest land, with the balance being noncommercial forest land or nonforest. Douglas fir and lodgepole pine are the dominant trees. The area is capable of a 3.989 million board feet annual harvest.

Minerals - The area is on the west side of the dome shaped Little Belt Uplift. Precambrian to Mississippian age rocks are widely exposed. There is little potential for oil and gas accumulation. Several tertiary age intrusives are present which have caused local mineralization of gold, silver, lead, zinc, and iron. There is a low potential for additional discoveries within this unit.

Water - Streams in the area, during the short period of spring runoff, provide irrigation water for downstream users. The Smith River provides irrigation water to streamside residents. The watershed provides water to Belt Creek, which is used for irrigation and domestic use.

Cultural Resources - Several inventoried cultural sites are in the area. Most sites are prehistoric (Indian) and along the Smith River, which is thought to have a major trail corridor.

Table 1
Tenderfoot-Deep Creek Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 98,500

NF Acres 88,400

RECREATION - RVDs

Primitive - 0
SPNM - 2,500
SPM - 1,500
Roaded Natural - 0
Rural - 0

RANGE

Suitable Acres - 8,134
No. of Allotments - 10
Permitted AUMs - 1,834

TIMBER

Tentative Suitable Acres - 49,655
Standing Volume MMBF - 443.4

CORRIDORS

No. of Existing & Potential - 0

WILDLIFE - T&E

Unoccupied Bald Eagle Habitat Acres - 2,430
Unoccupied Peregrine Falcon Habitat Acres - 3,740

WILDLIFE - BIG GAME

Important Elk Summer Range Acres - 11,386
Elk Winter Range Acres - 13,772
Mule Deer Winter Range Acres - 9,319
Whitetail Deer Winter Range Acres - 795

WILDLIFE - FISHERIES

Stream Miles - 27
Stream Acres - 83

WATER DEVELOPMENTS

No. of Existing - 0

MINERALS

Hardrock Potential - Low - gold,silver,copper,iron
No. of Claims - 12

Oil & Gas Potential - Low
No. of Oil & Gas Leases - 3
Oil & Gas Lease Acres - 10,900

NEED

Proximity to Other Designated Wilderness

The Tenderfoot-Deep Creek Roadless Area is about 30 miles southeast of Great Falls. There are 13 classified wildernesses containing 4.4 million acres within one day's drive of Great Falls.

Contribution to National Wilderness Preservation System

The area does not have any rare ecosystems which are necessary for protected plants or animals.

Public Interest and Concerns

The area has had some public interest or support for wilderness classification. During the 1977 and 1983 public review 2,195 and 24 comments, respectively, were received. Most comments supported wilderness classification while others favored nonwilderness. During the 1985 review, 10 comments were received. All comments supported wilderness designation.

ALTERNATIVES AND CONSEQUENCES

Management Direction

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Tenderfoot-Deep Creek Roadless Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	30,400	58,000
A-1	0	0	88,400
A-2	0	0	88,400
B-1	0	0	88,400
B-2	0	0	88,400
C	0	88,400	0
D	0	88,400	0
E-1	0	0	88,400
E-2	0	0	88,400
F	0	78,200	10,200
F(Departure)	0	78,200	10,200
G(Preferred)	0	78,800	9,600
H	88,400	0	0
I	88,400	0	0
J	49,500	31,300	7,600
K	88,400	0	0

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resource activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Tenderfoot-Deep Creek Roadless Area, Alternatives A-1, A-2, B-1, B-2, E-1, and E-2 emphasis Timber management. Alternative C, D, F, F(Departure), G(Preferred) and the current plan emphasis minimum level management. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. Alternative J put about half the area under a wilderness emphasis. The other half emphasizes minimum level management. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA (1-726)
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/ Wildlife	Timber/Range Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness	Concentrated Recreation
Current Plan	34,392	30,852	20,792	0	0	0	2,364	0	0	0
A-1	17,432	13,635	36,060	11,043	2,345	207	7,678	0	0	0
A-2	15,777	15,111	37,254	10,679	1,686	36	7,857	0	0	0
B-1	16,759	19,583	43,382	3,383	2,890	0	2,403	0	0	0
B-2	23,128	20,627	39,377	2,739	64	0	2,465	0	0	0
C	45,174	32,339	0	0	0	0	10,887	0	0	0
D	44,046	30,359	0	0	0	0	13,995	0	0	0
E-1	17,585	18,643	38,430	3,635	7,554	36	2,517	0	0	0
E-2	17,565	18,640	41,378	3,506	4,735	36	2,540	0	0	0
F	70,197	4,858	5,795	4,405	0	0	3,105	0	0	40
F(Departure)	70,266	4,239	6,827	3,373	0	0	3,170	485	0	40
G(Preferred)	62,238	11,970	5,555	2,712	1,280	53	3,753	799	0	40
H	0	0	0	0	0	0	0	0	88,400	0
I	0	0	0	0	0	0	0	0	88,400	0
J	27,798	5,851	4,211	2,525	843	21	1,928	525	49,500	198
K	0	0	0	0	0	0	0	0	88,400	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

All of the Tenderfoot-Deep Creek is allocated to wilderness in Alternatives H, I, and K. Part of the area, 50 percent, is allocated to wilderness under Alternative J.

Wilderness allocation would enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing roads and other motorized activities associated with range management and trail maintenance could be eliminated.

The 49,655 acres of land tentatively suitable for timber production would not be available under wilderness management. This would remove about 443 million board feet of standing volume and a yearly harvest of up to 3.989 million board feet (7,600 acres and .610 million board feet Alternative J).

Current livestock grazing, 1,834 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production would be foregone. Over the long run grazing would be reduced by 275 AUMs because of a reduction of available forage (147 AUMs Alternative J).

Effects on big game habitat would be similar since much of the forage produced on this area would support stands of trees. Thus, cover/forage relationships would change much over time and winter range would decrease.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. Over 10,000 acres are currently leased for oil and gas exploration and development and their are 12 hard rock claims.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth, but could be improved by letting fire play a more natural role.
- Water quality and fisheries would be maintained at their present levels.

Economic and social effects would be significant since the area represents about 7 percent of the Forests suitable timber base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized means of travel. User conflict with grazing would arise because the area would attract an influx of people interested in recreation and naturalness. Other resource values such as hunting would be retained.

The 7 percent loss in timber volume in this roadless area can be mitigated by practicing intensive forestry elsewhere on the Jefferson Division.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level Management

Alternatives F, F(Departure), G(Preferred), allocate about 88 percent of the Tenderfoot-Deep Creek and roadless area to range, wildlife, and minimum level management under a roadless designation. Alternative J and Current Plan allocate about 35 percent. Alternatives C and D allocated all of the Tenderfoot-Deep Creek Roadless Area to range, wildlife, and minimum level management under a roadless designation.

Allocation to range, wildlife, and minimum level management would not affect the wilderness attributes. These management prescriptions limit new road construction. Timber harvest is not scheduled, but tree mortality can be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes of this area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range, and Timber/Range/Wildlife/Visual

Alternatives A-1, A-2, B-1, B-2, E-1, E-2, and the Current Plan allocate from 47 to 54 percent of the Tenderfoot-Deep Creek Roadless Area to timber. Alternatives F, F(Departure), G(Preferred), and I, allocated from 9 to 12 percent to timber management.

Allocation to timber management would forego the possibility of wilderness allocation. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the first decade. About 2,500 acres would be developed during the first decade (4,000 acres under Alternatives A-1 and A-2). About 85,900 acres of the area would be available for wilderness reevaluation during the next planning period (88,400 acres under Alternatives A-1 and A-2). The harvest scheduled in Tenderfoot-Deep Creek could be shifted to other parts of the Jefferson Division.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised within 50 years.
- Elk security would be reduced, due to roading and timber harvest, but forage for elk and cattle would be optimized.

- Diversity would tend towards younger age classes, with less mature trees.
- Water quality and fisheries would be affected slightly by roading and timber harvest.
- These alternatives would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would be significant since about 7 percent of the land suitable for timber and about 9 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, and Minimum Level

Alternatives A-1, A-2, B-1, B-2, E-1, E-2, F, F(Departure), and the Current Plan allocate most of the Tenderfoot-Deep Creek Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment. Under these prescriptions there would be additional range improvements and burning to increase forage production.

The nonpriced costs and benefits of this management are:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced, but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected, but not substantially.

Management Designation: Roadless and Developed
Management Emphasis: Concentrated Recreation

Alternatives F, F(Departure), G(Preferred), and J, allocate from 40 to 198 acres to concentrated recreation management.

Allocation to concentrated recreation may effect the wilderness attributes, but the effect could be terminated by the removal of dispersed recreation improvements or other management actions. Timber and range management may take place, if compatible with adjacent management.

The nonpriced costs and benefits are as follows:

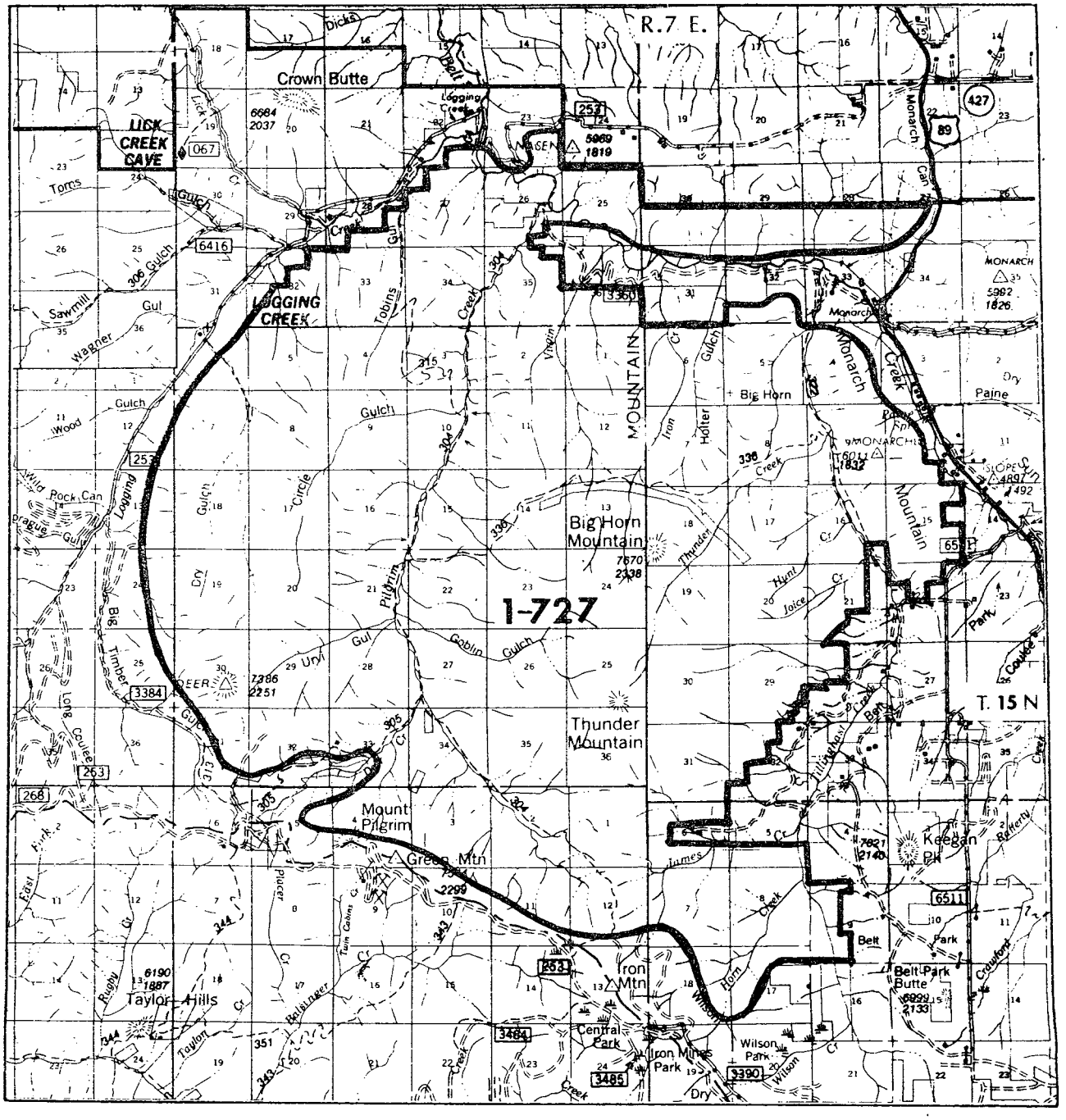
- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Dispersed recreation opportunities would be emphasized.
- Elk security would be reduced.
- Water quality and fisheries would be affected, but not significant.

Table 2 lists the average annual output by alternative.

TABLE 2
Average Annual Output - 2030 by Alternative

Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	88,400	88,400	49,500	88,400
Semi-Primitive		30,400	0	0	0	0	88,400	88,400	0	0	78,200	78,200	78,800	0	0	31,300	0
Roaded Natural		58,000	88,400	88,400	88,400	88,400	0	0	88,400	88,400	10,200	10,200	9,600	0	0	7,600	0
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	88,400	88,400	49,500	88,400
Roadless (2130)	Acres	30,400	0	0	0	0	88,400	88,400	0	0	78,200	78,200	78,200	0	0	38,900	0
Decade 1		85,900	84,400	84,400	85,900	85,900	88,400	88,400	85,900	85,900	85,900	85,900	85,900	0	0	85,900	0
Decade 5		30,400	16,000	16,000	0	73,700	88,400	88,400	88,400	72,000	78,200	78,200	78,200	0	0	38,900	0
Developed (2130)		58,000	88,400	88,400	88,400	88,400	0	0	88,400	88,400	10,200	10,200	10,200	0	0	7,600	0
Decade 1		2,500	4,000	4,000	2,500	2,500	0	0	2,500	2,500	2,500	2,500	2,500	0	0	2,500	0
Decade 2		58,000	72,400	72,400	88,400	14,700	0	0	88,400	16,400	10,200	10,200	10,200	0	0	7,600	0
Range	AUMs	1,834	2,200	2,200	2,109	2,109	1,797	2,680	2,200	2,200	2,036	2,036	1,907	1,559	1,559	1,687	1,559
Timber																	
Suitable Acres	Acres	20,792	49,655	49,655	49,655	42,180	0	0	49,655	49,655	10,200	10,200	9,600	0	0	7,600	0
Volume	MMBF	1.670	3.989	3.989	3.989	3.387	0	0	3.989	3.989	.819	.819	.771	0	0	.610	0
Wildlife-Big Game	Acres																
Summer Habitat		11,386	11,386	11,386	11,386	11,386	11,386	11,386	11,386	11,386	11,386	11,386	11,386	11,386	11,386	11,386	11,386
Winter Habitat		13,772	13,772	13,772	13,772	13,772	13,772	13,772	13,772	13,772	13,772	13,772	13,772	13,772	13,772	13,772	13,772
Fisheries	Miles																
Impacted		7	13	13	13	13	0	0	13	13	2	2	2	0	0	2	0
Unimpacted		20	14	14	14	14	27	27	14	14	25	25	25	27	27	25	27
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	88,400	88,400	49,500	88,400
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		88,400	88,400	88,400	88,400	88,400	88,400	88,400	88,400	88,400	88,400	88,400	88,400	0	0	38,900	0
Employment	Person Years	53	97	97	96.9	86	10	10.6	97	97	24.4	24.4	24.6	6.6	6.6	19.4	6.6
Income	Millions of $	.974	1.862	1.862	1.860	1.669	.170	.187	1.862	1.862	.482	.482	.461	.114	.114	.366	.114
Return to Gov.	Dollars	7,796	17,960	17,960	17,651	15,123	768	1,145	17,690	17,690	4,309	4,309	4,052	666	666	3,282	666

PILGRIM CREEK 1-727
Roadless Area



	Gross Acres	Net Acres
Lewis and Clark National Forest	50,000	49,500

DESCRIPTION

Location and Access

The Pilgrim Creek Roadless Area lies along the northwest border of the Little Belt Mountains about 10 miles northwest of Neihart and 20 miles south of Belt, in Cascade County. Nearly all sides of this circular area are roaded. However, there is no public access from the east.

From the north end of the area a gravel Forest road up Logging Creek parallels the northern and northwestern border. The southwest side can be accessed by a low standard graded Forest road that enters from the southside of the Belts. U.S. Highway 89 parallels the northeast border. The east side is bordered by private land, which has two-wheel track roads to the area boundary. But these roads are grated and closed to the public.

The area is also accessed by three main trails. Two of the trails traverse the area from north to south via Pilgrim Creek, at the center of the area, and Tillinghast Creek on the east side. A third trail, running east-west at the middle of the area, links the previous two. The trails are used by foot, motorcycle, and bike traffic.

General Description

Pilgrim Creek is a circular shaped area which rises into a dome at about the center. The area includes the entire Pilgrim Creek drainage which begins at the southern end and flows north, emptying into Belt Creek at the northern end of the area. Elevations range from 7,670 feet on Big Horn Mountain to about 5,000 feet at the northern end. Big Horn and Thunder Mountains form the dome at the center of the area. These peaks are in a subalpine habitat. The vegetation is rock and scree with some scrubby whitebark pine, spruce, and subalpine fir. The coulees from these mountains fan in all directions. Those to the north go directly into Belt Creek, to the east and southeast drain into Tillinghast, and to the southwest and west flow into Pilgrim Creek.

The canyon Pilgrim Creek flows through has moderate to steep canyon walls. At the lower end of Pilgrim Creek and in Belt Creek limestone cliffs form the stream channel. The western side of the area drains to the northwest into Logging Creek, which parallels and is within one half mile of the western boundary.

Most of the area is timbered with lodgepole pine, Douglas fir, and some spruce. Most of the stream banks are steep with very little riparian area.

The Little Belt Mountains have an average annual precipitation of 28 to 30 inches. The lowest elevations, along the perimeter, average 16 inches of precipitation per year, whereas the peaks average 40 inches per year. Precipitation in the Pilgrim Creek Area is probably the Forest average.

The area is surrounded by both private and Forest Service administered land. Most of the northern border adjoins private land which is on the plains. A finger of the roadless area extends east from the center of the northern boundary. The piece of land to the south, which is excluded, is mostly undeveloped private land. To the northeast is U.S. Highway 89, which separates Paine Gulch and Pilgrim Creek Roadless Areas. U.S. 89, which enters the Little Belts at the northeast corner of Pilgrim Creek, is the only paved year-round access through the Little Belts. The highway extends south to White Sulphur Springs. Most of the land adjoining the east side of the roadless area is private land used for recreation residences. To the south is National Forest land which has been developed by timber activity. The Tenderfoot-Deep Creek Roadless Area is within a mile of most of the western border.

Currently the area is used for livestock grazing, recreation, mining, and post and pole cutting. About six percent of the area is within grazing allotments. Most of the grazing is near the creek bottoms and alongside Belt Creek on the northern end. Recreation activities include hunting, fishing, hiking, and camping. Signs of past and present prospecting are noticeable to the trained-eye. Patented mining claims are at the head of Pilgrim Creek and north of Big Horn Mountain. Along the fringes of the area, minor amounts of posts and poles have been cut.

Overall the area shows little or no disturbance from man. The mining activity is mostly hand work, which has revegetated, and the post and pole cutting is so slight that most people could not find the cutting. As classified by the Forest Service Visual System, the area has a variety class of B, except Pilgrim and Belt Creeks, which are A. The existing visual condition is 1. (See Appendix N -Forest Plan.)

CAPABILITY

Natural Integrity and Appearance

The Pilgrim Creek Roadless Area is an isolated drainage with limited access, because of adjacent private land. The area is mostly timbered, with interspersed small parks. Visitors to the area usually travel on or near the trails paralleling Pilgrim, Deer, or Tillinghast Creek. From there, there are no visitor points. Instead the traveler is surrounded by the drainage walls and isolated from the sights and sounds of outside development. Most of the area has had little development to change its natural appearance. But the east edge of the area has no natural barrier between the rural agricultural development and the roadless area.

Opportunity for Solitude

Opportunities for solitude vary within the area. Pilgrim Creek and the side drainages are very isolated from outside sounds, vistas and development. The fringes of the area are adjacent to and influenced by development.

Primitive Recreation Opportunity

The area has moderate to steep slopes, which are mostly wooded. However, the area is not challenging mountain terrain, which would require technical climbing skills. It has numerous streams and abundant wildlife. With the exception of about 25 miles of trails and 10 miles of low standard road, the area has no

facilities for shelter or other conveniences. The large size of the area and its screening from other parts of the Forest and adjacent development offer the opportunity for overnight use or day use for fishing, hunting, camping, hiking, or horseback riding.

Manageability and Boundaries

The Pilgrim Creek Area is a contiguous unit. The area is nearly round, with roads accessing the adjacent area. Most of the boundaries follow surveyed land lines or parallel existing roads or trails. In places along the northeast and southwest, the boundaries could be difficult to locate on the ground. It would improve the character and manageability of the area if the finger of land at the north end where excluded. A 150 KV powerline running north/south crosses through this finger. The trail access through the area is good. The roadless area was considered in the 1979 RARE II process and sincehthen no boundaries have been changed.

AVAILABILITY

Resource Potential

Recreation - Hunting and hiking are the major recreation uses of this area. Both Pilgrim and Tillinghast Creeks are used for fishing, although Pilgrim is more popular. Most hunting is for elk and deer. About 25 miles of trail and 10 miles of low standard road provides access into the area.

Wildlife - This is a good wildlife area: a small elk herd uses the Pilgrim Creek and Thunder Mountain areas. About 6,000 acres of winter range is in the area.

Grazing - Only a small portion of the area - 3,348 acres--is suitable for grazing. Annual livestock use (566 AUMs) is light for the size of the area. This is because there is poor access and the pockets of grassland are small and interspersed.

Timber - About 25,000 acres of tentatively suitable forest land is in the area. Mature timber is mostly in Pilgrim, Horn, and Big Timber Creeks and on Monarch Mountain. Existing volume is about 244 million board feet. The area is capable of a harvest of 2.0 million board feet annually.

Minerals - The area was explored extensively for lead, iron, and silver in the late 1800s and early 1900s. Patented mining claims lie in upper Pilgrim Creek and on the north slope of Big Horn Mountain. Exploration is sporadic but still active in the area. Proven mineral potential for silver, lead, and zinc exists in Deer Creek and the mid-elevation slopes on the north side of Thunder Mountain. There has been no oil and gas leasing interest in the area.

Special Uses - The Great Falls-Two Dot 150KV powerline crosses the northeastern edge of the area.

Cultural Resources - The area has signs of past historic and prehistoric activity. Old mine sites are scattered throughout the area. An inventory site of a prehistoric quarry is on the west side.

Table 1 lists the resources for the Pilgrim Creek Roadless Area.

Table 1
Pilgrim Creek Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 50,000

NF Acres 49,500

RECREATION - RVDs

Primitive - 0
SPNM - 2,900
SPM - 300
Roaded Natural - 0
Rural - 0

RANGE

Suitable Acres - 3,348
No. of Allotments - 4
Permitted AUMs - 566

TIMBER

Tentative Suitable Acres - 24,950
Standing Volume MMBF - 244.0

CORRIDORS

No. of Existing & Potential - 0

WILDLIFE - T&E

Unoccupied Peregrine Falcon Habitat Acres - 570

WILDLIFE - BIG GAME

Important Elk Summer Range Acres - 10,242
Elk Winter Range Acres - 635
Mule Deer Winter Range Acres - 5,957
Whitetail Deer Winter Range Acres - 923

WILDLIFE - FISHERIES

Stream Miles - 19
Stream Acres - 45

WATER DEVELOPMENTS

No. of Existing

MINERALS

Hardrock Potential - Low--silver, lead and zinc
No. of Claims - 2

Oil & Gas Potential - Low
No. of Oil & Gas Leases - 0
Oil & Gas Lease Acres - 0

NEED

Proximity to Other Designated Wilderness

The Pilgrim Creek Roadless Area is about 30 miles southeast of Great Falls. There are 13 classified wildernesses containing 4.4 million acres within one day's drive of Great Falls.

Contribution to National Wilderness Preservation System

The area does not have any rare ecosystems which are necessary for protected plants or animals.

Public Interest and Concerns

The area has had some public interest or support for wilderness classification. During 1977 and 1983 public review 2,536 and 8 comments, respectively, were received. Most comments supported further planning, while other comments favored nonwilderness. Fewer comments supported wilderness classification. During the 1985 review, 2 commentators supported wilderness designation.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Pilgrim Creek Roadless Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	25,200	24,300
A-1	0	0	49,500
A-2	0	0	49,500
B-1	0	0	49,500
B-2	0	0	49,500
C	0	49,500	0
D	0	49,500	0
E-1	0	0	49,500
E-2	0	0	49,500
F	0	42,500	7,000
F(Departure)	0	42,500	7,000
G(Preferred)	0	45,660	3,840
H	49,500	0	0
I	0	45,300	4,200
J	0	45,300	4,200
K	49,500	0	0

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resources activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Pilgrim Creek Roadless Area, under all alternatives but H, the major emphasis will be on minimum level management. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA 1-727
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/ Wildlife/Visual	Timber/Range Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness
Current Plan	33,186	3,348	11,642	0	0	0	1,324	0	0
A-1	18,249	3,348	15,995	6,183	1,313	116	4,299	0	0
A-2	19,163	3,348	15,646	5,979	944	20	4,400	0	0
B-1	22,226	3,348	19,068	1,894	1,618	0	1,346	0	0
B-2	25,751	3,348	17,451	1,534	36	0	1,380	0	0
C	40,904	2,500	0	0	0	0	6,096	0	0
D	38,316	3,348	0	0	0	0	7,836	0	0
E-1	21,802	3,348	16,635	2,036	4,230	20	1,409	0	0
E-2	21,810	3,348	18,286	1,963	2,651	20	1,422	0	0
F	38,079	2,682	3,616	3,384	0	0	1,739	0	0
F(Departure)	38,087	2,366	3,949	3,051	0	0	1,775	272	0
G(Preferred)	39,663	3,348	2,222	1,085	512	21	2,102	447	0
H	0	0	0	0	0	0	0	0	49,500
I	38,486	3,348	2,224	1,463	501	12	780	2,686	0
J	38,809	3,348	2,327	1,396	466	11	2,470	673	0
K	0	0	0	0	0	0	0	0	49,500

Impacts

PROJECTED BUDGET REQUIRED TO IMPLEMENT THE FOREST PLAN

(Average Annual in Thousands of Dollars for the First Decade)

Management Designation: Wilderness
Management Emphasis: Wilderness

Funding is allocated to wilderness in Alternative H and K. These are the only alternatives that the total area or any portion of it is allocated to wilderness.

Item	Budget Activity	FY78 Dollars	(x1.49 =) FY84 Dollars
00	General Administration	610	897
01	Fire	190	279
02	Fire Rehab/Aux	19	28
03	Range Management	155	228
04	Timber Planning	93	137
05	Silvicultural Exams	122	179
06	Timber	255	375
07	Minerals	280	412
08	Recreation	324	476
10	Wildlife and Fish	293	431
11	Soil, Water, and Air	101	148
12	Facility Maintenance	71	104
13	Special Uses	32	47
14	Economics	7	10
15	Land Exchange	30	44
16	Admin. Sites	57	84
17	Road Maintenance	242	356
18	Trail Maintenance	177	260
19	Cost Share Enforcement	26	38
20	Reforestation - Appropriated	36	53
21	TSI - Appropriated	18	26
22	Tree Improvement	5	7
28	KV (Trust Fund)	64	94
29	CWFS - Other (Trust Fund)	15	22
30	Timber Salv. Sales	20	29
31	Brush Disposal	15	22
32	Range Improvement	31	46
33	Recreation Construction	29	43
34	Facilities Construction FA&O	0	0
35	Eng. Construction Support	285	419
36	Cap. Inv. Ads	328	482
37	Trail Const/Reconstruction	83	122
42	Land Acquisition	24	35
43	Security	98	144
	TOTAL BUDGET	4,135	6,077
	Timber Purchaser Credits	135	198
	TOTAL COSTS	4,270	6,275

1973 is the base year for costs used in Forest planning.

Wilderness allocation would enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing low standard roads which are used for motorized recreation and other motorized activities associated with range management and trail maintenance would be eliminated.

The 24,950 acres of land tentatively suitable for timber production would not be available under wilderness management. This would remove about 244 million board feet of standing volume with an annual harvest of up to 20 million board feet.

Current livestock grazing, 566 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production would be foregone. Over the long run grazing would be reduced by 85 AUMs because of a reduction of available forage.

Effects on big game would be similar since much of the forage produced on this area would support deer and elk. Thus, cover/forage relationships would change over time and forage would decrease.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. There are currently 2 hardrock claims within the area.

Under this allocation recreation use would continue to be dominated by hunting and hiking.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities in the area would be noticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth, but could be improved by letting fire play a natural role.
- Water quality and fisheries would be maintained at their present levels.

Economic and social effects would be slight since the area represents about 4 percent of the Forest suitable timber base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized means of travel. Other resource values such as hunting would be retained.

The 4 percent loss in timber volume in this roadless area can be mitigated by practicing intensive forestry elsewhere on the Jefferson Division.

Appendices T-1

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

Alternatives C, D, F, F(Departure), G(Preferred), I, and J, allocated a large percentage of the Pilgrim Creek Roadless Area to range, wildlife, range/wildlife, and minimum level management under a roadless designation.

The Current Plan allocates about 50 percent of the area to range, wildlife, range/wildlife, and minimum level management under a roadless designation.

Allocation to range, wildlife, wildlife/range, and minimum level management would not affect the wilderness attributes. These management prescriptions limit road construction. Timber harvest is not scheduled, but tree mortality can be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes in much of the area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range, Timber/Wildlife/Visual, and Timber/Range/Wildlife/Visual

All alternatives, except C, D, H, and K, allocate some of the Pilgrim Creek Roadless Area to timber management. Under Alternative A-1, A-2, B-1, B-2, E-1, and E-2 all of the area will be developed. The Current Plan would develop about 50 percent of the area. Other alternatives would develop between 7 and 14 percent of the area.

Allocation to timber management would forego the possibility of wilderness allocation. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest will be scheduled starting in the second decade. All of the area would be available for wilderness reevaluation during the next planning period.

The harvest scheduled in Pilgrim Creek could be shifted to other parts of the Jefferson Division.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised within 50 years.

- Elk security would be reduced, due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.
- Water quality and fisheries would be affected slightly by roading and timber harvest.
- These alternatives would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would be slight since about 4 percent of the land suitable for timber and about 5 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Range/Wildlife, and Minimum Level

All alternatives, except C, D, H, and K, allocate some of the Pilgrim Creek Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment. Under these prescriptions there would be additional range improvements and burning to increase forage production.

The nonpriced costs and benefits of this management are:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected, but not substantially.

Table 2 lists the average annual output by alternative.

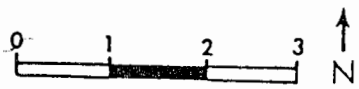
TABLE 2
Average Annual Output - 2030 by Alternative

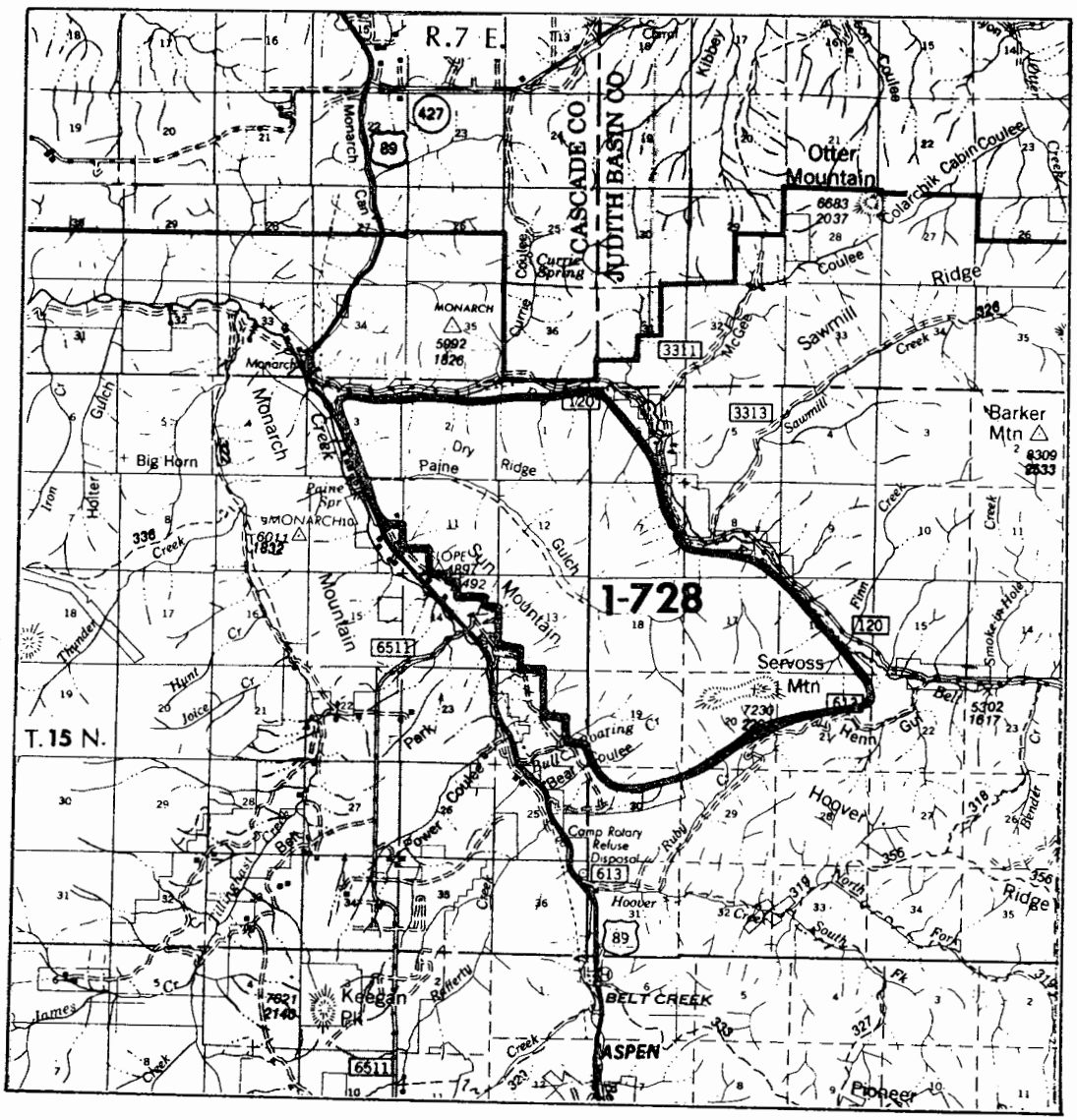
Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	49,500	0	0	49,500
Semi-Primitive		25,200	0	0	0	0	49,500	49,500	0	0	42,500	42,500	45,660	00	45,300	45,300	0
Roaded Natural		24,300	49,500	49,500	49,500	49,500	0	0	49,500	49,500	7,000	7,000	3,840	0	4,200	4,200	0
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	49,500	0	0	49,500
Roadless	Acres	25,200	0	0	0	0	49,500	49,500	0	0	42,500	42,500	45,660	0	45,300	45,300	0
Decade 1		49,500	49,500	49,500	49,500	49,500	49,500	49,500	49,500	49,500	49,500	49,500	49,500	0	49,500	49,500	0
Decade 5		49,000	0	0	0	24,500	49,500	49,500	5,800	38,00	42,500	42,500	45,660	0	45,300	45,300	0
Developed		24,300	49,500	49,500	49,500	49,500	0	0	49,500	49,500	7,000	7,000	3,840	0	4,200	4,200	0
Decade 1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decade 5		500	49,500	49,500	49,500	25,000	0	0	43,700	1,500	7,000	7,000	3,840	0	4,200	4,200	0
Range	AUMs	566	679	679	651	651	555	696	679	679	617	617	589	481	543	543	481
Timber																	
Suitable Acres	Acres	11,642	23,607	22,589	22,580	19,021	0	0	22,921	22,920	7,000	7,000	3,840	0	4,200	4,200	0
Volume	MMBF	.935	2.830	1.814	1.183	1.527	0	0	1.841	1.841	.562	.562	.308	0	.308	.308	0
Wildlife-Big Game	Acres																
Summer Habitat		10,242	10,242	10,242	10,242	10,242	10,242	10,242	10,242	10,242	10,242	10,242	10,242	10,242	10,242	10,242	10,242
Winter Habitat		5,957	5,957	5,957	5,957	5,957	5,957	5,957	5,957	5,957	5,957	5,957	5,957	5,957	5,957	5,957	5,957
Fisheries	Miles	10	19	19	19	19	0	0	19	19	3	3	1	1	0	1	0
Impacted		9	0	0	0	0	19	19	0	0	16	16	18	18	19	18	19
Unimpacted																	
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	49,500	0	0	49,500
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		49,500	49,500	49,500	49,500	49,500	49,500	49,500	49,500	49,500	49,500	49,500	49,500	0	49,500	49,500	0
Employment	Person Years	26.7	25.8	47.7	47.7	43.5	5.2	5.3	48.1	48.1	15.7	15.7	10.9	3.4	11	11	3.4
Income	Millions of $	.497	1.214	.894	.693	.793	.085	.088	.894	.894	.301	.301	.201	.056	.114	.114	.409
Return to Gov.	Dollars	4,167	23,173	7,907	5,245	6,690	237	297	8,020	8,020	2,623	2,623	1,545	205	1,525	1,525	205

Enjoying a Nice Day in the Little Belt Mountains.

PAINE GULCH 1-728

Roadless Area





	Gross Acres	Net Acres
Lewis and Clark National Forest	8,500	8,500

DESCRIPTION

Location and Access

The Paine Gulch Roadless Area lies along the north-central border of the Little Belt Mountains, about 35 miles south of Great Falls, in Cascade County, Montana. The area, named for Paine Gulch which flows northwest through the center, is a continguous parcel of Forest Service administered land. The four sides of this small rectangular-shaped area are adjacent to roads. Along the north and east is an improved, gravel Forest development road, which is passable by passenger car. To the south is a lower standard, graded Forest road. U.S. Highway 89 parallels, and in places adjoins, the western boundary. About eight miles south on U.S. 89 is the town of Neihart, population 300, which is supported by mining and tourism. U.S. 89, which continues south to White Sulphur Springs, is the only year round access through the Little Belts.

A trail, beginning at U.S. 89 along the northwest corner, angles southeast along the bottom of Paine Gulch, dead ending at the center of the area. The trail is mostly used by foot traffic.

General Description

Paine Gulch is a rectangular box canyon, which opens at the northwest and angles from northwest to southeast. The area is bordered by both Forest and private land. National Forest land borders on the north, east, and south, with the exception of a small piece on the east. The western border is private land, which has been subdivided for vacation and year-round homes.

The topography is moderate to steep, with limestone outcroppings toward the ridgetops. Paine Gulch flows northwest through the center of the area and opens into Belt Creek through a steep and narrow canyon. The Gulch is formed by the two steep, parallel 6,500 foot ridges--Sun Mountain and Dry Ridge--and Servoss Mountains (7,200 feet) on the south. From Servoss, the ridges run northwest, leading to Belt Creek.

The area is very dry and sparsely timbered throughout with Douglas fir and some ponderosa and lodgepole pine. There is practically no undergrowth. The only stringer of grassland runs along Paine Gulch, a perennial stream.

The west half, from the top of Dry Ridge to the western border, is a recommended research natural area. It contains nine representatives of undisturbed forest vegetation and aquatic ecosystems that are typical of the Lewis and Clark National Forest. The ecosystems are: ponderosa pine/Idaho fescue, Douglas fir/Idaho fescue, Douglas fir/twin flower, Douglas fir/snowberry, Douglas fir/common juniper, subalpine fir/virgins bower, subalpine fir/heart leaf armica, cold springs, and a type I stream (meandering, with a less than one percent gradient).

Research natural areas are to be managed to sustain natural conditions, which may be used for research. If Paine Gulch was designated a research natural area, no timber or range use would be allowed. But, there could be motorized access on designated routes.

To preserve the natural conditions until the area's designation is decided, there will be no timber, range, or other resource development within the roadless area. The only exception is a very minor amount of post and pole cutting along the northern and eastern boundaries, adjacent to the Forest road.

As classified by the Forest Service visual system, the area has a variety class B and an existing visual condition 1. (See Appendix N - Forest Plan). The area appears very dry and weathered, as shown by sparsely timbered slopes, with no undergrowth, and broken, eroded limestone outcroppings.

About half of the surrounding area is developed. To the north is prairie land. To the east is a small parcel of private land used for haying and grazing, but from higher points the view is of Sawmill Creek drainage and roadless area, in the Little Belts. The Sawmill Creek Roadless Area is separated from Paine Gulch by a Forest development road. To the south, a little of U.S. Highway 89 is visible, but the view is mostly of undeveloped mountainous terrain in the Little Belts. The east half of the southern border is a low standard Forest road which separates Paine Gulch and Big Baldy Roadless Area. To the west, U.S. Highway 89 and a residential area along the border are clearly visible. Pilgrim Creek Roadless Area is about one half mile to the west, across U.S. 89.

CAPABILITY

Natural Integrity and Appearance

The long-term ecological processes are undisturbed in most of the area, therefore, the natural integrity has been maintained and ecological processes have followed their natural course. This is one of the reasons why the area is a recommended research natural area.

Although the area is adjacent to U.S. Highway 89, Sun Mountain separates the area from the road. When in the area there is little visual or audio disturbance from adjacent development, because of the ridges on the east and west sides of the area.

The trail, beginning at U.S. Highway 89, is the only development within the area. The scattered post and pole cutting along the borders is slight and unnoticeable. For some, the noise from U.S. Highway 89 and the Forest roads could be a disturbance.

Opportunity for Solitude

Because the Paine Gulch Area is small, situated between U.S. 89 and a Forest development road, and does not have unique or spectacular vegetation or topography, the area is not noted for its opportunity for solitude. Although the sights and sounds of the adjacent areas are screened, the small size and adjacent development detract from the opportunity to find solitude. Because the area is small and very sparsely timbered, persons hiking along the bottom of Paine Gulch would not be screened from other visitors. When within the area, visitors are always at least within 1½ mile of a road.

Primitive Recreation Opportunity

Although the Paine Gulch Area sustains a variety of forest habitat types (see list in General Description), it is a small area. The only trail in the area is three miles. Therefore, within a day most of the area could be crossed by foot.

Other Features

As explained before, the west half of the area includes nine forest vegetation and aquatic ecosystem types which are typical of the Lewis and Clark Forest. To protect the environments for study, the western part of the Paine Gulch Area is a recommended research natural area.

Manageability and Boundaries

The area's small size, with roads on the perimeter and a trail down the middle, make the whole area very accessible for administration and recreation purposes. The present boundary could be easily defined on the ground, because it is adjacent to roads or surveyed lines. Adjusting the boundary would not improve the wilderness characteristics, because the conflicts are not within the area. Instead, to improve the wilderness characteristics adjacent development would have to be curtailed, which of course is not feasible.

The boundaries and the acres have not been adjusted since the RARE II inventory.

AVAILABILITY

Resource Potential

Recreation - The area receives little use. There is some hiking and deer hunting. No developed recreation sites are within the area.

Wildlife - Mule deer, elk, and grouse inhabit the area. However, the area is not known for outstanding or unusual wildlife habitat.

Range - In the past, one permittee grazed about 20 cattle. The allotment has been closed. No developments are in the area.

Timber - About 4,800 acres of tentatively suitable forest land are in the area with the balance in noncommercial or nonforest land. The timber is mostly Douglas fir with some lodgepole and ponderosa pine. The timber has little commercial value. No commercial harvest has occurred in the past; however, a blowdown area (about 100 acres of lodgepole pine) along the northern boundary resulted from tornadoes passing through the area in the 1960s. There are no plans to salvage the blowdown. Some scattered post and pole cutting along adjacent Forest roads has been the only timber harvest. The area is capable of .388 million board foot annual harvest.

Minerals - Fifteen unpatented mining claims lie along Ruby Creek, on the southern border. They appear to be associated with building stone. There has been no mineral production from the area.

Cultural Resources - There are no inventoried sites in the area. The potential for sites is low because the Gulch is very dry and forms a box canyon. Therefore, the area was probably not a travel corridor.

Management Considerations

The fire potential is low because of limited ground fuels and sparsely timbered sites, with little or no undergrowth. Potential for mountain pine beetle attack in the lodgepole pine is high.

Table 1
Paine Gulch Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 8,500
NF Acres 8,500

RECREATION - RVDs

Primitive - 0
SPNM - 500
SPM -
Roaded Natural - 0
Rural - 0

RANGE

Suitable Acres - 393
No. of Allotments - 0
Permitted AUMs - 0

TIMBER

Tentative Suitable Acres - 4,837
Standing Volume MMBF - 56.6

CORRIDORS

No. of Existing & Potential - 0

WILDLIFE - T&E

Unoccupied Peregrine Falcon Habitat Acres - 32

WILDLIFE - BIG GAME

Important Elk Summer Range Acres - 110
Mule Deer Winter Range Acres - 2,810

WILDLIFE - FISHERIES - None

WATER DEVELOPMENTS

No. of Existing - 0

MINERALS

Hardrock Potential - Low for metallic, buildir stone is present.
No. of Claims - 15

Oil & Gas Potential - Low
No. of Oil & Gas Leases - None
Oil & Gas Lease Acres - None

NEED

Proximity to Other Designated Wilderness

The Paine Gulch Area is about 40 miles southeast of Great Falls. There are 13 classified wildernesses containing 4.4 million acres within one day's drive of Great Falls.

Contribution to National Wilderness Preservation System

As a research natural area candidate, the Paine Gulch Area houses nine ecological types which are representative of the Forest and could be used for nonmanipulative research.

Public Interest and Concern

Local concern for the area states Paine Gulch should not be developed, but should not be a classified wilderness. That is to say, leave the area as it is now. During 1977 and 1983 public review 1,230 and 4 comments, respectively, were received. Most comments supported nonwilderness. During the 1985 review, no specific comments were received.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Paine Gulch Roadless Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	6,000	2,500
A-1	0	3,500	5,000
A-2	0	3,500	5,000
B-1	0	3,500	5,000
B-2	0	3,500	5,000
C	0	8,500	0
D	0	8,500	0
E-1	0	3,500	5,000
E-2	0	3,500	5,000
F	0	7,300	1,200
F(Departure)	0	7,300	1,200
G(Preferred)	0	7,700	800
H	8,500	0	0
I	0	5,500	3,000
J	0	5,500	3,000
K	0	5,500	3,000

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resources activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Paine Gulch Roadless Area, under all alternatives but H, the major emphasis will be on minimum level management. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA 1-728
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/Wildlife Visual	Timber/Range Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness	Concentrated Recreation
Current Plan	5,881	393	1,999	0	0	0	227	0	0	0
A-1	3,314	393	2,747	1,062	226	20	738	0	0	0
A-2	3,472	393	2,687	1,027	162	3	756	0	0	0
B-1	3,999	393	3,274	325	278	0	231	0	0	0
B-2	4,604	393	2,997	263	6	0	237	0	0	0
C	7,253	200	0	0	0	0	1,047	0	0	0
D	6,761	393	0	0	0	0	1,346	0	0	0
E-1	3,929	393	2,857	350	726	3	242	0	0	0
E-2	3,928	393	3,140	337	455	3	244	0	0	0
F	6,458	393	765	581	0	0	299	0	0	4
F (Departure)	6,166	393	1,061	524	0	0	305	47	0	4
G (Preferred)	6,865	393	466	227	107	0	361	77	0	4
H	0	0	0	0	0	0	0	0	8,500	0
I	5,523	393	1,027	675	231	6	134	461	0	50
J	5,702	393	1,009	605	202	5	424	116	0	44
K	5,966	200	68	480	58	26	1,449	253	0	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Paine Gulch is allocated to wilderness in Alternative H. This is the only alternative that the total area or any portion is allocated to wilderness.

Wilderness allocation can enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. Motorized recreation and motorized trail maintenance could be eliminated.

The 4,837 acres of land tentatively suitable for timber production would not be available under this prescription. This would remove about 57 million board feet of standing volume and an annual harvest of up to .388 million board feet.

Big game or elk management would not change since much of the forage produced on this area is from permanent grassland. Thus, cover/forage relationships should not change much over time except as influenced by wildfire.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth, but could be improved by letting fire play a more natural role.
- Water quality would be maintained at their present levels.
- Paine Gulch would be available as a research natural area.

Economic and social effects would be slight since the area represents about 1 percent of the Forests suitable timber base. Other resource values such as hunting would be retained.

The 1 percent loss in timber volume in this roadless area can be mitigated by practicing intensive forestry elsewhere on the Jefferson Division.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

Alternatives C and D allocated all of Paine Gulch Roadless Area to range, wildlife, and minimum level management under a roadless designation.

Alternatives F, F(Departure), G(Preferred), I, J, K, and the Current Plan allocate from 65 to 90 percent of the area to range, wildlife, and minimum level management under a roadless designation.

Allocation to wildlife and minimum level management would not effect the wilderness attributes. These management prescription limit new road construction. Timber harvest is not scheduled, but tree mortality can be salvaged. Since there will be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes in much of the area. Paine Gulch would be withdrawn from mineral entry to protect research values. Other parts of the area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality would not be affected.
- Paine Gulch would be available for a research natural area.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range, Timber/Wildlife/Visual and Timber/Range/Wildlife/Visual

All Alternatives, except H, allocate some of the Paine Gulch Roadless Area to timber management. Under Alternative A-1, A-2, B-1, B-2, E-1, and E-2 most of the area will be developed.

Allocation to timber management would forego the possibility of wilderness allocation. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest will be scheduled starting in the second decade. All of the area would be available for wilderness reevaluation during the next planning period.

The harvest scheduled in Paine Gulch could be shifted to other parts of the Jefferson Division.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised within 50 years.
- Elk security would be reduced, due to roading and timber harvest, but forage for elk would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.
- Water quality would be affected slightly by roading and timber harvest.
- Paine Gulch would be available as a research natural area.
- These alternatives would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since about 1 percent of the Forests suitable timber base and less than 1 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Range/Wildlife, and Minimum Level

All alternatives, except C, D, and H, allocate some of the Paine Gulch Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment. Under these prescriptions there would be additional range improvements and burning to increase forage production.

The nonpriced costs and benefits of this management are:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced, but forage for elk would be optimized.
- Diversity would increase under this prescription.
- Water quality would be affected, but not substantially.

Management Designation: Roadless and Developed
Management Emphasis: Concentrated Recreation

Alternatives F, F(Departure), G(Preferred), I, and J, allocate from 4 to 50 acres to concentrated recreation management.

Allocation to concentrated recreation may effect the wilderness attributes, but the effect could be terminated by the removal of dispersed recreation improvements or other management actions. Timber and range management may take place, if compatible with adjacent management.

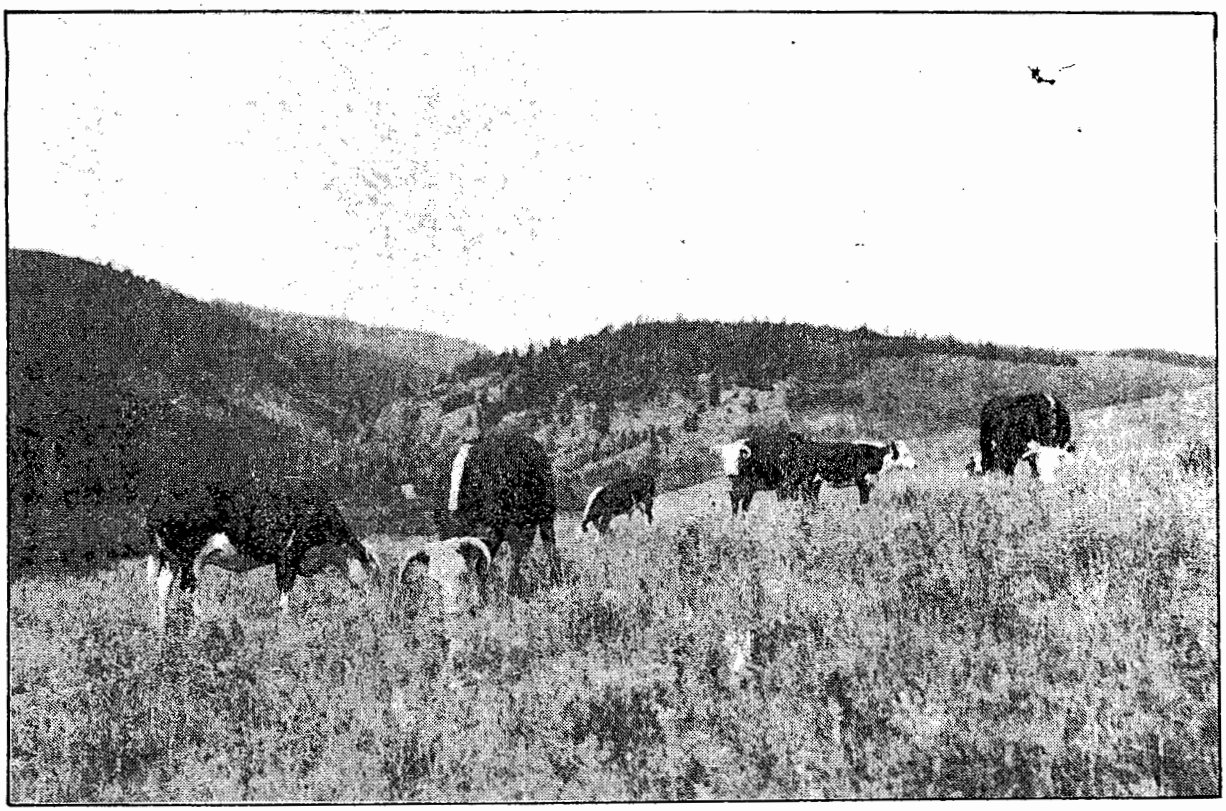
The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Dispersed recreation opportunities would be emphasized.
- Elk security would be reduced.
- Water quality and fisheries would be affected, but not significant.

Table 2 lists the average annual output by alternative.

TABLE 2
Average Annual Output - 2030 by Alternative

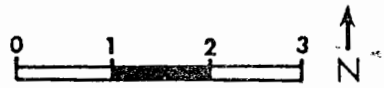
Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	8,500	0	0	0
Semi-Primitive		6,000	3,500	3,500	3,500	3,500	8,500	8,500	3,500	3,500	7,300	7,300	7,700	0	5,500	5,500	5,500
Roaded Natural		2,500	5,000	5,000	5,000	5,000	0	0	5,000	5,000	1,200	1,200	800	0	3,000	3,000	3,000
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	8,500	0	0	0
Roadless	Acres	6,000	3,500	3,500	3,500	3,500	8,500	8,500	3,500	3,500	7,300	7,300	7,700	0	5,500	5,500	5,500
Decade 1		8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	0	8,500	8,500	8,500
Decade 5		8,500	3,500	3,500	3,500	3,500	8,500	8,500	3,500	3,500	7,300	7,300	7,700	0	5,500	5,500	5,500
Developed		2,500	5,000	5,000	5,000	5,000	0	0	5,000	5,000	1,200	1,200	800	0	3,000	3,000	3,000
Decade 1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decade 5		0	5,000	5,000	5,000	5,000	0	0	5,000	5,000	1,200	1,200	800	0	3,000	3,000	3,000
Range	AUMs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Timber																	
Suitable Acres	Acres	1,999	4,055	3,879	3,877	3,266	0	0	3,936	3,935	1,346	1,585	800	0	1,939	1,821	632
Volume	MMBF	.160	.326	.311	.311	.262	0	0	.316	.316	.108	.127	.067	0	.156	.146	.051
Wildlife-Big Game	Acres																
Summer Habitat		110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
Winter Habitat		2,810	2,810	2,810	2,810	2,810	2,810	2,810	2,810	2,810	2,810	2,810	2,810	2,810	2,810	2,810	2,810
Fisheries	Miles																
Impacted		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unimpacted		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minerals	Acres																
Category A		3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	8,500	3,500	3,500	3,500
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	0	5,000	5,000	5,000
Employment	Person Years	4.2	8.3	8.1	8.1	7.4	.8	.8	8.2	8.2	2.8	3.1	2.1	.5	.4	3.9	2.5
Income	Millions of $	.083	.156	.151	.151	.136	.013	.013	.153	.153	.052	.058	.038	.008	.075	.072	.042
Return to Gov.	$	671	1,368	1,305	1,305	1,100	0	0	1,326	1,326	453	533	281	0	655	613	214

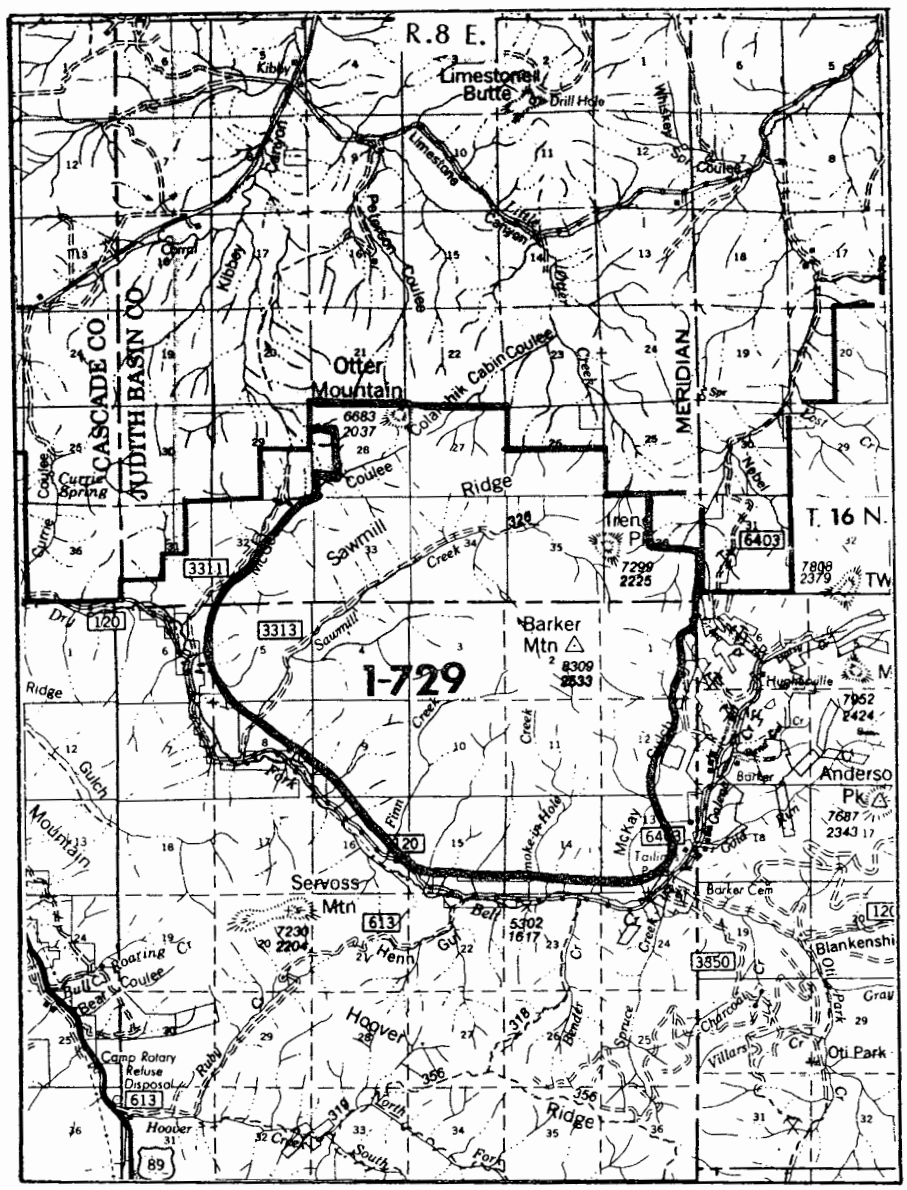


Cows Grazing in the Little Belt Mountains.

SAWMILL CREEK 1-729

Roadless Area





	Gross Acres	Net Acres
Lewis and Clark National Forest	12,800	12,800

DESCRIPTION

Location and Access

The Sawmill Creek Roadless Area lies along the northcentral border of the Little Belt Mountains in central Montana. About 40 miles southeast of Great Falls and 15 miles north of Neihart, the area is in Cascade County. Public access is by improved, gravel roads on the south and east sides, and by a two-wheel track road on the west. Along the north border, several two-wheel track roads cross private land access the area.

One two-wheel track road penetrates the area. Beginning on the southwest border the road parallels Sawmill Creek for approximately three miles and deadends. There are no trails in the area.

The area is encircled by roads, minings, and grazing land. The northern border is also the proclaimed Forest boundary. The adjacent private land is plains and mostly used for cattle grazing. The east side is bordered by patented mining claims and the Barker-Hughesville Mining District, a longtime producer of silver, lead, zinc, and gold. The south and west sides parallel a Forest development road, which is the dividing line between Sawmill Creek Roadless Area and Paine Gulch and Big Baldy Roadless Areas.

General Description

Elevations range from 5,000 to 8,300 feet. The highest point, Barker Mountain, forms a dome near the middle of the area. Geologically, Barker Mountain is an igneous laccolith or dome shape intrusive, thus the slopes dip away in all directions. Barker's rounded ridges drop moderately into McKay Gulch to the east, Dry Fork of Belt Creek to the south, and Sawmill Creek to the west. The canyon bottoms also drop moderately and are U-shaped. Irene Peak (7,289 feet) is also a dome-shaped intrusive, but it stands on the northeast corner and is dominated by Barker Mountain. A third high point, Otter Mountain, is on the northwest border. The west side of Otteris open slopes and an elk winter range area. Sawmill Creek is the lowest point in the area.

The majority of the area is timbered with Douglas fir, lodgepole pine, and ponderosa pine, ranging from commercial size and quality at the lower elevations to scrubby when growing at the higher elevations. Natural parks -- from 5 to 100 acres--are intermingled throughout the area. None of the area is above timberline.

Currently the area is primarily used for grazing, hunting, and prospecting. There is some recreation day use and minor amounts of post and pole cutting near roads.

As classified by the Forest Service visual system, the area has a variety Class B and an existing visual condition 2 (See Appendix N - Forest Plan). The area has a very uniform appearance, except for the mosaic of timber and grassland. About

half of the surrounding area is developed. The north border is adjacent to plains and ranch land. To the east, there has been intensive mining activity in the Barker-Hughesville Mining District. About 1,000 acres to the east of the area are patented mining claims, and much of the area is still mined. However, from the high points on Barker Mountain you look over most of the mining activity, which is in the bottom, and into mountainous terrain. To the south and west Big Baldy and Paine Gulch Roadless Areas, respectively, are separated from Sawmill Creek by a forest development road. However, from most viewpoints one cannot see the road, which is in the bottom, and the view is of mountainous terrain with little sign of development.

The area is adjacent to the Barker-Hughesville Mining District, a longtime producer of silver, lead, zinc, and gold. There is a high potential for future discoveries of silver, lead, zinc, copper, molybdenum and gold. Building stone may also be present.

CAPABILITY

Natural Integrity and Appearance

The creek bottoms--Sawmill, Dry Fork, and McKay--are the only areas with development. A two-wheel track road parallels Sawmill Creek and some timber has been cut along Sawmill and Dry Fork Belt Creek. Twelve unpatented mining claims are along McKay Gulch, but there is little ground disturbance. Range allotments cover the lower areas. However, the cumulative effect on the natural integrity and appearance has been slight. Probably the greatest disturbances to the area are the Dry Fork Belt Road, on the southern boundary, and the Hughesville Mining District, immediately to the east of the area. The Dry Fork Road receives heavy truck traffic from the mines at Hughesville, but the sound does not penetrate the whole Sawmill Creek Area.

Opportunity for Solitude

There are some opportunities for solitude in the middle of the area, which is removed from the sight and sound of agricultural development, roads, and mining activity. The noise from truck traffic along the southern border penetrates much of the area.

Primitive Recreation Opportunity

The Sawmill Creek Area is not spectacular or challenging country to hike in. Most of the slopes are steep and wooded. Barker Mountain is at timberline, with subalpine vegetation on top. The view to the north is surrounding agricultural land, plains, and the Highwood Mountains in the distance. Views to the east, south, and west are of the Little Belts, with some roads and timber activity in the distance.

Manageability and Boundaries

No private land is in the area. Most boundaries follow topographic features or proclaimed Forest boundaries. In a few spots terrain features are less prominent and boundaries would be difficult to locate on the ground. The area is small and roaded on three sides, giving good access.

The adjacent and active Hughesville Mining District, to the east, is an indication that the mineral potential is high in the east half of Sawmill Gulch. The geologic history of the area is similar to the Barker-Hughesville Mining District. Therefore, future hardrock mineral development is the main uncertainty for manageability for potential wilderness, because existing laws allow for exploration and development of hardrock minerals.

The boundary and acreage have not been adjusted since the RARE II inventory.

AVAILABILITY

Resource Potential

Recreation - No outstanding recreation attractions exist within the Sawmill Creek Roadless Area. Recreationists use the area mostly for hunting, snowmobiling, and camping along the Dry Fork Road (on the southern border). No developed sites or trails are within the area.

Wildlife - The area provides habitat for mule deer, elk, and grouse. The northern portion of the area is good elk winter range.

Range - About 15 percent of the area is used for grazing. Four permittees graze about 100 cattle annually. Drift fences are the only developments. Steep terrain limits livestock use of the area.

Timber - About 5,100 acres are tentatively suitable forest land with the balance being noncommercial or nonforest. Along Sawmill Creek, which is roaded, about 3,000 acres of lodgepole pine and 200 acres of Douglas fir and ponderosa pine sawtimber could be harvested. The area has a standing volume of 40.1 million board feet and is capable of a .412 million board feet annual harvest. Access from the east for timber harvest could be difficult because of the number of patented mining claims which would require right-of-way.

Minerals - Twelve unpatented mining claims lie along McKay Gulch. Because of activity in adjacent mining district, there is high potential for future mineral development within the area. There are no oil and gas leases in the area and there is no potential for discoveries of oil and gas.

Water - The Dry Fork of Belt Creek, which the Sawmill Creek Area drains into, is used to irrigate approximately 160 acres adjacent to the creek.

Cultural Resources - There are no inventoried prehistoric sites within the area. Of historical note is a stage road which went up McGee Coulee, on the northwest boundary.

Table 1 lists the resources for the Sawmill Creek Roadless Area.

Management Considerations

Fire potential is low due to light fuels. There is high potential for Mountain Pine Beetle in the ponderosa and lodgepole pine.

Table 1
Sawmill Creek Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 12,800

NF Acres 12,800

RECREATION - RVDs

Primitive - 0
SPNM - 800
SPM - 200
Roaded Natural - 0
Rural - 0

RANGE

Suitable Acres - 1,866
No. of Allotments - 2
Permitted AUMs - 566

TIMBER

Tentative Suitable Acres - 5,134
Standing Volume MMBF - 40.1

CORRIDORS

No. of Existing & Potential - 0

WILDLIFE - T&E - None

WILDLIFE - BIG GAME

Important Elk Summer Range Acres - 834
Elk Winter Range Acres - 746
Mule Deer Winter Range Acres - 2,719

WILDLIFE - FISHERIES - None

WATER DEVELOPMENTS

No. of Existing - 0

MINERALS

Hardrock Potential - High - silver, lead, zinc, copper, molybdenum, gold, and building stone.

No. of Claims - 12

Oil & Gas Potential - Low
No. of Oil & Gas Leases - None

NEED

Proximity to Other Designated Wilderness

The Sawmill Creek Roadless Area is about 40 miles southeast of Great Falls. There are 13 classified wildernesses containing 4.4 million acres within one day's drive of Great Falls.

Contribution to National Wilderness Preservation System

The area does not have any rare ecosystems which are necessary for protected plants or animals.

Public Interest and Concerns

The area has had little public interest or support for wilderness classification. During 1977 and 1983 public review 1,230 and 5 comments, respectively, were received. Most comments supported nonwilderness. During the 1985 review, no specific comments were received.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

Management Designation

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Sawmill Creek Roadless Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	2,500	10,300
A-1	0	0	12,800
A-2	0	0	12,800
B-1	0	0	12,800
B-2	0	0	12,800
C	0	12,800	0
D	0	12,800	0
E-1	0	0	12,800
E-2	0	0	12,800
F	0	12,800	0
F(Departure)	0	12,800	0
G(Preferred)	0	11,800	1,000
H	12,800	0	0
I	0	12,800	0
J	0	11,800	1,000
K	0	11,800	1,000

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resource activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Sawmill Creek Roadless Area, Alternatives, B-2, C, D, F, F(Departure), G(Preferred), I, J and K place the major emphasis on minimum level management. Alternative A-1, A-2, B-1, E-1, and E-2 emphasis timber management. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA 1-729
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/ Wildlife	Timber/Range Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness
Current Plan	6,422	3,025	3,011	0	0	0	342	0	0
A-1	4,064	1,519	4,136	1,599	340	30	1,112	0	0
A-2	4,173	1,648	4,046	1,546	244	5	1,138	0	0
B-1	4,574	2,039	4,931	490	418	0	348	0	0
B-2	5,393	2,131	4,513	397	9	0	357	0	0
C	8,184	3,040	0	0	0	0	1,576	0	0
D	7,793	2,981	0	0	0	0	2,026	0	0
E-1	4,552	1,957	4,302	526	1,094	5	364	0	0
E-2	4,548	1,957	4,728	508	686	5	368	0	0
F	11,650	694	0	0	0	0	450	0	0
F(Departure)	11,293	612	0	0	0	0	459	70	0
G(Preferred)	8,236	1,382	1,456	711	336	14	543	116	0
H	0	0	0	0	0	0	0	0	12,800
I	10,349	1,479	0	0	0	0	202	695	0
J	9,651	1,270	589	411	0	0	639	174	0
K	7,286	1,999	102	723	88	40	2,182	380	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Sawmill Creek is allocated to wilderness in Alternative H. This is the only alternative that the total area or any portion is allocated to wilderness.

Wilderness allocation could enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing roads up Sawmill Creek, Dry Fork and McKay Gulch and other motorized activities associated with range management and trail maintenance could be eliminated.

The 5,134 acres of land tentatively suitable for timber production would not be available under this prescription. This would remove about 40 million board feet of standing volume and a yearly harvest of up to .412 million board feet.

Current livestock grazing, 566 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production will be foregone. Over the long run grazing would be reduced by 85 AUMs because of a reduction of available forage.

Effects on big game habitat would be similar since much of the forage produced on this area is capable of producing trees. Thus, cover/forage relationships could change over time and winter range could be reduced.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. Their are currentaly 12 hardrock mining claims within the area.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth, but could be improved by letting fire play a more natural role.
- Water quality and fisheries would be maintained at their present levels.

Economic and social effects would be slight since the area represents about 1 percent of the Forest suitable timber base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized means of travel. User conflict with grazing would arise because the area would affect an influx of people interested in recreation and naturalness. Other resource values such as hunting would be retained.

The 1 percent loss in timber volume in this roadless area can be mitigated by practicing intensive forestry elsewhere on the Jefferson Division.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

Alternatives C, D, F, F(Departure), and I allocate all of the Sawmill Creek Roadless Area to range, wildlife, and minimum level management under a roadless designation. Alternatives G(Preferred), J, and K, allocate 90 percent of the area to range, wildlife, and minimum level management under a roadless designation. The Current Plan allocates about 20 percent to this management emphasis.

Allocation to range, wildlife, and minimum level management would not affect the wilderness attributes. These management prescriptions limit new road construction. Timber harvest is not scheduled, but tree mortality can be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes of this area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range, Timber/Wildlife, and Timber/Range/Wildlife/Visual

Alternatives A-1, A-2, B-1, B-2, E-1, E-2, and the Current Plan allocate from 7 to 17 percent of the Sawmill Creek Roadless Area to timber. Alternative G (Preferred), J, and K allocate only a small percent to timber management.

Allocation to timber management would forego the possibility of wilderness allocation on the entire area. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the second decade. All of the area would be available for wilderness reevaluation during the next planning period. The harvest scheduled in Sawmill Creek could be shifted to other parts of the Jefferson Division.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised within 50 years.
- Elk security would be reduced, due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.
- Water quality and fisheries would be affected slightly by roading and timber harvest.
- These alternatives would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since about 1 percent of the Forests suitable timber base and about 1 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Wildlife/Range and Minimum Level

Alternatives A-1, A-2, B-1, B-2, E-1, and E-2, allocate most of the Sawmill Creek Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because all or part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment. Under these prescriptions there would be additional range improvements and burning to increase forage production.

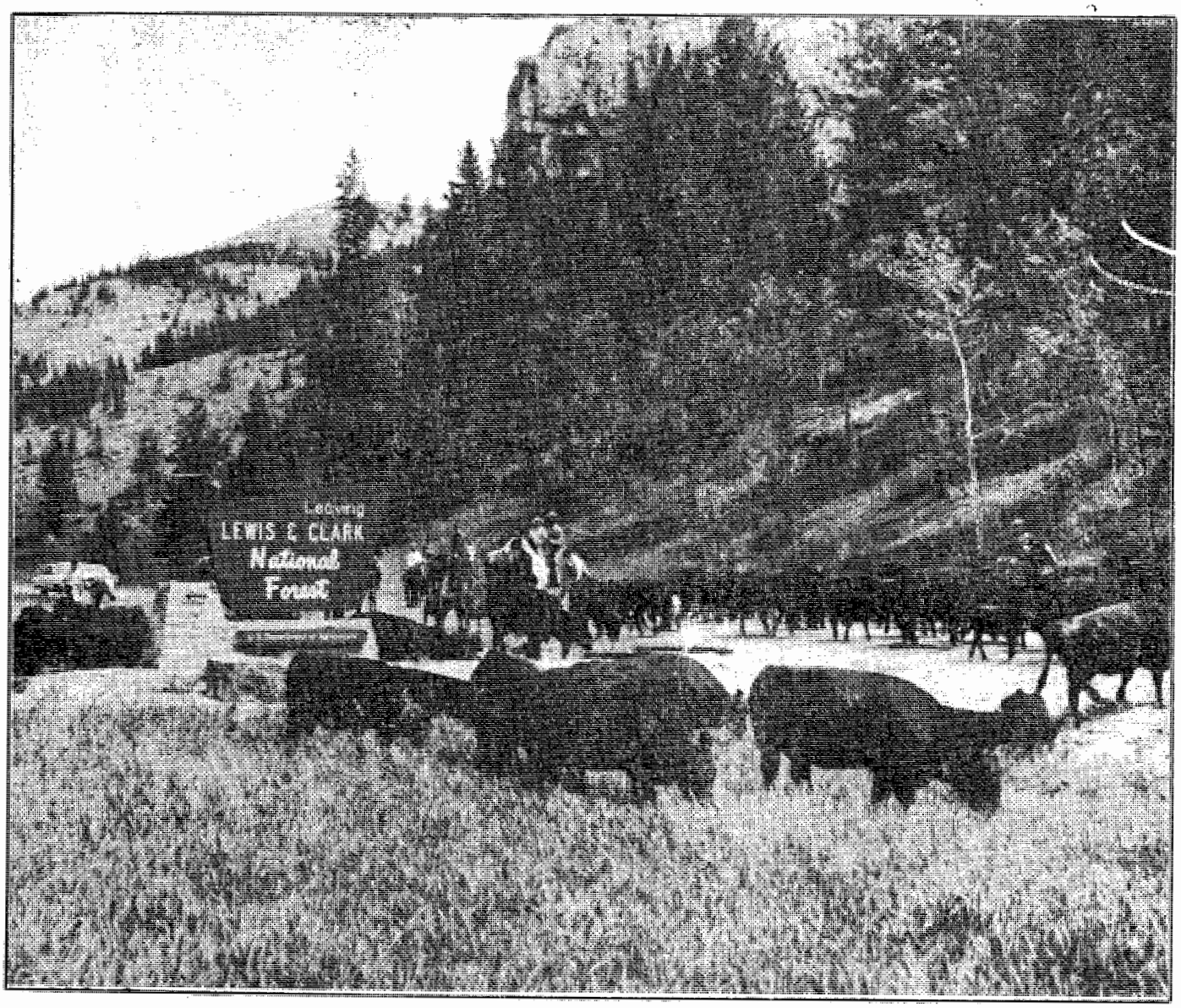
The nonpriced costs and benefits of this management are:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected, but not substantially.

Table 2 lists the average annual output by alternative.

TABLE 2
Average Annual Output - 2030 by Alternative

Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	12,800	0	0	0
Semi-Primitive		2,500	0	0	0	0	12,800	12,800	0	0	12,800	12,800	12,800	0	12,800	11,800	11,800
Roaded Natural		10,300	12,800	12,800	12,800	12,800	0	0	12,800	12,800	0	0	1,000	0	0	1,000	1,000
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	12,800	0	0	0
Roadless	Acres	2,500	0	0	0	0	12,800	12,800	0	0	12,800	12,800	11,800	0	12,800	11,800	11,800
Decade 1		12,800	12,800	12,800	12,800	12,800	12,800	12,800	12,800	12,800	12,800	12,800	12,800	0	12,800	12,800	12,800
Decade 5		12,800	0	0	0	0	12,800	12,800	0	0	12,800	12,800	11,800	0	12,800	11,800	11,800
Developed		10,300	12,800	12,800	12,800	12,800	0	0	12,800	12,800	0	0	1,000	0	0	1,000	1,000
Decade 1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decade 5		0	12,800	12,800	12,800	12,800	0	0	12,800	12,800	0	0	1,000	0	0	1,000	1,000
Range	AUMs	500	679	679	651	651	555	696	679	679	628	628	588	481	588	588	555
Timber																	
Suitable Acres	Acres	3,011	6,105	5,841	5,839	4,919	0	0	5,927	5,927	0	0	2,517	0	0	1,000	953
Volume	MMBF	.242	.490	.469	.469	.152	0	0	.476	.476	0	0	.202	0	0	.080	.077
Wildlife-Big Game	Acres																
Summer Habitat		834	834	834	834	834	834	834	834	834	834	834	834	834	834	834	834
Winter Habitat		2,719	2,719	2,719	2,719	2,719	2,719	2,719	2,719	2,719	2,719	2,719	2,719	2,719	2,719	2,719	2,719
Fisheries	Miles																
Impacted		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unimpacted		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	12,800	0	0	0
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		12,800	12,800	12,800	12,800	12,800	12,800	12,800	12,800	12,800	12,800	12,800	12,800	0	12,800	12,800	12,800
Employment	Person Years	9.5	14.3	14.3	14.3	9.3	1.6	1.7	14.1	14.1	1.7	1.7	5.1	1.2	1.6	3.2	3.1
Income	Millions of $	.169	.263	.261	.260	.260	.029	.033	.263	.263	.031	.031	.100	.021	.030	.061	.050
Return to Gov.	Dollars	1.229	2.347	2.259	2.247	916	237	297	2.288	2.288	268	268	1.099	205	251	587	560



Cattle Leaving the National Forest.

TW MOUNTAIN 1-730

Roadless Area

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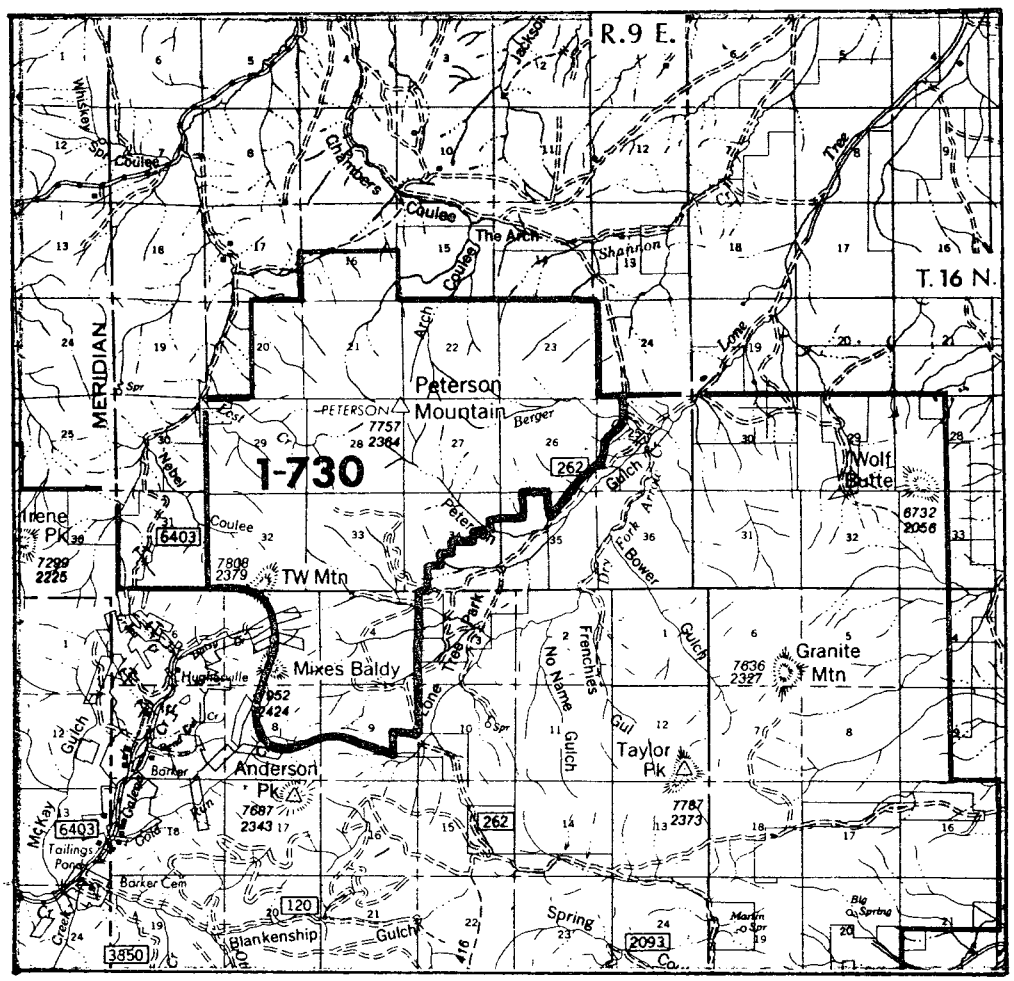


	Gross Acres	Net Acres
Lewis and Clark National Forest	8,800	8,500

DESCRIPTION

Location and Access

The TW Mountain Roadless Area is a contiguous parcel in the Little Belt Mountains of central Montana. The area lies 16 miles southwest of Stanford and 8 miles south of Geyser in Judith Basin County. Access is from the north by a county road and along Lone Tree Gulch or from Stanford via Dry Wolf and Spring Coulee Roads. The southeastern part is accessible by low standard, unimproved roads.

General Description

The TW Mountain Roadless Area is along the northeastern border of the Little Belts. The three and one-half mile northern boundary, which is also the Forest boundary, is where the mountains meet the plains. From here, the area tapers and extends south about five miles to Anderson Peak.

The main ridge runs north-south approximately 8,000 feet in elevation, linking Peterson, TW, and Mixes Baldy Mountains. The ridgeline is not forested. Draws run east, north, and west from the ridge. These three mountains form a bowl, which slopes into the eastern side of the area and flattens into Lone Tree Park. The Park, which is mostly private land, is adjacent to the area's eastern border.

The southern edge of the area adjoins National Forest land. Directly south of the area lies Anderson Peak and the Anderson Burn, a 270 acre fire which swept through an existing clearcut in 1970. Adjacent to the southwestern corner are the Hughesville and Barker Mining Districts, which support commercial mining activity for gold, silver, lead, and zinc.

CAPABILITY

Natural Integrity and Appearance

Human activity in this area has left some impact. Several low standard roads penetrate into the area. Hardrock mining exploration by prospectors has taken place throughout the area. The area includes 300 acres of private land--two patented mining claims between TW Mountain and Mixes Baldy--in the southwestern portion of the area.

Opportunity for Solitude

The area is small and persons visiting the area are always close to human activity and development, whether it be roads, range developments, mining activity, or farming on the adjacent land to the north. To the north, from high point openings, several county roads, U.S. 87, and extensive farming

and ranching activities, are visible, as is the town of Geyser. The Anderson Burn, to the south is visible from most of the area.

The TW Mountain area has low opportunities for solitude because of its small size, landform, and nearby roads. As noted above, human activity and development are often noticeable. Sounds from roads and development penetrate the area.

Primitive Recreation Opportunity

The area offers little opportunity for primitive recreation. Fall brings upland bird and big game hunters into the area. Occasionally, hikers climb to a mountain top for a view of the surrounding countryside.

Manageability and Boundaries

The TW Mountain is a small area. Boundaries are defined by major terrain features, proclaimed Forest boundaries, or adjacent private lands. The area is surrounded by development activities.

There are few opportunities to modify the boundary. If adjustments were made to exclude the private land (patented mining claims), portions of the southern half would only be a mile wide. The acres have been increased by 300 to correct the RARE II inventory.

AVAILABILITY

Resource Potentials

Recreation - Big game and upland bird hunting and off-road vehicle travel are the major recreation users. On adjacent BLM land to the north, an ice cave and a natural stone bridge are recreation attractions, but compared to other areas in the Little Belts, the TW Mountain Area receives little recreation use.

Wildlife - The area provides habitat for elk, black bear, mountain lion, mule deer, ruffed grouse, and blue grouse. Many nongame animals also inhabit the area.

Range - Several allotments and a special-use pasture are within the area. Five permittees graze 227 cattle annually under simple, deferred and continuous grazing systems which incorporate adjacent private land. Water from and within the area is used for livestock. Two spring improvements and approximately two miles of fence are in the area.

Timber - Most of the area is wooded, but the timber is low quality. Approximately 50 percent is tentatively suitable forest land with a standing volume of 36 millies board feet. The area is capable of an annual harvest of .330 million board feet. Portions which are now accessible are used for post and pole cutting.

Minerals - Gold, silver, lead, and zinc have been produced for many years from the Barker-Hughesville Mining District which is along the southeast border of the unit. The District is expected to go back into production in the future. There is a potential for silver, lead, zinc, and gold in the Mixes Baldy area where patented mining claims are located. Within the TW Mountain Roadless Area are parts of two patented mining claims and several unpatented claims. Mining in the area is negligible. There is no potential for oil and gas.

Water - The west half of the Lone Tree Creek drainage is within the area. Limited surface water supplies are used primarily for livestock purposes.

Table 1 lists the resources for the TW Mountain Roadless Area.

Other Management Considerations

Though the existing fire hazard is generally low, the area's fire history is one of large, devastating wildfires. Existing timber stands are not highly susceptible to insect or disease. Access to the area could become a problem because the Lone Tree Park Road crosses some private land, on which there is no right-of-way.

Table 1
TW Mountain Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 8,800
NF Acres 8,500

RECREATION - RVDs
- Primitive - 0
- SPNM - 900
- SPM - 200
- Roaded Natural - 200
- Rural - 0

RANGE
- Suitable Acres - 1,000
- No. of Allotments - 1
- Permitted AUMs - 322

TIMBER
- Tentative Suitable Acres - 4,106
- Standing Volume MMBF - 36.3

CORRIDORS
- No. of Existing & Potential - 0

WILDLIFE - T&E - None

WILDLIFE - BIG GAME
- Important Elk Summer Range Acres - 480
- Elk Winter Range Acres - 1,134
- Mule Deer Winter Range Acres - 619

WILDLIFE - FISHERIES
- Stream Miles - 3
- Stream Acres - 3

WATER DEVELOPMENTS
- No. of Existing - 0

MINERALS
- Hardrock Potential - silver, lead, zinc, & gold
- No. of Claims - 0
- Oil & Gas Potential - Low
- No. of Oil & Gas Leases - 0
- Oil & Gas Lease Acres - 0

NEED

Proximity to Other Designated Wilderness

The TW Mountain Roadless Area is about 40 miles southeast of Great Falls. Within one day's drive of Great Falls there are 13 classified wildernesses containing 4.4 million acres.

Contribution to National Wilderness Preservation System

The area does not have any rare ecosystems which are necessary for protected plants or animals.

Public Interest and Concerns

The area has had little public interest or support for wilderness classification. During the 1977 and 1983 public review 1,219 and 3 comments were received respectively. Most comments supported nonwilderness. During the 1985 review, no specific comments were received.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

Management Designation

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The TW Mountain Roadless Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	6,500	2,000
A-1	0	0	8,500
A-2	0	0	8,500
B-1	0	0	8,500
B-2	0	0	8,500
C	0	8,500	0
D	0	8,500	0
E-1	0	0	8,500
E-2	0	0	8,500
F	0	7,300	1,200
F(Departure)	0	7,300	1,200
G(Preferred)	0	7,300	1,200
H	8,500	0	0
I	0	7,300	1,200
J	0	7,300	1,200
K	0	7,300	1,200

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resource activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the TW Mountain Roadless Area, under all alternatives but H, the major emphasis will be on minimum level management. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/Wildlife/ Visual	Timber/Range Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness	Concentrated Recreation
Current Plan	4,265	2,009	1,999	0	0	0	227	0	0	0
A-1	2,698	1,009	2,747	1,062	226	20	738	0	0	0
A-2	2,770	1,095	2,687	1,027	162	3	756	0	0	0
B-1	3,038	1,354	3,274	325	278	0	231	0	0	0
B-2	3,582	1,415	2,997	263	6	0	237	0	0	0
C	5,434	2,019	0	0	0	0	1,047	0	0	0
D	5,174	1,980	0	0	0	0	1,346	0	0	0
E-1	3,022	1,300	2,857	350	726	3	242	0	0	0
E-2	3,021	1,300	3,140	337	455	3	244	0	0	0
F	6,390	461	765	581	0	0	299	0	0	4
F(Departure)	6,153	406	1,061	524	0	0	305	47	0	4
G(Preferred)	5,469	918	967	472	223	9	361	77	0	4
H	0	0	0	0	0	0	0	0	8,500	0
I	4,934	982	1,027	675	231	6	134	461	0	50
J	5,251	844	1,009	605	202	5	424	116	0	44
K	4,839	1,327	68	480	58	26	1,449	253	0	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

TW Mountain is allocated to wilderness in Alternative H. This is the only alternative that the total area or any position is allocated to wilderness.

Wilderness allocation could enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing low standard roads and other motorized activities associated with range management and trail maintenance could be eliminated.

The 4,186 acres of land tentatively suitable for timber production would not be available under this prescription. This would remove about 36 million board feet of standing volume with a yearly harvest of up to .330 million board feet.

Current livestock grazing, 322 AUMs, could continue on the allotments involved, but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production will be foregone. Over the long run grazing would be reduced by 58 AUMs because of a reduction of available forage.

Effects on big game would be similar since much of the forage produced on this area would support stands of trees. Thus, cover/forage relationships would change over time and winter range would decrease.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. There are currently no outstanding mineral rights.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth without wildfire, but could be improved by letting fire play a more natural role.
- Water quality and fisheries would be maintained at their present level.

Economic and social effects would be slight since the area represents less than 1 percent of the forest suitable timber base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized means of travel. Other resource values such as hunting would be retained.

The less than 1 percent loss in timber volume can be mitigated by practicing intensive forestry elsewhere.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Range/Wildlife, and Minimum Level

Alternatives C and D allocated all of the TW Mountain Roadless Area to range, wildlife, and minimum level management under a roadless designation. Alternatives F, F(Departure), G(Preferred), I, J, and K allocated most of the TW Mountain Roadless Area to these management emphasis.

Allocation to range, wildlife and minimum level management would not effect the wilderness attributes. These management prescription limit new road construction. Timber harvest is not scheduled, but tree mortality can be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes of this area. The area would be open to mineral entry with the use of standard stipulatons to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range, Timber/Wildlife, and Timber/Range/Wildlife/Visual

All alternatives, except C, D, and H, allocate some of the TW Mountain Roadless Area to timber management.

Allocation to timber management would forego the possibility of wilderness allocation. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the second decade. All of the area would be available for wilderness reevaluation during the next planning period.

The harvest scheduled in TW Mountain could be shifted to other parts of the Forest but not without exceeding constraints to meet alternative objectives.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised in 50 years.
- Elk security would be reduced, due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less old-growth.
- Water quality and fisheries would be affected slightly by roading and timber harvest.
- These prescriptions would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since about 1 percent of the land suitable for timber and about 1 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

All alternatives, except C and D allocate some of the TW Mountain Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment.

The nonpriced costs and benefits of this management are:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced, but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected, but not substantially.

Management Designation: Roadless and Developed
Management Emphasis: Concentrated Recreation

Alternatives F, F(Departure), G(Preferred), I, and J allocate 4 to 50 acres to concentrated recreation management.

Allocation to concentrated recreation may effect the wilderness attributes, but the effect could be terminated by the removal of dispersed recreation improvements on other management actions. Timber and range management may take place, if compatible with adjacent management.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Dispersed recreation opportunities would be emphasized.
- Elk security would be reduced.
- Water quality and fisheries would be affected, but not significant.

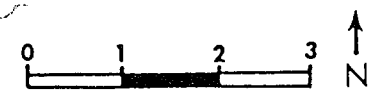
Table 2 lists the average annual output by alternative.

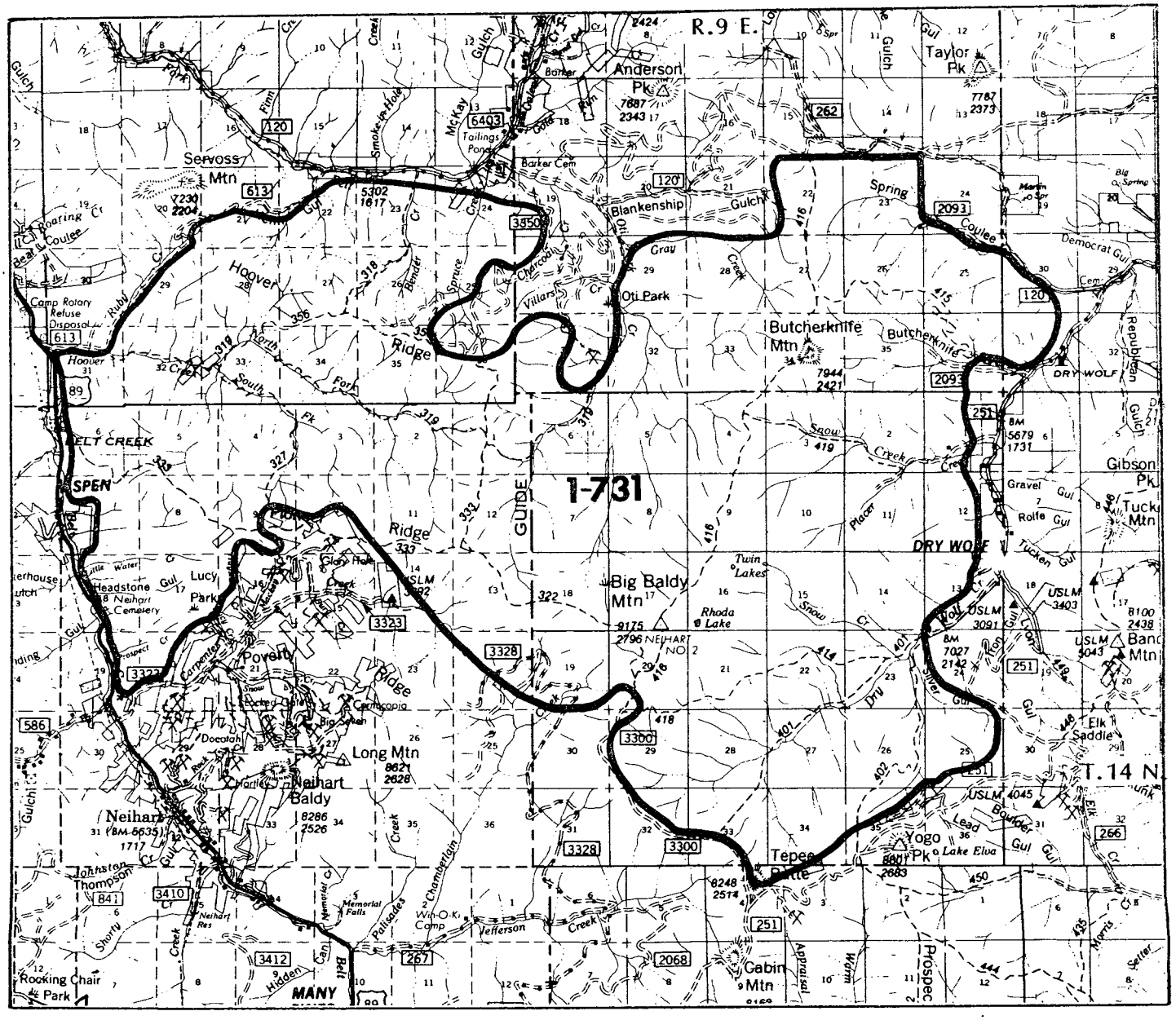
TABLE 2
Average Annual Output - 2030 by Alternative

Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	8,500	0	0	0
Semi-Primitive		6,500	0	0	0	0	8,500	8,500	0	0	7,300	7,300	7,300	0	7,300	7,300	7,300
Roaded Natural		2,000	8,500	8,500	8,500	8,500	0	0	8,500	8,500	1,200	1,200	1,200	0	1,200	1,200	1,200
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	8,500	0	0	0
Roadless	Acres	6,500	0	0	0	0	8,500	8,500	0	0	7,300	7,300	7,300	0	7,300	7,300	7,300
Decade 1		8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	0	8,500	8,500	8,500
Decade 5		8,500	0	0	0	0	8,500	8,500	0	0	7,300	7,300	7,300	0	7,300	7,300	7,300
Developed		2,000	8,500	8,500	8,500	8,500	0	0	8,500	8,500	1,200	1,200	1,200	0	1,200	1,200	1,200
Decade 1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decade 5		0	8,500	8,500	8,500	8,500	0	0	8,500	8,500	1,200	1,200	1,200	0	1,200	1,200	1,200
Range	AUMs	322	386	386	370	370	315	396	386	386	357	357	335	274	309	309	315
Timber																	
Suitable Acres	Acres	1,999	4,055	3,879	3,877	3,266	0	0	3,936	3,935	1,346	1,585	1,671	0	1,939	1,821	632
Volume	MMBF	.161	.326	.311	.311	.262	0	0	.316	.316	.108	.127	.134	0	.156	.146	.051
Wildlife-Big Game	Acres																
Summer Habitat		480	480	480	480	480	480	480	480	480	480	480	480	480	480	480	480
Winter Habitat		1,134	1,134	1,134	1,134	1,134	1,134	1,134	1,134	1,134	1,134	1,134	1,134	1,134	1,134	1,134	1,134
Fisheries	Miles																
Impacted		1	3	3	3	3	0	0	3	3	1	1	1	0	1	1	1
Unimpacted		2	0	0	0	0	3	3	0	0	2	2	2	3	2	2	2
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	8,500	0	0	0
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	8,500	0	8,500	8,500	8,500
Employment	Person Years	3.8	8.6	8.4	8.4	7.7	1	1.1	8.5	8.5	3.1	3.4	3.4	.7	3.7	3.5	2.2
Income	Millions of $	.030	.066	.006	.066	.065	.019	.020	.060	.066	.027	.027	.027	.013	.030	.028	.025
Return to Gov.	Dollars	813	2,028	1,470	1,463	1,258	134	169	1,490	1,490	605	685	705	117	787	745	438

BIG BALDY 1-731

Roadless Area





	Gross Acres	Net Acres
Lewis and Clark National Forest	44,200	44,000

DESCRIPTION

Location and Access

The Big Baldy Roadless Area is a contiguous parcel in the Little Belt Mountains of central Montana. The area lies 8 miles south of Monarch and 18 miles southwest of Stanford in Judith Basin and Cascade Counties. Most of the area's perimeter is accessible by road. U.S. Highway 89 parallels the area's western boundary. The Dry Wolf Road provides access to the eastern boundary.

General Description

The area lies in the north half of the Little Belts and spans from Dry Wolf Creek on the east, to Belt Creek on the west. Big Baldy Mountain (9,175 feet), the highest point in the Little Belts, is near the center of the area.

Elevation varies from about 5,000 feet at the creek bottoms to an average of 7,500 feet in the center of the area. The slope from Belt and Dry Wolf Creeks is moderate. Most of the area is wooded with large parks at the higher elevations and small parks interspersed at the lower elevations.

Big Baldy, which was glaciated, has three glacier cirques carved into the southeast face. Visible from Stanford, the cirques have small lakes at their base.

The Big Baldy Area is almost entirely in Federal ownership. There are 200 acres of private land (patented mining claims) in the northwest corner. The area is bordered on the west by U.S. Highway 89, Dry Fork Road to the north, and the Dry Wolf Road to the east. The area surrounding Big Baldy Area has been heavily developed through timber harvest and hardrock mining activities.

Vegetation is typical of the Little Belt Mountains--lodgepole pine and Douglas fir with sparse ground cover.

CAPABILITY

Natural Integrity and Appearance

Human activity in this area has left some impact. Low standard roads penetrate into Chamberlain Creek, Hoover Ridge, Butcherknife and Snow Creek. Hardrock mining exploration has taken place throughout the area. Remains from miner's cabins and digging piles are not uncommon.

Opportunity for Solitude

The area is large enough and the topography is such that persons visiting the core of the area feel they are in a natural area. Peripheral areas give little feeling of naturalness.

The Big Baldy area possesses moderate opportunities for solitude because of its large size, shape and topographic relief. The development along Highway 89, Carpenter Gulch and Blankenship Gulch reduce the opportunities for solitude. Extensive signs of civilization are evident as viewed from high vista points.

Primitive Recreation Opportunities

The area offers a variety of topography to challenge the visitors. There are good opportunities for primitive recreation experiences such as hunting, scenic viewing, hiking, horseback riding, and cross-country skiing. Mountain lakes, trails, high peaks, and big game hunting all attract primitive recreation users.

Manageability and Boundaries

The Big Baldy Roadless Area is a contiguous parcel with all but 200 acres National Forest system land. The private land is from patented mining claims.

The Big Baldy is a sizable unit, although at its narrowest point it is only three miles across. Some boundaries are defined on major terrain features, while other boundaries would be difficult to locate on the ground. Some of the area is closed to major Forest roads, State Highways, residences and mineral development.

Conflicts with adjacent private land cannot be avoided. Future hardrock mineral development is the main uncertainty because existing laws allow for the exploration and development of hardrock minerals. The boundries and the acres have not been adjusted since the RARE II inventory.

AVAILABILITY

Resource Potential

Recreation - Big game and upland bird hunting, hiking, fishing, cross-country skiing, and trailbike riding are the major recreation uses. Rhoda Lake in one of the cirques at the base of Big Baldy Mountain is a popular recreation spot. The area has 47 miles of trails.

Wildlife - The area provides habitat to several game animals: whitetail deer, elk, mule deer, black bear, mountain lion, blue grouse, and ruffed grouse. Many nongame animals also inhabit the area. The area contains ten miles of brook trout fisheries. Dry Wolf Creek is annually stocked with trout by the State of Montana. Rhoda Lake, approximately five acres is also stocked with trout; however, fish populations periodically do not survive the winter in the small lake.

Range - Annually three permittees graze 125 cattle under simple deferred and continuous grazing systems. A portion of the area is included in a sheep allotment which permits 800 head under a restoration grazing system. There is one spring development and about two miles of fencing. The potential for increasing numbers and seasons of use are low.

Timber - Approximately 55 percent of the area is classified tentatively suitable forest land. The balance of the area is noncommercial forest or non-forest. Most of the past timber harvest has been post and poles, house logs, and mining related cutting of lodgepole pine or Douglas fir, the dominant

species. However, potential for sawlog sales is very high along the lower slopes on the east and west sides of the area. The area is capable of a harvest of 1.913 million board feet annually.

Minerals - Lands south of Dry Wolf Creek and Carpenter Creek are heavily mineralized. Lead, silver, zinc, gold, and iron are the principle deposits. Two silver, lead and zinc mines are currently operating along the southwest boundary, near the town of Neihart. Many unpatented claims are within the area and many patented claims are adjacent to the area. Building stone is being mined in the northern part of the unit. There is a high potential for future discoveries of silver, lead, zinc, and molybdenum. There is no potential for oil and gas.

Water - The eastern half of the area drains into Dry Wolf. The drainage supplies minor amounts of irrigation water for off-forest use. The western half of the area drains into Belt Creek.

Table 1 lists the resources for the Big Baldy Roadless Area.

Other Management Considerations

Large, devastating wildfires burned most of the area at the turn of the century, however, the area has fully regenerated. Old growth lodgepole pine in the area is potentially susceptible to attack by mountain pine beetle.

Table 1
Big Baldy Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 44,200
NF Acres 44,000

RECREATION
- Primitive - 0
- SPNM - 3,300
- SPM - 1,400
- Roaded Natural - 0
- Rural - 0

RANGE
- Suitable Acres - 3,436
- No. of Allotments - 5
- Permitted AUMs - 785

TIMBER
- Tentative Suitable Acres - 23,813
- Standing Volume MMBF - 161.9

CORRIDORS
- No. of Existing & Potential - 0

WILDLIFE - T&E - None

WILDLIFE - BIG GAME
- Important Elk Summer Range Acres - 17,627
- Elk Winter Range Acres - 168

WILDLIFE - FISHERIES
- Stream Miles - 10
- Stream Acres - 19
- No. of Lakes - 1
- Lake Acres - 5

WATER DEVELOPMENTS
- No. of Existing - 0

MINERALS
- Hardrock Potential - High
- No. of Claims - 363
- Oil & Gas Potential - Low
- Oil & Gas Leases - 0
- Oil & Gas Lease Acres - 0

NEED

Proximity to Other Designated Wilderness

The Big Baldy Roadless Area is about 40 miles southeast of Great Falls. Within one day's drive of Great Falls, there are 13 classified wildernesses containing 4.4 million acres.

Contribution to National Wilderness Preservation System

The area does not have any rare ecosystems which are necessary for protected plants or animals.

Public Interest and Concerns

The area has had little public interest or support for wilderness classification. During 1977 and 1983 public review 2,544 and 9 comments respectively were received. Most comments supported nonwilderness. During the 1985 review, no specific comments were received.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

Management Designation

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Big Baldy Roadless Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	9,600	34,400
A-1	0	0	44,000
A-2	0	0	44,000
B-1	0	0	44,000
B-2	0	0	44,000
C	0	44,000	0
D	0	44,000	0
E-1	0	0	44,000
E-2	0	0	44,000
F	0	20,300	23,700
F(Departure)	0	20,300	23,700
G(Preferred)	0	33,800	10,200
H	44,000	0	0
I	0	34,400	9,600
J	0	34,400	9,600
K	44,000	0	0

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resource activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Big Baldy Roadless Area, under all alternatives but H, the major emphasis will be on minimum level management. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/Wildlife/ Visual	Timber/Range Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness	Concentrated Recreation
Current Plan	22,077	10,397	10,349	0	0	0	1,177	0	0	0
A-1	13,973	5,221	14,218	5,496	1,167	103	3,822	0	0	0
A-2	14,344	5,665	13,908	5,315	839	18	3,911	0	0	0
B-1	15,723	7,010	16,949	1,684	1,438	0	1,196	0	0	0
B-2	18,542	7,324	15,512	1,363	32	0	1,227	0	0	0
C	28,131	10,450	0	0	0	0	5,419	0	0	0
D	26,785	10,249	0	0	0	0	6,966	0	0	0
E-1	15,646	6,727	14,787	1,809	3,760	18	1,253	0	0	0
E-2	15,636	6,726	16,254	1,745	2,357	18	1,264	0	0	0
F	33,085	2,384	3,957	3,008	0	0	1,546	0	0	20
F(Departure)	31,855	2,103	5,490	2,712	0	0	1,578	242	0	20
G(Preferred)	28,310	4,752	5,006	2,444	1,154	48	1,868	398	0	20
H	0	0	0	0	0	0	0	0	44,000	0
I	25,539	5,082	5,318	3,496	1,198	30	693	2,387	0	257
J	27,189	4,367	5,222	3,131	1,045	26	2,196	598	0	226
K	0	0	0	0	0	0	0	0	44,000	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Big Baldy is allocated to wilderness in Alternatives H and K. These are the only alternatives that the total area or any position is allocated to wilderness.

Wilderness allocation could enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing low standard roads and other motorized activities associated with range management and trail maintenance could be eliminated.

The 23,813 acres of land tentatively suitable for timber production would not be available under this prescription. This would remove about 162 million board feet of standing volume with an annual harvest of up to 1.913 million board feet.

Current livestock grazing, 785 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production will be foregone. Over the long run grazing would be reduced by 118 AUMs because of a reduction of available forage.

Effects on big game habitat would be similar since much of the forage in this area is produced on land capable of growing trees. Thus, cover/forage relationships will change over time. Areas classified as wilderness would be withdrawn from all forms of mineral entry. There are 363 hardrock claims within the area.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth, but could be improved by letting fire play a more natural role.
- Water quality and fisheries would be maintained at their present levels.

Economic and social effects would be slight since the area represents about 4 percent of the Forests suitable timber base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of motorized travel. Other resource values such as hunting would be retained.

The 4 percent loss in timber volume can be mitigated by practicing intensive forestry elsewhere on the Jefferson Division.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

Alternatives C and D allocated all of the Big Baldy Roadless Area to range,

wildlife, and minimum level management under a roadless designation. Alternatives G(Preferred), I and J allocate about 85 percent of the Baldy Roadless Area to range, wildlife and minimum level management. Alternatives F and F(Departure) allocate 50 percent and the Current Plan 25 percent to this management.

Allocation to range, wildlife and minimum level management would not effect the wilderness attributes. These management prescription limit new road construction. Timber harvest is not scheduled, but tree mortality can be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes of this area. This area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range, Timber/Wildlife/Visual, and Timber/Range/Wildlife/Visual

All alternatives, except C, D, H, and K, allocate some of the Big Baldy Roadless Area to timber management.

Allocation to timber management would forego the possibility of wilderness allocation. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the first decade. About 2,860 acres would be developed during the first decade (4,600 acres under Alternatives A-1 and A-2). About 41,140 acres would be available for wilderness reevaluation during the next planning period (39,400 acres under Alternatives A-1 and A-2).

The harvest scheduled in Big Baldy could be shifted to other parts of the Jefferson Division.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised in 50 years.
- Elk security would be reduced, due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less old-growth trees.
- Water quality and fisheries would be affected slightly by roading and timber harvesting.
- These prescriptions would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would be slight since about 4 percent of the Forests suitable timber base and about 4 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

All alternatives, except C, D, H, and K, allocate some of the Big Baldy Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment. Under these prescriptions there would be additional range improvements and burning to increase forage production.

The nonpriced benefits of this management are:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced, but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected, but not substantially.

Management Designation: Roadless and Developed
Management Emphasis: Concentrated Recreation

Alternatives F, F(Departure), G(Preferred), I, and J allocate 20 to 257 acres to concentrated recreation management.

Allocation to concentrated recreation may effect the wilderness attributes, but the effect could be terminated by the removal of dispersed recreation improvements on other management actions. Timber and range management may take place, if compatible with adjacent management.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Dispersed recreation opportunities would be emphasized.
- Elk security would be reduced.
- Water quality and fisheries would be effected, but not significant.

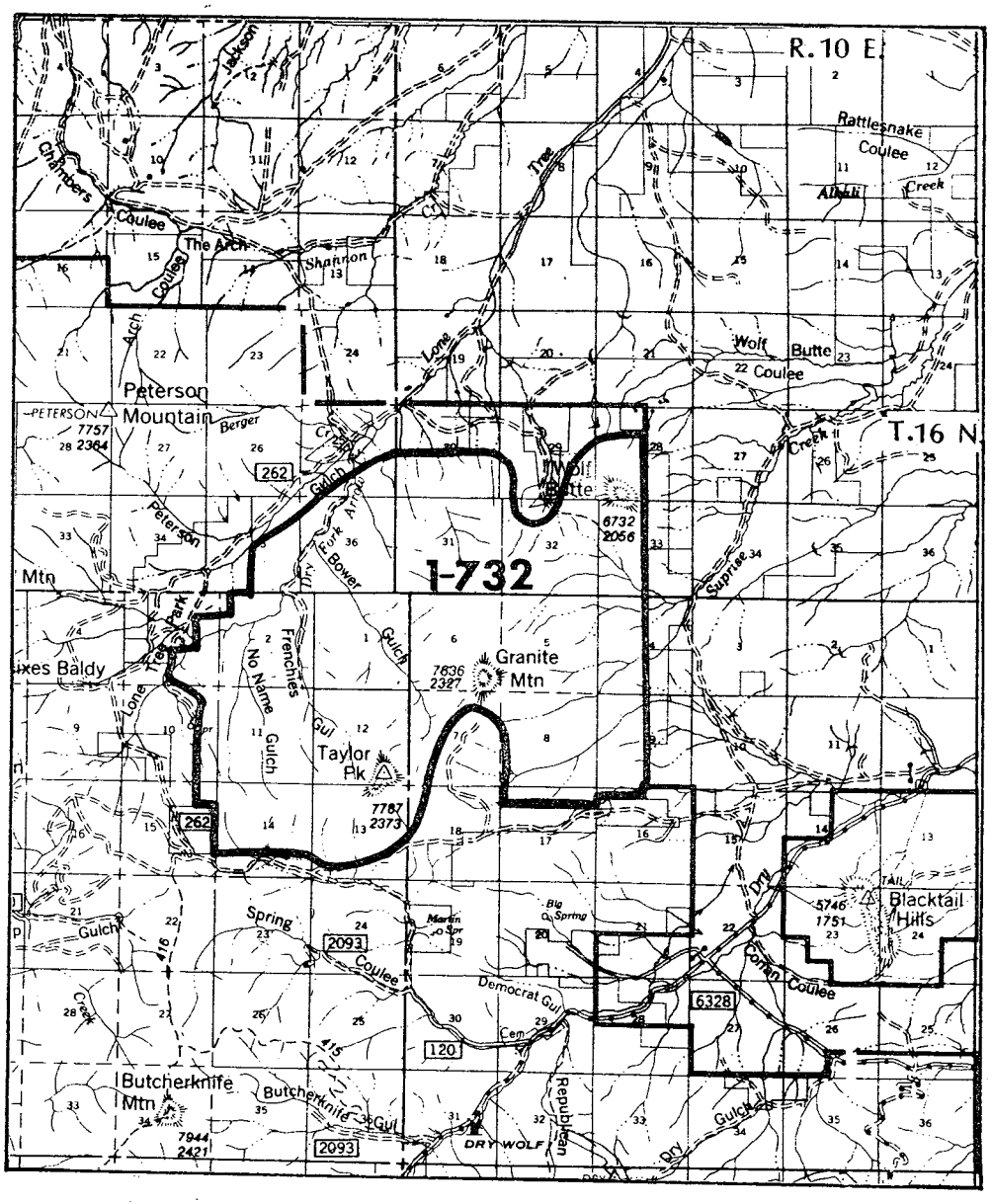
Table 2 lists the average annual output by alternative.

TABLE 2
Average Annual Output - 2030 by Alternative

Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	44,000	0	0	44,000
Semi-Primitive		9,600	0	0	0	0	44,000	44,000	0	0	20,300	20,300	33,800	0	34,400	34,400	0
Roaded Natural		34,400	44,000	44,000	44,000	44,000	0	0	44,000	44,000	23,700	23,700	10,200	0	9,600	9,600	0
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	44,000	0	0	44,000
Roadless	Acres	9,600	0	0	0	0	44,000	44,000	0	0	20,300	20,300	33,800	0	34,400	34,400	44,000
Decade 1		41,140	39,400	39,400	41,140	41,140	41,700	41,140	41,140	41,140	41,140	41,140	41,140	0	41,140	41,140	44,000
Decade 5		13,900	0	0	0	0	44,000	44,000	0	0	20,300	20,300	33,800	0	34,400	34,400	44,000
Developed		34,400	44,000	44,000	44,000	44,000	0	0	44,000	44,000	23,700	23,700	10,200	0	9,600	9,600	0
Decade 1		2,860	4,600	4,600	2,860	2,860	2,300	2,800	2,860	2,860	2,860	2,860	2,860	0	2,860	2,860	0
Decade 5		30,100	44,000	44,000	44,000	44,000	0	0	44,000	44,000	23,700	23,700	10,200	0	9,600	9,600	0
Range	AUMs	785	942	942	902	902	769	965	942	942	871	871	816	667	816	816	667
Timber																	
Suitable Acres	Acres	10,349	20,984	20,088	20,071	16,907	0	0	20,374	20,374	6,965	8,202	8,652	0	10,042	9,424	0
Volume	MMBF	.831	1.685	1.612	1.612	1.358	0	0	1.636	1.636	.559	.659	.695	0	.806	.757	0
Wildlife-Big Game	Acres																
Summer Habitat		17,627	17,627	17,627	17,627	17,627	17,627	17,627	17,627	17,627	17,627	17,627	17,627	17,627	17,627	17,627	17,627
Winter Habitat		168	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168
Fisheries	Miles																
Impacted		3	10	10	10	10	0	0	10	10	5	5	7	0	7	7	0
Unimpacted		7	0	0	0	0	10	10	0	0	5	5	3	10	3	3	10
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	44,000	0	0	44,000
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		44,000	44,000	44,000	44,000	44,000	44,000	44,000	44,000	44,000	44,000	44,000	44,000	0	44,000	44,000	0
Employment	Person Years	27.7	43.7	43.7	43.7	38.9	4.7	5	43	43	20.7	22.2	17.8	3.3	19.8	19	3.3
Income	Millions of $	.505	.824	.824	.823	.723	.072	.075	.811	.811	.370	.405	.338	.055	.382	.357	.055
Return to Gov.	Dollars	3,824	7,477	7,171	7,154	6,087	328	415	7,272	7,272	2,719	3,139	3,052	348	3,733	3,527	285

GRANITE MOUNTAIN 1-732
Roadless Area

0 1 2 3 N



	Gross Acres	Net Acres
Lewis and Clark National Forest	10,580	10,580

DESCRIPTION

Location and Access

The Granite Mountain Roadless Area is a contiguous parcel in the Little Belt Mountains of central Montana all in Federal ownership. The area lies 14 miles southwest of Stanford in Judith Basin County. Access is from the south via the Spring Coulee Road across National Forest land, or from the north via Lone Tree Creek Gulch on the county road.

General Description

Mostly wooded, this small roadless area is in the northeast corner of the Little Belts. From the north and east its slopes gradually climb to Granite Mountain and Taylor Peak (about 7,500 feet), which are along the southern boundary. Both mountains are visible from Stanford and U.S. Highway 87.

A third high point, Wolf Butte, is in the roadless area. The butte is in the northeast corner of the area and stands adjacent to the plains. Looking more like a 6,700 foot wolf's tooth, the butte is visible from as far away as Great Falls, because of its location and prominent shape.

Part of the western boundary is adjacent to Lone Tree Park, the private parcel, which borders the east side of TW Mountain Roadless Area (1-730). The strip separating these areas is only one-half to one mile wide.

CAPABILITY

Natural Integrity and Appearance

Human activity in Granite Mountain Roadless Area has left some impact. A low standard road runs from the north up the Dry Fork of Arrow Creek. Hardrock mining exploration has taken place at higher elevations on Granite Mountain.

Opportunities for Solitude

The area is small and the mountain top topography is such that persons visiting the area are always close to human activity and development. Nearby roads on adjacent private land and Lone Tree Park add to the feeling of development. Extensive ranching and farming developments are visible from high vista points.

The Granite Mountain area has low opportunities for solitude because of its small size, landform, and nearby development. Roads are within one mile of Granite Mountain and Wolf Butte. Sounds from roads and development penetrate throughout the area.

Primitive Recreation Opportunities

The area offers little opportunity for primitive recreation. The area receives some use from upland bird and big game hunters. An occasional hiker climbs to the mountain top for view of the surrounding countryside.

Manageability and Boundaries

Granite Mountain is a small area. Some boundaries are defined on proclaimed Forest boundary and adjacent private land or roadless land. Therefore, boundaries are not always easy to identify on the ground.

There are few opportunities to modify the boundary to improve boundary location, because major topographic features are lacking.

The Granite Mountain area is surrounded on three sides by private lands. Any activities on these lands would affect the wilderness attributes of the Granite Mountain area. Since the RARE II inventory, the area has been reduced by 720 acres because of a timber sale and roads.

AVAILABILITY

Resource Potential

Recreation - Big game and upland bird hunting and off-road vehicle travel are the major recreation uses. Two recreation attractions are a cave on the northwest side of Granite Mountain and the Hellhole, at the beginning of Bower Gulch, where the valley walls drop sharply from the sides of Taylor Peak and Granite Mountain. Some technical rock climbing is done on the rock pinnacles near the top of Wolf Butte.

Wildlife - The area provides habitat for several game species: elk, mule deer, mountain lion, black bear, and blue grouse. Many nongame animals also inhabit the area. The area has no fisheries.

Range - Five permittees graze about 100 cattle annually. Most rangeland is along the north, west, and south sides of the area. There is one spring improvement. The potential for increasing numbers and seasons of use is low.

Timber - Approximately 50 percent of the area is forest land suitable for timber management. The balance of the area is noncommercial forest or nonforest. Past timber harvest has been scattered post and pole cutting of lodgepole pine and Douglas fir, principle trees in the unit. No planned sales are within the area; however, shelterwood cutting units, which were sold as part of the Lower Dry Wolf Sale, lie adjacent to the area's southern border. The steep slopes and low quality sawtimber are the dominant limitations to timber harvest in the area. The area is capable of a harvest of .396 million board feet annually.

Water - At the center of the Granite Mountain Area are Granite Mountain and Taylor Peak with the ridge running between them. Therefore, the area forms parts of the headwaters of several drainages--Lone Tree, Surprise Creek, and Dry Wolf Creek. A minor amount of streamside irrigation occurs off-Forest from these creeks. Major water use on the Forest is for livestock use.

Minerals - Minor exploration and production of silver, lead, and zinc has taken place in the past. The area has a low potential for future production. Eleven unpatented mining claims are present around Taylor Peak.

Table 1 lists the resources for the Granite Mountain Roadless Area.

Other Management Considerations

The fire hazard is low and the area's timber is not highly susceptible to insect epidemics. The old growth Douglas fir has a high amount of *Fomes pini*, white pocket rot, which destroys the trees timber value.

Table 1
Granite Mountain Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 10,580

NF Acres 10,580

RECREATION - RVDs

Primitive - 0
SPNM - 1,000
SPM - 400
Roaded Natural - 0
Rural - 0

RANGE

Suitable Acres - 1,363
No. of Allotments - 3
Permitted AUMs - 406

TIMBER

Tentative Suitable Acres - 4,933
Standing Volume MMBF - 46.8

CORRIDORS

No. of Existing & Potential - 0

WILDLIFE - T&E - None

WILDLIFE - BIG GAME

Elk Summer Range Acres - 0
Elk Winter Range Acres - 3,514
Mule Deer Winter Range Acres - 80

WILDLIFE - FISHERIES - None

WATER DEVELOPMENTS

No. of Existing - 0

MINERALS

Hardrock Potential - Low--silver, lead, zinc
No. of Claims - 11

Oil and Gas Potential - Low
No. of Oil & Gas Leases - 0
Oil & Gas Lease Acres - 0

NEED

Proximity to Other Designated Wilderness

The Granite Mountain Roadless Area is about 50 miles southeast of Great Falls. There are 13 classified wildernesses containing 4.4 million acres within one day's drive of Great Falls.

Contribution to National Wilderness Preservation System

The area does not have any rare ecosystems which are necessary for protected plants or animals.

Public Interest and Concerns

The area has had little public interest or support for wilderness classification. During 1977 and 1983 public review 1,218 and 4 comments respectively were received. Most comments supported nonwilderness. During the 1985 review, no specific comments were received.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Granite Mountain Roadless Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	6,080	4,500
A-1	0	0	10,580
A-2	0	0	10,580
B-1	0	0	10,580
B-2	0	0	10,580
C	0	10,580	0
D	0	10,580	0
E-1	0	0	10,580
E-2	0	0	10,580
F	0	6,180	4,400
F(Departure)	0	6,180	4,400
G(Preferred)	0	6,180	4,400
H	10,580	0	0
I	0	6,180	3,800
J	0	6,180	3,800
K	0	6,180	3,800

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resource activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Granite Mountain Roadless Area, under all alternatives but H, the major emphasis will be on minimum level management. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA 1-732
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/ Wildlife/Visual	Timber/Range Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness	Concentrated Recreation
Current Plan	5,309	2,500	2,488	0	0	0	283	0	0	0
A-1	3,359	1,255	3,419	1,322	281	25	919	0	0	0
A-2	3,450	1,362	3,344	1,278	202	4	940	0	0	0
B-1	3,779	1,686	4,076	405	346	0	288	0	0	0
B-2	4,458	1,761	3,730	328	8	0	295	0	0	0
C	6,764	2,513	0	0	0	0	1,303	0	0	0
D	6,441	2,464	0	0	0	0	1,675	0	0	0
E-1	3,762	1,618	3,556	435	904	4	301	0	0	0
E-2	3,760	1,617	3,908	420	567	4	304	0	0	0
F	7,955	573	952	723	0	0	372	0	0	5
F(Departure)	7,660	506	1,320	652	0	0	379	58	0	5
G(Preferred)	6,807	1,143	1,204	587	277	12	449	96	0	5
H	0	0	0	0	0	0	0	0	10,580	0
I	6,140	1,222	1,279	841	288	7	167	574	0	62
J	6,538	1,050	1,256	753	251	6	528	144	0	54
K	6,023	1,652	84	598	72	32	1,804	315	0	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Granite Mountain is allocated to wilderness in Alternative H. This is the only alternative that the total area or any portion is allocated to wilderness.

Wilderness allocation could enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing low standard roads and other motorized activities associated with range management and trail maintenance could be eliminated.

The 4,933 acres of land tentatively suitable for timber production would not be available under this prescription. This would remove about 47 million board feet of standing volume available for timber harvest with an annual harvest of up to .396 million board feet.

Current livestock grazing, 406 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production will be foregone. Over the long run grazing would be reduced by 61 AUMs because of a reduction of available forage.

Effect on big game habitat would be similar since the forage produced on this area is from lands that support stands of trees. Thus, cover/forage relationships would change over time and winter range would decrease.

Areas classified as wilderness would be withdrawn from all forms of mineral entry. Currently, there are 11 hardrock mining claims within the area.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth, but could be improved by letting fire play a more natural role.
- Water quality would be maintained at its present level.

Economic and social effects would be slight since the area represents less than 1 percent of the Forest suitable timber base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized means of travel. Other resource values such as hunting would be retained.

The small loss in timber volume can be mitigated by practicing intensive forestry elsewhere on the Jefferson Division.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Range/Wildlife and Minimum Level

Alternative C and D allocated all of the Granite Mountain Roadless Area to range, wildlife, and minimum level management under a roadless designation. Alternatives F, F(Departure), G(Preferred), I, J, K, and the Current Plan allocate 58 percent to range, wildlife, and minimum level management under a roadless designation.

Allocation to range, wildlife, and minimum level management would not affect the wilderness attributes. These management prescriptions limit new road construction. Timber harvest is not scheduled, but tree mortality can be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes of this area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range, Timber/Wildlife/Visual and Timber/Range/Wildlife/Visual

All alternatives, except C, D, and H, allocate some of the Granite Mountain Roadless Area to timber management. Alternatives A-1, A-2, B-1, B-2, E-1, and E-2 allocate 38 to 40 percent to timber management. Alternatives F, F(Departure), G(Preferred), I, J, K and the Current Plan allocate from 7 to 23 percent to timber management.

Allocation to timber management would forego the possibility of wilderness allocation. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the second decade. All of the area would be available for wilderness reevaluation during the next planning period.

The harvest scheduled in Granite Mountain could be shifted to other parts of the Jefferson Division.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised in 50 years.
- Elk security would be reduced due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.
- Water quality would be affected.
- These prescriptions would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since less than 1 percent of the Forest suitable timber base and less than 1 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

All alternatives, except C, D, and H, allocate some of the Granite Mountain Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment.

The nonpriced costs and benefits of this management are:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced, but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality would be affected but not substantially.

Management Designation: Roadless and Developed
Management Emphasis: Concentrated Recreation

Alternatives F, F(Departure), G(Preferred), I, and J allocate 5 to 62 acres to concentrated recreation management.

Allocation to concentrated recreation may effect the wilderness attributes, but the effect could be terminated by the removal of dispersed recreation improvements or other management actions. Timber and range management may take place, if compatible with adjacent management.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Dispersed recreation opportunities would be emphasized.
- Elk security would be reduced.
- Water quality and fisheries would be affected, but not significant.

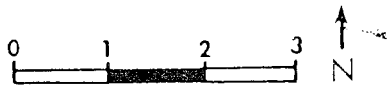
Table 2 lists the average annual output by alternative.

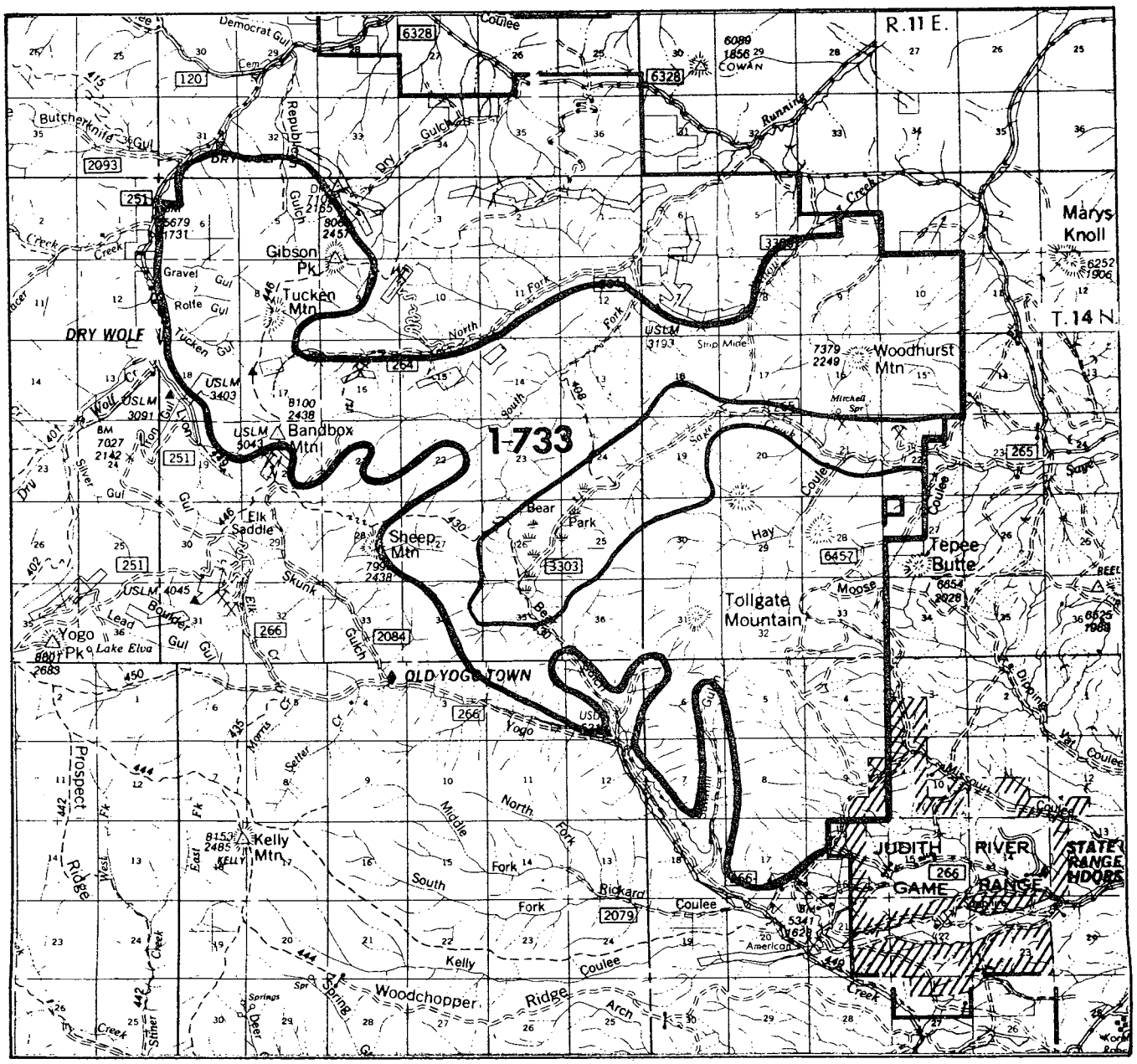
TABLE 2
Average Annual Output - 2030 by Alternative

Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	10,580	0	0	0
Semi-Primitive		6,080	0	0	0	0	10,580	10,580	0	0	6,180	6,180	6,180	0	6,180	6,180	6,180
Roaded Natural		4,500	10,580	10,580	10,580	10,580	0	0	10,580	10,580	4,440	4,440	4,440	0	4,440	4,440	4,440
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	10,580	0	0	0
Roadless	Acres	6,080	0	0	0	0	10,580	10,580	0	0	6,180	6,180	6,180	0	6,180	6,180	6,180
Decade 1		10,580	10,580	10,580	10,580	10,580	10,580	10,580	10,580	10,580	10,580	10,580	10,580	0	10,580	10,580	10,580
Decade 5		6,080	0	0	0	0	10,580	10,580	0	0	6,180	6,180	6,180	0	6,180	6,180	6,180
Developed		4,500	10,580	10,580	10,580	10,580	0	0	10,580	10,580	4,400	4,400	4,400	0	4,400	4,400	4,400
Decade 1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decade 2		3,900	10,580	10,580	10,580	10,580	0	0	10,580	4,400	4,400	4,400	4,400	0	4,400	4,400	4,400
Range	AUMs	406	487	487	467	467	399	499	487	487	451	451	422	345	390	390	399
Timber																	
Suitable Acres	Acres	2,488	5,047	4,828	4,827	4,066	0	0	4,899	4,899	1,675	1,972	2,080	0	2,415	2,266	786
Volume	MMBF	.200	.405	.388	.388	.326	0	0	.393	.393	.135	.158	.167	0	.194	.182	.063
Wildlife-Big Game	Acres																
Summer Habitat		3,514	3,514	3,514	3,514	3,514	3,514	3,514	3,514	3,514	3,514	3,514	3,514	3,514	3,514	3,514	3,514
Winter Habitat		80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
Fisheries	Miles																
Impacted		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unimpacted		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	10,580	0	0	0
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		10,580	10,580	10,580	10,580	10,580	10,580	10,580	10,580	10,580	10,580	10,580	10,580	0	10,580	10,580	10,580
Employment	Person Years	5.7	10.8	10.3	10.3	9.5	1.3	1.4	10.6	10.6	4.7	5.0	5.2	.9	5.3	5.1	3.3
Income	Millions of $	.079	.146	.146	.146	.121	.014	.018	.142	.142	.058	.066	.069	.014	.075	.071	.034
Return to Gov.	Dollars	1,013	1,908	1,837	362	1,568	170	213	1,858	1,858	759	856	881	147	981	930	435

TOLLGATE-SHEEP 1-733

Roadless Area





	Gross Acres	Net Acres
Lewis and Clark National Forest	27,000	26,800

DESCRIPTION

Location and Access

The Tollgate-Sheep Roadless Area is in the northeast portion of the Little Belt Mountains, approximately 18 miles south of Stanford, Montana. The area is in Judith Basin County. Perimeter road access is suitable with only the Sage Creek Road penetrating into the interior of the area. Most of the area's perimeter is accessible by road. The Yogo Creek Road, the Dry Wolf Road, and the Running Wolf Road parallel the southern, western, and northern boundaries respectively. The Sage Creek Road provides road access from the east. Many primitive, unimproved travelways are present in nearly all portions of the area.

General Description

Topography is mountainous and includes five prominent peaks near 8,000 feet--Gibson, Bandbox, Sheep, Tollgate, and Woodhurst. The east boundary is adjacent to private and other lands with the balance of the perimeter adjoining other National Forest or interior private land.

The southeastern perimeter of the area is adjacent to Judith River Game Range. This state facility provides winter range to the Judith River elk herd. Other portions of the area along the eastern boundary include some elk winter range. However, most of the winter range is on adjacent private land.

The Band Box Area is locally noted for fossils. A portion of Band Box Mountain contains a coral reef formation.

CAPABILITY

Natural Integrity and Appearance

Human use in the area has been related to mining, timber harvest, livestock grazing, and recreation. Evidence of these past and present uses are throughout the area.

The area is very irregular in shape due to identified intrusions by development activities. Approximately 3,000 acres at the center of the area--Bear Park--are excluded because of a 5.0 million board feet timber sale and an improved road, which parallels Sage Creek to access Bear Park.

Opportunities for Solitude

The Tollgate-Sheep area lacks in solitude characteristics because of its limited size, irregular shape, and visibility to extensive ranching, farming, and rural civilization.

Primitive Recreation Opportunities

The area has five high peaks--Gibson, Bandbox, Sheep, Tollgate, and Woodhurst. Only Bandbox is above timberline. No year-round streams are within the area with the exception of short segments of Running Wolf Creek. With the exception of hiking trails, there are no recreation facilities in the area.

Other Features

The northern two thirds of the area are heavily mineralized with silver, lead, zinc, and gold. Several patented and unpatented claims are within the area.

The area contains several inventoried archeologic sites.

Manageability and Boundaries

The Tollgate-Sheep area is contiguous, yet winding area. All but 200 acres are under Federal jurisdiction, with private lands scattered throughout the unit. Most of the boundary does not follow distinct cultural or physical features. All portions are within several miles of a road or other primitive access routes.

Boundary adjustments to exclude scattered patented mining claims would not be possible. Plans for any future mineral exploration and development on this patented land is unknown. Since the RARE II inventory the area has been reduced by 2,400 acres because of timber harvest activities and roads.

AVAILABILITY

Resource Potential

Recreation - The area does not have any well-known recreation attractions. The major recreation use of the area is for big game and upland bird hunting, trail bike riding, camping, and some hiking. Present area access includes 14 miles of trails and 16 miles of low standard, primitive roads.

Wildlife - Wildlife species include elk, mule deer, whitetail deer, black bear, ruffed grouse, blue grouse, and numerous nongame animals and birds. The area contains one mile of brook trout fishery in Running Wolf Creek.

Range - Three permittees graze 145 AUMs annually under simple deferred systems. Range improvements include eight spring developments and about four miles of fence. Potential to increase the number of AUMs is low.

Timber - Approximately 55 percent of the area is tentatively suitable forest land. Past timber harvest has been for house logs, post, poles, and firewood. Principle species are lodgepole pine and Douglas fir. The private land adjacent to the northwest corner was recently selectively harvested. Several areas have potential for sawlog sales. But, roaded access would need to be developed before any harvesting could begin. The area is capable of a harvest of 1.169 million board feet annually.

Water - Some streamside irrigation occurs along lower Running Wolf Creek, which parallels the northern boundary. Major water use on the Forest is for livestock purposes.

Minerals - Numerous mines, prospect pits, and open cuts are present on Bandbox Mountain and south of Tollgate Mountain. There are no producing mines at this time, however, there is moderate potential for discovery of silver, lead, zinc, and gold. Thirty unpatented mining claims are present. There is no known oil and gas potential in the area.

Table 1 lists the resources of the Tollgate-Sheep Roadless Area.

Table 1
Tollgate-Sheep Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 27,000

NF Acres 26,800

RECREATION - RVD's

Primitive - 0
SPNM - 2,400
SPM - 800
Roaded Natural - 200
Rural - 0

RANGE

Suitable Acres - 970
No. of Allotments - 3
Permitted AUMs - 145

TIMBER

Tentative Suitable Acres - 14,546
Standing Volume - MMBF - 158.5

CORRIDORS

No. of Existing & Potential - 0

WILDLIFE - T&E - None

WILDLIFE - BIG GAME

Important Elk Summer Range Acres - 3,714
Elk Winter Range Acres - 3,237
Mule Deer Winter Range Acres - 1,686

WILDLIFE - FISHERIES

Stream Miles - 1
Stream Acres - 1

WATER DEVELOPMENTS

No. of Existing - 0

MINERALS

Hardrock Potential - High--silver, lead, zinc, gold
No. of Claims - 30

Oil & Gas Potential - Low
No. of Oil & Gas Leases - 0
Oil & Gas Lease Acres - 0

NEED

Proximity to Other Designated Wilderness and to Population Centers

The Tollgate-Sheep Roadless Area is about 50 miles southeast of Great Falls. There are 13 classified wildernesses containing 4.4 million acres.

Contribution to National Wilderness Preservation System

The main attribute of the area is the wildlife and hunting value. Elk and deer are the two most sought big game animals.

Public Interest and Concern

The area has had little interest in wilderness designation shown by local or regional respondents. During 1977 and 1983 public reviews 1,286 and 2 comments respectively were received. Most comments supported nonwilderness. During the 1985 review, no specific comments were received.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

Management Designation

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Only portions of the area would be developed, or the development would be gradual over the next 150 years.

The Tollgate-Sheep Roadless Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	0	26,800
A-1	0	0	26,800
A-2	0	0	26,800
B-1	0	0	26,800
B-2	0	0	26,800
C	0	10,800	16,000
D	0	20,400	6,400
E-1	0	0	26,800
E-2	0	0	26,800
F	0	0	26,800
F(Departure)	0	0	26,800
G(Preferred)	0	25,600	1,200
H	26,800	0	0
I	0	25,600	1,200
J	0	25,600	1,200
K	0	25,600	1,200

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resource activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Tollgate-Sheep Roadless Area, the Current Plan and Alternatives B-2, G(Preferred), I, J, and K the major emphasis will be on minimum level management. Alternatives A-1, A-2, B-1, C, D, E-1, E-2, F, and F(Departure) emphasize Timber management. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA 1-733
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/ Wildlife/Visual	Timber/Range Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness	Concentrated Recreation
Current Plan	13,447	6,333	6,303	0	0	0	717	0	0	0
A-1	8,510	3,180	8,660	3,348	711	63	2,328	0	0	0
A-2	8,737	3,451	8,471	3,237	511	11	2,382	0	0	0
B-1	9,575	4,270	10,324	1,026	876	0	729	0	0	0
B-2	11,294	4,461	9,448	830	20	0	747	0	0	0
C	2,589	6,365	13,731	706	109	0	3,300	0	0	0
D	11,655	6,242	4,508	0	152	0	4,243	0	0	0
E-1	9,529	4,098	9,007	1,102	2,290	11	763	0	0	0
E-2	9,523	4,097	9,900	1,063	1,436	11	770	0	0	0
F	10,121	1,452	9,680	4,594	0	0	941	0	0	12
(Departure)	9,853	1,281	11,819	2,727	0	0	961	147	0	12
(Preferred)	21,314	2,894	694	339	160	7	1,138	242	0	12
H	0	0	0	0	0	0	0	0	26,800	0
I	20,472	3,096	635	418	143	4	422	1,454	0	156
J	21,101	2,660	665	398	133	4	1,338	364	0	137
K	16,048	4,185	128	911	111	50	4,570	797	0	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Tollgate-Sheep is allocated to wilderness in Alternative H. This is the only alternative that the total area or any position is allocated to wilderness.

Wilderness allocation could enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing low standard roads and other motorized activities associated with range management and trail maintenance could be eliminated.

The 14,546 acres of land tentatively suitable for timber production would not be available under wilderness management. This would remove about 158 million board feet of standing volume with an annual harvest of up to 1.169 million board feet.

Current livestock grazing of 145 AUMs could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production will be foregone. Over the long run grazing would be reduced by 22 AUMs because of a reduction of available forage.

Effects on big game would be similar since much of the forage produced on this area is capable of supporting stands of trees. Thus, cover/forage relationships would change over time except winter range would decrease.

Under this allocation recreation use would continue to be dominated by hunting.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. Currently, there are 30 hardrock mining claims within the area.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities will be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth, but could be improved by letting fire play a more natural role.
- Water quality and fisheries would be maintained at their present levels.

Economic and social effects would be slight since the area represents about 2 percent of the Forest suitable timber base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized travel. Other resource values such as hunting would be retained.

The 2 percent loss in timber volume can be mitigated by practicing intensive forestry elsewhere.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Range/Wildlife, and Minimum Level

Alternative D, G, I, J, and K allocated most all of the Tollgate-Sheep Roadless Area to range, wildlife, and minimum level management under a roadless designation. Alternative C allocated about 40 percent of the area to range, wildlife, and minimum level management under a roadless designation.

Allocation to range, wildlife, and minimum level management would not effect the wilderness attributes. These management prescription limit new road construction. Timber harvest is not scheduled, but tree mortality can be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes of this area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range, Timber/Wildlife/Visual and Timber/Range/Wildlife/Visual

All alternatives, except H, allocate some of the Tollgate-Sheep Roadless Area to timber management. Alternative G(Preferred), I, J, and K, allocate only a small percentage of the area to timber management.

Allocation to timber management would forego the possibility of wilderness allocation. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the first decade. About 12,160 acres would be developed during the first decade (19,500 acres under Alternatives A-1 and A-2). About 14,640 acres would beavailable for wilderness reevaluation during the next planning period (7,300 acres under Alternatives A-1 and A-2).

The harvest scheduled in Tollgate-Sheep could be shifted to other parts of the Jefferson Division.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised in 50 years.
- Elk security would be reduced due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.
- Water quality and fisheries would be affected slightly by roading and timber harvest.
- These prescriptions would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since about 1 percent of the Forest suitable timber base and about 1 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

All alternatives, except H, allocate some of the Tollgate-Sheep Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes would be carried out in a developed environment.

Under these prescriptions there would be additional range improvements and burning to increase forage production.

The nonpriced costs and benefits of this management are:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced, but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected, but not substantially.

Management Designation: Roadless and Developed
Management Emphasis: Concentrated Recreation

Alternatives F, F(Departure), G(Preferred), I, and J allocate 12 to 156 acres to concentrated recreation management.

Allocation to concentrated recreation may effect the wilderness attributes, but the effect would be terminated by the removal of dispersed recreation improvements or other management actions. Timber and range management may take place, if compatible with adjacent management.

The nonpriced costs and benefits are as follows:

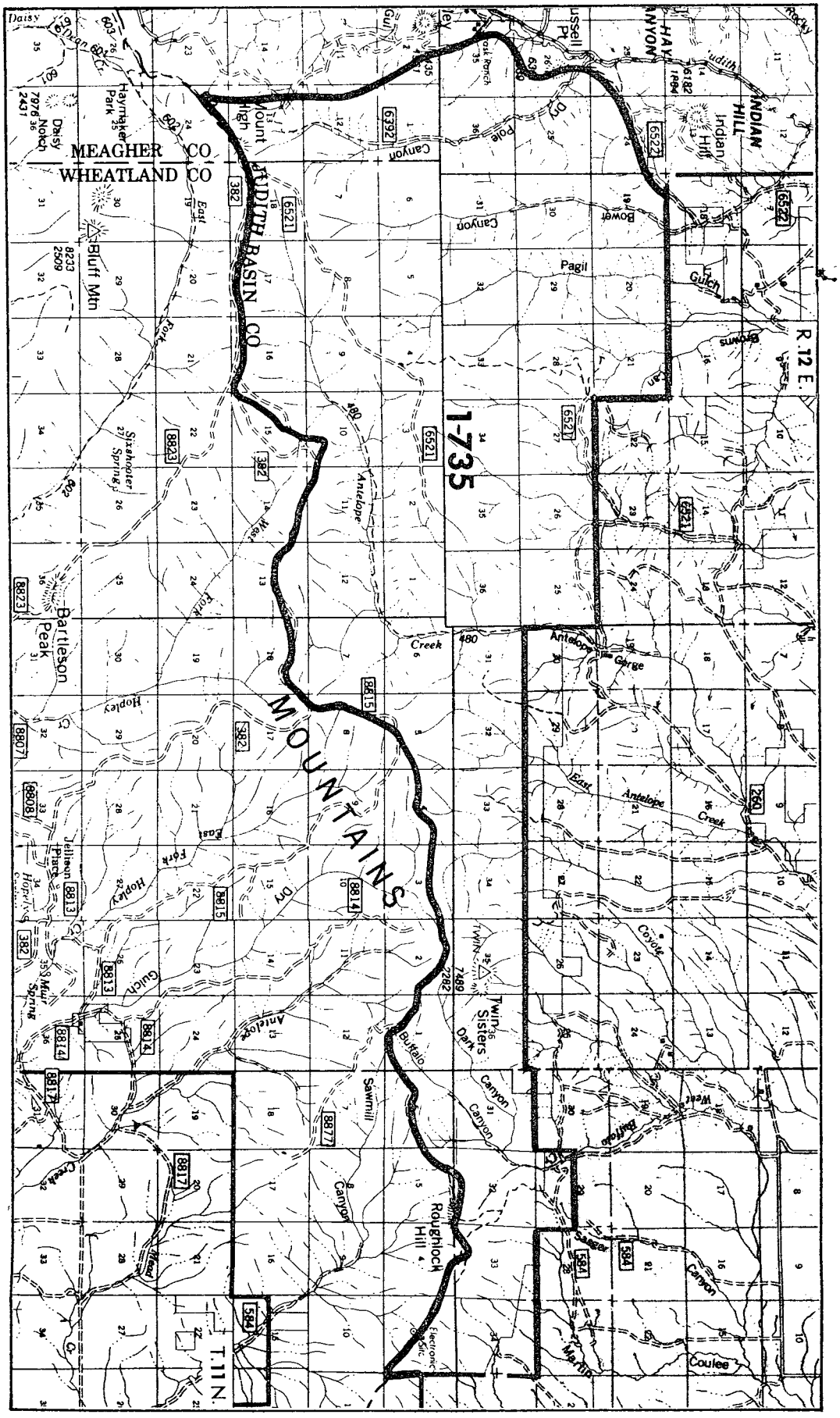
- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Dispersed recreation opportunities would be emphasized.
- Elk security would be reduced.
- Water quality and fisheries would be affected, but not significant.

Table 2 lists the average annual output by alternative.

TABLE 2
Average Annual Output - 2030 by Alternative

Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	26,800	0	0	0
Semi-Primitive		0	0	0	0	0	10,800	20,400	0	0	0	0	25,600	0	25,600	25,600	25,600
Roaded Natural		26,800	26,800	26,800	26,800	26,800	16,000	6,400	26,800	26,800	26,800	26,800	1,200	0	1,200	1,200	1,200
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	26,800	0	0	0
Roadless	Acres	0	0	0	0	0	10,800	20,400	0	0	0	0	25,600	0	25,600	25,600	25,600
Decade 1		14,640	7,300	7,300	14,640	14,640	17,100	20,400	14,640	14,640	14,640	14,640	25,600	0	25,600	25,600	25,600
Decade 5		0	0	0	0	0	10,800	20,400	0	0	0	0	25,600	0	25,600	25,600	25,600
Developed		26,800	26,800	26,800	26,800	26,800	16,000	6,400	26,800	26,800	26,800	26,800	1,200	0	1,200	1,200	1,200
Decade 1		12,160	19,500	19,500	12,160	12,160	9,700	6,400	12,160	12,160	12,160	12,160	1,200	0	1,200	1,200	1,200
Decade 5		26,800	26,800	26,800	26,800	26,800	16,000	6,400	26,800	26,800	26,800	26,800	1,200	0	1,200	1,200	1,200
Range	AUMs	145	174	174	167	167	142	178	174	174	161	161	151	123	151	151	142
Timber																	
Suitable Acres	Acres	6,303	12,782	12,230	12,226	10,298	14,546	4,660	12,410	12,410	14,294	14,565	1,200	0	1,200	1,200	1,200
Volume	MMBF	.506	1.026	.982	.982	.827	1.168	.377	.997	.997	1.148	1.170	.096	0	.096	.096	.096
Wildlife-Big Game	Acres																
Summer Habitat		3,714	3,714	3,714	3,714	3,714	3,714	3,714	3,714	3,714	3,714	3,714	3,714	3,714	3,714	3,714	3,714
Winter Habitat		3,237	3,237	3,237	3,237	3,237	3,237	3,237	3,237	3,237	3,237	3,237	3,237	3,237	3,237	3,237	3,237
Fisheries	Miles																
Impacted		1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0
Unimpacted		0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	26,800	0	0	0
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		26,800	26,800	26,800	26,800	26,800	26,800	26,800	26,800	26,800	26,800	26,800	26,800	0	26,800	26,800	26,800
Employment	Person Years	18.5	26.2	25.6	25.6	23.3	23.9	20.1	25.8	25.8	28	28.3	2.1	.2	2.1	2.1	2.1
Income	Millions of $	.331	.815	.795	.795	.432	.488	.444	.482	.482	.482	.482	.078	.048	.078	.078	.078
Return to Gov.	Dollars	2,168	4,382	4,197	4,194	3,543	4,964	5,018	4,260	4,260	4,889	4,981	469	52	467	467	463

MOUNT HIGH 1-735
Roadless Area



	Gross Acres	Net Acres
Lewis and Clark National Forest	33,000	32,300

DESCRIPTION

Location and Access

The Mount High Roadless Area is a contiguous parcel in the east end of the Little Belt Mountains of central Montana. The area lies approximately 30 miles northwest of Harlowton and 60 miles southwest of Lewistown in Judith Basin County. Access is from several Forest roads on the west and south, and via private roads from the north.

General Description

The vegetation varies from timbered lodgepole pine and Douglas fir slopes in the southwestern portion, to very dry sparsely timbered rocky draws along the northeastern part. The topography varies from about 7,500 feet at Mount High to 4,800 feet where area joins the plains. Annual precipitation is about 18 inches per year.

The east end of the Belts is the driest part of the range. Typified by draws and canyons running north-south, the area gradually rises from the plains (about 4,800 feet) on the north side, to the east-west running ridge (about 7,000 feet) which is the Judith Basin-Wheatland County boundary. Rectangular and tapering, the area is about 18 miles wide (east-west), yet as narrow as one mile (north-south) in some portions. One high point, Twin Sisters (7,489 feet), is in the east half. Mount High is on the southwest border. Vegetation varies from timbered lodgepole pine and Douglas fir slopes in the southwestern portion, to very dry sparsely timbered draws along the northern finger. Most of the area is noncommercial forest or nonforested. The north boundary adjoins private lands for over 20 miles with no public access.

CAPABILITY

Natural Integrity and Appearance

Human impact in the area has been limited. Five active range allotments are in the area. Approximately 20 miles of low standard roads--wheel tracks--and 20 miles of trails are in the area.

The Mount High area is small and because of its shape and location visitors do not feel removed from ordinary human activities and development. The northern boundary is the Forest boundary, which is also the approximate break from the mountains to the plains. The eastern end is a narrow strip, about two miles wide, of low rolling hills in very dry terrain. From high points, looking to the north shows ranches and roads. Some timber harvest activity is visible to the south from the western side of the area.

Opportunity for Solitude

The Mount High area has a low opportunity for solitude because of its small size and shape. The area is about 18 miles east to west, yet only 6 miles north to south at its widest portion. The eastern end is a narrow finger, which is only a mile wide in some sections. The terrain is typical of the eastern half of the Little Belts--lodgepole pine and Douglas fir, graduating to limber pine and open slopes along the eastern side. No perennial streams or lakes are within the area. Extensive vistas of farming and ranching activities as well as several towns are visible from the entire ridgeline.

Primitive Recreation Opportunities

The area has some topographic variety, ranging from wooded portion in the west to the drier more open coulees in the east. Steep, rocky canyons are common. Because of limited water and the small size, the area has a limited opportunity to get away from the man-influenced environment and enjoy primitive recreation experiences such as elk hunting, camping, scenic viewing, hiking, and horseback riding.

Manageability and Boundaries

Boundaries are fairly well defined on hydrological divides, cultural features, or the Forest boundary. The small size of the area and its proximity to roads would make all portions fairly accessible though 90 percent of the area must be accessed across private land. A small amount of private land is within the northeastern corner. The boundary could be adjusted to exclude these 700 acres in private ownership. The bundaries and the acres have not been adjusted since the RARE II inventory.

AVAILABILITY

Resource Potential

Recreation - Big game and upland bird hunting and four-wheel drive travel are the major recreation uses. Recreation attractions include Antelope Canyon, Twin Sisters Peaks, and a balancing rock in Buffalo Canyon. Other than during hunting season, recreation use is very low.

Wildlife - Wildlife species include elk, mule deer, whitetail deer, black bear, ruffed grouse, blue grouse, and numerous species of nongame animals and birds. The area contains no fisheries.

Range - Five permittees graze 1,046 cattle annually. There is little potential for increasing livestock numbers or season of use.

Timber - About 25 percent of the area is classified as tentatively suitable forest lan Some post and pole cutting occurs in the area. The area is capable of a harvest of .639 million board feet annually.

Minerals - Mineral potential is low. Three oil and gas leases totaling 1,682 acres are present.

Table 1 lists the resources of the Mount High Roadless Area.

Other Management Considerations

Though the fire history is one of large, devastating wildfires, the actual number of fires occurring annually is small--less than one per year. A power-line under special-use permit now crosses the area to reach an electronics site on Roughlock Hill, in the eastern half.

Table 1
Mount High Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 33,000

NF Acres 32,300

RECREATION - RVDs

Primitive - 0
SPNM - 2,600
SPM - 1,000
Roaded Natural - 0
Rural - 0

RANGE

Suitable Acres - 1,744
No. of Allotments - 3
Permitted AUMs - 308

TIMBER

Tentative Suitable Acres - 7,959
Standing Volume MMBF - 95.5

CORRIDORS

No. of Existing & Potential - 0

WILDLIFE - T&E - None

WILDLIFE - BIG GAME

Important Elk Summer Range Acres - 6,116
Elk Winter Range Acres - 1,057
Mule Deer Winter Range Acres - 0

WILDLIFE - FISHERIES - None

WATER DEVELOPMENTS

No. of Existing - 0

MINERALS

Hardrock Potential - Low
No. of Claims - 0

Oil & Gas Potential - Low
No. of Oil & Gas Leases - 3
Oil & Gas Lease Acres - 1,682

NEED

Proximity to Other Designated Wilderness

The Mount High Roadless Area is about 70 miles southeast of Great Falls and 100 miles northwest of Billings. There are 13 classified wildernesses containing 4.4 million acres within one day's drive of Great Falls.

Contribution to National Wilderness Preservation System

The main attribute of this area is the wildlife and hunting value. Elk and deer are the two most sought big game animals.

Public Interest and Concern

The area has had little interest by local or regional persons. During 1977 and 1983 public review 1,291 and 2 comments respectively were received. Most comments supported nonwilderness. During the 1985 review, no specific comments were received.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

Management Designation

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Mount High Roadless Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	27,800	4,500
A-1	0	0	32,300
A-2	0	0	32,300
B-1	0	0	32,300
B-2	0	0	32,300
C	0	32,300	0
D	0	32,300	0
E-1	0	0	32,300
E-2	0	0	32,300
F	0	27,100	5,200
F(Departure)	0	25,300	7,000
G(Preferred)	0	27,100	5,200
H	32,300	0	0
I	0	25,100	7,200
J	0	25,100	7,200
K	0	29,100	3,200

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resource activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Mount High Roadless Area, under all alternatives but H, the major emphasis will be on minimum level management. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA 1-735
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/ Wildlife	Timber/Range Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness	Concentrated Recreation
Current Plan	16,207	7,632	7,597	0	0	0	864	0	0	0
A-1	17,702	3,833	2,991	4,035	857	76	2,806	0	0	0
A-2	17,311	4,159	3,428	3,902	616	13	2,871	0	0	0
B-1	18,317	5,146	5,667	1,236	1,056	0	878	0	0	0
B-2	18,064	5,376	6,934	1,001	24	0	901	0	0	0
C	20,651	7,671	0	0	0	0	3,978	0	0	0
D	19,663	7,524	0	0	0	0	5,113	0	0	0
E-1	18,482	4,939	3,858	1,328	2,760	13	920	0	0	0
E-2	18,475	4,938	4,935	1,281	1,730	13	928	0	0	0
F	24,288	1,750	2,905	2,208	0	0	1,135	0	0	14
F(Departure)	23,386	1,544	4,030	1,991	0	0	1,158	177	0	14
G(Preferred)	20,782	3,488	3,675	1,794	847	36	1,371	292	0	14
H	0	0	0	0	0	0	0	0	32,300	0
I	18,747	3,731	3,904	2,566	879	22	509	1,753	0	189
J	19,959	3,206	3,833	2,299	767	19	1,612	439	0	166
K	18,387	5,043	257	1,825	221	100	5,507	960	0	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Mount High is allocated to wilderness in Alternative H. This is the only alternative that the total area or any position is allocated to wilderness.

Wilderness allocation could enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing low standard roads and other motorized activities associated with range management and trail maintenance could be eliminated.

The 7,959 acres of land tentatively suitable for timber production would not be available under this prescription. This would remove about 95 million board feet of standing volume with an annual harvest of up to .330 million board feet.

Current livestock grazing 308 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production would be foregone. Over the long run grazing would be reduced by 46 AUMs because of a reduction of available forage.

Effect on elk management would be similar since much of the forage produced on this area is from lands that are capable of supporting stands of trees. Thus, cover/forage relationships would change over time and winter range would decrease.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. Currently 1,682 acrea are under lease for oil and gas exploration and development.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth, but could be improved by letting fire play a more natural role.
- Water quality would be maintained at their present natural levels.

Economic and social effects would be slight since the area represents about 1 percent of the Forest suitable timber base. Grazing would be reduced by about 15 percent from the current level. Costs of livestock operations would increase because of nonmotorized means of travel. Other resource values such as hunting would be retained.

The 1 percent loss in timber volume can be mitigated by practicing intensive forestry elsewhere on the Jefferson Division.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

Alternatives C and D allocates all of the Mount High Roadless Area to range, wildlife and minimum level management under a roadless designation. Alternatives F, F(Departure), G(Preferred), I, J, K, and the Current Plan, allocates most all of the Mount High Roadless Area to range, wildlife, and minimum level management under a roadless designation.

Allocation to range, wildlife and minimum level management would not effect the wilderness attributes. These management prescriptions limit new road construction. Timber harvest is not scheduled, but tree mortality could be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes of this area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber, Timber/Wildlife, and Timber/Range/Wildlife/Visual

All alternatives, except C, D, and H, allocate some of the Mount High Roadless Area to timber management.

Allocation to timber management would forego the possibility of wilderness allocation. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the second decade. All of the area would be available for wilderness reevaluation during the next planning period.

The harvest scheduled in Mount High could be shifted to other parts of the Jefferson Division.

The nonpriced costs and benefits are as follows:

- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised in 50 years.
- Elk security would be reduced due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.
- Water quality would be affected slightly by roading and timber harvest.
- These prescriptions would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since about 1 percent of the Forests suitable timber base and about 1 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

All alternatives, except C, D, and H, allocate some of the Mount High Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment. Under these prescriptions there would be additional range improvements and burning to increase forage production.

The nonpriced costs and benefits of this management are:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced, but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality would be affected, but not substantially.

Management Designation: Roadless and Developed
Management Emphasis: Concentrated Recreation

Alternatives F, F(Departure), G(Preferred), I, and J allocate from 14 to 189 acres to concentrated recreation management.

Allocation to concentrated recreation may effect the wilderness attributes, but the effect could be terminated by the removal of dispersed recreation improvements or other management actions. Timber and range management may take place, if compatible with adjacent management.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Dispersed recreation opportunities would be emphasized.
- Elk security would be reduced.
- Water quality and fisheries would be affected, but not significant.

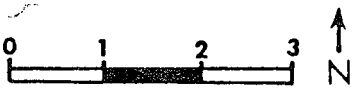
Table 2 lists the average annual output by alternative.

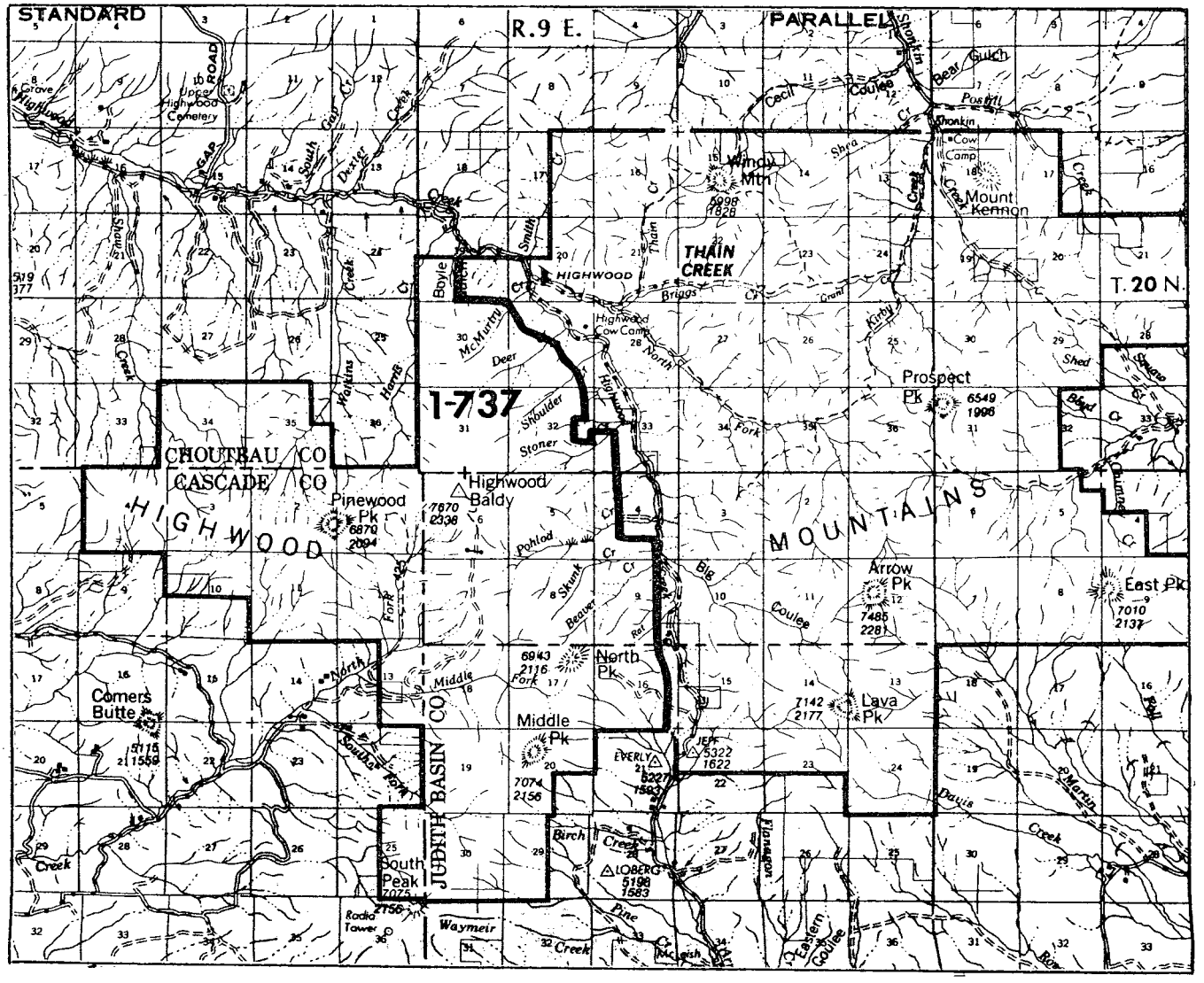
TABLE 2
Average Annual Output - 2030 by Alternative

Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	32,300	0	0	0
Semi-Primitive		27,800	0	0	0	7,600	3,200	32,300	0	0	27,100	25,300	27,100	0	7,200	7,200	5,200
Roaded Natural		4,500	32,300	32,300	32,300	24,700	0	0	32,300	32,300	5,200	7,000	5,200	0	25,100	25,100	27,100
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	32,300	0	0	0
Roadless	Acres	27,800	0	0	0	7,600	32,300	32,300	0	0	27,100	25,300	27,100	0	25,100	25,100	27,100
Decade 1		32,300	32,300	32,300	32,300	32,300	32,300	32,300	32,300	32,300	32,300	32,300	32,300	0	32,300	32,300	32,300
Decade 5		27,800	28,800	28,800	0	28,800	32,300	32,300	11,500	0	27,100	25,300	27,100	0	25,100	25,100	27,100
Developed		4,500	32,300	32,300	32,300	24,700	0	0	32,300	32,300	5,200	7,000	5,200	0	7,200	7,200	5,200
Decade 1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decade 5		4,500	3,500	3,500	32,300	3,500	0	0	20,800	32,300	5,200	7,000	5,200	0	7,200	7,200	5,200
Range	AUMs	308	370	370	354	354	296	379	370	370	342	342	320	262	320	320	296
Timber																	
Suitable Acres	Acres	7,597	7,959	7,959	7,959	7,959	0	0	7,959	7,959	5,113	6,021	3,652	0	7,071	6,918	2,403
Volume	MMBF	.610	.639	.639	.639	.639	0	0	.639	.639	.410	.483	.176	0	.592	.555	.193
Wildlife-Big Game	Acres																
Summer Habitat		6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116	6,116
Winter Habitat		1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057	1,057
Fisheries	Miles																
Impacted		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unimpacted		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	32,300	0	0	0
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		32,300	32,300	32,300	32,300	32,300	32,300	32,300	32,300	32,300	32,300	32,300	32,300	0	32,300	32,300	32,300
Employment	Person Years	13.8	23	23	23	23	3.3	3.4	23	23	11	12.1	7.5	2.1	13.6	13.1	7.1
Income	Millions of $	.095	.410	.410	.410	.410	.053	.056	.041	.041	.210	.230	.127	.034	.267	.247	.128
Return to Gov.	Dollars	2,692	2,841	2,841	2,834	2,834	126	162	2,841	2,841	1,903	2,174	875	112	2,622	2,467	936

HIGHWOOD BALDY 1-737

Roadless Area





	Gross Acres	Net Acres
Lewis and Clark National Forest	15,600	15,600

DESCRIPTION

Location and Access

The Highwood Baldy Roadless Area is a contiguous parcel in the Highwood Mountains of central Montana. The area lies 30 miles east of Great Falls, and 25 miles south of Fort Benton, in Choteau, Cascade, and Judith Basin Counties. The South Fork Highwood County Road, paralleling Highwood and Arrow Creeks, runs north-south through the middle of the Highwoods. This road lies along the area's eastern boundary and provides public access from the north and south. However, the road has six fords across Highwood Creek. The fords are seasonally too deep for passenger cars. There are no other public access routes into the area, though numerous primitive travelways reach the Forest across private land.

General Description

The area includes the western third of the Highwoods. This range is a small rectangular cluster of mountains, about 8 miles from north to south and 13 miles from east to west. Volcanic in origin, the peaks are tightly grouped with steep slopes.

The Highwood Mountains are a mosaic of timber, meadow, and rock slopes. Four peaks--Pinewood, North, Middle, and Highwood Baldy--rise from the meadows and wooded slopes. All around 7,000 feet, the peaks are bare on top, yielding to views of the surrounding plains, distant mountain ranges, and the east half of the Highwoods.

The northern and eastern part of the area drains into Highwood Creek; the southwestern portion of the area forms the headwater of Little Belt Creek, and the southeastern corner of the area drains into Arrow Creek.

The roadless area boundary follows the proclaimed Forest boundary except for two stretches along the eastern boundary where it parallels the South Fork Highwood Road. Over 80 percent of the perimeter adjoins private land. The area has been grazed continuously since the early 1900's.

On top of Highwood Baldy, the highest peak in the range, sits a small building under special-use permit, which houses electronic communication equipment for seven parties and the Forest Service. A Forest system road is under special-use permit for access to the electronic site. The road parallels the North Fork of Little Belt Creek and heads north from the area's southwest boundary. About 1 mile from the site the road is closed. An overhead powerline from the site parallels the road.

Other than to the east, which is contiguous with the rest of the Highwood Range, the area is surrounded by high plains used for agriculture purposes. All of this agriculture land is privately owned.

CAPABILITY

Natural Integrity and Appearance

Some of the Highwood Baldy Roadless Area is isolated, but the sights and sounds of man are within 1 to 3 miles. Extensive ranching and farming activities as well as the city of Great Falls are visible in the distance from all high vista points.

Cattle grazing has been extensive throughout the Highwoods. Fences, water developments and salt licks are throughout the area. The changes from the natural condition do not dominate the natural appearance of the area. A low standard road crosses the middle of the area, to access the top of Highwood Baldy. There has been scattered post and pole cutting, mostly along the South Fork of Highwood Creek Road. Historically, prospectors have explored the area, but mineral potential is low and there is little sign of past activity.

Opportunity for Solitude

The area is small and the mountain top topography is such that persons visiting the area are always close to human activity and development. The west boundary of RARE Area 1-738 lies approximately one mile to the east of this area. Nearby roads along Highwood Creek and on private land add to the feeling of development. The electronics site on top of Highwood Baldy is visible from many points.

The Highwood Baldy Area has little opportunity for solitude because of its size, landform, and nearby roads. Most users are attached to the mountain tops. Man's influence penetrate much of the area. Towns, ranches, and farms are visible from the high vista points.

Primitive Recreation Opportunities

The area offers some opportunity for primitive recreation. The area receives moderate use from upland bird and big game hunters. An occasional hiker climbs to the mountain tops for views of surrounding countryside.

Other Features

The Highwoods are the closest National Forest land to Great Falls; therefore, they attract many local users.

Manageability and Boundaries

The Highwood Baldy is a small, contiguous parcel. The entire area is National Forest. Boundaries are defined on major terrain, proclaimed Forest boundary, or along the South Fork Highwood Road. The east boundary would be quite difficult to define and locate. There are few opportunities to modify the boundary. Conflicts with adjacent private land could not be avoided. A more intensive grazing system would require additional fences and water developments. The boundaries and the acres have not been adjusted since the RARE II inventory.

AVAILABILITY

Resource Potential

Recreation - The Highwood Mountains are the closest forested area to Great Falls. Big game and upland bird hunting, off-road recreation vehicle travel, hiking, fishing, camping, and horseback riding are the major recreational uses. No well-known recreational attractions or cultural resources are in the area.

Wildlife - The area provides habitat for elk, mule deer, whitetail deer, blue grouse, and ruffed grouse. Many nongame animals also inhabit the area. The Highwoods are known to have some of the best elk hunting in central Montana, although it is entirely by permit for the general big game hunting season. The area contains 4 miles of rainbow and brook trout fisheries in Little Belt Creek and Watkins Creek.

Range - Sixteen permittees, all members of the Highwood Grazing Association, graze 262 cattle annually under a simple, continuous grazing system. There are a number of fences and water developments in the area.

Timber - Approximately 50 percent of the area is tenatively suitable forest land. The balance of the area is noncommercial forest or nonforest. There has been scattered post and pole cutting within the area. Principle species include lodgepole pine, Douglas fir, and aspen. No timber sales are scheduled in the area, however, the area is capable of a harvest of .592 million board feet annually. Principle limitations to timber management include marginal timber productivity lands and high logging and roading costs.

Water - Minor amounts of streamside irrigation occur immediately downstream from the Forest boundary on perennial streams, which have on-Forest headwaters. Major water use on the Forest is for livestock purposes. Springs are common throughout the Highwoods.

Minerals - There is no known hardrock mineral activity. Oil and gas leases cover most of the area, but there has been little exploration activity. The area has a low potential for oil and gas.

Table 1 lists the resources for the Highwood Baldy Roadless Area.

Other Management Considerations

At the turn of the century most of the area burned in wildfire. Currently, the fire hazard is low and the area is moderately susceptible to insect or disease, because many of the stands are near maturity. Access other than from the county road on the east side is through private land.

TABLE 1
Highwood Baldy Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 15,600
NF Acres 15,600

RECREATION - RVDs
- Primitive - 0
- SPNM - 3,600
- SPM - 600
- Roaded Natural - 0
- Rural - 0

RANGE
- Suitable Acres - 8,106
- No. of Allotments - 6
- Permitted AUMs - 2,900

TIMBER
- Tentative Suitable Acres - 7,372
- Standing Volume MMBF - 47.1

CORRIDORS
- No. of Existing & Potential - 0

WILDLIFE - T&E - None

WILDLIFE - BIG GAME
- Important Elk Summer Range Acres - 1,094
- Elk Winter Range Acres - 3,100

WILDLIFE - FISHERIES
- Stream Miles - 4
- Stream Acres - 5

WATER DEVELOPMENTS
- No. of Existing - 0

MINERALS
- Hardrock Potential - Low
- No. of Claims - 0
- Oil & Gas Potential - Low
- No. of Oil & Gas Leases - 7
- Oil & Gas Leases Acres - 13,040

NEED

Proximity to Other Designated Wilderness

The Highwood Baldy Roadless Area is about 30 miles east of Great Falls. Within one day's drive of Great Falls, there are 13 classified wildernesses containing 4.4 million acres.

Contribution to National Wilderness Preservation System

The area does not have any special ecosystems which are necessary for protected plants or animals.

Public Interest and Concerns

The area has had some public interest or support for wilderness classification. During the 1977 and 1983 public review 2,453 and 4 comments respectively, were received. Most comments supported further planning, while other comments favored nonwilderness. Fewer comments supported wilderness classification. During the 1985 review, no specific comments were received.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

Management Designation

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the area would be roaded in association with timber harvest activities. This does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Highwood Baldy Roadless Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	0	15,600
A-1	0	0	15,600
A-2	0	0	15,600
B-1	0	0	15,600
B-2	0	0	15,600
C	0	0	15,600
D	0	0	15,600
E-1	0	0	15,600
E-2	0	0	15,600
F	0	15,600	0
F(Departure)	0	15,600	0
G(Preferred)	0	15,600	0
H	15,600	0	0
I	0	15,600	0
J	0	15,600	0
K	0	15,600	0

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resource activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Highwood Baldy Roadless Area, under all alternatives but H, the major emphasis will be on range. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

MANAGEMENT EMPHASIS

The acres allocated by management emphasis are:

	Min Level	Range	Timber	Wildlife	Wilderness
Current Plan	2,894	9,814	1,634	1,258	0
A-1	1,829	10,955	2,797	19	0
A-2	1,822	10,221	2,797	760	0
B-1	1,822	10,217	2,797	764	0
B-2	1,822	10,217	2,797	764	0
C	2,735	9,186	1,751	1,389	0
D	1,939	10,217	2,680	764	0
E-1	1,822	10,221	2,797	760	0
E-2	1,822	10,221	2,797	760	0
F	4,497	10,955	0	148	0
F(Departure)	4,078	10,955	0	567	0
G(Preferred)	4,089	10,954	0	558	0
H	0	0	0	0	15,600
I	4,051	10,955	0	594	0
J	4,051	10,955	0	594	0
K	3,489	10,955	0	1,156	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Highwood Baldy is allocated to wilderness in Alternative H. This is the only alternative that the total area or any portion is allocated to wilderness.

Wilderness allocation could enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing road up Highwood Baldy, under special use permit, and other motorized activities associated with range management and trail maintenance could be eliminated.

The 7,372 acres of land tentatively suitable for timber production would not be available under this prescription. This would remove about 49 million board feet of standing volume and a yearly harvest of up to .592 million board feet.

Current livestock grazing, 2,900 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production would be foregone. Over the long run grazing would be reduced by 435 AUMs because of a reduction of available forage.

Effect on big game habitat would be similar since much of the forage produced on this area would support stands of trees. Thus, cover/forage relationships would change over time and winter range would be reduced.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. Almost the entire area is currently leased fr oil and gas exploration and development.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities in the area would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth, but could be improved by letting fire play a more natural role.
- Water quality and fisheries would be maintained at their present levels.

Economic and social effects would be slight since the area represents about 1 percent of the Forest suitable timber base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized means of travel. User conflict with grazing would arise because the area would attract an influx of people interested in recreation and naturalness. Other resource values such as hunting would be retained.

The 1 percent loss in timber volume in this roadless area can be mitigated by practicing intensive forestry elsewhere on the Jefferson Division.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, and Minimum Level

Alternatives F, F(Departure), G, I, J, and K allocate all of the Highwood Baldy Roadless Area to range, wildlife and minimum level management under a roadless designation.

Allocation to range, wildlife and minimum level management would not affect the wilderness attributes. New roads would not be constructed. Timber harvest is not scheduled, but tree mortality could be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes of this area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.

Management Designation: Developed
Management Emphasis: Timber

Alternatives A-1, A-2, B-1, B-2, C, D, E-1, E-2, and the Current Plan allocate from 7 to 17 percent of the Highwood Baldy Roadless Area to timber.

Allocation to timber management would forego the possibility of wilderness allocation on the entire area. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the third decade. All of the area would be available for wilderness reevaluation during the next planning period.

The harvest scheduled in Highwood Baldy could be shifted to other parts of the Jefferson Division.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised within 50 years.
- Elk security would be reduced, due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.
- Water quality and fisheries would be affected slightly by roading and timber harvest.
- These alternatives would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since about 1 percent of the land suitable for timber and about 1 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, and Minimum Level

Alternatives A-1, A-2, B-1, B-2, C, D, E-1, E-2, and the Current Plan allocate most of the Highwood Baldy Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because only 7 to 17 percent of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment. Under these prescriptions there would be additional range improvements and burning to increase forage production.

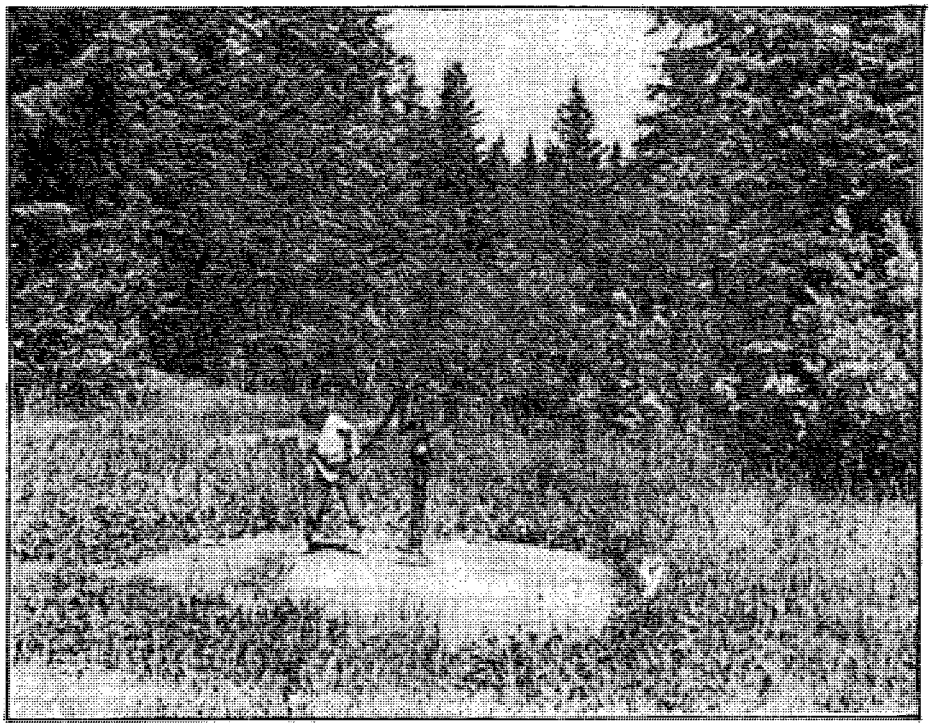
The nonpriced benefits of this management are:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced, but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected, but not substantially.

Table 2 lists the average annual output by alternative.

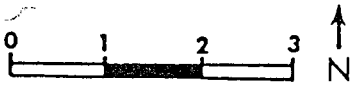
TABLE 2
Average Annual Output - 2030 by Alternative

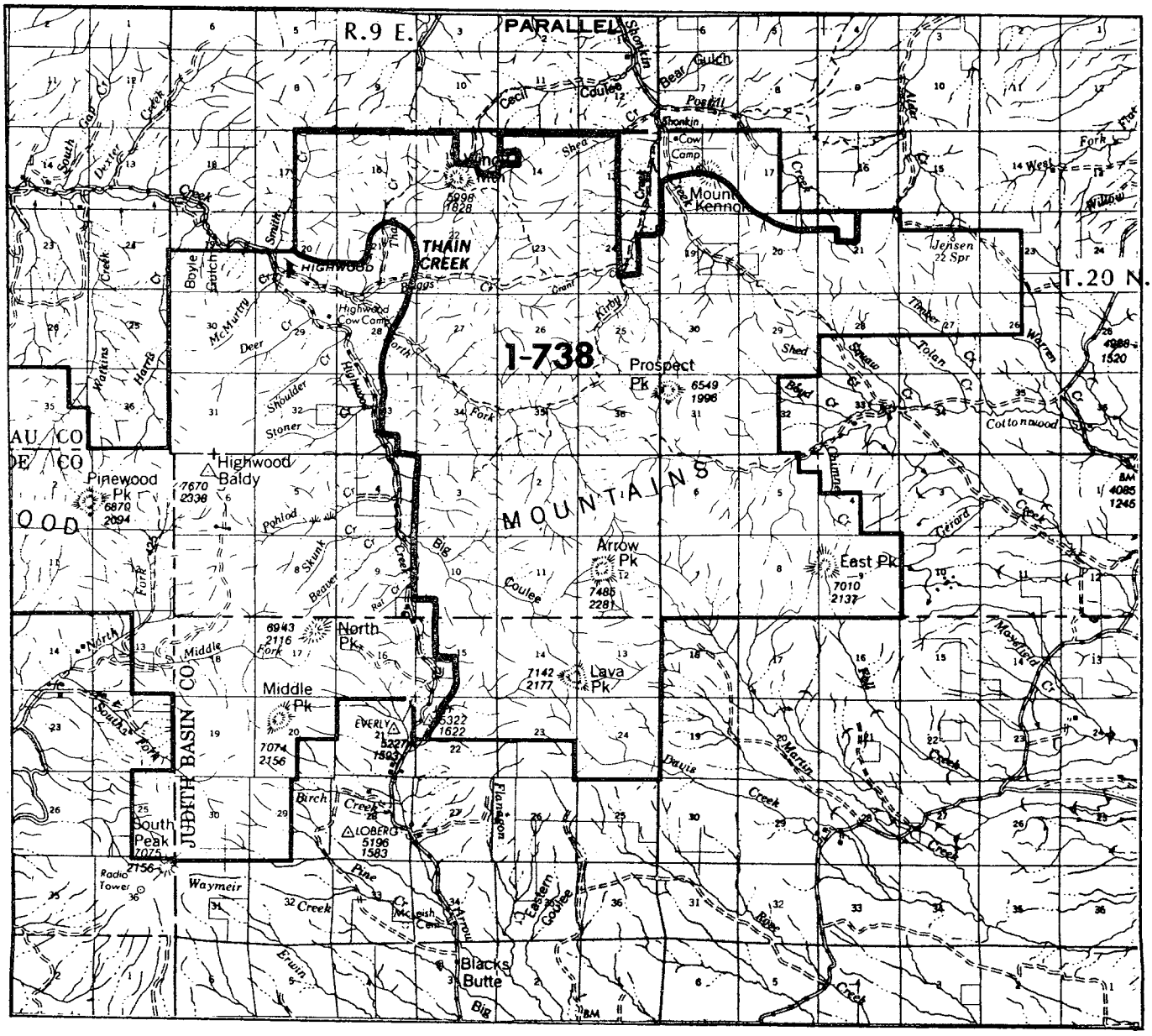
Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	15,600	0	0	0
Semi-Primitive		0	0	0	0	0	0	0	0	0	15,600	15,600	15,600	0	15,600	15,600	15,600
Roaded Natural		15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	0	0	0	0	0	0	0
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	15,600	0	0	0
Roadless	Acres	0	0	0	0	0	0	0	0	0	15,600	15,600	15,600	0	15,600	15,600	15,600
Decade 1		15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	0	15,600	15,600	15,600
Decade 5		15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	0	15,600	15,600	15,600
Developed		15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	0	0	0	0	15,600	15,600	15,600
Decade 1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decade 5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Range	AUMs	2,900	2,900	2,900	2,900	2,900	2,860	2,900	2,900	2,900	2,900	2,900	2,900	2,465	2,900	2,900	2,900
Timber																	
Suitable Acres	Acres	1,634	2,797	2,797	2,797	2,797	1,751	2,680	2,797	2,797	0	0	0	0	0	0	0
Volume	MMBF	.131	.244	.244	.244	.244	.141	.215	.244	.244	0	0	0	0	0	0	0
Wildlife-Big Game	Acres																
Summer Habitat		1,094	1,094	1,094	1,094	1,094	1,094	1,094	1,094	1,094	1,094	1,094	1,094	1,094	1,094	1,094	1,094
Winter Habitat		3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100	3,100
Fisheries	Miles																
Impacted		4	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0
Unimpacted		0	0	0	0	0	0	0	0	0	0	0	4	4	4	4	4
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	15,600	0	0	0
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600	0	15,600	15,600	15,600
Employment	Person Years	7.3	9	9	9	9	7.4	8.6	9	9	3.7	3.7	3.7	2.7	3.7	3.7	3.7
Income	Millions of $	.196	.232	.232	.232	.232	.199	.223	.232	.232	.078	.078	.078	.061	.078	.078	.078
Return to Gov.	Dollars	1,789	2,264	2,264	2,264	2,264	1,814	2,142	2,264	2,264	1,237	1,237	1,237	1,053	1,239	1,239	1,239



Pumping Water on a Summer Day.

HIGHWOODS 1-738
Roadless Area





	Gross Acres	Net Acres
Lewis and Clark National Forest	24,300	24,100

DESCRIPTION

Location and Access

The Highwoods Roadless Area is a contiguous parcel in the Highwood Mountains of central Montana. The area lies approximately 30 miles east of Great Falls and 25 miles south of Fort Benton in Choteau and Judith Basin Counties. The South Fork Highwood County Road, paralleling Highwood and Arrow Creeks, runs north-south through the middle of the Highwoods. This road lies along the area's western boundary and provides public access from the north and south. However, the road has six fords across Highwood Creek. The fords are seasonally too deep for passenger cars. There are no other public access routes into the area, though numerous primitive travelways reach the Forest.

General Description

The area includes most of the eastern two-thirds of the Highwoods--from about South Fork Highwood Creek Road east to the Forest boundary. The range is a small rectangular cluster of mountains, about 8 miles from north to south and 13 miles from east to west. Volcanic in origin, the peaks are tightly grouped with steep slopes.

The Highwood Mountains are a mosaic of timber, high meadows, and rock slopes. Five peaks--Wind, Prospect, Arrow, Lava, and East--rise from the meadows and provide views of the surrounding plains, distant mountain ranges, and the west half of the Highwoods.

The roadless area boundary follows the proclaimed Forest boundary except along the western boundary, where it parallels the South Fork Highwood Road to exclude private or developed land.

Thain Creek Campground is outside of the northwest part of the roadless area. The campground and the trail system stemming from it draw most of the nonhunting recreation use in the Highwoods. Just outside the area boundary and near the campground are three recreation residences under special use permit. A 200 acre piece of private land is near the northern border.

CAPABILITY

Natural Integrity and Appearance

Cattle grazing has been extensive throughout the Highwoods. Fences, water developments, and salt licks are throughout the area. Sixteen miles of low standard roads and 21 miles of trails access the area. However, most of the low standards roads do not have public access. There has been scattered post and pole cutting, mostly along the South Fork of Highwood Creek Road. Historically, prospectors have explored the area, but mineral potential is low and there is little sign of past activity. The Thain Creek Campground, although

outside the area, draws recreationists to this part of the Highwoods. The three hiking trails going from the campground into the area are used for motorized and nonmotorized recreation. These changes from the natural condition do not dominate the appearance of the area.

Opportunity for Solitude

From the county road and Thain Creek Campground coulees lead east to Windy, Prospect, Arrow, and Lava Peaks. The peaks are at least two miles from the road. The coulees are narrow with steep side slopes, Aspen groves are common in the bottoms. The north slopes are timbered and the south slopes are sparsely timbered or bare, giving distinction and contrast to the topography. The recreationist may find solitude and isolation within these coulees. The sites and sounds of man--towns, farming, grazing, roads--are evident, in the foreground or background, from most vista points.

Primitive Recreation Opportunity

The Highwoods offer little opportunity for primitive recreation because the area is small and readily accessible. The east half of the Highwood Mountains receive more use than the west half because there are more water sources, more trails, and the campground borders the area. The mountains are gentle to hike in--slopes are moderate, there are several trails and the peaks are within 2-3 miles of a road. There is little overnight use because the campground is nearby, cattle graze much of the area and the trails to the peaks are short enough for round-trip day use.

Other Features

The Highwoods are the closest National Forest land to Great Falls, therefore, they attract many local users.

Manageability and Boundaries

The Highwood Area is rectangular in shape on a north-south axis, about 8 miles by 6 miles. Boundaries are defined along the South Fork Highwood Road, proclaimed Forest boundary, or adjacent private lands. Most of the area is close to some development. A portion of the west boundary would be difficult to define and locate due to the absence of definable features. About 80 percent of the perimeter adjoins private land. The boundaries and the acres have not been adjusted since the RARE II inventory.

AVAILABILITY

Resource Potential

Recreation - The Highwood Mountains is the closest forested area to Great Falls. Big game and upland bird hunting, hiking, fishing, camping, firewood gathering, and horseback riding are the majority recreation uses. The area is heavily used for elk hunting. Both bow and rifle hunting are popular. There are no well-known recreational attractions or cultural resources in the area.

Wildlife - The area provides habitat for elk, mule deer, whitetail deer, blue grouse, and ruffed grouse. Elk and deer hunting provide a significant recreation opportunity. In addition, many nongame animals also inhabit the area. The Highwoods are known to have some of the best elk hunting in central Montana, although it is entirely by permit for the general big game hunting season.

Range - The area has been intensively grazed since the early 1900s. Sixteen permittees, all members of the Highwood Grazing Association, graze 760 cattle annually under a simple, continuous grazing system. There are over 20 water developments and 13 miles of fence in the area.

Timber - Approximately 40 percent of the area is tentatively suitable forest land. Principle tree species are lodgepole pine, Douglas fir, and aspen. The balance of the area is noncommercial forest or nonforest. Scattered post and pole cutting has occurred throughout the area. The area is capable of a harvest of .897 million board feet annually.

Water - Minor amounts of streamside irrigation occur immediately downstream from the Forest boundary on perennial streams which have on-Forest headwaters. Major water use on the Forest is for livestock purposes. Springs are common throughout the Highwoods.

Minerals - There is no known hardrock mineral activity. Oil and gas leases cover the entire area. There has been little exploration activity. The area has a low potential for oil and gas.

Table 1 lists the resources for the Highwood Roadless Area.

Other Management Considerations

Major fires burned most of the area at the turn of the century. Currently, the fire hazard is low and the area is moderately susceptible to insect or disease, because many of the stands are near maturity. Access other than from the county road on the west side is through private land.

Table 1
Highwood Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 24,300
NF Acres 24,100

RECREATION - RVDs
- Primitive - 0
- SPNM - 2,200
- SPM - 1,400
- Roaded Natural - 0
- Rural - 0

RANGE
- Suitable Acres - 6,578
- No. of Allotments - 4
- AUMs - 4,840

TIMBER
- Tentative Suitable Acres - 11,162
- Standing Volume MMBF - 70.1

CORRIDORS
- No. of Existing & Potential - 0

WILDLIFE - T&E - None

WILDLIFE - BIG GAME
- Important Elk Summer Range Acres - 1,693
- Elk Winter Range Acres - 5,237
- Mule Deer Winter Range Acres - 1,161

WILDLIFE - FISHERIES
- Stream Miles - 8
- Stream Acres - 10

WATER DEVELOPMENTS
- No. of Existing - 0

MINERALS
- Hardrock Potential - Low
- No. Mining Claims - 0
- Oil & Gas Potential - Low
- No. of Oil & Gas Leases - 8
- Oil & Gas Lease Acres - 24,100

CAPABILITY

Natural Integrity and Appearance

Some of the Highwood Baldy Roadless Area is isolated, but the sights and sounds of man are within 1 to 3 miles. Extensive ranching and farming activities as well as the city of Great Falls are visible in the distance from all high vista points.

Cattle grazing has been extensive throughout the Highwoods. Fences, water developments and salt licks are throughout the area. The changes from the natural condition do not dominate the natural appearance of the area. A low standard road crosses the middle of the area, to access the top of Highwood Baldy. There has been scattered post and pole cutting, mostly along the South Fork of Highwood Creek Road. Historically, prospectors have explored the area, but mineral potential is low and there is little sign of past activity.

Opportunity for Solitude

The area is small and the mountain top topography is such that persons visiting the area are always close to human activity and development. The west boundary of RARE Area 1-738 lies approximately one mile to the east of this area. Nearby roads along Highwood Creek and on private land add to the feeling of development. The electronics site on top of Highwood Baldy is visible from many points.

The Highwood Baldy Area has little opportunity for solitude because of its size, landform, and nearby roads. Most users are attached to the mountain tops. Man's influence penetrate much of the area. Towns, ranches, and farms are visible from the high vista points.

Primitive Recreation Opportunities

The area offers some opportunity for primitive recreation. The area receives moderate use from upland bird and big game hunters. An occasional hiker climbs to the mountain tops for views of surrounding countryside.

Other Features

The Highwoods are the closest National Forest land to Great Falls; therefore, they attract many local users.

Manageability and Boundaries

The Highwood Baldy is a small, contiguous parcel. The entire area is National Forest. Boundaries are defined on major terrain, proclaimed Forest boundary, or along the South Fork Highwood Road. The east boundary would be quite difficult to define and locate. There are few opportunities to modify the boundary. Conflicts with adjacent private land could not be avoided. A more intensive grazing system would require additional fences and water developments. The boundaries and the acres have not been adjusted since the RARE II inventory.

NEED

Proximity to Other Designated Wilderness

The Highwood Roadless Area is about 30 miles east of Great Falls. Within one day's drive of Great Falls, there are 13 classified wildernesses containing 4.4 million acres.

Contribution to National Wilderness Preservation System

The area does not have any rare ecosystems which are necessary for protected plants or animals.

Public Interest and Concerns

The area has had little public interest or support for wilderness classification. During the 1977 and 1983 public review 2,520 and 4 comments, respectively, were received. Most comments supported further planning, while other comments favored nonwilderness. Fewer comments supported wilderness classification. During the 1985 review, no specific comments were received.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

Management Designation

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Highwood Roadless Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	19,100	5,000
A-1	0	0	24,100
A-2	0	0	24,100
B-1	0	0	24,100
B-2	0	7,300	16,800
C	0	0	24,100
D	0	9,000	15,100
E-1	0	18,100	6,000
E-2	0	21,600	2,500
F	0	21,600	2,500
F(Departure)	0	21,600	2,500
G(Preferred)	0	21,600	2,500
H	24,100	0	0
I	0	19,000	5,100
J	0	19,000	5,100
K	0	19,000	5,100

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resources activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Highwood Roadless Area, under all alternatives but H, the major emphasis will be on range. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

MANAGEMENT EMPHASIS

The acres allocated by management emphasis are:

	Min Level	Range	Timber	Timber/ Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness
Current Plan	9,111	13,984	351	0	654	0	0
A-1	3,544	13,978	6,473	0	99	6	0
A-2	3,506	13,978	6,473	0	137	6	0
B-1	3,504	13,984	6,473	0	139	0	0
B-2	3,504	13,984	6,473	0	139	0	0
C	8,317	13,489	966	0	1,149	179	0
D	4,119	13,984	5,858	0	139	0	0
E-1	4,506	13,978	5,473	0	137	6	0
E-2	7,506	13,978	2,473	0	137	6	0
F	5,560	13,939	3,774	0	781	46	0
F(Departure)	6,220	13,939	3,774	0	121	46	0
G(Preferred)	9,567	13,819	294	135	120	165	0
H	0	0	0	0	0	0	24,100
I	9,913	13,585	294	135	127	46	0
J	9,913	13,585	294	135	127	46	0
K	9,927	13,523	294	0	248	108	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Highwoods is allocated to wilderness in Alternative H. This is the only alternative that the total area or any portion is allocated to wilderness.

Wilderness allocation could enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing low standard roads which are used for motorized recreation and other motorized activities associated with range management and trail maintenance could be eliminated.

The 11,162 acres of land tentatively suitable for timber production would not be available under wilderness management. This would remove about 70 million board feet of standing volume and an annual harvest of up to .897 million board feet.

Current livestock grazing, 4,840 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production would be foregone. Over the long run grazing would be reduced by 726 AUMs because of a reduction of available forage.

Big game or elk management would not change since much of the forage produced on this area is from permanent grassland. Thus, cover/forage relationships should not change much over time except as influenced by wildfire.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. The entire area is currently leased for oil and gas exploration and development.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth without wildfire, but could be improved by letting fire play a more natural role.
- Water quality and fisheries would be maintained at their present natural levels.

Economic and social effects would be slight since the area represents about 2 percent of the Forest suitable timber base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized means of travel. User conflicts with grazing would arise because the area would attract an influx of people interested in recreation and naturalness. Other resource values such as hunting would be retained.

The 2 percent loss in timber volume in this roadless area can be mitigated by practicing intensive forestry elsewhere on the Jefferson Division.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

Alternatives F, F(Departure), G(Preferred), I, J, K, and the Current Plan allocated a large percentage of the Highwoods Roadless Area to range, wildlife, range/wildlife, and minimum level management under a roadless designation. Alternatives B-2, D, E-1, and E-2 allocate from 30 to 50 percent of the area to range, wildlife, range/wildlife and minimum level management under a roadless designation.

Allocation to range, wildlife, and minimum level management would not effect the wilderness attributes. These management prescription limit road access and timber harvest is not scheduled, but tree mortality would be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes in much of the area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.

Management Designation: Developed
Management Emphasis: Timber and Timber/Wildlife/Visual

All Alternatives, except H, allocate some of the Highwoods Roadless Area to timber management. Under Alternative A-1, A-2, B-1, B-2, and D most of the area would be developed.

Allocation to timber management would forego the possibility of wilderness allocation. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the third decade. All of the area would be available for wilderness reevaluation during the next planning period.

The harvest scheduled in Highwoods could be shifted to other parts of the Jefferson Division.

The nonpriced costs and benefits are as follows:

- Existing visual condition would change and man's activity may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised within 50 years.
- Elk security would be reduced, due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.
- Water quality and fisheries would be affected slightly by roading and timber harvest.
- These alternatives would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since about 2 percent of the land suitable for timber and about 2 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Range/Wildlife, and Minimum Level

All alternatives, except H, allocate some of the Highwoods Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment. Under these prescriptions there would be additional range improvements and burning to increase forage production.

The nonpriced benefits of this management are:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected, but not substantially.

Table 2 lists the average annual output by alternative.

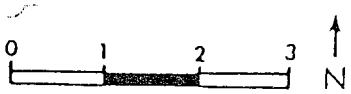
TABLE 2
Average Annual Output - 2030 by Alternative

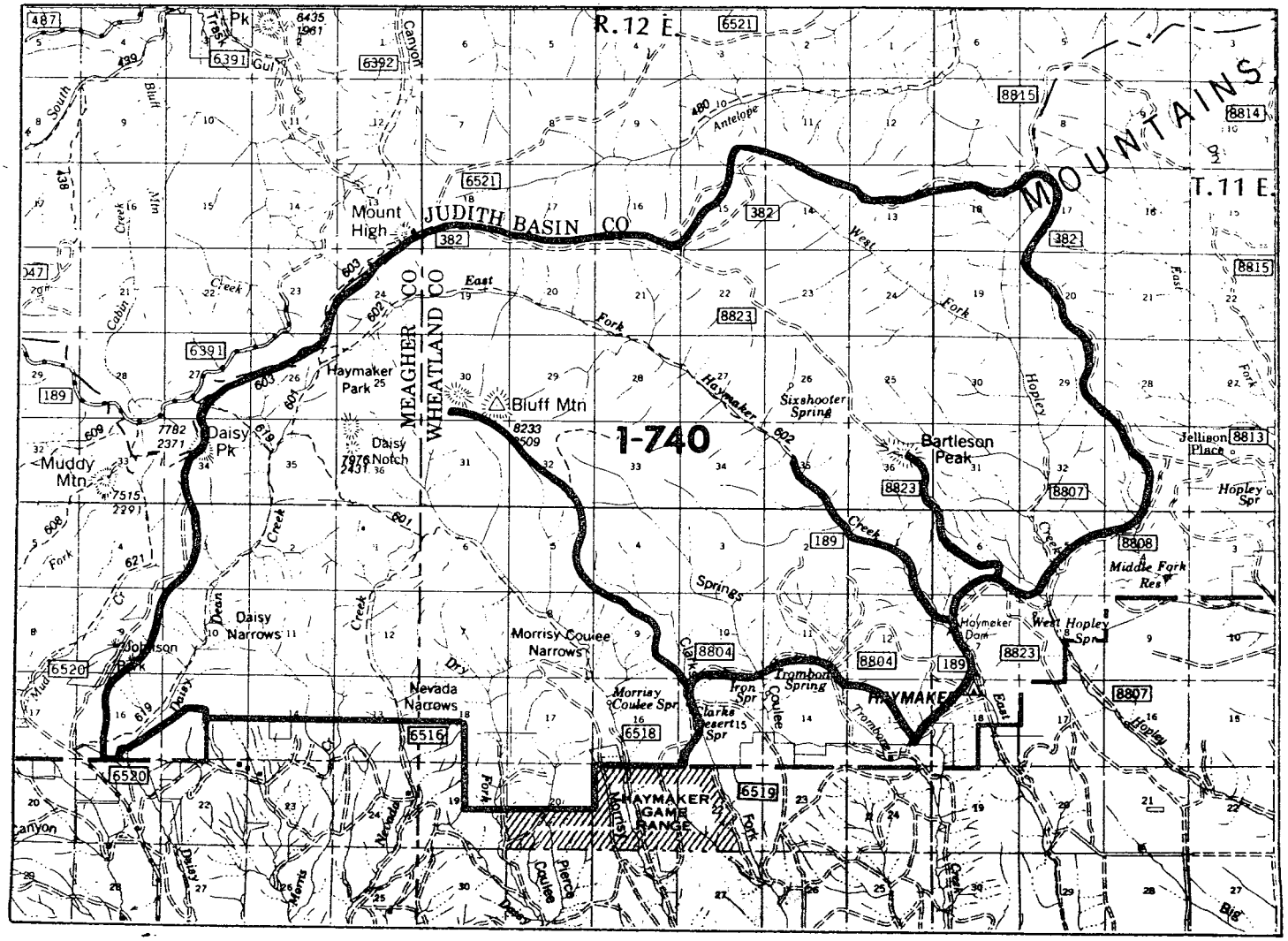
Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	24,100	0	0	0
Semi-Primitive		19,100	0	0	0	7,300	0	9,000	18,100	21,600	21,600	21,600	21,600	0	19,000	19,000	19,000
Roaded Natural		5,000	24,100	24,100	24,100	16,800	24,100	15,500	6,000	2,500	2,500	2,500	2,500	0	5,100	5,100	5,100
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	24,100	0	0	0
Roadless	Acres	19,100	0	0	0	7,300	0	9,000	18,100	21,600	21,600	21,600	21,600	0	19,000	19,000	19,000
Decade 1		24,100	24,100	24,100	24,100	24,100	24,100	24,100	24,100	24,100	24,100	24,100	24,100	0	24,100	24,100	24,100
Decade 5		24,100	24,100	24,100	24,100	24,100	24,100	24,100	24,100	24,100	21,600	21,600	21,600	0	19,000	19,000	19,000
Developed		5,000	24,100	24,100	24,100	16,800	24,100	15,100	6,000	2,500	2,500	2,500	2,500	0	5,100	5,100	5,100
Decade 1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decade 5		0	0	0	0	0	0	0	0	0	2,500	2,500	2,500	0	5,100	5,100	5,100
Range	AUMs	4,840	4,840	4,840	4,840	4,840	4,740	4,840	4,840	4,840	4,840	4,840	4,840	4,114	4,840	4,840	4,840
Timber																	
Suitable Acres	Acres	351	6,473	6,473	6,473	6,473	966	5,858	5,473	2,473	3,774	392	0	392	392	392	294
Volume	MMBF	.03	.52	.52	.52	.52	.08	.47	.42	.24	.30	.30	.03	0	.03	.03	.03
Wildlife-Big Game	Acres																
Summer Habitat		1,693	1,693	1,693	1,693	1,693	1,693	1,693	1,693	1,693	1,693	1,693	1,693	1,693	1,693	1,693	1,693
Winter Habitat		5,237	5,237	5,237	5,237	5,237	5,237	5,237	5,237	5,237	5,237	5,237	5,237	5,237	5,237	5,237	5,237
Fisheries	Miles																
Impacted		0	8	8	8	7	8	7	1	1	0	0	0	0	0	0	0
Unimpacted		8	0	0	0	1	0	1	7	7	8	8	8	8	8	8	8
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	24,100	0	0	0
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		24,100	24,100	24,100	24,100	24,100	24,100	24,100	24,100	24,100	24,100	24,100	24,100	0	24,100	24,100	24,100
Employment	Person Years	7.3	21.3	21.3	21.3	18.7	14.8	17.4	17.0	7.0	10.1	10.1	6.1	4.5	7.3	7.3	7.3
Income	Millions of $	.153	.411	.411	.411	.411	.270	.347	.344	.150	.225	.225	.139	.102	.154	.154	.154
Return to Gov.	Dollars	2,194	2,278	2,278	2,278	2,278	2,362	4,042	4,252	2,189	3,328	3,328	2,194	1,758	2,194	2,194	2,194

Rangers Meeting at Kings Hill, 1917.

BLUFF MOUNTAIN 1-740

Roadless Area





	Gross Acres	Net Acres
Lewis and Clark National Forest	37,120	37,120

DESCRIPTION

Location and Access

The Bluff Mountain Roadless Area lies at the southeast end of the Little Belt Mountains, in central Montana. About 25 miles northwest of Harlowton, the area is in Meagher and Wheatland Counties.

Public access to the northwest corner, the southwest corner, and to the east side is via Forest and county roads. From U.S. Highway 12 a gravel Forest road heads north up Spring Creek drainage about 12 miles and then east about 10 miles to reach the northwest corner. Gravel county roads head north from U.S. Highway 12 near Martinsdale and from Harlowton to access the area. Numerous private roads access the southern border. A primitive Forest road, beginning at the southeast corner, follows the eastern and northern border.

Two-wheel track roads or trails follow the bottoms of the major drainages.

General Description

The Bluff Mountain area is an oval-shape with an east-west ridge along the top. The ridge descends into a series of spur ridges and deeply incised limestone draws running southeast. The country is an uplifted sedimentary section that includes cliff forming limestone. Most of the area is very dry except the northwest corner, which has large meadows that are boggy. However, most of the area is very dry and the streams flow intermittently.

Average annual precipitation in the Little Belts is 28-30 inches. The peaks average 40 inches per year, while the lower elevations average 16 inches per year. Most of the Bluff Mountain Area is on the drier side, at the lower elevation.

Topography ranges from 8,200 feet on Bluff Mountain to about 4,800 feet at the southern boundary. The ridge forming the northern boundary is 7,725 feet. Bluff Mountain (near the center of the area) and Daisey Peak (on the western boundary) are the only mountains in the area. The tops are subalpine habitats of grass-forbs interspersed with scrubby timber--mostly whitebark pine, spruce, and subalpine fir. Bluff Mountain resembles its name, in that is is the highest point on a rock bluff. To the west is Daisey Notch. The notch was formed when a chunk of limestone fell from the ridge. Large enough to fly a small plane through, the notch is a landmark from the west.

The flat top spur ridges angle southwest from the northern border and descend gradually. Most of the ridges are timbered with poor quality lodgepole pine and Douglas fir. The timber near the northern boundary is stunted--about 15 feet high--and poorly formed. Undergrowth is sparse. The lower slopes near the southern border are mostly grass parks which are interspersed with Douglas fir and lodgepole pine.

Near the southern border, which opens on to the plains, the streams are pinched and wind through narrows in the exposed limestone. The narrows are channels, sometimes only 20 feet wide at the bottom, that have been cut through the limestone, leaving shear cliffs up to 150 feet high on either side. These formations in the limestone are common in the Little Belts, but unique to most mountains in the Rockies.

The northwest corner of the area has several large, boggy parks. The largest, up to 150 acres, are at the head of Haymaker and Daisy Dean Creeks. Between the parks is thick timber which isolates the parks from the rest of the area.

The area is surrounded by both developed and undeveloped country. The northern border is a very rocky, primitive road following an east-west ridge. The road separates the Bluff Mountain and Mount High Roadless Areas. Stunted trees and openings along the ridge create vista points to the north of Antelope and Dry Pole canyons, which are limestone formations. In the background is farm and ranch land on the plains.

The road on the north joins the two-wheel track road on the east border. To the east is very dry and low, rolling eastern end of the Little Belts.

The eastern half of the southern boundary is a two-wheel track road that crosses the edge of the plains. The remainder of the southern boundary follows the proclaimed Forest boundary. Agricultural land, mostly used for livestock grazing, adjoins or is within a mile of this southern boundary.

The western boundary is formed by a two-wheel track road and trail, which connects with the northern boundary. To the southwest is a view of timbered country in the Spring Creek Roadless Area. Adjacent country and views of the northwest are of intensive timber management and the Cross Creek Burn, a 4,000 acre fire in 1976. The burn is completely reforested with three-to-six foot lodgepole pine.

CAPABILITY

Natural Integrity and Appearance

Within the area there is very little disturbance or development. Although the area is crossed by about 20 miles of low standard road, these are mainly two-wheel tracks at the southern end. The livestock grazing is the main disturbance to the natural integrity. The most isolated and scenic parf of the area is in the northwest corner around Bluff Mountain and Haymaker Park. The wet conditions maintain the lush parks, which are isolated and screened by timber stands. Also the mountains--Mount High, Bluff Mountain, Daisy Peak--are good vista points.

Opportunity for Solitude

The opportunity to find solitude varies within the roadless area. The narrows, near the southern border, the bottoms of the major creeks, and the northwest corner are very isolated because of the topography. However, to the south of the narrows in sparsely timbered range land bordering the agricultural development on the plains.

Primitive Recreation Opportunity

Primitive recreation opportunities are greatest in the northwest corner, from Bluff Mountain east. The terrain is not physically challenging but the large, lush parks are unusual for the Little Belts and isolated the rest of the area. The rest of the area has limited opportunity for primitive recreation because of the very dry terrain and the network of two-wheel track roads.

Manageability and Boundaries

The boundary of the Bluff Mountain Roadless Area is well defined on-the-ground by primitive roads, proclaimed Forest boundary, or trails. There is no private land within the boundary. Limiting access from the south could be difficult because there are no natural barriers to prevent traffic from following the established use or routes. The roadless area was considered in the 1979 RARE II process. Since that time the roadless boundaries have not changed, although acreages have been recalculated in the Forest planning process. Since the RARE II inventory the area has been reduced by 480 acres because of Timber sale activities and roads.

AVAILABILITY

Resource Potential

Recreation - Hunting, trailbike riding, and hiking are the recreation uses. Maneuvering through the narrow coulees and traversing the connecting roads and trails is an appealing challenge to trailbike riders. Hiking through the narrows, around the limestone cliffs, and hunting for fossils are also recreation attractions. The northeast corner is excellent elk summer range, and therefore, heavily used for hunting. The Haymaker Campground is just outside of the southeast border. The campground is very primitive--developments are an outhouse and campfire rings.

Wildlife - Elk, mule deer, whitetail deer, black bear, and grouse inhabit the area. Wildlife habitat is concentrated on the west half, because the east end is too dry to sustain more than a small mule deer herd. The northeast corner is very important elk summer range. There are three miles of fisheries.

Range - Approximately one third of the area is within range allotments. Eight permittees graze about 250 cattle annually. Developments include three spring improvements and about eight miles of fencing. Available water limits the livestock use of the area.

Timber - About 55 percent of the area is classified as tentative suitable forest land. Much of the upper slope burned since 1900 and has regenerated low quality, scrubby timber. Douglas fir dominates the lower slopes and lodgepole pine is on the upper area. Past harvest has been scattered post and pole cutting. The area is capable of a harvest of .843 million board feet annually.

Water - Within the area most of the streams are intermittent. However, the water which drains from this area resurfaces in the off-Forest agricultural land, where it is used for irrigation and livestock.

Minerals - There is a low potential for metallic minerals and oil and gas.

Cultural Resources - An inventoried prehistoric site (campsite) is in the west side of the area. The potential for other prehistoric sites is high along the south side of the area.

Table 1 lists the resources of the Bluff Mountain Roadless Area.

Table 1
Bluff Mountain Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 37,120

NF Acres 37,120

RECREATION - RVDs

Primitive - 0
SPNM - 2,500
SPM - 4,500
Roaded Natural - 400
Rural - 0

RANGE

Suitable Acres - 11,289
No. of Allotments - 6
Permitted AUMs - 1,342

TIMBER

Tentative Suitable Acres - 10,504
Standing Volume MMBF - 124.6

CORRIDORS

No. of Existing & Potential - 0

WILDLIFE - T&E - None

WILDLIFE - BIG GAME

Important Elk Summer Range Acres - 9,773
Elk Winter Range Acres - 6,455
Mule Deer Winter Range Acres - 1,140

WILDLIFE - FISHERIES

Stream Miles - 3
Stream Acres - 4

WATER DEVELOPMENTS

No. of Existing - 0

MINERALS

Hardrock Potential - Low
No. of Claims - None

Oil & Gas Potential - Low
No. of Oil & Gas Leases - 8
Oil & Gas Lease Acres - 6,400

NEED

Proximity to Other Designated Wilderness

The Bluff Mountain Roadless Area is about 70 miles southeast of Great Falls and 100 miles northwest of Billings. There are 13 classified wildernesses containing 4.4 million acres within one day's drive of Great Falls.

Contribution to National Wilderness Preservation System

The area does not have any rare ecosystems which are necessary for protected plants or animals. During 1977 and 1983 public review 1,284 and 2 comments, respectively, were recieved. Most comments supported nonwilderness.

Public Interest and Concerns

The area has had little public interest or support for wilderness classification. During the 1985 review, no specific comments were received.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Bluff Mountain Roadless Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	21,120	16,000
A-1	0	0	37,120
A-2	0	0	37,120
B-1	0	0	37,120
B-2	0	21,120	16,000
C	0	37,120	0
D	0	23,120	14,000
E-1	0	0	37,120
E-2	0	0	37,120
F	0	34,620	2,500
F(Departure)	0	34,620	2,500
G(Preferred)	0	33,920	3,200
H	37,120	0	0
I	0	33,920	3,200
J	0	33,920	3,200
K	0	33,920	3,200

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resource activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Bluff Mountain Roadless Area, under all alternatives but H, the major emphasis will be on minimum level management. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA 1-740
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/Wildlife Visual	Timber/Range Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness	Concentrated Recreation
Current Plan	18,626	8,771	8,730	0	0	0	993	0	0	0
A-1	18,987	4,405	4,795	4,637	985	87	3,224	0	0	0
A-2	18,537	4,780	5,297	4,484	708	15	3,299	0	0	0
B-1	19,693	5,914	7,871	1,420	1,213	0	1,009	0	0	0
B-2	19,402	6,179	9,327	1,150	27	0	1,035	0	0	0
C	23,734	8,815	0	0	0	0	4,571	0	0	0
D	14,422	8,646	8,091	0	85	0	5,876	0	0	0
E-1	19,884	5,675	5,791	1,526	3,172	15	1,057	0	0	0
E-2	19,874	5,675	7,029	1,472	1,988	15	1,067	0	0	0
F	31,288	2,011	212	2,288	0	0	1,304	0	0	17
F(Departure)	31,294	1,774	412	2,088	0	0	1,331	204	0	17
G(Preferred)	27,983	4,009	1,661	1,031	487	21	1,576	335	0	17
H	0	0	0	0	0	0	0	0	37,120	0
I	26,816	4,288	1,244	1,425	506	25	585	2,014	0	217
J	27,690	3,684	1,416	1,321	441	22	1,852	504	0	190
K	21,129	5,796	296	2,098	254	115	6,329	1,103	0	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Bluff Mountain is allocated to wilderness in Alternative H. This is the only alternative that the total area or any portion is allocated to wilderness.

Wilderness allocation could enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing roads and other motorized activities associated with range management and trail maintenance could be eliminated.

The 10,504 acres of land tentatively suitable for timber production would not be available under this prescription. This would remove about 125 million board feet of standing volume and a yearly harvest of up to .848 million board feet.

Current livestock grazing, 1,342 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production will be foregone. Over the long run grazing would be reduced by 200 AUMs because of a reduction of available forage.

Effects on big game habitat would be similarly effected since much of the forage produced is from lands capable of producing trees. Thus, cover/forage relationships would continue to change over time and winter range would decrease.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. Currently 6,400 acres are leased for oil and gas exploration and development.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth, but could be improved by letting fire play a more natural role.
- Water quality and fisheries would be maintained at their present levels.

Economic and social effects would be slight since the area represents about 2 percent of the Forest suitable timber base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized means of travel. User conflict with grazing would arise because the area would attract an influx of poeple interested in recreation and naturalness. Other resource values such as hunting would be retained.

The 2 percent loss in timber volume in this roadless area can be mitigated by practicing intensive forestry elsewhere on the Jefferson Division.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

Alternative C allocates all of the Bluff Mountain Roadless Area to range, wildlife, and minimum level management under a roadless designation. Alternatives B-2, D, F, F(Departure), G(Preferred), I, J, and K, allocate 57 to 93 percent to range, wildlife, and minimum level management under a roadless designation.

Allocation to range, wildlife and minimum level management would not affect the wilderness attributes. These management prescriptions limit new road construction. Timber harvest is not scheduled, but tree mortality can be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes of this area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range, and Timber/Wildlife/Visual

All Alternatives, except C and H, allocate from 7 to 28 percent of the Bluff Mountain Roadless Area to timber.

Allocation to timber management would forego the possibility of wilderness allocation on all or part of the area. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the second decade. The harvest scheduled in Bluff Mountain could be shifted to other parts of the Jefferson Division. All of the roadless area would be available for wilderness reevaluation during the next planning period.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised within 50 years.
- Elk security would be reduced, due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.
- Water quality and fisheries would be affected slightly by roading and timber harvest.
- These alternatives would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since about 1 percent of the Forests suitable timber base and about 1 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

Alternatives A-1, A-2, B-1, B-2, D, E-1, E-2, and K allocate some of the Bluff Mountain Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment. Under these prescriptions there would be additional range improvements and burning to increase forage production.

The nonpriced costs and benefits of this management are:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced, but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected, but not substantially.

Management Designation: Roadless and Developed
Management Emphasis: Concentrated Recreation

Alternatives F, F(Departure), G(Preferred), I, and J allocate from 17 to 217 acres to concentrated recreation management.

Allocation to concentrated recreation may effect the wilderness attributes, but the effect could be terminated by the removal of dispersed recreation improvements on other management actions. Timber and range management may take place, if compatible with adjacent management.

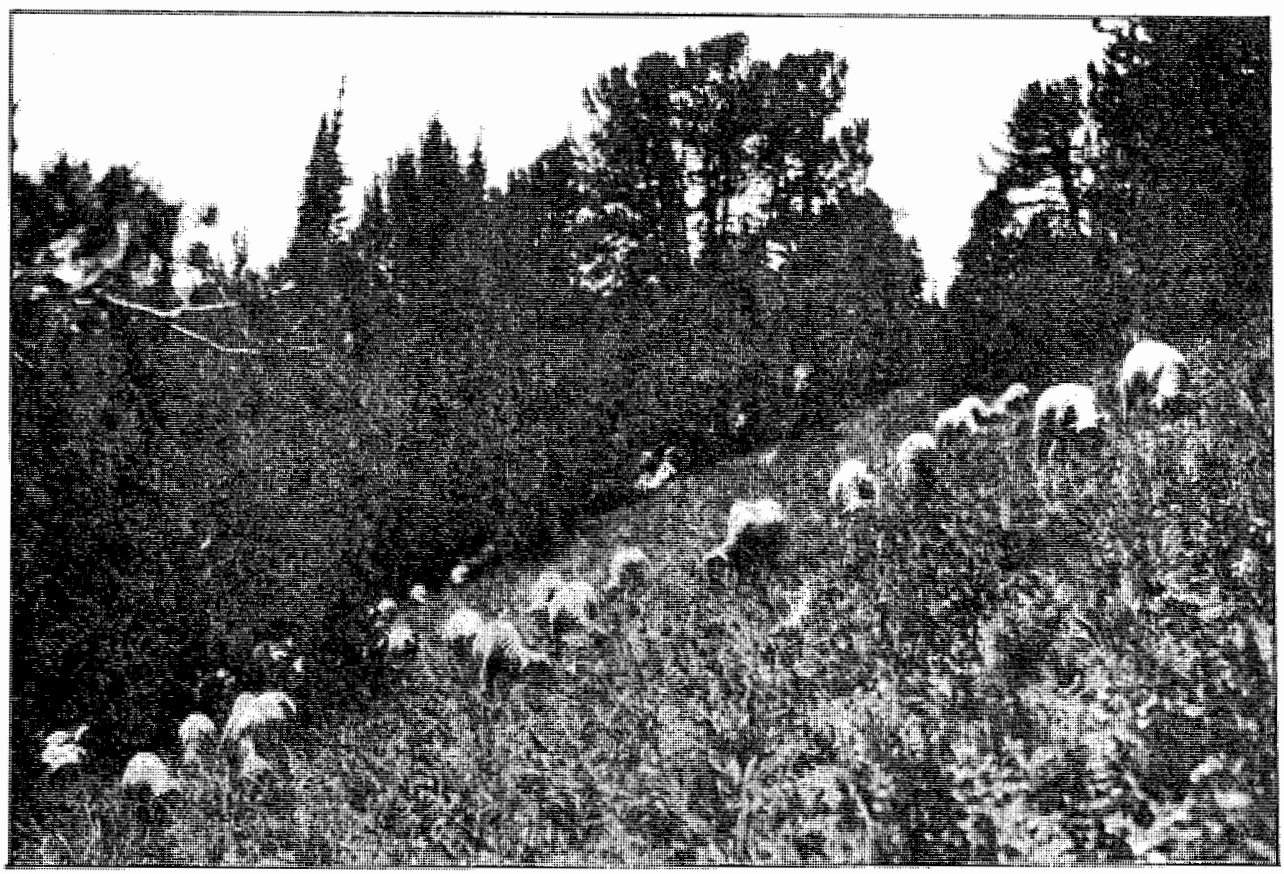
The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Dispersed recreation opportunities would be emphasized.
- Elk security would be reduced.
- Water quality and fisheries would be affected, but not significant.

Table 2 lists the average annual output by alternative.

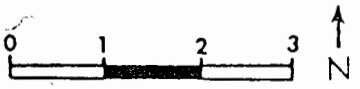
TABLE 2
Average Annual Output - 2030 by Alternative

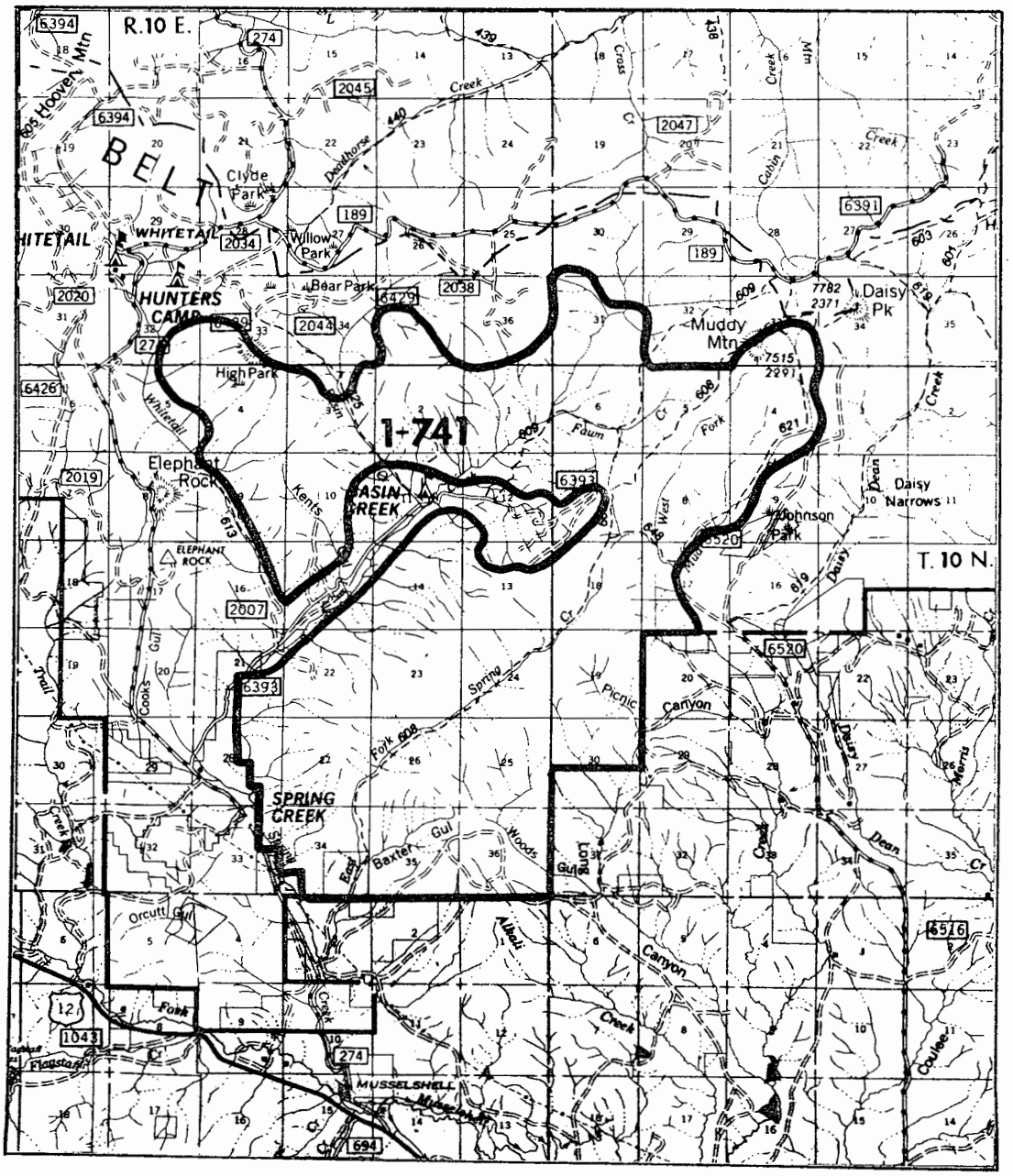
Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	37,120	0	0	0
Semi-Primitive		21,120	0	0	0	21,120	37,120	23,120	0	0	34,620	34,620	33,920	0	33,920	33,920	33,920
Roaded Natural		16,000	37,120	37,120	37,120	16,000	0	14,000	37,120	37,120	2,500	2,500	3,200	0	3,200	3,200	3,200
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	37,120	0	0	0
Roadless	Acres	21,120	0	0	0	21,120	37,120	23,120	0	0	34,620	34,620	33,920	0	33,920	33,920	33,920
Decade 1		37,120	37,120	37,120	37,120	37,120	37,120	37,120	37,120	37,120	37,120	37,120	37,120	0	37,120	37,120	37,120
Decade 2		28,820	0	0	0	0	37,120	23,120	0	0	34,620	34,620	33,920	0	33,920	33,920	33,920
Developed		16,000	37,120	37,120	37,120	16,000	0	14,000	37,120	37,120	2,500	2,500	3,200	0	3,200	3,200	3,200
Decade 1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decade 2		8,300	37,120	37,120	37,120	16,000	0	14,000	37,120	37,120	2,500	2,500	3,200	0	3,200	3,200	3,200
Range	AUMs	1,342	1,610	1,610	1,543	1,543	1,315	1,651	1,610	1,610	1,490	1,490	1,396	1,142	1,288	1,288	1,315
Timber																	
Suitable Acres	Acres	8,730	10,504	10,504	10,504	10,504	0	8,176	10,504	10,504	2,500	2,500	3,200	0	3,200	3,200	2,763
Volume	MMBF	.701	.843	.843	.843	.843	0	.657	.843	.843	.200	.200	.297	0	.297	.297	.222
Wildlife-Big Game	Acres																
Summer Habitat		9,773	9,773	9,773	9,773	9,773	9,773	9,773	9,773	9,773	9,773	9,773	9,773	9,773	9,773	9,773	9,773
Winter Habitat		6,455	6,455	6,455	6,455	6,455	6,455	6,455	6,455	6,455	6,455	6,455	6,455	6,455	6,455	6,455	6,455
Fisheries	Miles																
Impacted		1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
Unimpacted		2	3	3	3	2	3	2	3	3	3	3	3	3	3	3	3
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	37,120	0	0	0
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		37,120	37,120	37,120	37,120	37,120	37,120	37,120	37,120	37,120	37,120	37,120	37,120	0	37,120	37,120	37,120
Employment	Person Years	19.9	28.9	28.9	28.9	22.2	4.6	18.9	28.3	28.3	8.4	8.4	10.1	1.1	10	10	8.9
Income	Millions of $	.802	.530	.530	.529	.428	.078	.363	.530	.530	.160	.160	.193	.025	.191	.191	.167
Return to Gov.	Dollars	3,516	4,228	4,228	4,199	4,199	562	3,464	4,303	4,303	1,476	1,476	1,843	488	1,843	1,843	2,525



Sheep Grazing in the Little Belt Mountains.

SPRING CREEK 1-741
Roadless Area





	Gross Acres	Net Acres
Lewis and Clark National Forest	19,800	19,800

DESCRIPTION

Location and Access

The Spring Creek Roadless Area lies at the southern tip of the Little Belt Mountains. About 30 miles northwest of Harlowton and 15 miles north of Martinsdale, the area is in Meagher County.

All sides and the interior of the area are well accessed by roads and trails. From U.S. Highway 12, which is about two miles south of the area, a gravel Forest development road, which is the major access point to the southeast side of the Belts, extends north and runs adjacent to the southwest corner. The road then forks. The northeast fork accesses Basin Creek Campground, which is engulfed by the roadless area. From this northeast fork, several two-wheel track roads branch off and penetrate the area. The road corridor and campground are a finger of land which is excluded from the Spring Creek Area. The east side has road access from a county road heading north from U.S. Highway 12. At the Forest boundary the road is graded, but not gravel. Several two-wheel track roads reach the area by crossing the private land to the south. However, these roads do not have public access. Once within the Forest boundary from the south, there are several miles of two-wheel track roads.

Three trails access the area. From Basin Creek Campground, at the center of the area, a trail extends north to a low standard Forest road, which is outside the area. From about a mile east of the campground a trail leads northeast to a Forest road outside the area. And the longest trail in the area parallels the East Fork of Spring Creek from the south end of the area, crosses over Muddy Mountain on the northeast border, and terminates at a Forest development road outside the area.

General Description

The area is approximately triangular-shape, with the base to the north and point to the south, and includes most of the Spring Creek drainage. The lesser creeks and coulees, which fan out along the northern border, flow south and funnel into Spring Creek, which flows southwest. East Fork Spring Creek is to the southeast and parallels the main fork. About two miles south of the roadless area the forks join and empty into the Musselshell River. A stringer of land, including a road corridor, Basin Creek Campground, and a clearcut, extends from the center of the western boundary to the northeast and is excluded from the roadless area.

The topography ranges from about 7,500 feet, at the northeast corner, to about 4,500 feet, on the south end. Most of the ridges slope gently to steep canyons or narrows, that form the major creeks--Fawn, Basin, Spring, and Mud. These narrows are channels, sometimes only 20 feet wide at the bottom, that have been cut through the limestone, leaving cliffs up to 40 feet high on either side. No mountains are within the area, except Muddy Mountain on the northeast border.

Average annual precipitation in the Little Belts is 28-30 inches. The peaks average 40 inches per year, while the lower elevations average 16 inches per year. Most of the Spring Creek Area is on the drier side, at the lower elevation.

Most of the country is densely timbered with lodgepole pine. However, parks are interspersed at all elevations. At the lower elevations, the timber is more open and includes some ponderosa pine. Adjacent to the Forest boundary is sparsely timbered with some sagebrush undergrowth.

Most of the surrounding area has been developed for timber management or livestock use. To the north is a bench running east-west which has been intensively managed for timber since the 1950s. The northeastern border is within a quarter mile of the Bluff Mountain Roadless Area. Most of the southern boundary follows the proclaimed Forest boundary and adjoins private land, which is developed for farming and ranching. The western side takes several jogs to exclude private land, roads, and campgrounds. The Spring Creek Campground is adjacent to the southwest corner. The private land along the west side is used for livestock grazing. The north half of the west border follows Whitetail Creek and is adjacent to an intensive timber management area.

Throughout the area is evidence of extensive prehistoric and historic activity. Inventoried prehistoric sites indicate that Spring Creek was a major Indian travel corridor and camping area in the Little Belts. Signs of the past activity include teepee rings, ceremonial sites, and quarry sites. Several historic sites from past mining and homesteading are also within the area.

Current uses of the area are recreation and livestock grazing. The most intensive recreation use is during hunting season. However, Basin Creek and Spring Creek Campgrounds attract a lot of weekend summer use from White Sulphur Springs and Harlowton. The existing trails are used by motorcycles, horses, and foot traffic. Approximately one third of the area is used for cattle grazing.

CAPABILITY

Natural Integrity and Appearance

The naturalness of the area is hindered by its convoluted shape, close proximity from all points to development, and past timber harvest. The intrusion from the east puts a developed campground, a road, and a clearcut in the heart of the area. Since this already small area has an intrusion, all parts of the roadless area are within two miles of a Forest or private development. In the 1920s Mud Creek drainage, on the east border, was logged. However, it is completely reforested and the past activity is unnoticeable. Tumbled in cabins and adits from past mining are common in the area. But most evidence from this past development has healed over, leaving only collapsed sites disguised by vegetation, which most visitors would unknowingly pass by. The livestock grazing and the ensuing developments are also signs of mans present use in the area.

Opportunity for Solitude

Pockets within the area, particularly the narrows, provide opportunities for solitude. The tunnels through the limestone are isolated from nearly all outside activity, except livestock grazing. But most of the area is either within hearing range or nearby roads or development is in the foreground.

Primitive Recreation Opportunity

The Spring Creek Area is adjacent to developed recreation sights, timber activity, and a major Forest access road, which detract from any primitive recreation experience. Also, the terrain does not offer any unique challenge or scenery to the recreationist.

Manageability and Boundaries

Because there is so much road access to and within the area it could become difficult to monitor the use within the area. Also the private land to the south has no natural barrier. Therefore, it would be difficult to enforce motorized access closure on the south end, which is fairly open for cross-country travel to those given access across the private land. The boundaries along the east, south, and west borders could be defined on-the-ground from topographic features or survey land lines. But the northern border and the intrusion border follow a circuitous route, which would be difficult to follow on-the-ground.

The Spring Creek Roadless Area was considered in the RARE II process. Since then the roadless boundaries or acreages have not changed.

AVAILABILITY

Resource Potential

Recreation - Big game and upland bird hunting are the main recreation uses of the area. Spring, Whitetail, Fawn, and Basin Creek have fisheries. During the summer the two adjacent campgrounds, Spring Creek and Basin Creek, draw overnight use to the area. About 25 miles of trails and 11 miles of low standard road give visitors access to most parts of the area. The trails are used by motorcycle, foot, and horse traffic. There is limited snowmobile use, which is usually only on the roads.

Wildlife - The area provides habitat for elk, mule deer, whitetail deer, blue grouse, ruffed grouse, and many nongame species. Spring, Whitetail, Fawn, and Basin Creek have fisheries. The north end of the area, above Spring Creek, and the ridge between the main and East Fork are elk calving areas. About a mile and half south along the southern and southwestern boundary is important elk winter range.

Range - About one third of the area is used for cattle grazing. Most of the bottoms and parks are within allotment. Eight permittees graze 228 cattle annually. Developments include, six spring improvements and about four miles of fence.

Timber - Approximately 65 percent of the area is commercial forest land with the balance being noncommercial or nonforest. Major species are lodgepole pine and Douglas fir, with ponderosa pine on the lower slopes. The area is capable of a harvest of 1.545 million board feet annually.

Water - Water from Spring Creek drainage is used outside the Forest boundary for irrigation.

Minerals - Spring Creek is mineralized with copper, silver, and zinc. One unpatented mining claim is active. The area has low potential for oil and gas.

Cultural Resources - The Spring Creek Roadless Area has numerous inventoried historic and prehistoric sites. The potential for other sites is high.

Table 1 lists the resources for the Spring Creek Roadless Area.

Table 1
Spring Creek Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 19,800
NF Acres 19,800

RECREATION - RVDs
- Primitive - 0
- SPNM - 2,400
- SPM - 3,000
- Roaded Natural - 0
- Rural - 0

RANGE
- Suitable Acres - 5,914
- No. of Allotments - 5
- Permitted AUMs - 986

TIMBER
- Tentative Suitable Acres - 13,032
- Standing Volume MMBF - 48.2

CORRIDORS
- No. of Existing & Potential - 0

WILDLIFE - T&E - None

WILDLIFE - BIG GAME
- Important Elk Summer Range Acres - 8,484
- Elk Winter Range Acres - 3,642
- Mule Deer Winter Range Acres - 2,434

WILDLIFE - FISHERIES
- Stream Miles - 10
- Stream Acres - 19

WATER DEVELOPMENTS
- No. of Existing - 0

MINERALS
- Hardrock Potential - Low
- No. of Claims - 1
- Oil & Gas Potential - Low
- No. of Oil & Gas Leases - 1
- Oil & Gas Lease Acres - 1,040

NEED

Proximity to Other Designated Wilderness

The Spring Creek Roadless Area is about 70 miles southeast of Great Falls. There are 13 classified wildernesses containing 4.4 million acres within one day's drive of Great Falls.

Contribution to National Wilderness Preservation System

The area does not have any rare ecosystems which are necessary for protected plants or animals.

Public Interest and Concerns

The area has had little public interest or support for wilderness classification. During 1977 and 1983 public review 1,281 and 2 comments, respectively, were received. Most comments supported nonwilderness. During the 1985 review, no specific comments were received.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

Management Designation

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Spring Creek Roadless Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	0	19,800
A-1	0	0	19,800
A-2	0	0	19,800
B-1	0	0	19,800
B-2	0	0	19,800
C	0	8,300	11,500
D	0	0	19,800
E-1	0	0	19,800
E-2	0	0	19,800
F	0	0	19,800
F(Departure)	0	0	19,800
G(Preferred)	0	0	19,800
H	19,800	0	0
I	0	0	19,800
J	0	0	19,800
K	0	0	19,800

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resources activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Spring Creek Roadless Area, under all alternatives but H, the major emphasis will be on range. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA 1-741
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/Wildlife Visual	Timber/Range Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness	Concentrated Recreation
Current Plan	8,434	6,179	4,657	0	0	0	530	0	0	0
A-1	5,786	2,850	6,399	2,474	525	46	1,720	0	0	0
A-2	5,953	3,050	6,259	2,392	378	8	1,760	0	0	0
B-1	6,274	3,955	7,628	758	647	0	538	0	0	0
B-2	7,543	4,096	6,981	614	14	0	552	0	0	0
C	9,369	6,203	2,399	144	22	0	2,439	0	0	0
D	8,888	5,612	2,143	0	22	0	3,135	0	0	0
E-1	6,539	3,528	6,655	814	1,692	8	564	0	0	0
E-2	6,535	3,527	7,315	785	1,061	8	569	0	0	0
F	14,887	1,073	1,781	1,354	0	0	696	0	0	9
F(Departure)	14,333	947	2,471	1,221	0	0	710	109	0	9
G(Preferred)	12,338	2,539	2,253	1,100	519	22	841	179	0	9
H	0	0	0	0	0	0	0	0	19,800	0
I	10,993	2,787	2,393	1,573	539	13	312	1,074	0	116
J	11,935	2,265	2,350	1,409	470	12	988	269	0	102
K	9,648	3,892	246	1,742	212	95	3,376	589	0	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Spring Creek is allocated to wilderness in Alternative H. This is the only alternative that the total area or any position is allocated to wilderness.

Wilderness allocation could enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing low standard roads and other motorized activities associated with range management and trail maintenance could be eliminated.

The 13,302 acres of land tentatively suitable for timber production would not be available under this prescription. This would remove about 48 million board feet of standing volume and a yearly harvest of up to 1.545 million board feet.

Current livestock grazing, 986 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production will be foregone. Over the long run grazing would be reduced by 148 AUMs because of a reduction of available forage.

Effects on big game habitat would be similar since much of the forage produced on this area is produced on areas capable of producing trees. Thus, cover/forage relationships could change over time and winter range would be reduced.

Under this allocation recreation use would continue to be dominated by hunting. Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to vailed existing rights. Currently 1040 acres are leased to oil and gas exploration and development and there is one hardrock mining claims within the area.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth, but could be improved by letting fire play a more natural role.
- Water quality and fisheries would be maintained at their present levels.

Economic and social effects would be slight since the area represents about 2 percent of the Forest suitable timber base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized means of travel. Other resource values such as hunting would be retained.

The 2 percent loss in timber volume can be mitigated by practicing intensive forestry elsewhere on the Jefferson Division.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

Alternative D allocates 42 percent of the Spring Creek Roadless Area to range, wildlife, and minimum level management under a roadless designation.

Allocation to range, wildlife, and minimum level management would not effect the wilderness attributes. These management prescription limit road access and timber harvest is not scheduled, but tree mortality can be salvaged. Since there will be no roads and scheduled timber harvest, ther would be no long term changes in the wilderness attributes of this area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may effect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities my be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range/Visual and Timber/Range/Wildlife/Visual

All alternatives, except H, allocate 11 to 46 percent of the Spring Creek Roadless Area to timber management.

Allocation to timber management will forego the possibility of wilderness allocation. Lodgepole pine and Douglas fir stands will be accessed with roads and harvest would be scheduled starting in the first decade. About 8,500 acres would be developed during the first decade (9,300 acres under Alternatives A-1 and A-2 and 4,600 acres under Alternative C). About 14,000 acres of the area would be available for wilderness revaluation during the next planning period (5,800 acres under Alternativs A-1 and A-2 and 15, 200 acrs under Alternative C).

The harvest scheduled in Spring Creek could be shifted to other parts of the Jefferson Division.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities would dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised in 50 years.
- Elk security would be reduced, due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.
- Water quality and fisheries would be affected slightly by roading and timber harvest.
- These prescriptions would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since about 1 percent of the Forest suitable timber lands and about 2 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

All alternatives, except H, allocate some of the Spring Creek Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber managment purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment.

The nonpriced costs and benefits of this management area:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected but not substantially.

Managment Designation: Roadless and Developed
Management Emphasis: Concentrated Recreation

Alternatives F, F(Departure), G(Preferred), I, and J allocate 9 to 116 acres to concentrated recreation management.

Allocation to concentrated recreation may effect the wilderness attributes, but the effect could be terminated by the removal of dispersed recreation improvements on other management actions. Timber and range management may take place, if compatible with adjacent management.

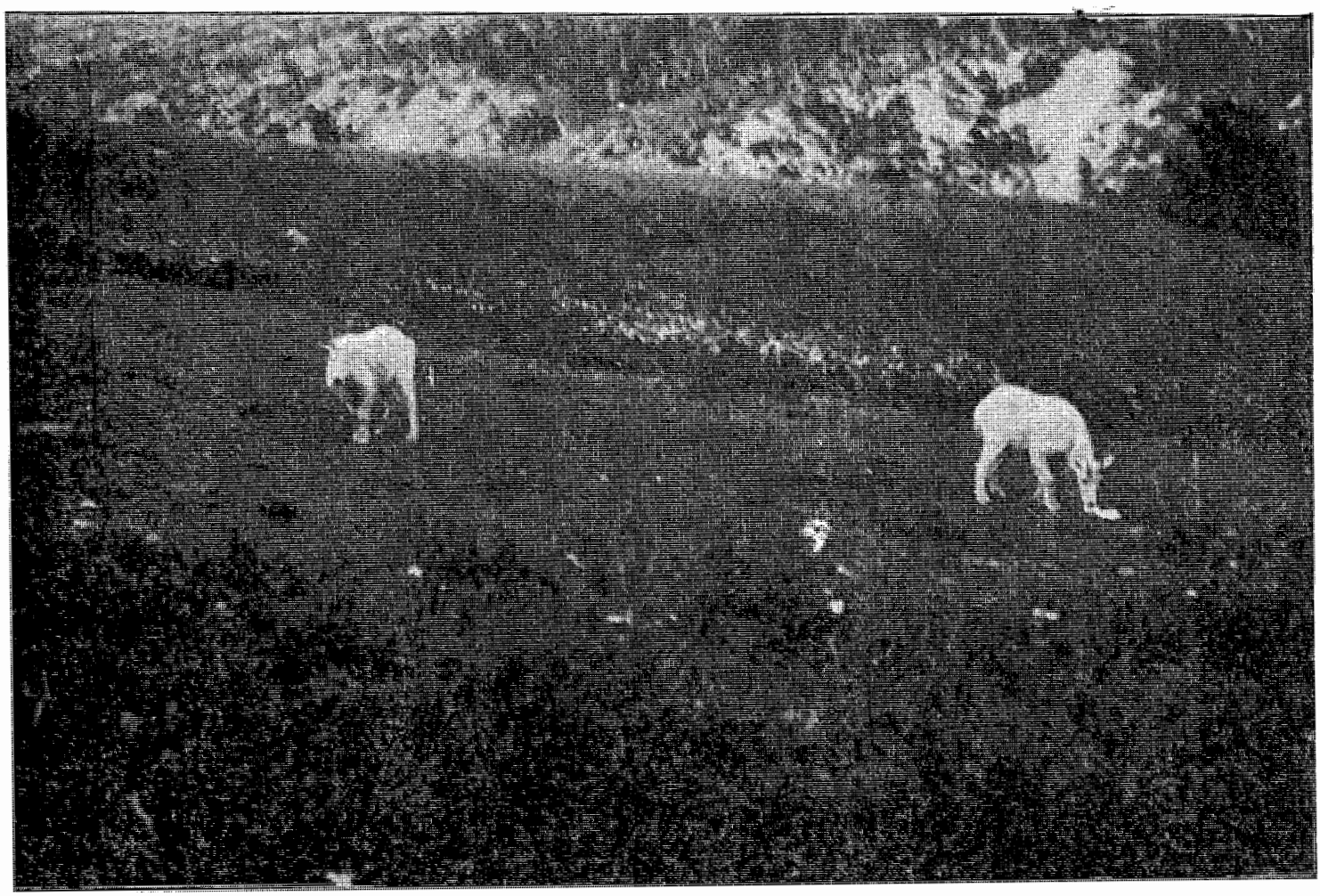
The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Dispersed recreation opportunities would be emphasized.
- Elk security would be reduced.
- Water quality and fisheries would be affected, but not significant.

Table 2 lists the average annual output by alternative.

TABLE 2
Average Annual Output - 2030 by Alternative

Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	19,800	0	0	0
Semi-Primitive		0	0	0	0	0	8,300	0	0	0	0	0	0	0	0	0	0
Roaded Natural		19,800	19,800	19,800	19,800	19,800	11,500	19,800	19,800	19,800	19,800	19,800	19,800	0	19,800	19,800	19,800
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	19,800	0	0	0
Roadless	Acres	0	0	0	0	0	8,300	0	0	0	0	0	0	0	0	0	0
Decade 1		14,000	10,500	10,500	14,000	14,000	15,200	14,000	14,000	14,000	14,000	14,000	14,000	0	14,000	14,000	14,000
Decade 5		0	0	0	0	0	8,300	0	0	0	0	0	0	0	0	0	0
Developed		19,800	19,800	19,800	19,800	19,800	11,500	19,800	19,800	19,800	19,800	19,800	19,800	0	19,800	19,800	19,800
Decade 1		5,800	9,300	9,300	5,800	5,800	4,600	5,800	5,800	5,800	5,800	5,800	5,800	0	5,800	5,800	5,800
Decade 5		19,800	19,800	19,800	19,800	19,800	11,500	19,800	19,800	19,800	19,800	19,800	19,800	0	19,800	19,800	19,800
Range	AUMs	986	1,183	1,183	1,134	1,134	966	1,213	1,183	1,183	1,094	1,094	1,025	887	946	946	946
Timber																	
Suitable Acres	Acres	4,657	9,444	9.037	9,033	7,609	2,565	2,165	9,169	9,169	3,135	3,692	3,894	0	4,518	4,241	2,295
Volume	MMBF	.374	.758	.726	.725	.611	.206	.174	.736	.736	.252	.296	.313	0	.363	.341	.184
Wildlife-Big Game	Acres																
Summer Habitat		8,484	8,484	8,484	8,484	8,484	8,484	8,484	8,484	8,484	8,484	8,484	8,484	8,484	8,484	8,484	8,484
Winter Habitat		2,434	2,434	2,434	2,434	2,434	2,434	2,434	2,434	2,434	2,434	2,434	2,434	2,434	2,434	2,434	2,434
Fisheries	Miles																
Impacted		10	10	10	10	10	10	6	10	10	10	10	10	0	10	10	10
Unimpacted		0	0	0	0	0	0	4	0	0	0	0	0	10	0	0	0
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	19,800	0	0	0
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		19,800	19,800	19,800	19,800	19,800	19,800	19,800	19,800	19,800	19,800	19,800	19,800	0	19,800	19,800	19,800
Employment	Person Years	14.4	20.8	20.3	20.2	18.5	12.6	9	19.9	19.9	12.7	13.4	13.6	1.9	14.2	13.9	11.6
Income	Millions of $	.261	.387	.387	.375	.339	.228	.162	.380	.380	.225	.239	.343	.035	.156	.250	.200
Return to Gov.	Dollars	1,991	3,688	3,553	3,533	3,050	1,277	1,249	3,595	3,595	1,525	1,710	1,752	379	1,928	1,836	1,176



Mountain Goats in the Crazy Mountains.

BOX CANYON 1-742
Roadless Area

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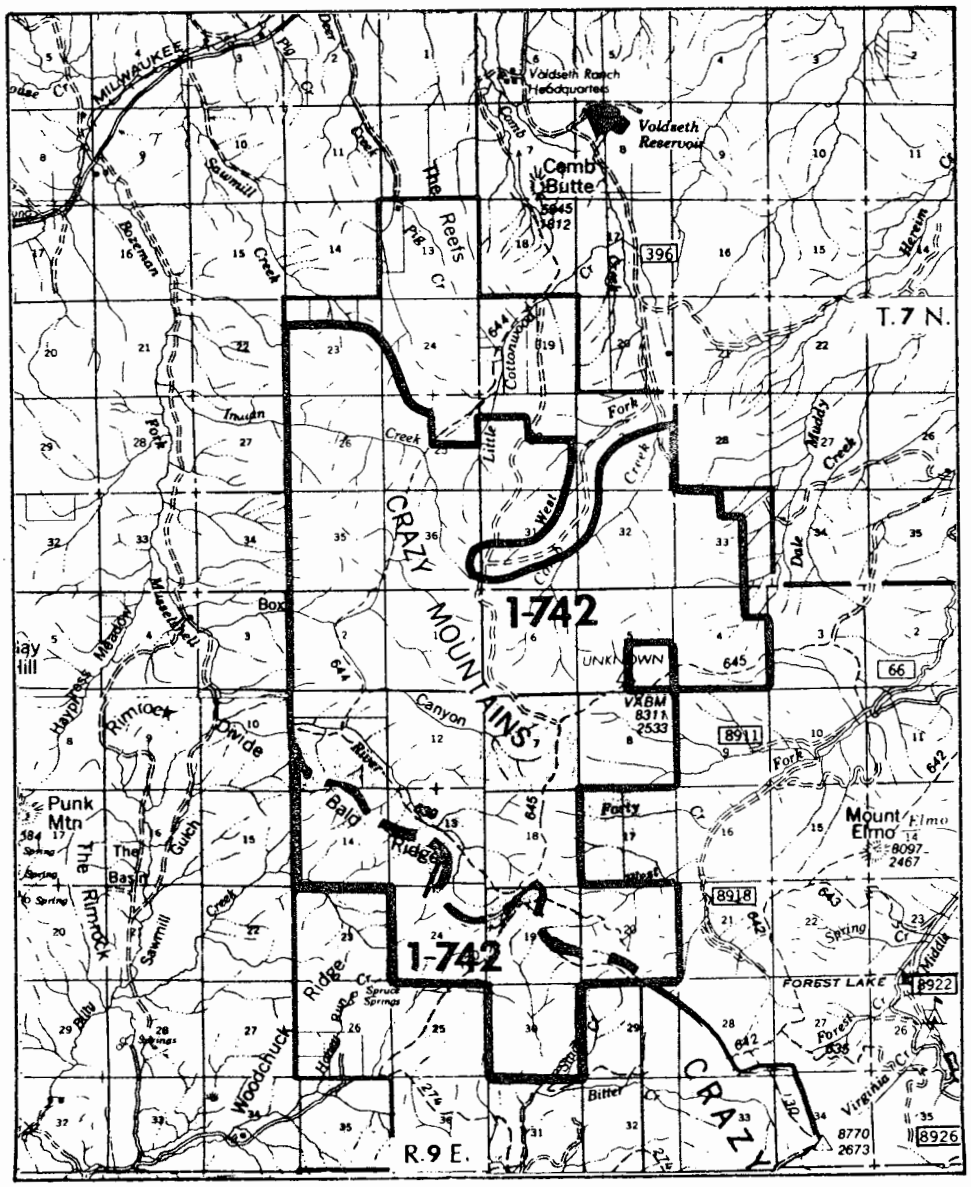
Lewis & Clark National Forest
and the Gallatin National Forest



	Gross Acres	Net Acres
Lewis and Clark National Forest	10,740	9,900
Gallatin National Forest	2,180	1,747
Total	12,920	11,647

DESCRIPTION

Location and Access

The Box Canyon Roadless Area is in the northwest corner of the Crazy Mountains of southcentral Montana. About 20 air-miles southeast of White Sulphur and 40 miles north of Livingston, the area is in Meagher County. The northern portion of the area, on the Lewis and Clark National Forest, has no public access. Access from the south, from the Gallatin National Forest is by the Sixteen Mile Road. A primitive private road adjoins the Forest boundary on the north side. Other two wheel track roads cross private land to reach the Forest. Access by trail also crosses private land, with no public right-of-way.

General Description

The Crazies are in two National Forests--the north half is in the Lewis and Clark and the south half in the Gallatin National Forest. The Box Canyon Roadless Area is also in both Forests.

Most of the northern portion is in Federal ownership. However, the southern part has checkerboard ownership--Federal, private ownership alternating by section--which is typical of most of the Crazies.

The western boundary is the proclaimed Forest boundary. The northern boundary is within the Forest proclaimed boundary, but approximately half of the land is in private ownership. Checkerboard ownership within the Forest proclaimed boundary are along the south and east boundary. The area bordering the Forest boundary is agricultural land used for livestock and wheat farming.

Elevations range from 6,000 to 8,500 feet. The roadless area is mainly one ridge running north-south, with deeply incised canyons dropping to the east and west. Most of the canyon bottoms have intermittent streams.

The higher elevations are broad open ridges with stringers of Douglas fir and lodgepole pine on the north slopes and in the draws. Most of the timber is of commercial size, but it is scattered and low quality for harvest. Most of the south facing slopes are grassland and sagebrush slopes.

Most recreation use in the area is from hunters and snowmobilers, however, use is partially restricted because of no public access.

About one third of the area is used for cattle grazing. There is a moderate potential to increase AUMs by increasing the size of existing allotments.

Although there is no timber activity in the area, the adjacent land to the south on both National Forest and private land has been logged.

CAPABILITY

Natural Integrity and Appearance

Cattle grazing, with its ensuing developments, and about three miles of low standard road, to access private land, are disturbances to the area's natural integrity and appearance. The Colstrip powerline runs east-west adjacent to the northern boundary. Towers on the utility corridor stand 100 feet and are visible for several miles.

The private land, to the east and south, has been developed mostly through timber harvest. Because of the landform and vegetation a high, open ridge from the ridge top, the development from adjacent private agricultural and timber land is visible.

Opportunity for Solitude

The solitude one could find in the area is compromised by adjacent development which is visible from most openings at the higher elevations. The steep canyons are isolated, but overall the area is visible to and influenced by outside development. A primitive road, which only has private access cuts north-south through the area.

Primitive Recreation Opportunity

There is little opportunity for primitive recreation because the terrain gives little challenge to the hiker, nor does the area have unique or spectacular scenery. The major primitive recreation opportunity is big game hunting.

Manageability and Boundaries

The Box Canyon Roadless Area is a contiguous parcel, but about half of it is in checkerboard ownership. Most of the boundaries follow topographic, cultural, or proclaimed National Forest boundaries. But in places, the boundary could be difficult to identify on the ground.

The amount and distribution of private land makes it unmanageable to exclude the private land and keep any roadless area. Also having no public access across the private land limits user access and creates a problem of having to control several unauthorized access points. Since RARE II the area has been reduced by 2,600 acres because of the Coalstrip powerline corridor. A recalculation of the acres of the Gallatin National Forest shows a 47 acre increase.

AVAILABILITY

Resource Potentials

Recreation - Hunting and snowmobiling are the major recreation uses. However, no public access limits use of the area.

Wildlife - There are about two miles of brook trout fishery and the area provides habitat for elk, mule deer, whitetail deer, moose, black bear, and grouse. Nearly a third of the northern half of the area is elk winter habitat.

Range - Cattle allotments cover about one-third of the roadless area, which is close to the maximum range use of the land. Five permittees graze cattle in three allotments. There are 13 spring improvements and about four miles of fence.

Timber - About a third of the Forest land is suitable for growing timber, with 33 million board foot standing volume. Principle limitations to harvest are steep slopes, low quality timber sites and standing volumes, and necessary coordination with wildlife needs. The area is capable of a harvest of .356 million board feet annually.

Water - Part of the area is in the headwaters the main fork of the Musselshell River, which is the source for Martinsdale Reservoir. This is a key reservoir for irrigation and fisheries.

Minerals - The area has a high potential for oil and gas accumulation. Three large anticlines are present under the volcanic cover, which may contain significant volumes of hydrocarbons. The entire area is leased for oil and gas exploration and development. The potential for metallic minerals is low.

Table 1
Box Canyon Roadless Area Resource Summary
Existing Situation
Lewis and Clark and Gallatin National Forests

Gross Acres 12,920
NF Acres 11,647

RECREATION - RVDs

Primitive - 0
SPNM - 880
SPM - 1,100
Roaded Natural - 0
Rural - 0

RANGE

Suitable Acres - 4,413
No. of Allotments - 3
Permitted AUMs - 2,575

TIMBER

Tentative Suitable Acres - 4,226
Standing Volume MMBF - 32.6

CORRIDORS

No. of Existing & Potential - 0
Adjacent to Colstrip-Garrison
Twin 500 kv Powerlines

WILDLIFE - T&E - None

WILDLIFE - BIG GAME

Important Elk Summer Range Acres - N/A
Elk Winter Range Acres - 3,580
Mule Deer Winter Range Acres - 236

WILDLIFE - FISHERIES

Stream Miles - 2
Stream Acres - 2

WATER DEVELOPMENTS - 0

MINERALS

Hardrock Potential - Low
No. of Claims - 0

Oil & Gas Potential - High
No. of Oil & Gas Leases - 9
Oil & Gas Lease Acres - 11,480

NEED

Proximity to Other Designated Wilderness

The nearest wilderness to the Crazy Mountains is the Absaroka Beartooth, about 30 miles away. The area is also about two hours drive from the newly created Lee Metcalf Wilderness. Yellowstone National Park is within three hours drive.

The Box Canyon Roadless Area is about 90 miles southeast of Great Falls, and 100 miles northwest of Billings. There are 13 classified wildernesses containing 4.4 million acres within one day's drive of Great Falls, and 6 classified wildernesses containing 2.3 acres within one day's drive of Billings.

Contribution to National Wilderness Preservation System

The area does not have any rare ecosystems which are necessary for protected plants or animals.

Public Interest and Concerns

The area has had little public interest or support for wilderness classification. During 1977 and 1983 public review 1,631 and 2 comments, respectively, were received. Most comments supported nonwilderness. During the 1985 review, no specific comments were received either on the Lewis and Clark or Gallatin National Forest.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

The Box Canyon Roadless Area is managed by two different National Forests--the Gallatin and Lewis and Clark. In formulating alternatives for this roadless area seven alternatives were developed which correspond to the Forest Plan alternatives from each Forest. The following is a brief discussion of each alternative. The crosswalk of each Forest Plan alternative with the roadless area alternatives is displayed on the next page.

Alternative I - This alternative allocates all of the inventoried roadless area to wilderness.

Alternative II - This alternative models the current direction of managing the roadless area.

Alternative III - This alternative emphasizes the development of the roadless area.

Alternative IV - This alternative emphasizes managing the roadless area for its economic return.

Alternative V - This alternative models a low level of Forest output.

Alternative VI - This alternative emphasizes the amenity values of the Forests.

Alternative VII (Preferred Alternative) - This alternative is the combination of the Forests' preferred alternative. None of the area is recommended for wilderness.

Crosswalk of Forest Alternatives		
	Gallatin	Lewis and Clark
I	9	H
II	1	Current Plan
III	2	A
IV	4, 5	B, E
V	3, 8	C, D
VI	6	F, I, J, K
VII	7, 10	G

The 7 management alternatives developed for the Box Canyon Roadless Area allocated the area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Box Canyon Roadless Area is allocated as follows:

	Wilderness	Roadless	Developed
Alternative I	11,647	0	0
Alternative II (Current Plan)	0	2,497	9,150
Alternative III	0	1,747	9,900
Alternative IV	0	0	11,647
Alternative V	0	1,747	9,900
Alternative VI	0	1,747	9,900
Alternative VII (Preferred)	0	250	11,397

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resource activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Box Canyon Roadless Area, under all alternatives but I, the major emphasis will be on minimum level management. Alternative I puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

BOX CANYON ROADLESS AREA

	Min Level	Range	Timber	Timber/ Range	Timber/ Wildlife	Dis Rec/ Wildlife	Wildlife/ Range	Dis Rec/ Nonroaded	Wilderness
I	0	0	0	0	0	0	0	0	11,647
II	5,140	3,632	1,658	0	0	1,217	0	0	0
III	3,797	2,310	2,246	540	0	1,767	987	0	0
IV	4,538	2,492	2,535	556	0	1,526	0	0	0
V	3,552	2,107	1,408	392	0	2,858	530	800	0
VI	4,889	2,785	1,486	459	114	1,201	113	600	0
VII(Preferred)	5,704	3,733	859	304	91	691	15	250	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Box Canyon is allocated to wilderness in Alternative I. This is the only alternative that the total area or any portion is allocated to wilderness.

Wilderness allocation could enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. Motorized activities associated with range management and trail maintenance could be eliminated.

The 4,413 acres of land tentatively suitable for timber production would not be available under wilderness management. This would remove about 33 million board feet of standing volume within a yearly harvest of up to .356 million board feet.

Current livestock grazing, 2,575 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production will be foregone. Over the long run grazing would be reduced by 386 AUMs because of a reduction of available forage.

Effects on big game habitat would be similarly effected since much of the forage produced on this area is from lands that will support stands of trees. Thus, cover/forage relationships would change over time and winter range would decrease.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. Almost the entire area is currently leased for oil and gas exploration and development.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth but could be improved by letting fire play a more natural role.
- Water quality and fisheries would be maintained at their present levels.

Economic and social effects would be slight since the area represents less than 1 percent of the Forests suitable timber base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized means of travel. User conflict with grazing would arise because the area would attract an influx of people interested in recreation and naturalness. Other resource values such as hunting would be retained.

The less than 1 percent loss in timber volume in this roadless area can be mitigated by practicing intensive forestry elsewhere on the Lewis and Clark and Gallatin National Forests.

Management Designation: Roadless
Management Emphasis: Range, Dispersed Recreation/Wildlife, Wildlife/Range, Dispersed Recreation Nonroaded, and Minimum Level

Alternatives II, III, V, VI, and VII(Preferred) allocate 2 to 21 percent of the Box Canyon Roadless Area to range, wildlife, dispersed recreation and minimum level management under a roadless designation.

Allocation to range, wildlife, dispersed recreation, and minimum level management in a roadless designation would not affect the wilderness attributes. These management prescriptions limit new road construction. Timber harvest is not scheduled, but tree mortality can be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes of this area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range, Timber/Wildlife/Visual, and Timber/Range/Wildlife/Visual

All alternatives, except I, allocate 10 to 34 percent of Box Canyon Roadless Area to timber management.

Allocation to timber management would forego the possibility of wilderness allocation on the entire area. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the first decade. About 650 acres would be developed during the first decade. About 11,000 acres would be available for wilderness reevaluation during the next planning period.

The harvest scheduled in Box Canyon could be shifted to other parts of the Lewis and Clark and Gallatin National Forests.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised within 50 years.
- Elk security would be reduced, due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.
- Water quality and fisheries would be affected slightly by roading and timber harvest.
- These alternatives would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since about 1 percent of the Forest suitable timber base and about 1 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Dispersed Recreation/Wildlife, Wildlife/Range, and Minimum Level

All alternatives, except Alternative I, allocate some of the Box Canyon Roadless Area to range, wildlife, dispersed recreation and minimum level management under a developed designation.

Because all or part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment. Under these prescriptions there would be additional range improvements and burning to increase forage production.

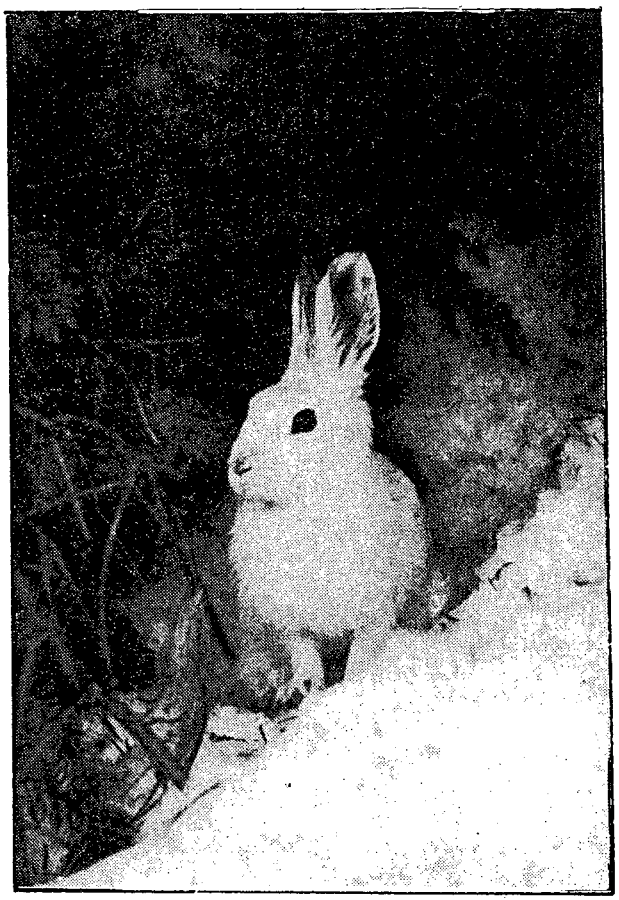
The nonpriced costs and benefits of this management are:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced, but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected, but not substantially.

Table 2 lists the average annual output by alternative for the Lewis and Clark National Forest.

TABLE 2
Average Annual Output - 2030 by Alternative
Lewis and Clark National Forest

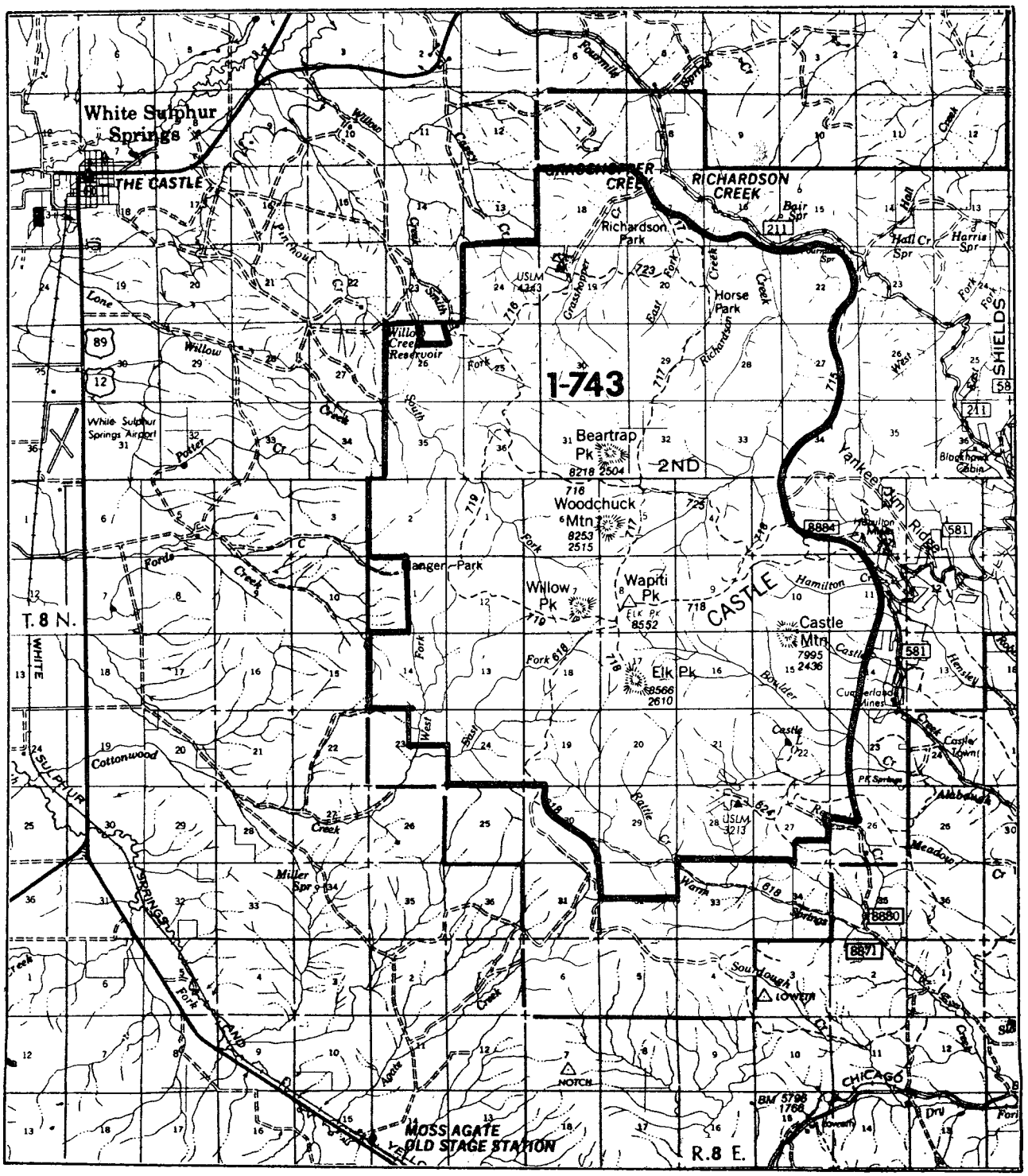
Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	9,900	0	0	0
Semi-Primitive		2,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Roaded Natural		7,400	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	0	9,900	9,900	9,900
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	9,900	0	0	0
Roadless	Acres	2,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decade 1		9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	0	9,900	9,900	9,900
Decade 5		9,900	0	0	0	0	4,800	5,400	0	0	0	0	0	0	0	0	0
Developed		7,400	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	0	9,900	9,900	9,900
Decade 1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decade 5		0	9,900	9,900	9,900	9,900	5,100	4,500	9,900	9,900	9,900	9,900	9,900	0	9,900	9,900	9,900
Range	AUMs	2,375	2,850	2,850	2,731	2,731	2,327	2,921	2,850	2,850	2,636	2,636	2,470	2,019	2,280	2,280	2,327
Timber																	
Suitable Acres	Acres	858	2,086	2,086	2,341	2,341	1,800	1,727	2,341	2,341	1,728	1,697	1,254	0	1,409	1,409	2,427
Volume	MMBF	.069	.168	.168	.188	.188	.144	.139	.188	.188	.139	.136	.101	0	.113	.113	.195
Wildlife-Big Game	Acres																
Summer Habitat		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Winter Habitat		3,580	3,580	3,580	3,580	3,580	3,580	3,580	3,580	3,580	3,580	3,580	3,580	3,580	3,580	3,580	3,580
Fisheries	Miles																
Impacted		2	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2
Unimpacted		0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	9,900	0	0	0
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	9,900	0	9,900	9,900	9,900
Employment	Person Years	3.5	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	.6	4.2	4.2	4.2
Income	Millions of $	.492	.171	.171	.171	.171	.154	.163	.177	.177	.157	.156	1.042	.048	.143	.143	.143
Return to Gov.	Dollars	1,034	1,923	1,923	1,956	1,956	1,599	1,832	2,007	2,007	1,710	1,710	1,479	863	1,398	1,398	1,813



A Common Sight in the National Forest.

CASTLES MOUNTAINS 1-743

Roadless Area



	Gross Acres	Net Acres
Lewis and Clark National Forest	29,900	29,600

DESCRIPTION

Location and Access

The Castle Mountain Roadless Area is in the western third of the Castle Mountain Range. The range lies between the Little Belt Mountains to the north and the Crazy Mountains to the south. It is a small and low group of mountains--about 20 miles east-west and 10 miles north-south, with only foothills in the east and a cluster of 8,000 foot mountains in the west. The roadless area portion is about eight miles southeast of White Sulphur Springs and is entirely within Meagher County.

Public access is via an improved, gravel Forest road on the east side. This road can be approached from the north or south side of the Castles. Numerous private dirt roads access the balance of the area. Two well-established roads penetrate the area. From Grasshopper Campground, which is adjacent to the northern border, a dirt road extends south about two miles to patented mining claims. A second road beginning Yankee Jim Ridge climbs Wapiti Peak. The road was closed in the 1960s, but it still has occasional use. Numerous trails, most climbing toward Wapiti Peak, enter from the north, east, south, and west. These trails receive both foot and motorized traffic.

General Description

The topography varies from 6,000 feet, where the prairie borders the area on the west, to 8,600 feet on top of Wapiti Peak, in the center.

Area topography is closely related to the paths of glaciers and to drainage patterns subsequently produced by active dam cutting streams, which occupy narrow canyons. Steep slopes gradually grade into high parks, some being one mile wide and five miles long. The area is dominated by Wapiti Peak and drainages fan out from this peak in all directions. The major drainage is Fourmile Creek, which flows north from Wapiti Peak. Clustered near Wapiti are four other mountains--Beartrap, Woodchuck, Willow, and Elk. To the east is Castle Mountain.

At the lower elevations the most noticeable topographic features are the castle-like igneous spires which stand up to 50 feet. On the west slopes, giving the mountain range its name, from White Sulphur Springs the spires look like castle turrets.

In the late 1800s most of the area was burned off by miners. The area has completely reforested with lodgepole pine and some Douglas fir at the lower elevations. Limber pine grows on the higher elevations. On the high ridges are expansive parks. Some aspen and spruce grows along the stream bottoms.

The adjacent land is about half Forest Service administered and half private. To the north is forest land on the fringes of the plains. Grasshopper and Richardson Creek Campgrounds are adjacent to the northern border. The eastern border is National Forest, except for some places along the southeast which are patented mining claims. The southern border is a checkerboard pattern of private and National Forest land. To the west, the Castle Mountain area follows the proclaimed Forest boundary.

Currently the area is used for recreation, cattle grazing, and prospecting. Hunting, camping, hiking, snowmobiling, and cross-country skiing are the recreational uses. Only about five percent of the area is used for grazing. Prospecting, now and in the past, has been heavy, especially in the southeastern portion, near the group of patented claims just outside the roadless area.

Although the area has been extensively explored for minerals, the evidence of this activity has weathered and blended in with the natural setting. The trail system is the most noticeable remains of the active mining days in the 1800s.

Compared to the Little Belts or the eastern Castle Mountains, the area is very lush and moist, because it is igneous rather than porous limestone.

To the north, west, and south the area is adjacent to agricultural land. The east side adjoins the Castle Mountains; but the east side of the Castles is mostly low elevation grasslands which are interspersed with timber along the stream channels. In the 1800s Castle Town was adjacent to the eastern border, amidst the patented land. The town has since been abandoned, but many of the community and mining buildings are still present.

CAPABILITY

Natural Integrity and Appearance

Mining has had the major impact on the integrity and appearance of the area. Prospecting holes are scattered throughout the area, but almost all of the actual mining was around Castle Town. Evidence of past activity are the trails, diggings, and remains of old cabins. Other than the trails, the reminders of past mining are subtle. Most of the ground disturbance has healed over, trees are growing on the digging piles, and the buildings have fallen in.

Opportunity for Solitude

Within the steep drainages and in the high open parks are opportunities for solitude. Most of the canyons leading to Wapiti Peak are steep and wooded, with water running in the bottoms. These canyons are very isolated from outside development or activity.

Primitive Recreation Opportunity

For mountains, the area is not physically challenging. But from the highest point, Wapiti Peak, is a panoramic view of the Crazy, Absoroka, Bridger, Gravelly, Belts, and Snowy Mountains. And, on a very clear day, the Sweetgrass Hills on the Canadian border are visible. The view is so spectacular because the rest of the Castles are falling away from Wapiti Peak and you are high enough to look over the adjacent agriculture development.

Manageability and Boundaries

Easy access could be a manageability problem. Presently there is only public access from the east side. From the other sides there are several private roads and no natural barriers. If the area became wilderness, controlling and monitoring access across private land could become a problem.

Most of the boundaries follow topographic features or surveyed land lines. However, some portions of the southeast border could be hard to locate on the ground. Since the RARE II inventory, the area has been reduced by 1,200 acres because of timber harvest activities, roads and microwave construction.

AVAILABILITY

Resource Potentials

Recreation - Recreation use from White Sulphur Springs is high. Camping just north of the roadless area boundary, at Richardson Creek and Grasshopper Creek Campgrounds is popular. From the campgrounds, trails head south and link to a network of trails that cross the center portion of the roadless area and join road access on the east side. Hiking, trailbike riding, or snowmobiling on the trails is popular. The entire area is used for hunting big game and birds. Because of the igneous geography, streams and springs flow most of the summer.

Wildlife - Elk, mule deer, and grouse inhabit the area. The elk herd use the area during spring, summer, and fall, moving to adjacent private land during the most severe winter weather.

Range - Within the roadless area are parts of five cattle allotments which cover only about five percent of the area. Eight permittees graze over 1,600 AUMs annually.

Timber - About 65 percent of the area is classified as tentative suitable forest land. The area is capable of a harvest of 1.546 million board feet annually. Most of the Castles burned in the late 1800s. Now the area is well stocked with lodgepole pine and some Douglas fir, which are near rotation age. Some post and pole cutting occurs along the fringes of the area.

Water - Willow Creek Reservoir, which is White Sulphur Springs' municipal watershed, is along the northwest border of the area. The portion of the reservoir on National Forest land is under special use permit.

Minerals - Past mining activity on the mining claims along the eastern boundary, known as the Castle Mountain Mining District, has produced large amounts of metallic minerals and indicates mineral potential in the area is high. From 1883 to 1977 the Castle Mountain Mining District produced the following:

Silver	2,147,752 ounces
Lead	27,940,466 pounds
Zinc	146,803 pounds

Two small groups of patented mining claims, at the north and south, are within the area.

Cultural Resources - There are several historical sites from the past mining activity. The most extensive is the remains of Castle Town, which is just east of the roadless area. At the north end of the area is a recorded prehistoric site. Potential for other prehistoric sites along the fringes is high.

Table 1 lists the resources for the Castle Mountains Roadless Area.

Other Management Considerations

Major fires burned most of the area at the turn of the century. There are no known special fire or insect or disease considerations.

Table 1
Castle Mountains Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 29,900

NF Acres 29,600

RECREATION - RVDs

Primitive - 0
SPNM - 1,200
SPM - 1,000
Roaded Natural - 0
Rural - 0

RANGE

Suitable Acres - 1,232
No. of Allotments - 5
Permitted AUMs - 1,665

TIMBER

Tentative Suitable Acres - 19,242
Standing Volume MMBF - 175.5

CORRIDORS

No. of Existing & Potential - 0

WILDLIFE - T&E - None

WILDLIFE - BIG GAME

Important Elk Summer Range Acres - 7,332
Elk Winter Range Acres - 1,119
Mule Deer Winter Range Acres - 634

WILDLIFE - FISHERIES

Stream Miles - 7
Stream Acres - 13
No. of Lakes - 1
Lake Acres - 5

WATER DEVELOPMENTS

No. of Existing - 0

MINERALS

Hardrock Potential - High-gold, silver, lead, zinc, iron and manganese
No. of Claims - 14

Oil & Gas Potential - Low
No. of Oil & Gas Leases - 2
Oil & Gas Lease Acres - 7,400

NEED

Proximity to Other Designated Wilderness

The Castle Mountains Roadless Area is about 70 miles southeast of Great Falls. There are 13 classified wildernesses containing 4.4 million acres within one day's drive of Great Falls.

Contribution to National Wilderness Preservation System

The area does not have any special ecosystems which are necessary for protected plants or animals.

Public Interest and Concerns

The people of White Sulphur Springs and nearby agricultural community feel an ownership with the Castle Mountains. The mountains are in the town's backyard and they are used extensively by the community for camping, hiking, and hunting. Many of the local residents have first-hand knowledge of the past mining activity. Overall the community feels the Castles should be left as they are now.

The area has had little public interest or support for wilderness classification. During the 1977 and 1983 public review 897 and 4 comments, respectively, were received. Most comments supported nonwilderness.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the area would be roaded in association with timber harvest activities. This does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Castle Mountains Roadless Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	20,100	9,500
A-1	0	1,600	28,000
A-2	0	1,600	28,000
B-1	0	0	29,600
B-2	0	0	29,600
C	0	23,500	6,100
D	0	21,600	8,000
E-1	0	0	29,600
E-2	0	0	29,600
F	0	22,500	7,100
F(Departure)	0	22,500	7,100
G(Preferred)	0	28,000	1,600
H	29,600	0	0
I	0	27,600	2,000
J	0	27,600	2,000
K	0	28,400	1,200

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resource activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Castle Mountains Roadless Area, the Current under Plan and Alternative C, D, F, F(Departure), the major emphasis will be on minimum level management. Alternative A-1, A-2, B-1, B-2, E-1, and E-2 emphasis will be on Timber management Alternative G(Preferred) I, J, and K emphasis wildlife and range. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/ Wildlife	Timber/Range Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness
Current Plan	23,503	3,426	1,453	0	0	0	1,218	0	0
A-1	5,497	2,209	17,033	1,128	293	41	2,694	705	0
A-2	5,497	2,534	17,463	698	0	41	2,987	380	0
B-1	7,831	3,252	17,463	698	41	0	315	0	0
B-2	7,866	3,293	17,463	698	0	0	280	0	0
C	15,295	2,721	2,824	273	0	0	7,782	705	0
D	24,442	3,718	457	273	0	0	710	0	0
E-1	7,866	3,252	17,743	698	41	0	0	0	0
E-2	7,866	3,252	17,743	698	41	0	0	0	0
F	19,684	2,914	5,803	739	0	0	460	0	0
F(Departure)	16,846	2,534	8,053	1,031	0	0	1,136	0	0
G(Preferred)	9,831	3,927	361	64	885	0	14,532	0	0
H	0	0	0	0	0	0	0	0	29,600
I	9,511	3,927	422	64	1,051	258	67	14,300	0
J	9,511	3,927	680	64	1,051	0	67	14,300	0
K	8,689	3,522	566	494	0	0	15,924	405	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Castle Mountains is allocated to wilderness in Alternative H. This is the only alternative that the total area or any portion is allocated to wilderness.

Wilderness allocation could enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. Motorized activities associated with recreation range management, and trail maintenance could be eliminated.

The 19,242 acres of land tenatively suitable for timber production would not be available under wilderness management. This would remove about 175 million board feet of standing volume and a yearly harvest of up to 1.546 million board feet.

Current livestock grazing, 1,665 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production will be foregone. Over the long run grazing would be reduced by 250 AUMs because of a reduction of available forage.

Big game or elk management would not change much of the forage produced on this area from permanent grassland. Thus, cover/forage relationships should not change much over time except as influenced by wildfire.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. Because of the existing claims and high mineral potential, hardrock mining activities could affect the wilderness attributes. Currently 7,400 acres are leased for oil and gas exploration and development and there are 14 hardrock mining claims within the area.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities in the area would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth but could be improved by letting fire play a more natural role.
- Water quality and fisheries would be maintained at their present levels.

Economic and social effects would be slight since the area represents about 3 percent of the Forest suitable timber base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized means of travel. User conflicts with grazing would arise because the area would attract an influx of people interested in recreation and naturalness. Other resource values such as hunting would be retained.

The 3 percent loss in timber volume in this roadless area can be mitigated by practicing intensive forestry elsewhere on the Jefferson Division.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

Alternatives G(Preferred), I, J, and K, allocated most of the Castle Mountains Roadless Area to range, wildlife, and minimum level management under a roadless designation. Alternatives C, D, F, F(Departure), and the Current Plan allocate from 68 to 79 percent of the roadless area to range, wildlife, and minimum level management.

Alternatives A-1 and A-2 allocate 5 percent of the Castle Mountains Roadless Area to range, wildlife, and minimum level management under a roadless designation.

Allocation to range, wildlife, and minimum level management would not effect the wilderness attributes. These management prescription limit road access and timber harvest is not scheduled, but tree mortality can be salvaged. Since there will be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes of this area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may effect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range, Timber/Wildlife, and Timber/Range/Wildlife/Visual

All alternatives, except H, allocate from 62 to 2 percent of the Castle Mountains Roadless Area to timber management.

Allocation to timber management would forego the possibility of wilderness allocation. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the first decade. About 1,200 acres would be developed during the first decade (1,900 acres under Alternatives A-1 and A-2 and 1,000 acres under Alternative C). The harvest scheduled in Castle Mountains could be shifted to other parts of the Jefferson Division. About 28,400 acres of the area would be available for wilderness reevaluation during the next planning period (27,700 acres under Alternative A-1 and A-2 and 28,600 acres Alternative C).

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.

- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised in 50 years.
- Elk security would be reduced, due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.
- Water quality and fisheries would be affected slightly by roading and timber harvest.
- These alternatives would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since about 3 percent of the land suitable for timber and about 2 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

All alternatives, except H, allocate some of the Castle Mountains Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment. Under these prescriptions there would be additional range improvements and burning to increase forage production.

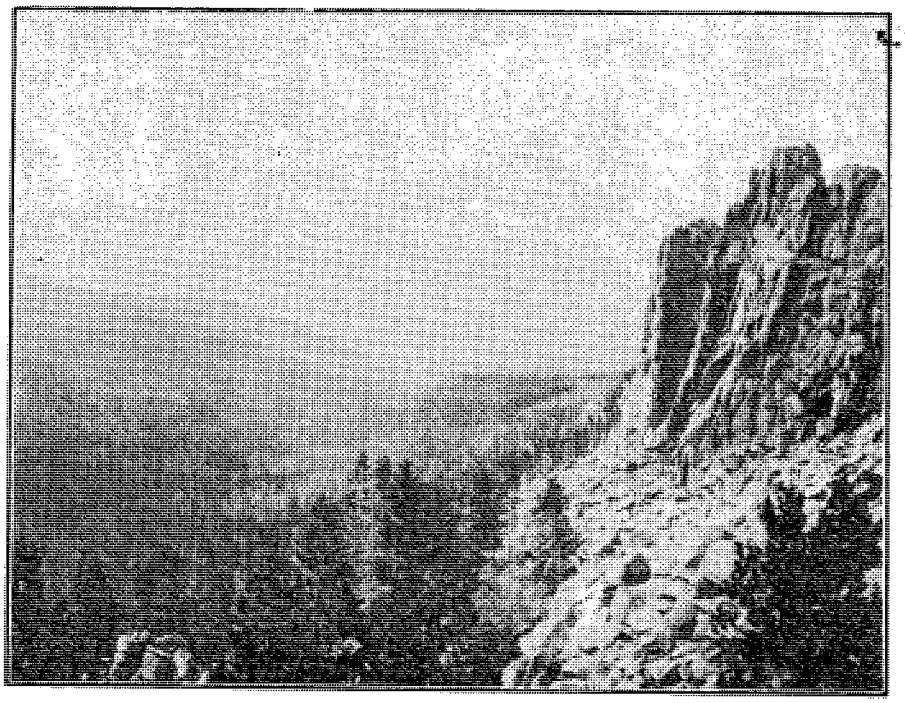
The nonpriced costs and benefits of this management are:

- Existing visual conditions would change and man's activities in the area may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected, but not substantially.

Table 2 lists the average annual output by alternative.

TABLE 2
Average Annual Output - 2030 by Alternative

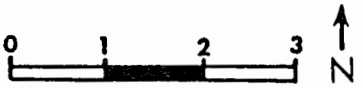
Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	29,600	0	0	0
Semi-Primitive		20,100	1,600	1,600	0	0	23,500	21,600	0	0	22,500	22,500	28,000	0	27,600	27,600	28,400
Roaded Natural		9,500	28,000	28,000	29,600	29,600	6,100	8,000	29,600	29,600	7,100	7,100	1,600	0	2,000	2,000	1,200
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	29,600	0	0	0
Roadless	Acres	20,100	1,600	1,600	0	0	23,500	21,600	0	0	22,500	22,500	28,000	0	27,600	27,600	28,400
Decade 1		28,400	27,700	27,700	28,400	28,400	28,600	28,400	28,400	28,400	28,400	28,400	28,000	0	28,400	28,400	28,400
Decade 5		20,100	19,000	19,000	10,400	0	23,500	21,600	0	0	22,500	22,500	28,000	0	27,600	27,600	28,400
Developed		9,500	28,000	28,000	29,600	29,600	6,100	8,000	29,600	29,600	7,100	7,100	1,600	0	2,000	2,000	1,200
Decade 1		1,200	1,900	1,900	1,200	1,200	1,000	1,200	1,200	1,200	1,200	1,200	1,600	0	2,000	2,000	1,200
Decade 5		9,500	10,600	10,600	19,200	29,600	6,100	8,000	29,600	29,600	7,100	7,100	1,600	0	2,000	2.000	1,200
Range	AUMs	1,665	1,998	1,998	1,915	1,915	1,632	2,048	1,998	1,998	1,848	1,848	1,732	1,732	1,415	1,732	1,732
Timber																	
Suitable Acres	Acres	1,453	18,495	18,202	18,161	3,097	730	18,482	6,542	9,083	1,310	0	1,595	0	1,795	1,795	1,060
Volume	MMBF	.117	1.485	1.462	1.462	1.458	.249	.059	1.484	1.484	.525	.729	.105	0	.144	.144	.085
Wildlife-Big Game	Acres																
Summer Habitat		7,332	7,332	7,332	7,332	7,332	7,332	7,332	7,332	7,332	7,332	7,332	7,332	7,332	7,332	7,332	7,332
Winter Habitat		1,119	1,119	1,119	1,119	1,119	1,119	1,119	1,119	1,119	1,119	1,119	1,119	1,119	1,119	1,119	1,119
Fisheries	Miles																
Impacted		3	7	7	7	7	5	5	7	7	5	5	0	0	0	0	0
Unimpacted		4	0	0	0	0	2	2	0	0	2	2	7	7	7	7	7
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	29,600	0	0	0
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		29,600	29,600	29,600	29,600	29,600	29,600	29,600	29,600	29,600	29,600	29,600	29,600	0	29,600	29,600	29,600
Employment	Person Years	8.9	35.2	34.9	35.2	35.2	9.2	4.5	35.6	35.6	14.2	17.3	9.3	3.1	6.7	6.9	3.9
Income	Millions of $	.123	.688	.678	.683	.683	.542	.089	.695	.695	.276	.340	.072	.036	.540	.546	.319
Return to Gov.	Dollars	1,203	14,625	14,528	14,179	14,163	1,743	1,123	14,624	14,624	2,994	3,851	1,181	740	1,209	1,344	792

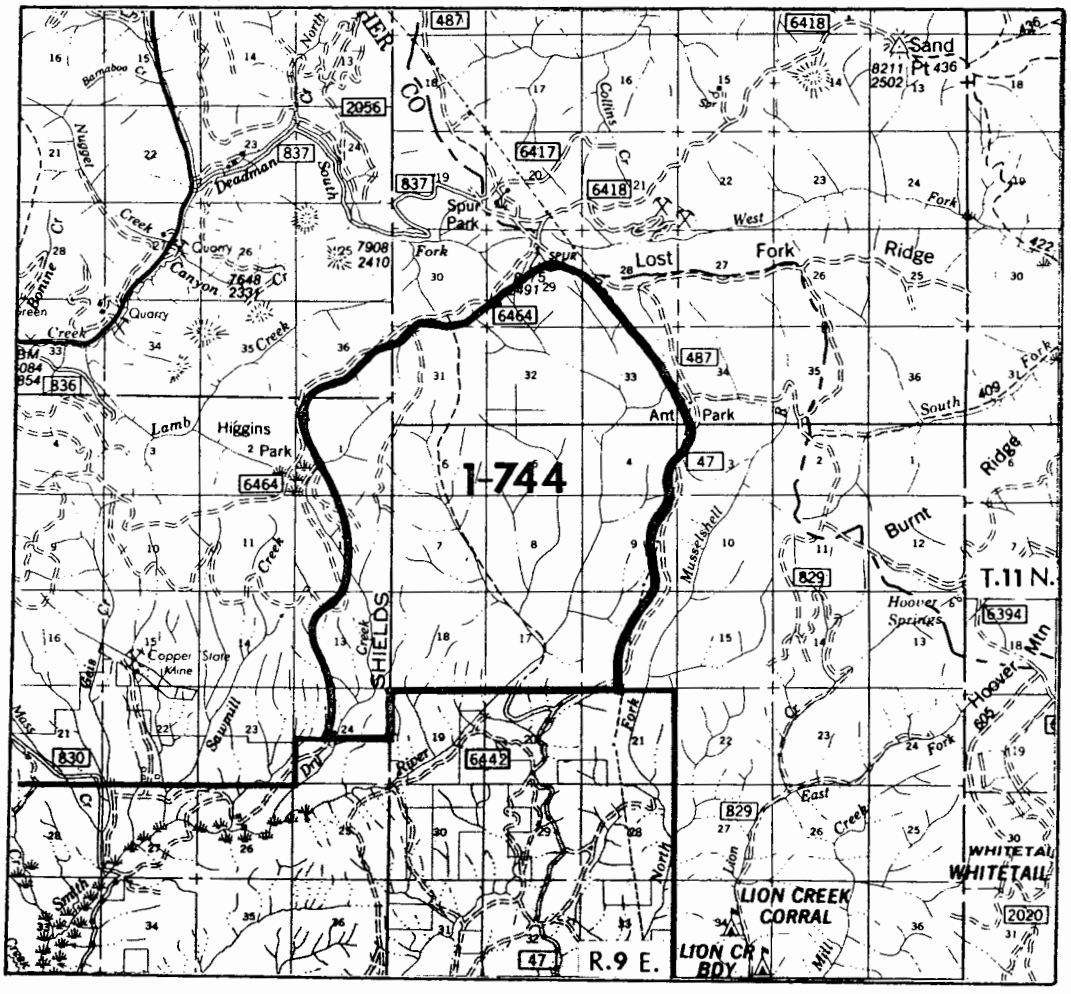


A Scenic View of the Little Belt Mountains.

NORTH FORK SMITH 1-744

Roadless Area





	Gross Acres	Net Acres
Lewis and Clark National Forest	8,800	8,800

DESCRIPTION

Location and Access

The North Fork Smith Roadless Area lies on the south central edge of the Little Belt Mountains, in Meagher County, Montana. White Sulphur Springs, the closest town, is approximately 20 miles southwest.

All sides of the area are accessible by dirt roads. Access from the north, east, and west is on Forest development roads. The roads immediately adjacent to the area are graded dirt or two-wheel tracks. The northwest corner of the area is flat and open, so vehicle traffic can access all parts by driving cross-country. From the south an improved, gravel county road, running north from U.S. Highway 12, terminates at the southern boundary of North Fork Smith. No trails cross or access the area.

The southern boundary is the proclaimed Forest boundary. The adjacent private and BLM land is used for ranching and logging. The remaining three sides border Forest Service administered land. Adjacent to the west and northwest is intensive logging activity. Within a quarter mile of the northeast border is the Middle Fork of the Judith MWSA. Lying on the northeast and eastern border is the Great Falls-Two Dot 150 KV powerline.

General Description

Approximately square in shape, the area is a limestone stratum that tips to the south, forming the headwaters of the North Fork Smith, a tributary to the Smith River. Beyond the Forest, the North Fork flows southwest to empty into the main Smith, about four miles southwest of White Sulphur Springs.

The north, east, and west boundaries follow ridges which tip to the south. The ridge on the east separates the Smith from the Musselshell River. The ridge on the northeast separates the Smith from the Middle Fork of the Judith River. And the western ridges separate North Fork of Smith from Sawmill, Lamb, and other creeks which drain west to the main fork of the Smith.

The topography, ranging from 8,100 to 6,000 feet, is rounded ridges that drop steeply into V-shaped canyons. The canyons are timbered with lodgepole pine and Douglas fir, except at the bottoms, which are grass. The entire area, including the canyon bottoms, is dry with limestone outcroppings scattered in the canyons. About a mile north of the Forest boundary the North Fork canyon widens into a flat bottom. At the Forest boundary a spring releases the water from the porous limestone into the North Fork's channel, which flows southwest. The northwestern third and most of the eastern boundary are rolling parks.

Average annual precipitation in the Little Belts is 28-30 inches. The peaks average 40 inches per year, while the lower elevations average 16 inches per year. Most of the North Fork Smith Roadless Area is on the drier side, at the lower elevations.

Currently the North Fork Smith is used for recreation and livestock grazing. The area is heavily hunted for elk and the northwest portion is a popular snowmobiling area. The north end, approximately 20 percent of the area is used by livestock.

As classified by the Forest Service visual system, the North Fork Smith has a variety class C and an existing visual condition 1. (See Appendix N - Forest Plan). The country is smooth, rounded ridges that drop into canyons. There are no peaks or other relief from the ridges. From all openings one can see agricultural activity, White Sulphur Springs, U.S. Highway 12, and past and present logging activity. The logging has been most intensive adjacent to the western boundary. However, parts of the private land to the south have been logged to the Forest boundary. The ridges also offer distant view of mountain ranges to the south and west--Castles, Crazies, Bridgers, Absarokas, and Big Belts.

CAPABILITY

Natural Integrity and Appearance

Overall the landscape appears natural and unchanged by development. However, in the northwest corner some two-wheel track roads, used mainly for hunting, cross the area. Also, there are three spring developments for livestock. Road noise from U.S. 12 and adjacent Forest roads penetrate most of the area, disturbing the integrity and appearance. Snowmobiles and trucks sometimes cross through the area.

Opportunity for Solitude

Because of the small size of the area and the amount of roading along the unit's perimeter, the opportunities for solitude are limited. However, the steep drainages do offer some screening from the roads on the exterior of the unit. Being only four miles across at its widest point, the area can be easily traversed within a day.

Primitive Recreation Opportunities

Primitive recreation opportunities are hindered by the area's small size and topography. Almost all recreation use is day use, since the area is only five miles across at its widest point. There are no mountains or rugged terrain which is a challenge to the recreationist. Also, the area has no trails. Most recreation use is by hunters.

Manageability and Boundaries

The northwestern, northeastern, eastern, and southern boundaries are defineable on the ground by roads, powerlines, or surveyed land lines. The western boundary would be difficult to locate on-the-ground because it does not follow any distinctive topographic feature. The boundary would be better if moved east to the ridge between Dry Creek and North Fork of Smith.

Controlling motorized access within the area could be difficult, because there is no natural barrier between the road along the northwest boundary and the expansive parks to the east.

The North Fork of Smith was considered in the RARE II process. Since then the roadless boundaries and acreage have not been changed.

AVAILABILITY

Resource Potential

Recreation - No outstanding recreation attractions exist within the North Fork Smith Area. Recreationists utilize the unit predominantly for big game and bird hunting. Some snowmobiling and motorcycling occurs along the primitive road in the unit. No developed recreation sites are within the area.

Wildlife - The North Fork Smith Creek Roadless Area provides important fall and summer range for a large elk herd. The northern portion of the unit around Ant Park is also an important elk calving area. The southern portion of the unit has been identified as key summer range for elk. Habitat is available for other big game species such as black bear, whitetail and mule deer, as well as many nongame animals. Because none of the streams are permanently flowing, no fisheries are evident.

Range - Portions of a sheep grazing allotment are in the open parks, especially in the northern and northwestern portions of the area. Because the southern portion is key elk summer range, there are no plans to increase livestock AUMs. Currently, three spring developments exist and intensive range management systems are in use.

Timber - The area is characterized by steep timbered drainages with large, rolling parks in the northern portion of the unit. Approximately 60 percent of the North Fork Smith Area is timbered with stands of mature Douglas fir and ponderosa pine sawlog timber. Post and pole size lodgepole pine and Douglas fir occupy 20 percent of the area; 5 percent of the unit is mature lodgepole pine sawtimber; and the remaining 15 percent is high elevation lodgepole and white bark pine stands of no commercial value. Although clearcuts form parts of the western and southern border, no timber has been harvested within the unit. The area is capable of a harvest of .547 million board feet annually.

Minerals - The area has low potential for hardrock minerals or oil and gas. The Dry Fork of Smith, on the west side, has had mining claims for lime. However, the claims are no longer active.

Cultural Resources - There are no inventoried historic or prehistoric sites in the area, and the potential for sites is low.

Management Considerations - Wildfire potential is moderate to high because of the fuel load and almost all the timber is mature. Insect and disease potential is low.

Table 1 lists the resources of the North Fork Smith Creek Roadless Area.

Table 1
North Fork Smith Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 8,800

NF Acres 8,800

RECREATION - RVDs

Primitive - 0
SPNM - 200
SPM - 200
Roaded Natural - 0
Rural - 0

RANGE

Suitable Acres - 1,928
No. of Allotments - 1
Permitted AUMs - 20

TIMBER

Tentative Suitable Acres - 6,810
Standing Volume MMBF - 78.6

CORRIDORS

No. of Existing & Potential - 1
Existing - 115 kv Two Dot Line

WILDLIFE - T&E - None

WILDLIFE - BIG GAME

Important Elk Summer Range Acres - 3,234
Elk Winter Range Acres - 0
Mule Deer Winter Range Acres - 1,020

WILDLIFE - FISHERIES - None

WATER DEVELOPMENTS - None

MINERALS

Hardrock Potential - Low
No. of Claims - 0

Oil & Gas Potential - Low
No. of Oil & Gas Leases - None
Oil & Gas Lease Acres - 0

NEED

Proximity to Other Designated Wilderness

The North Fork Smith Creek Area is about 70 miles southeast of Great Falls. Within one day's drive of Great Falls, there are 13 classified wildernesses containing 4.4 million acres.

Contribution to National Wilderness Preservation System

The main attribute of the area is the wildlife and hunting values.

Public Interest and Concerns

The North Fork Smith Area has not received public interest or support for wilderness classification. During 1977 and 1983 public review 1,221 and 0 comments, respectively, were received. Most comments supported nonwilderness.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The North Fork Smith Creek Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	0	8,800
A-1	0	0	8,800
A-2	0	0	8,800
B-1	0	0	8,800
B-2	0	0	8,800
C	0	0	8,800
D	0	8,800	0
E-1	0	0	8,800
E-2	0	0	8,800
F	0	0	8,800
F(Departure)	0	0	8,800
G(Preferred)	0	5,600	3,200
H	8,800	0	0
I	0	5,600	3,200
J	0	5,600	3,200
K	0	5,600	3,200

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resource activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the North Fork Smith Roadless Area, under all alternatives but H, the major emphasis will be on minimum level management. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA 1-744
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/Wildlife Visual	Timber/Range Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness	Concentrated Recreation
Current Plan	5,917	579	2,069	0	0	0	235	0	0	0
A-1	3,296	544	2,843	1,099	233	21	764	0	0	0
A-2	3,369	633	2,781	1,063	168	4	782	0	0	0
B-1	3,945	602	3,389	337	288	0	239	0	0	0
B-2	4,509	665	3,102	273	6	0	245	0	0	0
C	5,279	590	1,264	72	11	0	1,084	0	0	0
D	6,358	1,049	0	0	0	0	1,393	0	0	0
E-1	3,630	845	2,957	362	752	4	250	0	0	0
E-2	3,628	845	3,250	349	471	4	253	0	0	0
F	6,618	477	791	601	0	0	309	0	0	4
F(Departure)	6,371	421	1,098	542	0	0	316	48	0	4
G(Preferred)	6,062	550	1,001	489	231	10	374	79	0	4
H	0	0	0	0	0	0	0	0	8,800	0
I	5,607	517	1,064	699	240	6	139	477	0	51
J	5,739	573	1,044	626	209	5	439	120	0	45
K	5,341	574	120	853	103	47	1,500	262	0	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

North Fork Smith is allocated to wilderness in Alternative H. This is the only alternative that the total area or any portion is allocated to wilderness.

Wilderness allocation would enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing road and other motorized activities associated with range management and trail maintenance could be eliminated.

The 6,810 acres of land tentatively suitable for timber production would not be available under wilderness management. This would remove about 79 million board feet of standing volume and a yearly harvest of up to .547 million board feet.

Current livestock grazing, 20 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel.

Effects on big game habitat would be similar since much of the forage produced on this area is from land capable of growing trees. Thus, cover/forage relationships could change over time and winter habitat would be reduced.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. Currently, there are no outstanding mineral rights within the area.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth, but could be improved by letting fire play a more natural role.
- Water quality would be maintained at their present levels.

Economic and social effects would be slight since the area represents about 1 percent of the Forest suitable timber base. Other resource values such as grazing and hunting would be retained.

The 1 percent loss in timber volume in this roadless area can be mitigated by practicing intensive forestry elsewhere on the Jefferson Division.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

Alternatives D, G, I, J, and K allocated all or a large part of the North Fork Smith Roadless Area to range, wildlife, and minimum level management under a roadless designation.

Allocation to range, wildlife and minimum level management would not effect the wilderness attributes. These management prescriptions limit new road construction. Timber harvest is not scheduled, but tree mortality can be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes of this area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range, Timber/Wildlife/Visual, and Timber/Range/Wildlife/Visual

All alternatives, except C and H, allocate from 15 to 48 percent of the North Fork Smith Roadless Area to timber. Alternative A-1, A-2, B-1, B-2, C, E-1, E-2, F, F(Departure), and the Current Plan would develop all of this management area.

Allocation to timber management will forego the possibility of wilderness allocation on all or part of the area. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the second decade. All of the area would be available for wilderness reevaluation during the next planning period.

The harvest scheduled in North Fork Smith could be shifted to other parts of the Jefferson Division.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised within 50 years.
- Elk security would be reduced, due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.
- Water quality would be affected slightly by roading and timber harvest.
- These alternatives would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since about 1 percent of the Forests suitable timber base and about 1 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

Alternatives A-1, A-2, B-1, B-2, C, E-1, E-2, F, F(Departure), and the Current Plan allocate most of the North Fork Smith Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment. Under these prescriptions there would be additional range improvements and burning to increase forage production.

The nonpriced costs and benefits of this management are:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality would be affected, but not substantially.

Management Designation: Roadless and Developed
Management Emphasis: Concentrated Recreation

Alternatives F, F(Departure), G(Preferred), I and J allocate 4 to 51 acres to concentrated recreation management.

Allocation to concentrated recreation may effect the wilderness attributes, but the effect could be terminated by the removal of dispersed recreation improvements on other management actions. Timber and range management may take place, if compatible with adjacent management.

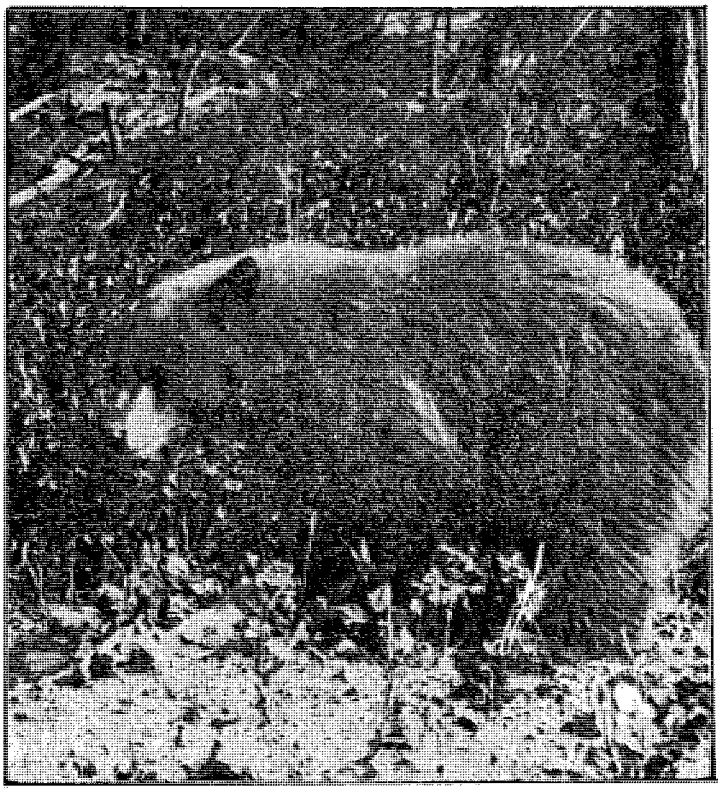
The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Dispersed recreation opportunities would be emphasized.
- Elk security would be reduced.
- Water quality and fisheries would be affected, but not significant.

Table 2 lists the average annual output by alternative.

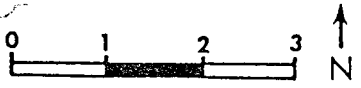
TABLE 2
Average Annual Output - 2030 by Alternative

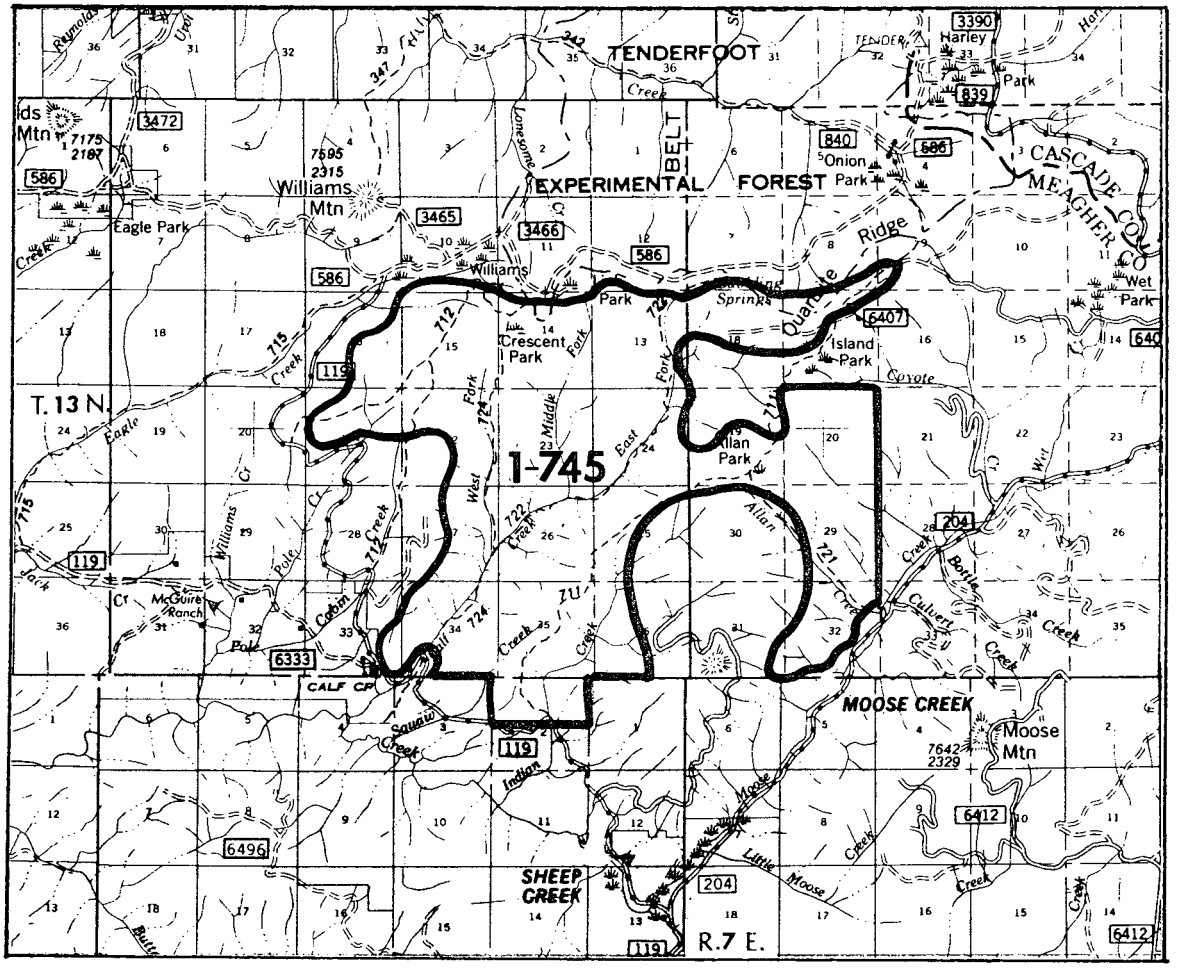
Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	8,800	0	0	0
Semi-Primitive		0	0	0	0	0	0	8,800	0	0	0	0	5,600	0	5,600	5,600	5,600
Roaded Natural		8,800	8,800	8,800	8,800	8,800	8,800	0	8,800	8,800	8,800	8,800	3,200	0	3,200	3,200	3,200
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	8,800	0	0	0
Roadless	Acres	0	0	0	0	0	0	8,800	0	0	0	0	5,600	0	5,600	5,600	5,600
Decade 1		8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800	0	8,800	8,800	8,800
Decade 5		8,800	0	0	0	0	0	8,800	0	0	0	0	5,600	0	5,600	5,600	5,600
Developed		8,800	8,800	8,800	8,800	8,800	8,800	0	8,800	8,800	8,800	8,800	3,200	0	3,200	3,200	3,200
Decade 1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decade 5		0	8,800	8,800	8,800	8,800	8,800	0	8,800	8,800	8,800	8,800	3,200	0	3,200	3,200	3,200
Range	AUMs	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Timber																	
Suitable Acres	Acres	2,069	4,196	4,016	4,014	3,381	1,347	0	4,075	4,074	1,392	1,640	1,731	0	2,009	1,884	1,123
Volume	MMBF	.166	.337	.322	.322	.271	.108	0	.327	.327	.112	.132	.139	0	.161	.151	.090
Wildlife-Big Game	Acres																
Summer Habitat		3,234	3,234	3,234	3,234	3,234	3,234	3,234	3,234	3,234	3,234	3,234	3,234	3,234	3,234	3,234	3,234
Winter Habitat		1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020
Fisheries	Miles																
Impacted		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unimpacted		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	8,800	0	0	0
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800	8,800	0	8,800	8,800	8,800
Employment	Person Years	6.08	8.6	8.5	8.5	7.6	5.1	3.6	8.4	8.4	5.3	5.6	3.9	.5	4.2	4.1	3.2
Income	Millions of $	.053	.056	.056	.056	.056	.052	.05	.056	.061	.052	.052	.03	.008	.031	.031	.031
Return to Gov.	Dollars	705	1,423	1,360	1,360	1,146	461	8	1,381	1,381	478	562	542	8	684	642	386



Black Bear.

CALF CREEK 1-745
Roadless Area





	Gross Acres	Net Acres
Lewis and Clark National Forest	11,020	11,020

DESCRIPTION

Location and Access

The Calf Creek Roadless Area lies in the southwest corner of the Little Belt Mountains, about 20 miles northwest of White Sulphur Springs, in Meagher County, Montana. The area is named for Calf Creek, which begins in the parks along the northern border and drains south. The sinuous boundary takes many jogs and twists to exclude adjacent development.

The area is accessed by improved dirt and gravel roads on all sides, but no roads penetrate the interior. Along the northern border is an improved dirt road which separates the roadless area from the Tenderfoot Experimental Forest to the north. A gravel road is on the far southeast and southern boundaries. To the west a gravel road running north-south, which separates Calf Creek and Eagle Park Roadless Areas, parallels the boundary and connects with the road along the northern boundary.

Four trails, following the drainage bottoms, extend north-south through the area, with terimus at the roads on the northern and southern borders. The trails are mainly used for hiking, with some motorbike and snowmobile use.

General Description

The main body of the area is Calf Creek drainage, which begins in the broad parks on the northern boundary and drops gradually into timbered ridges and U-shaped creek bottoms. On the east side of the area are two strips of land which drain east into Moose Creek. These strips of park and timberland are adjacent to developments.

The north, west, and east sides are adjacent to Forest Service administered land. Directly north is the Tenderfoot Experimental Forest, which encompasses the headwaters of Tenderfoot Creek. The experimental forest was established in 1961 to study how harvesting techniques relate to soil stability. However, proposed research projects have not been funded, leaving the headwaters of Tenderfoot drainage undeveloped. To the northwest and east are past and present timber sale activity. The south is bordered by National Forest and private land, which is within the proclaimed Forest boundary. The Forest land is developed by timber activity and the private land is developed for ranching and farming.

The Little Belt Mountains have an average annual precipitation of 28 to 30 inches. The Calf Creek Area's precipitation is less, approximately 16 to 20 inches per year, because most of the area is at lower elevations with no peaks.

Draining from the broad and rolling parks along the northern border, the area tilts to the south. The terrain, ranging from 5,000 to 7,000 feet, is gentle and rolling, with predominate peaks. The West, Middle, and East Forks of Calf Creek gradually drop to the south into flat, open canyon bottoms.

Most of the area is timbered with lodgepole pine and Douglas fir, except along the northern boundary. The northern portion of the area is characterized by broad peaks--up to 150 acres. Most of the stream bottoms have a 100 foot or more riparian zone, which supports some spruce and aspen.

Currently about 12 percent of the area is used for livestock grazing. The area is also used for recreation, primarily big game hunting, day hiking, and snowmobiling.

As classified by the Forest Service visual system, the area has a variety class B and an existing visual condition 1. (See Appendix N - Forest Plan) The area has a variety of scenery due only to the mosaic of grassland and timber, with aspen clones in the stream bottoms.

Most of the adjacent area has been developed by roads, timber harvest, or agricultural development. But because of the vegetation and topography, much of this development is screened; therefore, from most openings within Calf Creek the view is of mountainous terrain.

CAPABILITY

Natural Integrity and Appearance

Within the area there is only scattered and little evidence of past and present human activity. Drift fences and other signs of livestock grazing and hunting camps along stream bottoms are the major changes in integrity and appearance.

Opportunity for Solitude

Eagle Creek's shape, size, and proximity to development detract from the opportunity to find solitude within the area.

On the east side, two fingers extend from the main body of the area. A mile across at their widest part, all points are within one half mile of development, which can be heard or seen from many points.

The main body of the area is small enough that almost all recreation use, except for hunting, is day use. Although the adjacent areas are developed, the timbered hills do provide screening from roads.

Primitive Recreation Opportunity

The topographic variation from the steep-sided creek bottoms to the broad ridges provide visitors with an opportunity to get away from the Forest roads and experience recreation activities such as hunting, camping, hiking, horseback riding, and motorcycle riding. The terrain is very gentle for hiking. Because of the small size, almost all recreation is day use. The longest trail through the area is only about six miles, and once beyond the area, the recreationist would be crossing roads or other Forest development.

Manageability and Boundaries

The Eagle Creek area has roads on all sides, which gives excellent public access but could make wilderness management difficult. The area has received some motorized vehicle use by snowmobilers and motorcyclists. Recreationists have succeeded in driving four-wheel drive vehicles into the interior of the area along some of the trails. There are no natural barriers to the area.

Stopping present motorized use and monitoring access points could be very difficult, because of the number of roads and of no natural boundaries. The two strips of land which extend to the east should be excluded from the area. Because these pieces are narrow and extend into land which is developed by timber harvest, they are more disturbed by development than the main body. The location of this unit amidst the roaded land and the existing motorized use within the area would make wilderness management difficult. Since the RARE II inventory the southeastern boundary has been adjusted to exclude post-1977 timber development. The boundary adjustment resulted in a 1,500 acre reduction for the area.

AVAILABILITY

Resource Potential

Recreation - No outstanding recreation attractions exist within the Calf Creek Area. Recreationists utilize the unit predominantly for big game and bird hunting. The trail system receives low maintenance priority and is used for day hiking, horseback riding, berry picking, and fishing access. Some snowmobiling and motorcycling also occurs on the trails. No developed recreation sites are within the area.

Wildlife - The open parks scattered in the northern portion of the Calf Creek Area provide important summer and fall range for a large elk herd. Elk calving occurs in the southwestern portion of the unit, around Cabin Creek. Habitat is available for black bear, whitetail and mule deer, as well as many nongame animals. Approximately 4 miles of the Calf Creek and Indian Creek drainages, within the area, provide low to moderate rainbow and brook trout fisheries.

Range - Cattle graze some portions of the area. The Calf Creek Allotment provides 485 AUMs of grazing within the roadless unit. And a portion of the Cabin Creek Allotment is also located in the northwest corner of the roadless unit. Existing developments consist of two spring improvements and 7.5 miles of fence. The potential for increasing the numbers or seasons of use through further development is not significant. Intensive range management systems are in use.

Timber - The area is heavily timbered; post and pole size lodgepole pine stands occupy about 80 percent of the area while scattered Douglas fir sawlogs occupy about 10 percent of the area. The remaining 10 percent consists of overmature lodgepole pine sawlog stands. No commercial harvest has occurred in the past; however, salvage sales were proposed at one time to remove blowdown in the area. Extensive blowdown (1,500 acres) occurred when tornadoes moved through the northern portion of the area in the mid-1960s and again in the mid-1970s. The area is capable of a harvest of .762 million board feet annually.

Water - All streams in the area are perennial and provide downstream irrigation for the adjacent agricultural development.

Cultural - Prehistoric sites have been recorded in Calf Creek drainage and Allen Park. The large parks on the north end and stream bottoms along the south end all have high potential for cultural sites.

Table 1 lists resources for the Calf Creek Roadless Area.

Table 1
Calf Creek Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 11,020

NF Acres 11,020

RECREATION - RVDs

Primitive - 0
SPNM - 300
SPM - 300
Roaded Natural - 0
Rural - 0

RANGE

Suitable Acres - 1,396
No. of Allotments - 2
Permitted AUMs - 608

TIMBER

Tentative Suitable Acres - 9,489
Standing Volume - MMBF - 30.1

CORRIDORS

No. of Existing & Potential - 0

WILDLIFE - T&E - None

WILDLIFE - BIG GAME

Important Elk Summer Range Acres - 6,591

WILDLIFE - FISHERIES

Stream Miles - 4
Stream Acres - 5

WATER DEVELOPMENTS

No. of Existing - 0

MINERALS

Hardrock Potential - Low
No. of Claims - None

Oil & Gas Potential - Low
No. of Oil & Gas Leases - 0
Oil & Gas Lease Acres - 0

NEED

Proximity to Other Designated Wilderness

The Calf Creek Roadless Area is about 80 miles southeast of Great Falls. Within one day's drive of Great Falls, there are 13 classified wildernesses containing 4.4 million acres.

Contribution to National Wilderness Preservation System

The main attributes of this area is the wildlife and hunting values. Elk and deer are the two most sought big game animals.

Public Interest and Concerns

Although local residents have indicated the area should not be developed to protect viewing areas from White Sulphur Springs, the area has not received public interest or support for wilderness classification. During 1977 and 1983 public review 1,293 and 1 comments, respectively, were received. Most comments supported nonwilderness.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or development management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Calf Creek Roadless Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	0	11,020
A-1	0	0	11,020
A-2	0	0	11,020
B-1	0	0	11,020
B-2	0	0	11,020
C	0	11,020	0
D	0	11,020	0
E-1	0	0	11,020
E-2	0	0	11,020
F	0	0	11,020
F(Departure)	0	0	11,020
G(Preferred)	0	6,480	4,500
H	11,020	0	0
I	0	7,220	3,800
J	0	7,220	3,800
K	0	11,020	0

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resources activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Calf Creek Area, under all alternatives but H, the major emphasis will be on minimum level management. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA 1-745
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/Wildlife/ Visual	Timber/Range Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness	Concentrated Recreation
Current Plan	5,529	2,604	2,592	0	0	0	295	0	0	0
A-1	3,502	1,307	3,560	1,376	292	26	957	0	0	0
A-2	3,594	1,419	3,483	1,331	210	4	979	0	0	0
B-1	3,939	1,755	4,244	422	360	0	300	0	0	0
B-2	4,646	1,834	3,884	341	8	0	307	0	0	0
C	7,046	2,617	0	0	0	0	1,357	0	0	0
D	6,710	2,566	0	0	0	0	1,744	0	0	0
E-1	3,920	1,685	3,703	453	941	4	314	0	0	0
E-2	3,918	1,684	4,070	437	590	4	317	0	0	0
F	8,287	597	991	753	0	0	387	0	0	5
F(Departure)	7,979	527	1,375	679	0	0	395	60	0	5
G(Preferred)	7,091	1,190	1,254	612	289	12	468	99	0	5
H	0	0	0	0	0	0	0	0	11,020	0
I	6,397	1,273	1,332	875	300	7	174	598	0	64
J	6,808	1,094	1,308	784	262	7	550	150	0	57
K	7,092	1,721	0	0	0	0	1,879	328	0	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Calf Creek is allocated to wilderness in Alternative H. This is the only alternative that the total area or any portion is allocated to wilderness.

Wilderness allocation could enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing low standard roads which are used for motorized recreation and other motorized activities associated with range management and trail maintenance could be eliminated.

The 9,489 acres of land tentatively suitable for timber production would not be available under wilderness management. This would remove about 30 million board feet of standing volume and an annual harvest of up to .762 million board feet.

Current livestock grazing, 608 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production will be foregone. Over the long run grazing would be reduced by 91 AUMs because of a reduction of available forage.

Effects on big game habitat would be similar since much of the forage produced on this area is from lands capable of growing trees. Thus, cover/forage relationships would change over time.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. Currently, there are no outstanding mineral rights on the area.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth but could be improved by letting fire play a more natural role.
- Water quality and fisheries would be maintained at their present levels.

Economic and social effects would be slight since the area represents about 2 percent of the Forests suitable timber base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized means of travel. Other resource values such as hunting would be retained.

The 2 percent loss in timber volume in this roadless area can be mitigated by practicing intensive forestry elsewhere on the Jefferson Division.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

Alternatives C, D, and K allocate a large percentage of the Calf Creek Roadless Area to range, wildlife, and minimum level management under a roadless designation.

Alternatives G, I, and J allocate from 65 to 58 percent of the area to range, wildlife, and minimum level management under a roadless designation.

Allocation to range, wildlife, and minimum level management would not effect the wilderness attributes. These management prescription limit new road construction. Timber harvest is not scheduled, but tree mortality can be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes in much of the area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range, Timber/Wildlife/Visual, and Timber/Range/Wildlife/Visual

All Alternatives, except C, D, H, and K, allocate some of the Calf Creek Roadless Area to timber management. Under Alternative A-1, A-2, B-1, B-2, E-1, E-2, F, F(Departure), and the Current Plan all of the area would be developed. Alternatives G(Preferred), I, and J would develop 35 to 42 percent of the area.

Allocation to timber management would forego the possibility of wilderness allocation. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the first decade. About 1,000 acres would be developed during the first decade (1,600 acres under Alternative A-1 and A-2 and 800 acres under Alternative C). About 10,020 acres of the area would be available for wilderness reevaluation during the next planning period (9,420 acres under Alternative A-1 and A-2 and 10,220 acres under Alternative C).

The harvest scheduled in Calf Creek could be shifted to other parts of the Jefferson Division.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised within 50 years.
- Elk security would be reduced, due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.
- Water quality and fisheries would be affected slightly by roading and timber harvest.
- These alternatives would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since about 2 percent of the Forests suitable timber base and about 2 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Range/Wildlife, and Minimum Level

All alternatives, except C, D, H, and K, allocate some of the Calf Creek Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment. Under these prescriptions there would be additional range improvements and burning to increase forage production.

The nonpriced benefits of this management are:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced, but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected, but not substantially.

Management Designation: Roadless and Developed
Management Emphasis: Concentrated Recreation

Alternatives F, F(Departure), G(Preferred), I, and J allocate from 5 to 64 acres to concentrated recreation management.

Allocation to concentrated recreation may effect the wilderness attributes, but the effect could be terminated by the removal of dispersed recreation improvements or other management actions. Timber and range management may take place, if compatible with adjacent management.

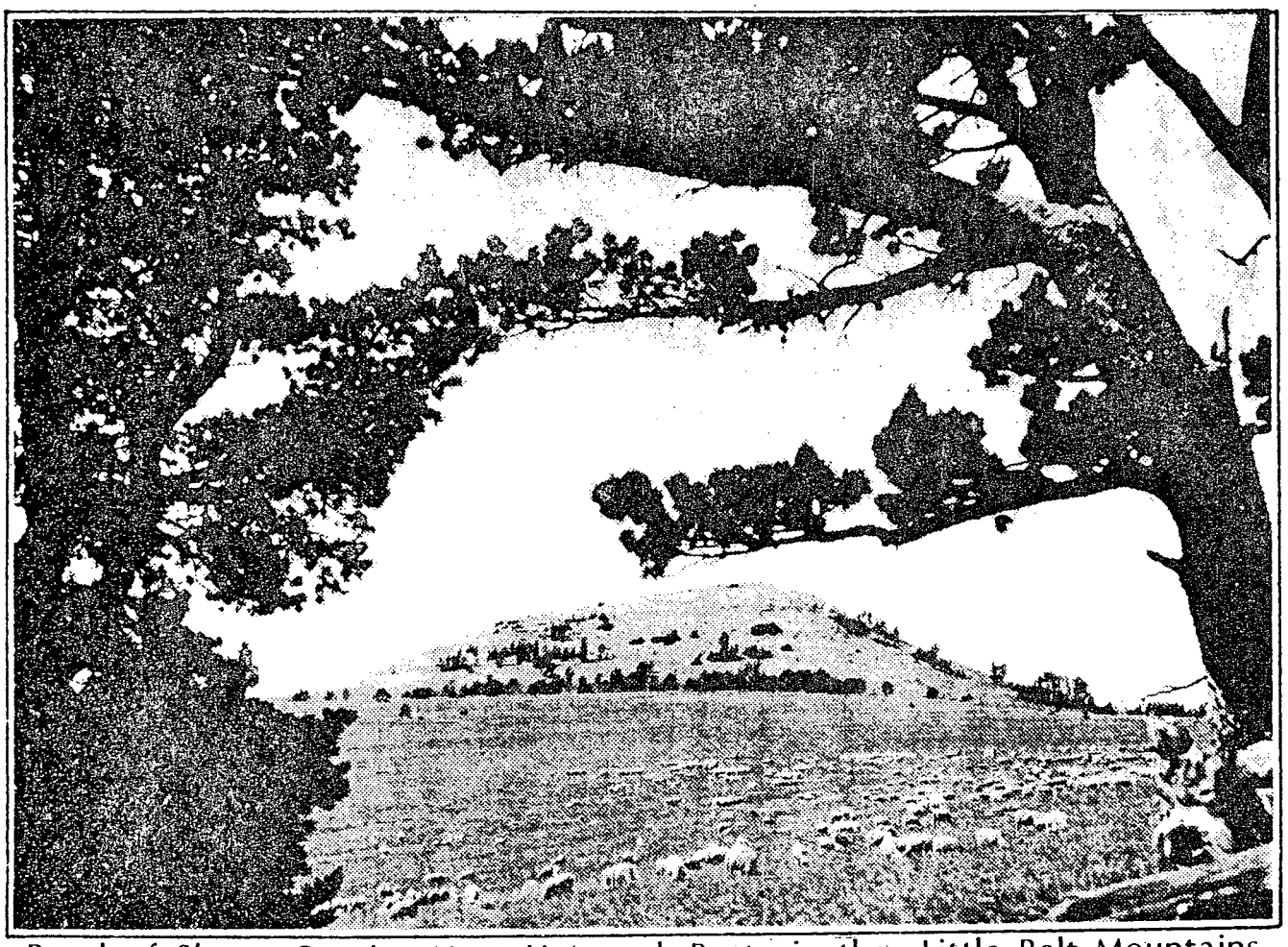
The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Dispersed recreation opportunities would be emphasized.
- Elk security would be reduced.
- Water quality and fisheries would be affected, but not significant.

Table 2 lists the average annual output by alternative.

TABLE 2
Average Annual Output - 2030 by Alternative

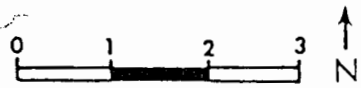
Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	11,020	0	0	0
Semi-Primitive		0	0	0	0	0	11,020	11,020	0	0	0	0	6,480	0	7,220	7,220	11,020
Roaded Natural		11,020	11,020	11,020	11,020	11,020	0	0	11,020	11,020	11,020	11,020	4,500	0	3,800	3,800	0
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	11,020	0	0	0
Roadless	Acres	0	0	0	0	0	11,020	11,020	0	0	0	0	6,480	0	7,220	7,220	11,020
Decade 1		10,020	9,420	9,420	10,020	10,020	11,020	11,020	11,020	11,020	11,020	11,020	10,020	0	10,020	10,020	11,020
Decade 5		0	0	0	0	0	11,020	11,020	0	0	0	0	6,480	0	7,220	7,220	11,020
Developed		11,020	11,020	11,020	11,020	11,020	0	0	11,020	11,020	11,020	11,020	4,540	0	3,800	3,800	0
Decade 1		1,000	1,600	1,600	1,000	1,000	0	0	1,000	1,000	1,000	1,000	1,000	0	1,000	1,000	0
Decade 5		11,020	11,020	11,020	11,020	11,020	0	0	11,020	11,020	11,020	11,020	4,540	0	3,800	3,800	0
Range	AUMs	608	730	730	699	699	596	748	730	730	675	675	632	517	632	632	596
Timber																	
Suitable Acres	Acres	2,592	5,254	5,028	5,026	4,233	0	0	5,101	5,101	1,744	2,054	2,167	0	2,514	2,361	0
Volume	MMBF	.208	.421	.404	.404	.340	0	0	.410	.410	.140	.165	.174	0	.202	.190	0
Wildlife-Big Game	Acres																
Summer Habitat		6,591	6,591	6,591	6,591	6,591	6,591	6,591	6,591	6,591	6,591	6,591	6,591	6,591	6,591	6,591	6,591
Winter Habitat		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fisheries	Miles																
Impacted		4	4	4	4	4	0	0	4	4	4	4	0	3	3	0	0
Unimpacted		0	0	0	0	0	4	4	0	0	0	0	4	1	1	4	4
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	11,020	0	0	0
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		11,020	11,020	11,020	11,020	11,020	11,020	11,020	11,020	11,020	11,020	11,020	11,020	0	11,020	11,020	11,020
Employment	Person Years	8.1	11.3	11.1	11.1	10	1.5	1.6	11.1	11.1	11	7.4	5.5	1.0	7.1	7.0	1.5
Income	Millions of $	.145	.216	.211	.210	.330	.027	.030	.212	.212	.126	.134	.136	.02	.130	.127	.027
Return to Gov.	Dollars	1,435	2,079	2,008	1,995	1,726	254	319	2,033	2,033	876	981	1,000	221	1,118	1,067	254

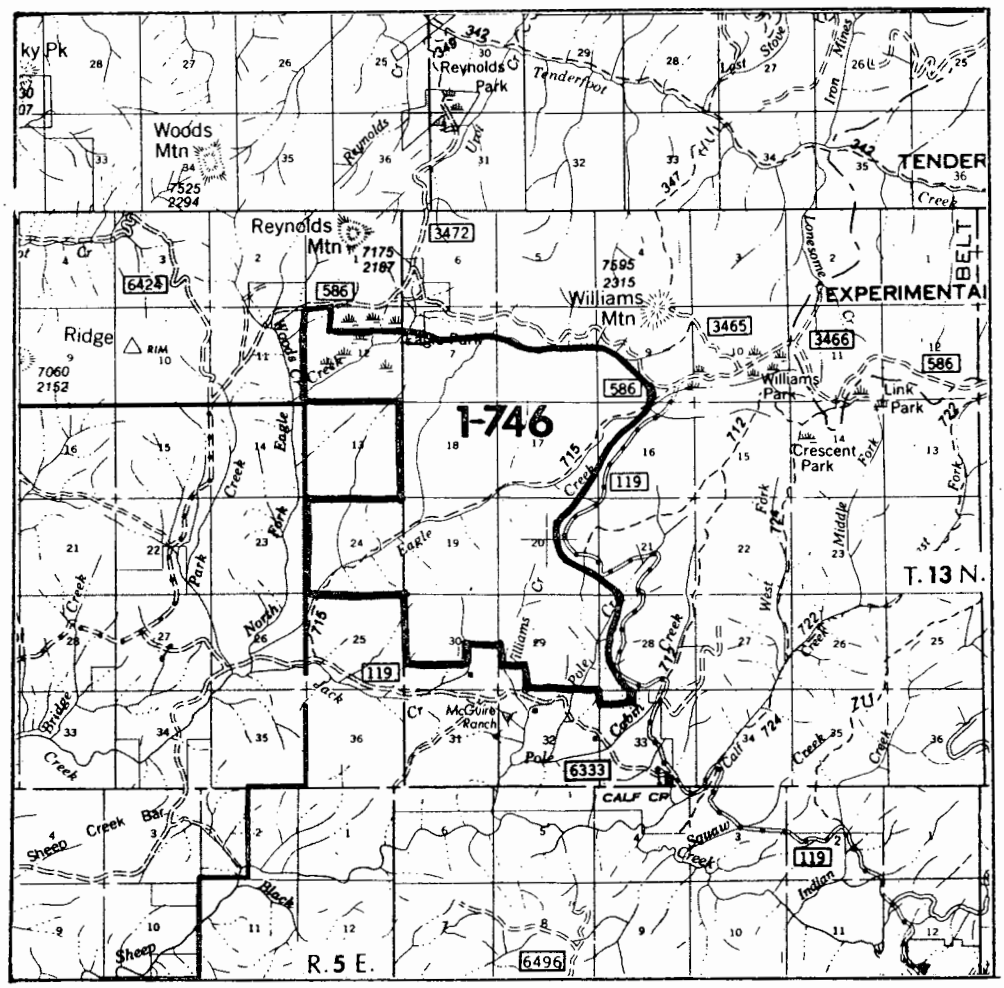


Band of Sheep Grazing Near Haystack Butte in the Little Belt Mountains.

EAGLE PARK 1-746

Roadless Area





	Gross Acres	Net Acres
Lewis and Clark National Forest	6,300	6,300

DESCRIPTION

Location and Access

The Eagle Park Roadless Area is in southwest corner of the Little Belt Mountains, 25 miles northwest of White Sulphur Springs, in Meagher County, Montana. The area is a contiguous parcel of Forest Service administered land. Public access is from the north and east across Forest land on improved dirt roads. The west and south sides are bordered by private lands within the proclaimed Forest boundary. Two two-wheel track roads access the Forest from the private land, but there is no public right-of-way. One trail, angling from the northeast corner to the southwest corner, follows Eagle Creek through the area, with terminus at a Forest road and a private road. The trail is used by foot, horse, and motorized traffic.

General Description

The area is the Eagle Creek drainage, which dips to the southwest from broad open parks.

The area is approximately a rectangular shape and surrounded by development on both Forest and private land. The north and east sides are adjacent to Forest development roads and logging areas. The north half of the east boundary is separated from Calf Creek Roadless Area by an improved Forest development road. The adjacent private land to the south and west has been developed for logging and ranching.

The topography is typical of the foothills in the southwestern Little Belts--gentle benches which drop steeply into the creek bottoms. The elevation ranges from 5,000 to 7,000 feet. The slopes are gentle in forming the three-to-four mile transition from the plains to the mountains. Eagle Creek, which runs southwest and drains into the Smith River some eight miles off the Forest, flows through the middle of the area. The side drainages, angling north-south, drop steeply from the benches. The bottom land is a sharp V-shape at the drainage head and more U-shaped lower down.

Most of the area is heavily timbered, except for the U-shaped stream bottoms and lower southern slopes. Lodgepole pine is on the ridgetops and Douglas fir on the timbered southern slopes. Aspen and willows are in pockets along Eagle Creek and in the northwest corner of the area, which has a perched water table.

Big game hunting and livestock grazing are the current use of the area. Cattle grazing is mostly on the lower slopes and along the northern edge of the area.

If classified by the Forest Service visual system the area has a variety class C and an existing visual condition 1. (See Appendix N - Forest Plan) The area has little variety in scenery. There are some natural parks and aspen groves, but most of the area is heavily timbered benches. The surrounding area is developed and visible from openings on the benches.

CAPABILITY

Natural Integrity and Appearance

The natural integrity of the area is nearly unchanged from past or present human activity. There has been scattered post and pole cutting along the north and east edge, but this cutting is so slight most visitors would not notice. Cattle grazing has been the main development, but only about a third of the area is within allotments.

The natural appearance of the area is hindered by the surrounding development. Road development, logging, and ranch activity is adjacent to all sides. Because of the area's small size a visitor would never be far removed from this development.

Opportunity for Solitude

The small size of the area and close proximity to the sights and sounds of development detract from the opportunity for solitude. The higher part of Eagle Creek is the most isolated part of the area.

Primitive Recreation Opportunity

The primitive recreation opportunities are hindered by the areas size, location, and topography. Being three miles across at the widest point the area attracts mostly day use. Being located adjacent to Forest Service and private development visitors are never far from the visual or audio reminders of society. The topography is gentle foothills, which are easily traversed, but heavily timbered.

Manageability and Boundaries

The present boundary could be easily defined on-the-ground, because it is adjacent to roads or surveyed land lines. Adjusting the boundary would not improve the wilderness characteristics, because there are no conflicts within the boundaries. Instead, to improve the wilderness characteristics adjacent development should be removed and the topography should be adjusted, which of course is not feasible. Although the west and south boundaries can be identified on the ground, conflicts with private landowners could develop if recreation use increased. The boundaries and the acres have not been adjusted since the RARE II inventory.

AVAILABILITY

Resource Potential

Recreation - Big game hunting, bird hunting, and berry picking are the major recreation uses. There are no recreation attractions in the area. A four mile trail along the East Fork of Eagle Creek provides recreation access.

Wildlife - The area provides habitat for mule deer, elk, black bear, whitetail deer, and grouse. The lower Eagle Creek area is important winter habitat for elk. Many nongame species also inhabit the area. About two miles of brook trout and rainbow trout fisheries exist in Eagle Creek.

Range - Three permittees graze 170 cattle annually. Developments include two spring improvements and eight miles of fence. The potential for increasing the numbers or seasons of use through further development is not significant.

Timber - About 80 percent of the area is 80 to 90 year old lodgepole pine on the benches. Douglas fir grows on the drier sites--mostly south slopes. Some aspen clones are along Eagle Creek and on the wettest sites--especially in the northwest corner. There has been scattered post and pole and house log cutting, but this is mostly along the perimeter, where there is road access. Principle limitations to timber management are: low quality sites, steep slopes, and rights-of-ways. The area is capable of a harvest of .397 million board feet annually.

Minerals - There is no known mineral interest or activity in the area.

Water - Water is taken from Eagle Creek for off-Forest irrigation. An irrigation ditch, which begins on the Forest, is under special use permit.

Cultural Resources - There are no inventoried sites within the area. However, approximately one mile to the southeast is an inventoried prehistoric site in Calf Creek drainage. The potential is high for sites along the south end.

Management Considerations

The fire potential is low because of limited ground fuels. Potential for Mountain Pine Beetle attack in the lodgepole pine is moderate, according to recent surveys.

Table 1 lists the resources for the Eagle Park Roadless Area.

Table 1
Eagle Park Roadless Area Resource Summary
Existing Situation
Lewis and Clark National Forest

Gross Acres 6,300

NF Acres 6,300

RECREATION - RVDs

Primitive - 0
SPNM - 300
SPM - 300
Roaded Natural - 0
Rural - 0

RANGE

Suitable Acres - 1,796
No. of Allotments - 3
Permitted AUMs - 601

TIMBER

Tentative Suitable Acres - 4,949
Standing Volume - MMBF - 18.0

CORRIDORS

No. of Existing & Potential - 0

WILDLIFE - T&E - None

WILDLIFE - BIG GAME

Important Elk Summer Range Acres - 2,623
Elk Winter Range Acres - 410

WILDLIFE - FISHERIES

Stream Miles - 2
Stream Acres - 3

WATER DEVELOPMENTS

No. of Existing - 0

MINERALS

Hardrock Potential - Low
No. of Claims - None

Oil & Gas Potential - Low
No. of Oil & Gas Leases - 0
Oil & Gas Lease Acres - 0

NEED

Proximity to Other Designated Wilderness

The Eagle Park Roadless Area is about 70 miles southeast of Great Falls. There are 13 classified wildernesses containing 4.4 million acres within one day's drive of Great Falls.

Contribution to National Wilderness Preservation System

The area does not have any rare ecosystems which are necessary for protected plants or animals.

Public Interest and Concerns

The area has had little public interest or support for wilderness classification. During 1977 and 1983 public review 1,213 and 1 comments were received. Most comments supported nonwilderness. During the 1985 review, no specific comments were received.

ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

The 16 management alternatives in the DEIS allocate each roadless area (or parts of the area) to either wilderness, roadless, or developed management.

If allocated to wilderness, the area would be recommended to Congress for classification.

If allocated to roadless, the area would be managed for nonwilderness and road building to develop the resources would not be scheduled. Essentially the area would remain as is.

If allocated to development, the access could improve and the nonprimitive recreation resources could be developed. But this does not necessarily mean the whole area would be under intensive management. Perhaps only a part of the area would be developed, or the development would be gradual over the next 150 years.

The Eagle Park Area is allocated as follows:

	Acres managed as:		
	Wilderness	Roadless	Developed
Current Plan	0	0	6,300
A-1	0	0	6,300
A-2	0	0	6,300
B-1	0	0	6,300
B-2	0	0	6,300
C	0	6,300	0
D	0	6,300	0
E-1	0	0	6,300
E-2	0	0	6,300
F	0	500	5,800
F(Departure)	0	500	5,800
G(Preferred)	0	5,100	1,200
H	6,300	0	0
I	0	0	6,300
J	0	2,000	4,300
K	0	6,300	0

Management Emphasis

The term management emphasis is used to indicate which resource activity is highlighted. If the emphasis is range, most of the activity in the area would be for range management. Resources activities which are compatible with the emphasis will continue, but with less intensity. The table below lists the acres of each management emphasis by alternative. In the Eagle Park Area, under all alternatives but H, the major emphasis will be on minimum level management. Alternative H puts all acres under a wilderness emphasis. Although wilderness would be the most emphasized resource, activities which are compatible with wilderness (i.e., range) would continue. (See Appendix C in the DEIS for more information on management emphasis.)

ROADLESS AREA 1-746
The land allocation by management emphasis is as follows:

	Min Level	Range	Timber	Timber/ Range	Timber/Wildlife Visual	Timber/Range Wildlife/Visual	Wildlife	Wildlife/ Range	Wilderness
Current Plan	3,163	1,488	1,481	0	0	0	168	0	0
A-1	2,002	747	2,035	787	167	15	547	0	0
A-2	2,054	811	1,991	761	120	3	560	0	0
B-1	2,252	1,004	2,426	241	206	0	171	0	0
B-2	2,656	1,048	2,221	195	5	0	175	0	0
C	4,028	1,496	0	0	0	0	776	0	0
D	3,836	1,467	0	0	0	0	997	0	0
E-1	2,241	963	2,117	259	538	3	179	0	0
E-2	2,239	963	2,327	250	337	3	181	0	0
F	4,740	341	567	431	0	0	221	0	0
F(Departure)	4,564	301	786	388	0	0	226	35	0
G(Preferred)	4,057	680	717	350	165	7	267	57	0
H	0	0	0	0	0	0	0	0	6,300
I	3,693	728	761	501	172	4	99	342	0
J	3,925	625	748	448	150	4	314	86	0
K	4,055	984	0	0	0	0	1,074	187	0

Impacts

Management Designation: Wilderness
Management Emphasis: Wilderness

Eagle Park is allocated to wilderness in Alternative H. This is the only alternative that the total area or any portion is allocated to wilderness.

Wilderness allocation could enhance the areas wilderness attributes since there are existing uses and facilities not usually associated with wilderness allocation. The existing low standard roads which are used for motorized recreation and other motorized activities associated with range management and trail maintenance could be eliminated.

The 4,949 acres of land tentatively suitable for timber production would not be available under this prescription. This would remove about 18 million board feet of standing volume and an annual harvest of up to .397 million board feet.

Current livestock grazing, 601 AUMs, could continue on the allotments involved but management practices would probably change to use nonmotorized means of travel. Programs to control tree and shrub encroachment and to maintain or enhance forage production would be foregone. Over the long run grazing would be reduced by 90 AUMs because of a reduction of available forage.

Effects on big game habitat would be similarly effected since much of the forage produced on this area is from lands that are capable of supporting stands of trees. Thus, cover/forage relationships should change much over time and winter range will decrease.

Areas classified as wilderness would be withdrawn from all forms of mineral entry subject to valid existing rights. Currently, there are no outstanding mineral rights on the area.

Under this allocation recreation use would continue to be dominated by hunting.

The nonpriced costs and benefits of this management are as follows:

- Existing visual conditions would be maintained and man's activities would be unnoticed by the average visitor.
- Wilderness would increase.
- Existing elk security would be maintained.
- Diversity would tend towards old-growth but could be improved by letting fire play a more natural role.
- Water quality and fisheries would be maintained at their present levels.

Economic and social effects would be slight since the area represents about 1 percent of the Forests suitable land base. Grazing would be reduced by about 15 percent from the current level. Cost of livestock operations would increase because of nonmotorized means of travel. Other resource values such as hunting would be retained.

The 1 percent loss in timber volume in this roadless area can be mitigated by practicing intensive forestry elsewhere on the Jefferson Division.

Management Designation: Roadless
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

Alternatives C, D, and K allocate all of the Eagle Park Roadless Area to range, wildlife, and minimum level management under a roadless designation.

Alternative G allocate 80 percent of the area to range, wildlife, and minimum level management under a roadless designation. Alternatives F, F(Departure), and J allocate a small percent of the area to a roadless designation.

Allocation to range, wildlife, and minimum level management would not effect the wilderness attributes. These management prescriptions limit road construction. Timber harvest is not scheduled, but tree mortality can be salvaged. Since there would be no roads and scheduled timber harvest, there would be no long term changes in the wilderness attributes in much of the area. The area would be open to mineral entry with the use of standard stipulations to protect other resources. Mineral development may affect the wilderness attributes.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may be noticed by the average visitor.
- Semi-primitive and wilderness attributes would be retained.
- Elk security would be maintained.
- Age class distribution and diversity would be dominated by old-growth, young age classes would be minimal.
- Water quality and fisheries would not be affected.

Management Designation: Developed
Management Emphasis: Timber, Timber/Range, Timber/Wildlife/Visual, and Timber/Range/Wildlife/Visual

All Alternatives, except C, D, H, and K allocate some of the Eagle Park Roadless Area to timber management. Under Alternative A-1, A-2, B-1, B-2, E-1, E-2, F, F(Departure), and I, all or most of the area would be developed.

Allocation to timber management would forego the possibility of wilderness allocation. Lodgepole pine and Douglas fir stands would be accessed with roads and harvest would be scheduled starting in the second decade. All of the area would be available for wilderness reevaluation during the next planning period.

The harvest scheduled in Eagle Park could be shifted to other parts of the Jefferson Division.

The nonpriced costs and benefits are as follows:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive recreation opportunities would be foregone by the end of the fifth decade.
- Wilderness characteristics would also be compromised within 50 years.
- Elk security would be reduced, due to roading and timber harvest, but forage for elk and cattle would be optimized.
- Diversity would tend towards younger age classes, with less mature trees.
- Water quality and fisheries would be affected slightly by roading and timber harvest.
- These alternatives would provide for the greatest number of jobs, mainly in the wood products industry.

Economic and social effects would not be significant since about 1 percent of the Forests suitable timber base and less than 1 percent of the land suitable for wilderness occurs in this roadless area.

Management Designation: Developed
Management Emphasis: Range, Wildlife, Wildlife/Range, and Minimum Level

All alternatives, except C, D, H, and K, allocate some of the Eagle Park Roadless Area to range, wildlife, and minimum level management under a developed designation.

Because part of the roadless area would be developed for timber management purposes, the above prescriptions, while not directly affecting the wilderness attributes, would be carried out in a developed environment. Under these prescriptions there would be additional range improvements and burning to increase forage production.

The nonpriced costs and benefits of this management are:

- Existing visual conditions would change and man's activities may dominate portions of the landscape.
- Semi-primitive and wilderness attributes would be foregone in 50 years.
- Elk security would be reduced but forage for elk and cattle would be optimized.
- Diversity would increase under this prescription.
- Water quality and fisheries would be affected, but not substantially.

Table 2 lists the average annual output by alternative.

TABLE 2
Average Annual Output - 2030 by Alternative

Category	Unit	CP	A-1	A-2	B-1	B-2	C	D	E-1	E-2	F	F(Dep)	G	H	I	J	K
Recreation	Acres																
Primitive		0	0	0	0	0	0	0	0	0	0	0	0	6,300	0	0	0
Semi-Primitive		0	0	0	0	0	6,300	6,300	0	0	500	500	5,100	0	0	2,000	6,300
Roaded Natural		6,300	6,300	6,300	6,300	6,300	0	0	6,300	6,300	5,800	5,800	1,200	0	6,300	4,300	0
Recommended Wilderness	Acres	0	0	0	0	0	0	0	0	0	0	0	0	6,300	0	0	0
Roadless	Acres	0	0	0	0	0	6,300	6,300	0	0	500	500	5,100	0	0	2,000	6,300
Decade 1		6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	0	6,300	6,300	6,300
Decade 5		4,000	0	0	6,300	5,100	6,300	6,300	0	0	500	500	5,100	0	0	2,000	6,300
Developed		6,300	6,300	6,300	6,300	6,300	0	0	6,300	6,300	5,800	5,800	1,200	0	6,300	4,300	0
Decade 1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Decade 5		2,300	6,300	6,300	0	1,200	0	0	6,300	6,300	5,800	5,800	1,200	0	6,300	4,300	0
Range	AUMs	601	721	721	691	691	589	739	721	721	667	667	625	511	625	625	589
Timber																	
Suitable Acres	Acres	1,481	3,004	2,875	2,873	2,421	0	0	2,917	2,917	998	1,174	1,239	0	1,438	1,350	0
Volume	MMBF	.119	.241	.231	.231	.194	0	0	.234	.234	.080	.094	.099	0	.115	.108	0
Wildlife-Big Game	Acres																
Summer Habitat		2,623	2,623	2,623	2,623	2,623	2,623	2,623	2,623	2,623	2,623	2,623	2,623	2,623	2,623	2,623	2,623
Winter Habitat		401	401	401	401	401	401	401	401	401	401	401	401	401	401	401	401
Fisheries	Miles																
Impacted		.2	.2	.2	.2	.2	0	0	.2	.2	.2	.2	0	0	.2	.2	.2
Unimpacted		0	0	0	0	0	.2	.2	0	0	0	0	.2	.2	0	0	0
Minerals	Acres																
Category A		0	0	0	0	0	0	0	0	0	0	0	0	6,300	0	0	0
Category B		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category C		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Category D		6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	6,300	0	6,300	6,300	6,300
Employment	Person Years	4.8	6.7	6.5	6.5	6.0	7.1	11.7	4.6	6.6	4.3	4.8	4.8	.4	2.5	4.1	.5
Income	Millions of $	.087	.129	.126	.899	.349	.020	.023	.127	.127	.074	.078	.049	.014	.112	.076	.020
Return to Gov.	$	756	1,319	1,277	1,265	1,109	251	315	1,290	1,290	620	679	682	218	749	720	251

West Fork Ranger Station 1919

WILDERNESS NEED

National Opportunities

The National Wilderness Preservation System was comprised of 273 units as of December 31, 1983. These units covered a total acreage of 80,207,184 acres. Of this, 56,484,668 acres (about 70%) is in Alaska; 23,722,516 acres are in the lower forty-eight states and Hawaii. The National Forest System, administered by the U.S. Department of Agriculture, Forest Service, has 165 designated wildernesses in the National Wilderness Preservation System. These units of the Wilderness System total about 25,519,568 acres, or 13.4 percent of all lands administered by the agency.

Opportunities in Montana

Montana contains 3,441,151 acres in fifteen designated wilderness areas, 1,864,325 acres in fifty-eight presidentially endorsed areas, and 1,317,785 acres in fifty-five further study units. Billings and Great Falls are classified as standard metropolitan statistical areas. The two cities are near unusually rich wilderness opportunities. Within five hours of Billings there are six designated wilderness areas totaling 2,266,274 acres, twenty-six presidentially endorsed areas totaling 1,385,762 acres, and thirty-three further study areas totaling 695,143 acres. Within five hours of Great Falls are thirteen designated wilderness areas totaling 4,381,934 acres, thirty-two presidentially endorsed areas totaling 2,505,880 acres, and twenty-six further study areas totaling 906,305 acres.

Wilderness in the Local Area

The Lewis and Clark National Forest contains a 384,407 acre portion of the 1.5 million acres Bob Marshall, Great Bear-Scapegoat Wilderness complex. The wilderness is located along the Continental Divide in the Rocky Mountain Division. Another 46,844 acres of the Forest are being recommended as additions to the Bob Marshall and Scapegoat Wildernesses. The 41,838 acre Deep Creek-Reservoir North area is a further planning area. The Middle Fork Judith and Big Snowies in the Jefferson Division has been recommended for nonwilderness. Table C-1 shows the approximate airmiles from each roadless area to the wildernesses within Montana.

Supply and Demand Factors

The National Wilderness Preservation System contains 50 of the 241 basic ecosystems recognized by the Bailey-Kuchler classification system as existing in the United States and Puerto Rico. Sixty-two more ecosystems are represented in presidentially endorsed areas, and seventy-eight additional ecosystems area represented in further study areas. None of the areas that have received presidential endorsement or are under study contain the remaining fifty-one ecosystems (Davis 1980; Kuchler 1964; Usda, FS 1976, 1978). In general, the existing wilderness system includes a relatively large number of examples of high elevation mountain ecosystems and alpine, subalpine, and glacial landscapes.

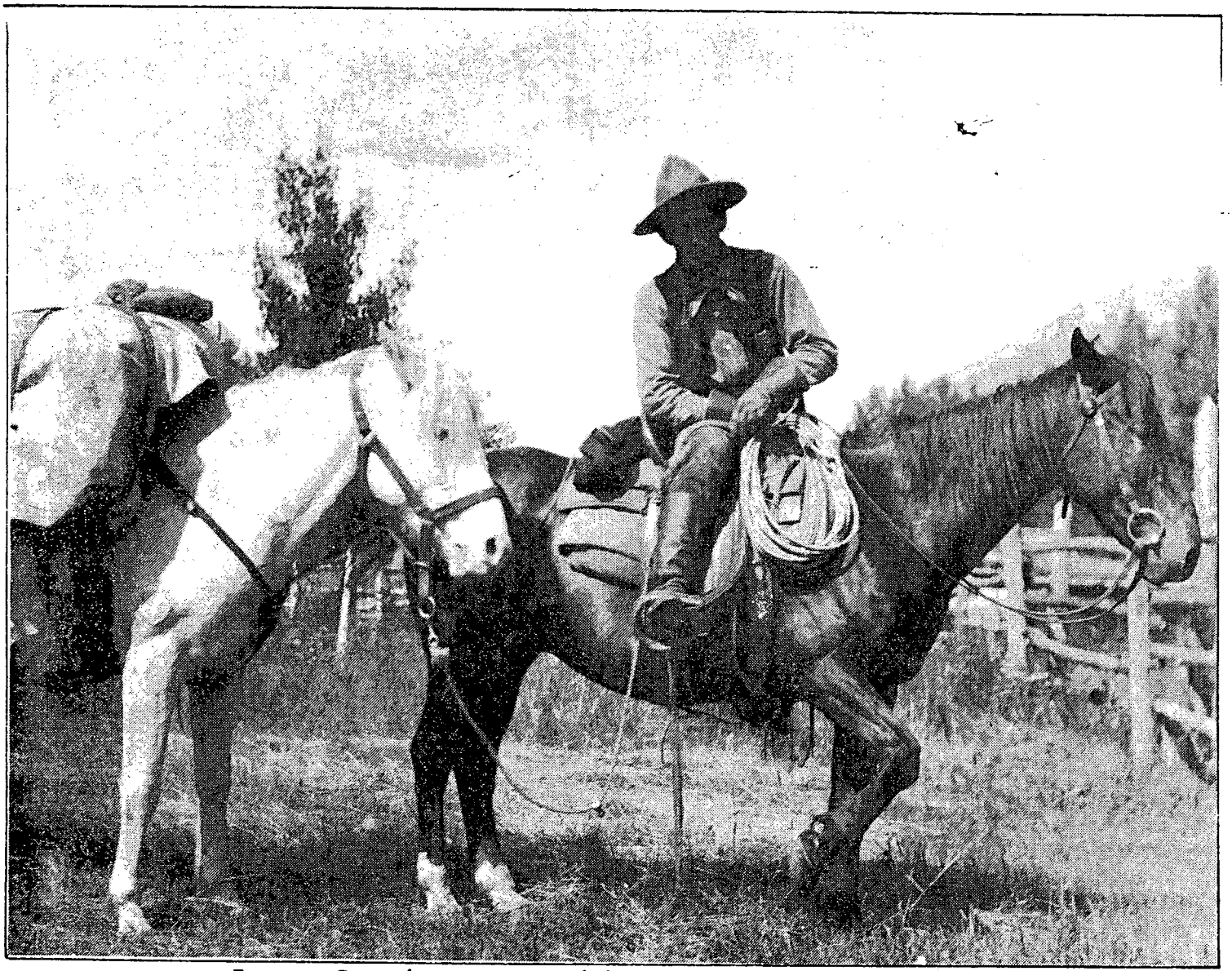
Both designated wilderness and roadless areas contribute to the supply of primitive recreation opportunities. While the supply of congressionally designated wilderness has increased since passage of the Wilderness Act of 1964, the supply of roadless areas has been declining. While one factor in this decline is the conversion of undesignated wilderness to designated wilderness, the major reason is that many roadless areas have been developed by roads.

TABLE C-1
APPROXIMATE AIRMILES FROM ROADLESS
AREAS TO WILDERNESSES WITHIN MONTANA

ROADLESS AREA NAME ROADLESS AREA NUMBER			Bear Marshall Scapegoat-Swan 1-485	Sawtooth 1-721	Crazy Mtns. 1-541	Tenderfoot-Deep Creek 1-726	Pilgrim Creek 1-727	Paine Gulch 1-728	Sawmill Creek 1-729	TW Mountain 1-730	Big Baldy 1-731
Wilderness Name	General Location	Acres									
Selway Bitterroot	Western Montana	251,443	60	90	190	160	170	180	190	200	180
Cabinet Mountains	Western Montana	94,272	90	140	300	230	250	250	250	250	260
Mission Mountains	Western Montana	73,877	15	50	200	140	150	150	160	160	160
Great Bear	Western Montana	286,700	0	30	200	130	140	150	150	150	160
Bob Marshall	Western Montana	1,009,356	0	60	200	100	120	120	120	120	130
Scapegoat	Western Montana	239,936	0	7	150	80	100	100	100	100	110
Welcome Creek	Western Montana	28,135	50	70	170	130	140	150	150	150	150
Anaconda Pintlar	Western Montana	158,516	70	100	150	130	150	150	150	160	160
Gates-of-the-Mountains	Western Montana	28,562	40	60	100	30	50	50	50	70	60
Red Rock Lakes	Southwest Montana	32,350	170	200	130	170	180	170	200	190	170
Absaroka-Beartooth	South-Central Montana	921,584	150	170	50	130	120	120	120	120	110
UL Bend	Eastern Montana	20,847	220	220	150	150	140	140	140	130	130
Medicine Lake	Northeastern Montana	11,800	400	400	320	330	320	320	320	310	310
Lee Metcalf	Southwestern Montana	259,000	130	160	60	100	110	120	120	120	110

APPROXIMATE AIRMILES FROM ROADLESS
AREAS TO WILDERNESSES WITHIN MONTANA

Granite Mountain 1-732	Tollgate-Sheep 1-733	Mount High 1-735	Highwood Baldy 1-737	Highwoods 1-738	Bluff Mountain 1-740	Spring Creek 1-741	Box Canyon 1-742	Castle Mountains 1-743	North Fk of Smith 1-744	Calf Creek 1-745	Eagle Park 1-746
190	200	200	190	200	200	200	180	180	180	160	160
260	270	300	250	250	300	300	300	270	270	250	250
170	170	180	160	160	190	170	180	170	160	150	150
160	170	180	140	150	190	170	190	170	160	150	150
140	140	160	130	130	160	150	160	150	140	120	120
110	120	130	100	110	130	120	120	110	110	100	100
160	160	170	160	170	170	160	160	140	150	140	130
170	160	170	170	170	170	160	140	140	140	140	130
70	70	80	70	80	80	70	70	50	60	40	40
190	170	170	200	200	160	150	130	140	150	160	160
120	110	100	150	150	90	80	70	70	100	100	110
130	120	110	120	110	110	120	150	150	130	140	150
310	300	290	310	300	300	310	330	330	320	320	330
120	110	100	150	150	90	90	60	70	90	100	100



Forest Guard Hannan Gulch Ranger Station 1907.

FEIS
Appendix D
Planning Records

Appendix D lists those planning records that are referenced in the FEIS that are available on request. These records and other planning documents are available for review during normal business hours (8:30 am to 4:30 pm, weekdays, except holidays) at the Supervisor's Office in Great Falls, Montana. Requests for copies of available planning records should be sent to:

Lewis and Clark National Forest
P.O. Box 871
Great Falls, Montana 59403

APPENDIX D

1. "Lewis and Clark National Forest Work Plan," Lewis and Clark National Forest, November 1978.

2. "Data Base Components," Lewis and Clark National Forest, November 1979.

3. "Social Impact Assessment Baseline, 1980," Lewis and Clark National Forest, December 1980.

4. "Alternatives from Public Involvement," Lewis and Clark National Forest, March 1981.

5. "Analysis Areas," Lewis and Clark National Forest, April 1981.

6. "Proposed Criteria and Documentation," Lewis and Clark National Forest, August 1981.

7. "Analysis of the Management Situation," Lewis and Clark National Forest, August 1981.

8. "Alternatives," Lewis and Clark National Forest, August 1981.

9. "Management Guideline Analysis Report," Lewis and Clark National Forest, August 1981.

10. "Identification of Public Issues and Management Concerns," Lewis and Clark National Forest, January 1982.

11. "Economic Data and Analysis," Lewis and Clark National Forest, January 1982.

12. "Yield Coefficients," Lewis and Clark National Forest, January 1982.

13. "Management Prescriptions," Lewis and Clark National Forest, January 1982.

14. "Lewis and Clark FORPLAN Model," Lewis and Clark National Forest, January 1982.

15. "Management Practices," Lewis and Clark National Forest, January 1982.

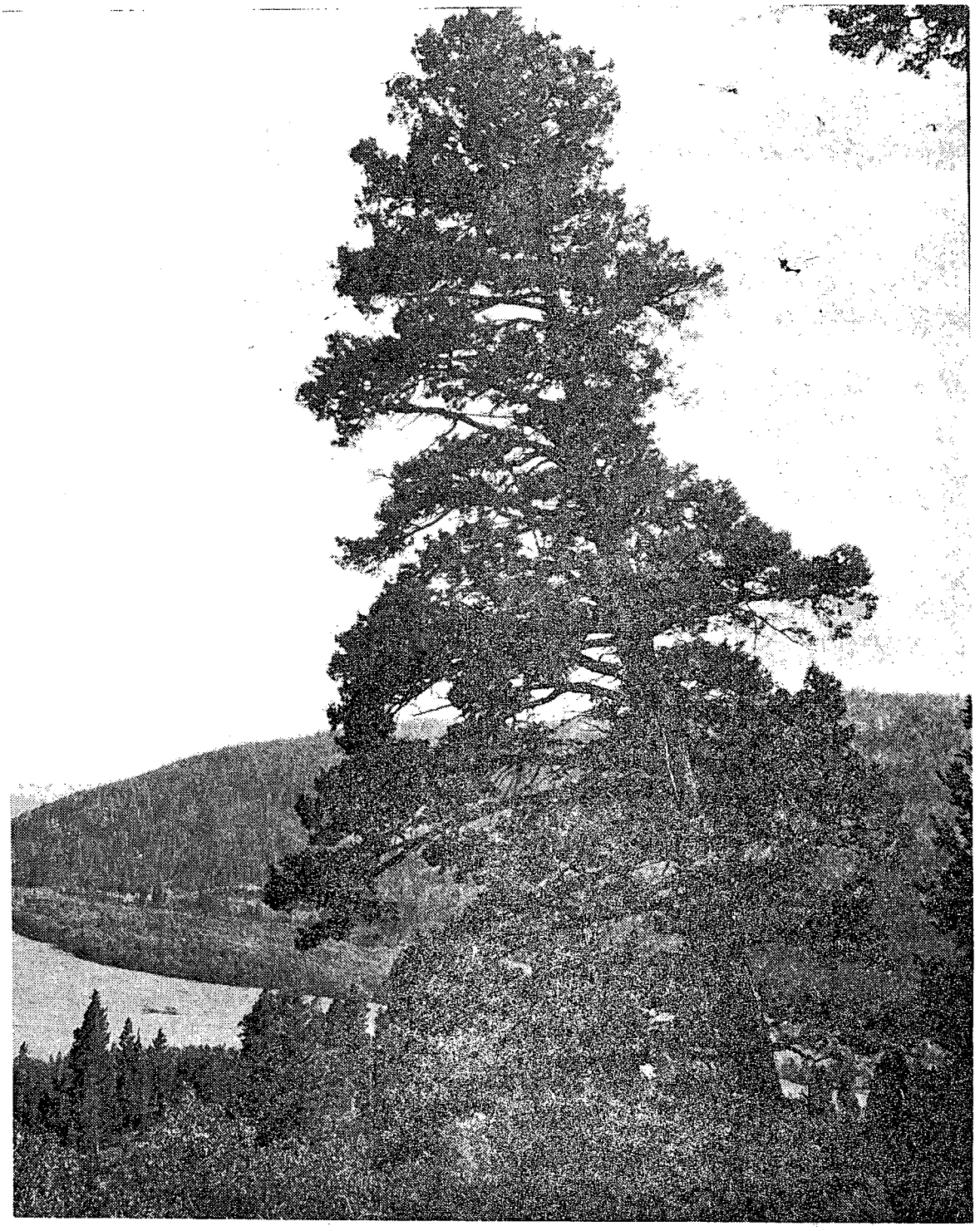
16. "Input/Output Model," Lewis and Clark National Forest, January 1982.

17. "MWSA Workshop Analysis Summary," Northern Region, 1979.

18. "Level I Fire Management Analysis" and "Addendum", Lewis and Clark National Forest, March 1980 and February 1981, respectively.

19. "Insect and Disease Considerations for the Forest Plan," Lewis and Clark National Forest, January 1983.

20. "AMS and Alternative Update," Lewis and Clark National Forest, January 1984.



A Douglas Fir growing on a Hillside near Sheep Creek.

FEIS

Appendix E

Respondents to DEIS and Letters From Federal, State, and Local Agencies and Forest Service Responses

FEIS

Appendix E

Respondents to DEIS and Letters From Federal, State, and Local Agencies and Forest Service Responses

RESPONDENTS-DEIS

LT-1 Glen Compton
LT-2 Ken Goldsmith
LT-3 David Epstein/Patricia Platt
LT-4 Gary Root
LT-5 Montana Historical Society
LT-6 The Wilderness Society
LT-7 Lorena & Norman Whittaker
LT-8 Orville Gray
LT-9 The Wilderness Society
LT-10 Leon E. Carpenter
LT-11 Lance A. Olsen
LT-12 William V. Peterson
LT-13 Paul Hightree
LT-14 Louise Galt
LT-15 Rostad & Rostad Cattle
LT-16 Helen Rostad
LT-17 Carl Voss
LT-18 Lisle Chestnutt
LT-19 Cecil Kassing
LT-20 BN Timberlodge Inc.
LT-21 David Schaenen
LT-22 Robert A. Basse
LT-23 Department of the Air Force
LT-24 Moki Mac River Expenditions
LT-25 Jeanette Stevenson
LT-26 Department of Commerce
LT-27 Merrimac Cattle Co.
LT-28 Randy Permann
LT-29 John & Devonna Permann
LT-30 The Wilderness Society
LT-31 James W. Eakland
LT-32 Showdown Ski Area
LT-33 John Polisar
LT-34 Robby Permann
LT-35 Wildlife Management Institute
LT-36 George McCafferty
LT-37 The Wilderness Sosciety
LT-38 Pondera Sportman's Association
LT-39 David L Schein
LT-40 Robert L. Varner
LT-41 USDA, Office of Minority Affairs
LT-42 Rocky Mountain Oil & Gas Association, Inc.
LT-43 Joette Borzik
LT-44 Donald Aldrich
LT-45 Idell Moore
LT-46 Tim Bozorth
LT-47 Center for Disease Control
LT-48 MT College of Mineral Science & Technology
LT-50 Wexpro Company
LT-51 Atlantic Richfield Co.
LT-52 Ellison Insurance Agency
LT-53 Glacier National Park
LT-54 John R. Anderson
LT-55 Dallas Owens
LT-56 Champlin Petroleum Co.
LT-57 Ida Lee Anderson
LT-58 Louise R. Galt
LT-59 Michael R. Hall
LT-60 Tom R. Sewell
LT-61 Cascade Co. Conservation District
LT-62 Montana Wilderness Association
LT-63 Pennzoil Exploration & Production Co.
LT-64 Buttes Resources Company
LT-65 Buttes Resources Company
LT-66 True Oil Company
LT-67 Sun Exploration Company
LT-68 Rob Van Kirk
LT-69 Don C. Crail
LT-70 Wilderness Rivers Outfitters & Trail Expeditions
LT-71 Cheveron U.S.A., Inc.
LT-72 Conoco, Inc.
LT-73 Conoco, Inc.
LT-74 Amoco Production Co.
LT-75 Fortune Oil Company
LT-76 Economic Development Corporation of Great Falls
LT-77 Alan R. Richter
LT-78 Williams Sporting Goods, Inc.
LT-79 Mildred Leonard
LT-80 Spring Creek Forest Products, Inc.
LT-81 Robert Bugni
LT-82 Melrose Pozder
LT-83 Bill Hill
LT-84 Dorothy Murray
LT-85 Mrs. J. A. Murray
LT-86 Loren C. Mathis
LT-87 Floyd Profitt
LT-88 Joan McCormick
LT-89 Marcelyn Montgomery
LT-90 Morris Aagenes
LT-91 Ken Permann
LT-92 Claude Smith Jr.
LT-93 U.S. Department of Interior
LT-94 Continential Divide Trail Society
LT-95 Duane C. Gatherer
LT-96 Dan Cassidy
LT-97 Ralph W. Sanders
LT-98 James R. Norgaard
LT-99 Bureau of Indian Affairs, Blackfeet Indian Agency
LT-100 George D. Holton
LT-101 Patty Murnion
LT-102 James Murnion
LT-103 Mrs. James Murnion
LT-104 Russell Bradley
LT-105 Jean Bradley
LT-106 Glen O. Wallace
LT-107 F. E. McGlothin
LT-108 Vince Heier
LT-109 Lois A. McGlothin
LT-110 Great Falls Snowmobilers Inc.
LT-111 Colleen Murphy
LT-112 Douglass Ferrell
LT-113 Pondera County Soil & Water Conservation District
LT-114 Bill Thomas
LT-115 Geoffrey E. Greene
LT-116 Brad Wadhams
LT-117 Mark Meloy
LT-118 Great Falls Cross Country Club Inc.
LT-119 Sheraton Great Falls
LT-120 Champion International Corporation
LT-121 Mike & Barb Grimes
LT-122 Great Bear Foundation
LT-123 Gary McMahon
LT-124 Montana Snowmobile Association
LT-125 Alice & Briggs Austin
LT-126 Ron Rude
LT-127 Joanna Dixon
LT-128 Glen Hills
LT-129 George Wuerthner
LT-130 Tom R. Sewell
LT-131 Kathryn & Robert Posten
LT-132 John R. Swanson
LT-133 Teresa A. McCormick
LT-134 Dennis Chatlain
LT-135 George H. Stearns
LT-136 Berg Lumber Company
LT-137 Douglas Bradetich
LT-138 Adela Awner
LT-139 Richard R. Meis
LT-140 Ken Kowalczyk
LT-141 Haynes Store Inc.
LT-142 Mancy Carter
LT-143 U.S. Environmental Protection Agency

RESPONDENTS-DEIS

LT-144 Mindi Bradetich
LT-145 Norman Voldseth
LT-146 Ronald F. McCormick
LT-147 Duard Johnson
LT-148 Randall Weeks
LT-149 R. Paul Kropp, Jr.
LT-150 Castle Mountain Corporation
LT-151 Dennis Divoky
LT-152 Laura Stokes
LT-153 Robert Oset
LT-154 Montana Power Company
LT-155 Steven R. Sem
LT-156 Rick Holzheimer
LT-157 Joe L. DeStaffany
LT-158 Thomas C. O'Connor
LT-159 Allen Schallenberger
LT-160 Orville Gray
LT-161 Sierra Club - Upper Missouri Group
LT-162 Montana Petroleum Association
LT-163 Shirley Nelson
LT-164 Gregg & Wendy Wheeler
LT-165 John & Nora McCarthy
LT-166 Montana Wilderness Outfitters, Inc.
LT-167 Joe Morris
LT-168 Ann DeBolt
LT-169 James A. Haynes
LT-170 John E. Crawford
LT-171 De Anne Harbaugh-Oset
LT-172 H. Zackheim
LT-173 Mark Lusch
LT-174 Dan Cassidy
LT-175 Upper Missouri Breaks Audubon Society
LT-176 American Fisheries Society
LT-177 Coalition for Canyon Preservation
LT-178 Susan M. Appelt
LT-179 Rick Yates
LT-180 Carley McCauley
LT-181 Gary Wright
LT-182 Bing VonBergen
LT-183 Paul A. Gies
LT-184 William J. Cowger
LT-185 Larry M. Larson
LT-186 Melissa Cooper
LT-187 G. F. VonBergen & Lester Johnson
LT-188 Wildlands & Resources Association
LT-189 Montana Association of Conservation Districts
LT-190 Great Bear Foundation
LT-191 Michael R. Bell
LT-192 Lewis & Clark County Board of Commissioners
LT-193 Margaret Adams
LT-194 Financial Aims Corporation
LT-195 Randall H. Gray
LT-196 Montana Wilderness Association
LT-197 Ursula Mattson
LT-198 Ted Hawn
LT-199 Noel & Irene Rosetta
LT-200 Wayne & Elizabeth Stiffler
LT-201 James Phelps
LT-202 John Amos
LT-203 Myron P. Chase
LT-204 John Chase
LT-205 Richard E. Lauritzen, M.D.
LT-207 Stanley Rauscher
LT-208 David E. Anderson, M.D.
LT-209 Verl Radamacher
LT-210 The Nature Conservancy
LT-211 Jerry Berner
LT-212 Clark & Jean Guile
LT-213 C.E. Ted Lucas
LT-214 Mark Korak
LT-215 Mark Shapley
LT-216 Laura Jackson
LT-217 David & Kenneth Voldseth
LT-218 Dennis Baird
LT-219 Phillip W. Davis
LT-220 Thomas F. Geary, Jr.
LT-221 Albert E. Honican
LT-222 Western Environmental Trade Assoc.
LT-223 Montana Wildlife Federation
PT-224 Paul A Gies & Petitioners
PT-225 Randy Permann & Petitioners
PT-226 Bing VonBergen & Petitioners
PT-227 William C. Holzheimer & Petition
PT-228 W. J. Farago & Petitioners
PT-229 W. J. Farago & Petitioners
PT-230 Steve Nash & Petitioners
PT-231 Richard Weil & Petitioners
PT-232 Bill Tesinsky & Petitioners
LT-233 James H. Freiberg
LT-234 Earth First! of Montana
LT-235 Montana Wilderness Association
LT-236 Defenders of Wildlife
LT-237 Elizabeth M. Breen
LT-238 The Wilderness Society
LT-239 MT East Side Forest Practices Committee
LT-240 American Wilderness Alliance
LT-241 National Audubon Society
LT-242 Rocky Mountain Front Advisory Council
LT-243 Inland Forest Resource Council
LT-244 Nancy J. Hanley
LT-245 Dick Bucsis
LT-246 Sherri Hyde
LT-247 Gary D. Foster
LT-248 Eugene R. Wing
LT-249 Paul Thomas
LT-250 Jeffrey Pocha
LT-251 Tom Pocha
LT-252 Daniel L. Pocha
LT-253 Louis J. Pocha
LT-254 Dolly M. Wing
LT-255 Texaco USA
LT-256 Jeff Crook
LT-257 Marvin Jess
LT-258 Lewis W. Holzheimer
LT-259 Grover Ligon
LT-260 Blaine Mooers
LT-261 Gerald Zumbaum
LT-262 Gene Hardin
LT-263 Mrs. R. C. Stevenson
LT-264 Betty K. Livingston
LT-265 Robert L. Varner
LT-266 Gregg Mladenka
LT-267 Jim E. Richard
LT-268 John S. Gilpatrick
LT-269 Reed Secord
LT-270 Rev. John Zendzian, Jr.
LT-271 Kelsey Miler
LT-273 Office of the Governor, State of Montana
LT-274 Lyle C. Arps

RESPONDENTS-DEIS

PW-1	Jim McDonald
PW-2	Terry M. Claver
PW-3	Kenneth Twiford
PW-4	H. W. Peterson
PW-5	Bob Varner
PW-6	Edward F. Arnott
PW-7	Leroy Strand
PW-8	Lloyd Danielson
PW-9	Trigg Danielson
PW-10	George H. Woodhall
PW-11	Bob Reilly
PW-12	Bob Corbally
PW-13	Willard Tonne
PW-14	Logan Hagen
PW-15	Bud Tomlinson
PW-16	Ed Comly
PW-17	Jake Jacobi
PW-18	Steve Taylor
PW-19	Robert W. Lay
PW-20	Tom Kriesz
PW-21	Lee Silverberg
PW-22	Harold Danielson
PW-23	Lester W. Herbold
PW-24	Leon E. Carpenter
PW-25	John Gilpatrick
PW-26	Doug Ayers
PW-27	Ken Ellis
PW-28	Margaret Birch
PW-29	Lisabeth A. Birch
PW-30	Bill Wegner
PW-31	Tom Moe
PW-32	Jeff McDowell
PW-33	James H. Berg
PW-34	Norman Voldseth
PW-35	Phil Rostad
PW-36	Errol Galt
PW-37	Kenneth Voldseth
PW-38	Roger C. Likmund
PW-39	Knute Hereim
PW-40	A. C. Grande
PW-41	George Dorrance
PW-42	Ted Lammers
PW-43	Wade P. Sorensen
PW-44	Wally Congdon
PW-45	Helen Rostad
PW-46	John A. Olson
PW-47	David Voldseth
PW-48	G. D. Lammers
PW-49	Selmer I. Teig
PW-50	Martin A. Teig
PW-51	Ed Lode
PW-52	Iver Sondeno
PW-53	Glen Korell
PW-54	Emmett M. Teig
PW-55	Edward W. Regan
PW-57	Robert E. Stinson
PW-58	Ted & Louella Perrine
PW-59	Dorothy Cady
PW-60	Scott Dubbs
PW-61	David Martin
PW-62	Darlo Klaschen
PW-63	Bob Jones
PW-64	Rick Hindand
PW-65	Elmer Hanson
PW-66	Connie Townsend
PW-67	Andy Lind
PW-68	Robert J. Weitz
PW-69	Richard S. Johnston
PW-70	Gordon R. Adolphson
PW-71	Ron McCormick
PW-72	Eldon Chapman
PW-73	Kermit Francom
PW-74	Paul Gies
PW-75	Geo S. Willett
PW-76	James Allison
PW-77	Evelyn Allison
PW-78	Joe Croff
PW-79	William Burton
PW-80	Frieda W. Miller
PW-81	Robert Miller
PW-82	Warren Price
PW-84	Thomas Gillespie
PW-85	Lorena M. Whittaker
PW-86	Norman A. Whittaker
PW-87	Larry Copenhaver
PW-88	Steve D. Kerkes
PW-89	Mary Kerkes
PW-91	Lois Cawrse
PW-92	Howard F. Strause
PW-93	Joanna M. Janicke
PW-94	Gracia A. Hilde
PW-96	Jean C. Gaile
PW-97	Margaret E. Adams
PW-98	J. Michael Fleming
PW-99	Pete Peterson
PW-100	Harriette Peterson
PW-101	Carley McCaulay
PW-102	Goni Lauckner
PW-103	Linda Regnier
PW-104	Dan Levine
PW-105	Jack Johnson
PW-107	Nadine Goggin
PW-108	Betty Lou Gurley
PW-109	Marie Artz
PW-110	Mary Pearson
PW-111	Lucille Orcutt
PW-112	Cheryl Lux
PW-113	Charles Williard
PW-114	J. T. Weisner
PW-115	Warren Barrett
PW-116	Bert Artz
PW-117	Richard Artz
PW-118	Dave Barnett
PW-119	Roger P. King
PW-120	Nancy Weisner
PW-121	Raymond Hitchcock
PW-122	Teresa Zaremski
PW-123	Grace Doughty
PW-124	Larry M. Cooper
PW-126	Liz Barker
PW-127	Travis Barker
PW-128	Stew Camp
PW-129	Fred A. Johnston
PW-131	Don Converse
PW-132	Philip Pimps
PW-133	Bob Simonson
PW-134	Arleen Bryant
PW-135	Becky Oakley
PW-136	Harold Bouma
PW-137	Les Otness
PW-138	Helen Dale
PW-139	Stan Wilmoth
PW-142	David L. Zion
PW-143	Pay Saylor
PW-144	Eva Marie Anseth
PW-145	John Owens

RESPONDENTS-DEIS

PW-146 Al Haas
PW-147 Clyde M. Fauley
PW-148 Rick Ashworth
PW-149 Alberta Passmore
PW-150 Roy M. Page
PW-151 Cecil Passmore
PW-152 Brad Berthelson
PW-153 John Salmond
PW-154 Zane Zell
PW-155 Carl Fields
PW-156 Frank Kelly
PW-157 Dean States
PW-158 Tom Salanasky
PW-159 Pete Strazdas
PW-161 Kristi DuBois
PW-162 Earl Larson
PW-163 Tom Rogers
PW-164 Roger A. Kelly
PW-165 R. R. Jones
PW-166 Madeline W. Rands
PW-167 Myron Wheeler
PW-168 Erich Keiper
PW-169 Valeris Larson
PW-170 Chuck & Sharon Blixrud
PW-171 Steve Malcott
PW-172 Warren Malcott
PW-173 Mike LeBrun
PW-174 Mike Roney
PW-175 Phillip Penszyk
PW-176 William E. Beck
PW-177 Elaine Sedlack
PW-178 Billy Christensen
PW-179 Marty L. Edwards
PW-180 Susan McMasters
PW-181 Eva Wall
PW-182 Robert Clark
PW-183 Kathy O'Hair
PW-184 Jim Papke
PW-190 Bruce Jeske
PW-194 W. Mark Weber
PW-195 Tom Dietrich
PW-196 Jim Bentley
PW-197 Bill Timko
PW-198 Craig Jourdonnais
PW-199 Harlan L. Hayes
PW-202 Palmer Bowen
PW-203 James Phelps
PW-204 Meridian Land & Mineral Co.
PW-205 Department of Fish, Wildlife, & Parks
PW-206 Norma Koski
PW-207 Susan Zike
PW-208 Lee McConnel
PW-209 Russell J. Warchola
PW-210 Paul C. Kohlman
PW-211 Gene B. Hunter
PW-212 Jane Baker
PW-213 Al Kington
PW-214 Davida Poore
PW-215 Phil Korell
PW-216 Mel Pozder
PW-217 Mike Hole
PW-218 Eric Webster
PW-219 Gordon McGowan
PW-220 Bill Hill
PW-221 Doug Smith
PW-222 George Engler
PW-223 LeRoy Schelly
PW-224 Ivan G. Buhmann
PW-225 Robert C. Nims
PW-226 Wayne Strong
PW-227 Glen Bridgeford
PW-228 Paty Leary
PW-229 Henry Sivumaki
PW-230 Jerry Coster
PW-231 Craig Larcom
PW-232 Gwen McBride
PW-233 Ermal Hansen
PW-234 Greg Kuslmak
PW-235 Nicholas W. Leritz
PW-236 Randy Permann
PW-237 Marvin Croff
PW-238 Robby Permann
PW-239 Ken Permann
PW-240 Moxon R. Dawn
PW-241 Morris Aagenes
PW-242 Joe Morris
PW-243 Myron Chase
PW-244 Lee Katzenberger
PW-245 Terry L. Albrecht
PW-246 Robin Neil
PW-247 Ron Paulick
PW-248 Great Falls X-C Club
PW-249 Steven Konesky
PW-250 Donna Konesky
PW-251 Matt G. Malinoun
PW-252 Phil Sweeney
PW-253 Danell Anderson
PW-254 Lori Anderson
PW-255 Bert Lindler
PW-256 Tom Rabe
PW-257 Denny Larson
PW-258 Charles J. Marlen
PW-259 Steve Sem
PW-260 Clark de Guile
PW-261 Dennis Prinzing
PW-262 Wayne F. Anderson, Jr.
PW-263 Kathy A. Anderson

RESPONDENTS-DEIS

The following letters were received on the DEIS and Proposed Forest Plan from Federal Agencies, State Government, Local Government, and Indian Tribes. Included also is the Forest Service response to each letter.

Federal Agencies
- U.S. Environmental Protection Agency
- U.S. Department of Interior, Office of the Secretary
- U.S. Department of Interior, Bureau of Indian Affairs
- U.S. Department of Agriculture, Office of Minority Affairs
- U.S. Department of Air Force
- U.S. Department of Health and Human Services

State Government
- State of Montana
- Department of Commerce
- Montana Historical Society

Local Government
- Lewis and Clark County Commissioners

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
1860 LINCOLN STREET
DENVER, COLORADO 80295

NOV 19 1982

Ref: 8MO

FOREST SERVICE
Lewis & Clark National Forest
Great Falls, Montana
NOV 29 1982
RECEIVED

Mr. Dale Gorman
Forest Supervisor
Lewis and Clark National Forest
P.O. Box 871
Great Falls, Montana 59403

Dear Mr. Gorman:

Thank you for the opportunity to review your agency's draft environmental impact statement on the Lewis and Clark National Forest Management Plan. Our comments are centered around EPA's authorities in water quality management and are meant to be constructive.

First, there is little detail on the DEIS concerning water quality impacts of the various alternative long-management options. Some of the data that is presented, however, gives us cause for concern. Examples include:

(1) A loss of some 12,000 catchable fish from the preferred alternative as compared to the current plan (p. 1-18, Summary, Table S.2);

(2) An increase in sediment yield of some 900 tons from the preferred alternative as compared to the current plan (p. 1-18, Summary, Table S.2);

(3) Adding 1,131 acres of riparian zone to the commercial forest base under the preferred alternative (p. 2-71);

(4) Harvesting 15 percent of steep, low productivity sites in the Jefferson Division (p. 2-71);

(5) An increase in sedimentation under the preferred alternative by about 25 percent (p. 2-110);

(6) A proposal under the preferred alternative for the construction, by year 2030, of 221 miles of arterial and collection roads and 698 miles of timber support local roads (p. 2-86).

The above figures do not include any estimate of stream mileage that may fail to meet Montana water quality standards related to sedimentation but they do lead the reviewer to conclude that there is a potential for this to occur. Obviously you have calculated that there will be a significant loss of fish in the later stages of the plan under the preferred alternative.

This loss can only be contributed to sedimentation due to roading, logging, and increased grazing activities. It does not agree with the statement on page 3-20 that: "No new areas of management-caused erosion are expected because of the implementation of 'best management practices.' Therefore, erosion is not significantly affected by any alternative."

To summarize, it appears that the preferred alternative, as compared to the current plans, will lead to a loss of fisheries and water quality on the Lewis and Clark Forest, although no quality information is provided. According to EPA's rating system in draft impact statements this EIS is rated ER-2 (environmental reservations - lack of information). Our reservations are stated above. We believe the EIS should contain more specific information about water quality standards and streams to be affected. We would also encourage pursuit of a plan that results in less water quality and fisheries impact.

If you have any questions, please contact Mr. Gene Taylor in our Montana Office, Helena, at 449-5486 or FTS 585-5486.

Sincerely yours,

Seth C. Thent

for Steven J. Durham
Regional Administrator

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Steven J. Durham, Reg. Adm.
U.S. Environmental Protection Agency
1860 Lincoln Street
Denver, CO 80295

We recognize your feeling that there was little detail in the DEIS concerning water quality impacts of the various alternatives.

Additional information has been added to the final EIS on water quality impacts.

And, of your concern with:

(1) A loss of some 12,000 catchable fish from the preferred alternative as compared to the current plan;

The Forest has reanalyzed fish habitat management. Management Standard C-3, Fish Habitat, has been rewritten to strengthen fish habitat protection. (See Revised Proposed Forest Plan.) Included in this guideline is the direction to, "Emphasize the maintenance or enhancement of habitat supporting populations of Upper Missouri River (blackspotted) cutthroat trout". The grazing level under the Preferred Alternative (G) has been reduced to 72,600 AUMs.

This action reduces the projected sediment increase from the 1982 DEIS and maintains the current catchable trout population. A discussion of the impacts on the habitat supporting populations of blackspotted cutthroat trout has been added to the Revised Proposed Forest Plan. The discussion of impacts to the fisheries resource in Chapter IV has been expanded and includes downstream effects. Fish in relation to logging was not identified as an issue, although the Forest recognized the potential effects.

(2) An increase in sediment yield of some 900 tons from the preferred alternative as compared to the current plan;

The Forest shares the concerns about erosion, sediment, and water quality and the effects of resource programs have been reanalyzed. The Forest Soils Resource Inventory was used in the Forest Plan to determine limitations and hazards for road construction and other project activity. Generally, the Plan calls for no roads on slopes with more than a 60 percent grade, no facilities on slopes with more than a 40 percent grade, and no tractor

skidding for logging on slopes more than 45 percent grade. The Forest Plan calls for all reasonable conservation practices to prevent any new management-caused erosion. These "Best Management Practices" have been further defined in establishing Forest-Wide Management Standards for (1) range mangement (D-3); (2) timber harvest (E-4); (3) soil and water protection (F-3); (4) oil and gas activities (G-1 and G-2); (5) road maintenance and construction (L-4); and (6) debris control (P-2). For Management Areas J and R, specific protection measures are listed as standards for range, timber, and minerals. Despite implementation of these standards, management action is predicted to cause a one percent increase in sedimentation Forest-wide.

As an aspect of any project plan, site water quality effects will be evaluated and control measures instituted to ensure the project will meet Forest water quality goals. Projects that do not meet State water quality standards will either be redesigned, rescheduled, or denied.

(3) Adding 1,131 acres of riparian zone to the commercial forest base under the preferred alternative;

The Forest Plan recognizes the importance of riparian area management for wildlife. In response to this concern, Management Area R, Riparian Zones, has been rewritten in the Revised Proposed Forest Plan. The Forest-Wide Management Standards R-1, Riparian Zone Management, and W-1, Wetland Zone Management, have been expanded and incorporated into other management standards which deal with a particular activity. (See Forest Plan, Management Standards D-3, E-4, F-3, G-1, G-2, and L-4.) Riparian area management for grizzly bear is included in these standards.

(4) Harvesting 15 percent of steep, low productivity sites in the Jefferson Division;

Under the new Preferred Alternative (G), timber harvest will take place on about 9 percent of the steep, low productivity sites in the Jefferson Division. Most of these areas are roaded and timber has been harvested in the past. The Forest feels that these practices can be continued without significantly affecting water quality.

(5) An increase in sedimentation under the preferred alternative by about 25 percent;

The sediment projections were inconsistent. Naturally-occurring sediment was not included in most places in the DEIS. The projected increase in sediment for each alternative was displayed. Projected percent of increase was calculated using both increases from 1981 to 2030, and increases above management causes from naturally-occurring sediment. This led to much confusion and inconsistency with sediment values. In the DEIS-Supplement, base (naturally-occurring) sediment is displayed along with projected increase by alternative. These values have been recalculated using the best available information. Percent of increase was calculated from the current situation with naturally-occurring sediment.

(6) A proposal under the preferred alternative for the construction, by year 2030, of 221 miles of arterial and collector roads and 698 miles of timber support local roads.

Transportation planning is primarily a support function for management of the resources of the Lewis and Clark National Forest. Road corridor location and management decisions reflect the road access necessary to manage the various resources of the Forest. In developing the Forest Plan, the first step in transportation planning was to determine where possible road corridors could be located to access the total Forest lands. Next, cost considerations were studied and evaluated to identify unfeasible, uneconomical, or resource incompatability problems with these road corridors. Finally, resource decisions were made on the landbase (where timber would be harvested, or where wildlife would be protected) to determine an areas future need for access. The total "mix" thus became the recommendation(s) of the Lewis and Clark National Forest Plan. These decisions have been carefully reviewed by the planning and management teams.

Road construction is one of the many significant impacts on the Forest caused by access needs for the management of the Forest's resources. (See Chapter IV.) A road management program will be used to minimize the adverse changes from increased access. Seasonal or year around restrictions will maintain security habitat for wildlife that is intolerant of human disturbance. Proper road location, design standards, and construction and installation of drainage structures will aid in mitigating the impact of road construction on water quality. Management Standard L-4, Maintenance and Construction of Roads and Related Facilities, has been developed to minimize the impact of roads on other resources. The overall mileage of road construction has been reduced slightly under the new Preferred Alternative (G).

And, that the increase in sedimentation due to roading, logging, and increased grazing activities do not agree with the statement that: "No new areas of management-caused erosion are expected because of the implementation of "best management practices". Therefore, erosion is not significantly affected by any alternative."

We agree, the statement was not correct. Addtion information on the effects of the alternatives on sediment was provided in the DEIS-Supplement.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

United States Department of the Interior
OFFICE OF THE SECRETARY
OFFICE OF ENVIRONMENTAL PROJECT REVIEW
Room 688, Building 67
Denver Federal Center
Denver, Colorado 80225

IN REPLY REFER TO:

ER 82/1387

NOV 16 1982

Mr. Dale Gorman
Forest Supervisor
Lewis and Clark National Forest
P.O. Box 871
Great Falls, MT 59403

Dear Mr. Gorman:

This is in response to your request for the Department of the Interior's review and comments on the draft EIS and proposed Forest Plan for the Lewis and Clark National Forest and Middle Fork Judith and Big Snowies Wilderness Study Report.

PROPOSED FOREST PLAN

Threatened and Endangered Species

The draft Plan recognizes that the Lewis and Clark National Forest contains important habitat for threatened and endangered species. However, except for the Minerals Guidelines (G-1 and G-2), neither the Forest Management Guidelines, Management Area Prescriptions, nor Geographic Unit descriptions provide explicit management direction that will enhance and promote the conservation of these species. We recommend that the Plan be revised to incorporate such guidance. Specific guidelines, similar to those for mineral development, should be provided for timber and range management activities.

Although neither the Forest Plan nor the EIS specifically evaluates the extent or severity of the Plan's effects on threatened and endangered species, the Forest Service has determined (EIS, Chapter 4) that these species would be adversely affected by such activities as timber harvest, grazing, oil and gas development, and recreation. In view of this determination, consultation is required under 50 CFR 402.04(a). Since Endangered Species procedures should be concluded prior to approval of the Forest Plan, we request that you initiate formal Section 7 consultation with the Fish and Wildlife Service as soon as possible.

We note that three timber sales and a major forest arterial road are proposed in the South Fork Two Medicine River drainage. Public access to this area should be prohibited during and after timber harvest for the protection of grizzly bears and gray wolves. However, it is our understanding that there is question whether access controls can be enforced on these "treaty lands." Because of the effects of unrestricted use of this area on endangered species, the timber sales should be held in abeyance until the access control question is resolved and Section 7 consultation has been concluded.

The statement on page 3-9 that the "U.S. Fish and Wildlife Service recovery goal for grizzly bear on the forest is 81 bears" is an error. This is a target set by the Forest Service, not the Fish and Wildlife Service. The Grizzly Bear Recovery Plan states that the Northern Continental Divide grizzly bear population will be judged recovered when it is determined to be viable at a population size of 440 to 680 bears.

Fish and Wildlife Resources

Implementing regulations for the National Forest Management Act (NFMA) provide that under Forest Plans "fish and wildlife habitats will be managed to...maintain and improve habitat for management indicator species" (NFMA Reg. 219.12(g)). While we are generally pleased with the list of proposed management indicator species and the monitoring and evaluation plan for those species, we are concerned that the proposed plan may not provide for maintenance and improvement of their habitats. Indeed, for those species or species groups for which population projections were made (EIS, Table 4.1) the proposed plan would result in declines in both elk and catchable fish numbers over the planning period and only maintenance of current levels for grizzly bear and wolves to the year 2030. If the population projections can be assumed to accurately reflect habitat quantity and quality, only Alternative C would provide for maintenance and improvement of habitat for fish and elk. This is further borne out in the description of impacts to fish and wildlife from the planned activities in such areas as timber, where a nearly 100% increase in acres harvested under the preferred alternative is projected, and in range, where increases in domestic grazing on winter ranges is projected. While mitigation of some of the adverse impacts from these activities is planned, all of the alternatives except C would fail to meet the goal of maintaining and improving fish and wildlife habitat.

Under the proposed plan, habitat for elk would be maintained at slightly less than current levels (p. 3-11). Some indication should be given of how current population levels compare with long term levels. In addition, some brief description of the fisheries habitat monitoring program proposed should be provided on p. 4-11.

Native American Rights

The northern portion of the Rocky Mountain Division was once part of the Blackfeet Indian Reservation. Although the Plan alludes to treaty rights, they are not explicitly identified. We recommend that the Forest Management Guidelines (H-1 and H-2) explicitly recognize that the tribe and the Bureau of Indian Affairs (BIA) retain interests in this area for:

1) Hunting and fishing

2) Use of timber for agency (BIA) and tribal purposes and domestic uses by tribal members

The Plan also proposes a Forest Service/tribal "working group" to resolve resource and legal issues. We recommend that this group include BIA representation, to provide a greater degree of continuity in the group's effort to define, if not resolve, these issues. This group should be committed to annual or other periodic meetings until issues are resolved.

Glacier National Park

The Lubec-Heart Butte and Two Medicine geographic units abut Glacier National Park. The National Park Service supports a more protective classification of these areas to provide:

1) A more protective buffer zone for the resource values of the Park (a Biosphere Reserve),

2) Greater protection for wildlife wintering zones, and

3) More protection for grizzly bears and gray wolves.

Mineral Resources

The Lewis and Clark Forest Plan has developed management guidelines with regard to minerals, but the result is largely negative in tone, without elaboration or any attempts at mineral management innovation.

Desirable innovations might include provisions for a strategic/critical mineral assessment or a more comprehensive mineral data base to facilitate a progressive mineral management program (including protecting highly mineralized areas for exploration and development). Streamlining procedures, within present legal constraints, for mineral operation plans and environmental analyses should be instituted. Some current procedures present unnecessarily time-consuming and costly impediments to mineral search and development.

We encourage the Forest Service to develop and integrate more comprehensive mineral management objectives. The objectives should be based upon a full understanding of the critical national importance of an adequate and orderly mineral search and development within necessary environmental constraints.

DRAFT ENVIRONMENTAL STATEMENT

General

We note that provision has been made for subsequent environmental analyses tiered from this EIS. The EIS mentions that the Forest Plan "is specific in its allocation of uses to the land," and goes on to state (p. 1-4) that this document "would satisfy the requirements of NEPA for . . . actions and projects listed in the Forest Plan such as timber sales, grazing allotments, land exchanges, rights-of-way acquisition, and oil and gas leasing, exploration, and development." However, this EIS recognizes only the general types of impacts resulting from these activities, not their extent or severity. Depending on location and/or timing, timber harvest or oil/gas development could have significant impacts beyond the general coverage of this EIS. It would seem appropriate for the final EIS not only to provide for subsequent, project/site-specific EIS's, but also to define the categories of actions which would likely require a subsequent EIS.

Mineral Resources

The Forest Service has accurately identified oil and gas as the principal leasable mineral of concern in the Lewis and Clark National Forest, and we concur with the statement on page 4-29 that the potential for oil and gas development in the Jefferson Division is low. While there is mention of frequent seismic activity and numerous lease applications, these are not definitive criteria that would change the oil and gas potential from low (nonproducing) to high (producing). However, these criteria are indicators of increasing activity on the forest lands, and the EIS should point this out.

On page 3-17, where the exploratory drilling and field development are discussed, the statement is made that the Forest Service has regulatory jurisdiction over certain on-lease activities. This is a confusing statement, especially since it is followed by the statement that the U.S. Geological Survey has this jurisdiction. Also, on page 3-16, it is stated that activities that are clearly on-lease activities are precluded by a no surface occupancy stipulation while activities such as seismic exploration, a non-lease activity, are permitted.

The EIS should clearly point out that the Minerals Management Service (MMS) has regulatory jurisdiction over on-lease activities. MMS also has the lead role in enforcing lease stipulations and handling appeals and suspensions of lease terms filed by operators and lessees when proposed lease activities conflict with the stipulations.

Two of the lease stipulations most frequently used by the Forest Service deal with "no surface occupancy" and seasonal time limits on surface occupancy. Past drilling activity on private surface leases in these areas indicate that stipulations of this type maybe unrealistic. Complex folding, faulting, and igneous activities of this area mean that downhole problems are the rule rather than the exception. Adding directional drilling and time limits during which to drill to the existing natural problems encourages confrontation, not development.

In this regard, we note (Table 3.3, p. 3-18) that 56 percent of nonwilderness lands in the Rocky Mountain Division will be subject to no occupancy/limited occupancy lease stipulations, and substantial additional acreage is subject to timing restrictions. Chapter 4 mentions that other alternative plans would "maximize" or "provide less opportunity" for oil and gas development. However, there is no analysis of the degree to which these stipulations constrain development of oil and gas resources, or the lessees' exercise of their lease rights. Such analysis should be provided in the final statement.

Cultural Resources

It does not appear that the State Historic Preservation Officer (SHPO) for Montana has been consulted concerning the presence of sites on or eligible for inclusion on the National Register of Historic Places within the forest area. We recommend formal consultation with the SHPO to determine the presence of such properties, as well as his opinion on the adequacy of present knowledge of cultural resources. The final environmental impact statement should include documentation of such consultation. The SHPO for Montana is Dr. Robert R. Archibald, Director, Montana Historical Society, 225 North Roberts Street, Veterans' Memorial Building, Helena, Montana 59601.

Glacier National Park

Under the proposed Plan, areas adjacent to the Park would be managed for grazing, timber harvest, and developed recreation. In addition, portions would be available for oil and gas development. The final EIS should analyze the impacts of such activities on the Park's visual, recreational, and wildlife resources.

Sincerely yours,

Robert F. Stewart

Robert F. Stewart
Regional Environmental Officer

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Robert F. Stewart
U.S. Department of Interior
Room 688, Building 67
Denver Federal Center
Denver, CO 80225

PROPOSED FOREST PLAN

Threatened and Endangered Species

Management Standard C-2, Threatened and Endangered Species, in the Revised Proposed Forest Plan has been rewritten to strengthen compliance with the Endangered Species Act. The Lewis and Clark National Forest has reanalyzed grizzly bears and their habitat. Occupied grizzly bear habitat (all of the Rocky Mountain Division) has been identified according to "The Yellowstone Guidelines."

More than 98 percent of the Division is in Management Situation 1 (areas that are essential for the survival of the grizzly). Seasonal ranges have been mapped. Important areas, such as feeding sites and denning areas, are being inventoried. This information has been added to the Forest Plan.

In response to public concern, Management Standards were developed and included in the Revised Proposed Forest Plan for timber harvest, livestock grazing, oil and gas activities, and roads, to insure that grizzly bears and their habitat are protected. We're committed to achieving a recovered population of grizzly bears. Also a process (known as the Cumulative Effects Process) has been developed to evaluate how specific forest projects can affect the grizzly. This process has been added to the Revised Proposed Forest Plan as Appendix L. The process has been updated in the final Plan.

Recovery of the endangered gray wolf population is linked to the Forest's management of grizzly bears habitat. The Forest Plan also calls for maintaining a suitable prey base and habitat for the gray wolf. Habitat capacity for 10 wolves would be provided under all alternatives. The recovery goal is the Northern Region disaggregation of the recovery goal for the Northern Rocky Mountains, as identified in the DEIS-Supplement.

Consultation with the U.S. Fish and Wildlife Service on the Forest Plan has been completed and is included in the Final EIS and Forest Plan. Their opinion is that implementation of the revised Forest Plan will not jeopardize T&E species.

Because of the concern for T&E species, the area has been removed from the regualted timber harvest program on the Rocky Mountain Division. Under existing oil and gas leases, roads may be built into the area. All use would be carefully regulated. The Blackfeet Indians have retained right for access in the Two Medicine area. However, the full implications of this right in the Badger-Two Medicine area is not clear. The Forest Service, BIA, and Blackfeet Tribe are participating in on-going negotiations to clarify and resolve issues, including road use control, which are related to the Treaty Rights situation.

The recovery goal in the DEIS is the Northern Region disaggregation of the recovery goal for the Northern Continental Divide Grizzly Bear Ecosystem as identified in the DEIS-Supplement and FEIS.

Fish and Wildlife Resources

Alternative C provides a high level on non-priced benefits, but was not recommended as the Preferred Alternative by the interdisciplinary team because it does not maximize net public benefit. Alternative G (Preferred) will maintain current wildlife populations. Additional management standards and monitoring requirements have been added to the final Plan.

Additional information on the historic level of key wildlife species has been added to the final EIS. Monitoring requirements are discussed in Chapter VI of the Revised Proposed Forest Plan (Chapter V, final Plan). The monitoring requirements for fish and wildlife have been rewritten. Indicator species which may be affected by the Forest Plan have been included in the monitoring plan. The criteria for further evaluation for some species, such as the grizzly bear and wolf had been made more restrictive.

Many wildlife species are difficult to monitor. We have proposed a way to monitor such species and still be cost-effective. Old-growth habitat has been added to the wildlife monitoring requirements.

Intensive studies on the effects of oil and gas activities on wildlife are on-going in the Rocky Mountain Division - in cooperation with the U.S. Fish and Wildlife Service, BLM, and Montana Department of Fish, Wildlife, and Parks. Guidelines from these studies will be used in the management of wildlife species.

Management guidelines for the grizzly bear, elk, mule deer, mountain goat, bighorn sheep, and raptors have been approved by the U. S. Fish and Wildlife Service, the Bureau of Land Management, the Montana Department of Fish, Wildlife, and Parks, and the Forest Service. These guidelines have been added to the Forest Plan as Appendix I. We feel confident we can meet the monitoring requirements; however, as with any new program, monitoring needs the test of time. Monitoring will undoubtedly lead to change and will, we hope, improve the management of the Lewis and Clark National Forest.

Native American Rights

The Blackfeet Indian Treaty rights are discussed in Management Standard H-1, Native American Claims, and their traditional religious rights in Management Standard H-2, Native American Rights, and throughout the FEIS (Chapters III and IV). While there are several issues that may take legal review, we are meeting with representatives of the Blackfeet Tribe to isolate and discuss issues over which we can agree. The Blackfeet Tribe's suggested changes and additions were incorporated into Management Standards H-1 and H-2.

Glacier National Park

Management areas on the Rocky Mountain Division have been carefully re-evaluated. Under the final Plan, on the Rocky Mountain Division timber harvest was still proposed in the Teton, Benchmark/Willow, and Elk Creek Geographic Units. However, sale size and road development would be carefully controlled. There has been some adjustment of management area boundaries to reduce resource conflicts. The upper South Fork and West Fork Teton has been recommended for wilderness classification. The Two Medicine and Falls Creek Geographic Unit have been eliminated from regulated timber harvest.

Mineral Resources

These standards were prepared to allow for oil and gas activities, while protecting surface resource values. Exploration companies have completed over 700 miles of seismic lines using standards similar to G-1, Seismic Exploration. And, although exploration was, or is, sometimes delayed to protect wildlife, recreation, and other values, the companies have been able to complete their projects in a timely manner.

All oil and gas lease applications in nonwilderness areas have been processed. Over 423,000 acres have been leased. Only one lease has had exploratory drilling. The management standards for minerals in the Forest Plan have been rewritten to be more positive.

The mineral management objective has been rewritten in the final Plan to refect your concern.

DRAFT ENVIRONMENTAL STATEMENT

General

We feel that the "scoping" step of the environmental analysis process should be used to help determine if an action would require an EIS.

Mineral Resources

The way oil and gas leases would be affected by the alternatives was displayed in Chapter II of the DEIS-Supplement. Chapter III describes the current level of oil and gas and other mineral activity, as well as the potential for future development. Potential is based on a review of all available information on the minerial resource. If this information changes, the potential would be revised to reflect this.

Effects of mineral or other activities and their affect on minerals is discussed in Chapter IV. Additional information has been added to this chapter. The Analysis of the Management Situation for minerals, withdrawals, and access needs are discussed in the Forest Plan. Management area prescriptions set the direction for mineral resources along with the overall Forest-Wide Management Standards.

The final EIS describes the role of the Bureau of Land Management, which now includes the MMS, and the Forest Service in mineral management.

There is a very distinct change in topography, land type, and resource values between private and National Forest lands. Stipulations are based on the land's capability for development and protection of surface resource values.
We feel the stipulations provide the needed resource protection. No development has been done on any of the leases (except for the reopening of a shut-in well in Blackleaf Canyon). Table 3.4 in the DEIS-Supplement shows how the stipulations affect oil and gas development. In almost every instance, leases have some opportunity for surface occupancy. Timing and activity coordination stipulations would affect when activities could take place.

Cultural Resources

Consultation with the State Historic Preservation Offices is an on-going practice. Specific procedures to comply with the National Historic Preservation Act are listed in the Forest Plan. The Plan was reviewed by the State's Historic Preservation Officer.

Glacier National Park

Additional information has been added to final EIS on the effect of Forest activities on Glacier National Park.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR

BUREAU OF INDIAN AFFAIRS

BLACKFEET INDIAN AGENCY
BROWNING, MONTANA 59417

November 18, 1982

Mr. J. Dale Gorman
Forest Supervisor
Lewis & Clark National Forest
P.O. Box 871
Great Falls, MT 59403

Dear Mr. Gorman:

It has recently come to my attention that the Forest Service is making preparations for several types of forest management activities on the ceded lands between the Blackfeet Indian Reservation and the Continental Divide. In addition to these forestry activities the Forest Service has also issued seismic permits and received application for permits to drill for oil and gas. In fact the seismic activities have been underway in the ceded area for the past two seasons.

Your office has recently issued the draft form of a new forest managment plan. In that plan you specify activities which will take place on the ceded area under management units RM-1 through RM-4. However, your plan makes no mention of Blackfeet Indian Treaty rights as they pertain to on going activities in that area. I believe there are some serious questions in this area on which Forest Service policy must be clearified.

As the chief trustee of the Blackfeet Indian natural resources and the rights of the Blackfeet Tribe to free use of resources on the ceded area I would appreciate a statement of Forest Service policy on issues such as Blackfeet Indian employment on forest crews, seismic crews and drilling crews, use of Blackfeet Indian contractors for these various activities, use of and development of resources from the ceded area on the Blackfeet Reservation and the assessment of effects of above mentioned activities on Blackfeet Indian Treaty rights in the ceded area and compensation for possible resource depletion due to these activities.

Sincerely,

Superintendent

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Superintendent
U.S. Department of Interior
Bureau of Indian Affairs
Blackfeet Indian Agency
Browning, MT 59417

We recognize your concern with the Blackfeet Indian Treaty rights.

The Blackfeet Indian Treaty rights are discussed in Management Standard H-1, Native American Claims and their traditional religious rights in Management Standard H-2, Native American Rights. While there are several issues that may take legal review, we are meeting with representatives of the Blackfeet Tribe to isolate and discuss isssues over which we can agree.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

United States
Department of
Agriculture

Office of
the Secretary

Office of
Minority Affairs

Washington, D.C.
20250

FOREST SERVICE
Lewis & Clark National Forest
Great Falls, Montana
OCT 22 1982
RECEIVED

21 SEP 1982

SUBJECT: Lewis and Clark National Forest Plan and Draft Environmental Impact Statement, Great Falls, Montana

THRU: R. Max Peterson
Chief
Forest Service

TO: Tom Coston
Regional Forester
Forest Service

We have reviewed the Lewis and Clark National Forest Plan and Draft Environmental Impact Statement with particular interest in your assessment of the effects proposed actions would have on minorities, women, the handicapped and aged located in or near the proposed work area. We offer the following comments for your consideration.

You identify important statistics in Tables 3.4 and 3.5 on pages 3-27 and 3-32, but they do not reflect the racial composition of the population, which includes many Indians. The geographical location of minorities within the planning area should be identified.

In Chapter 4, "Environmental Consequences - Summary of Effects," page 4-4, you state that the preferred alternative will have beneficial impacts on communities surrounding the work area by increasing employment and income through increased grazing and timber harvest. Unfortunately, the Draft Plan does not state specifically how the proposed policies and actions will impact upon employment opportunities for minorities and women.

We recommend that the Final Statement indicate explicitly the impact (favorable or unfavorable) your proposed work will have on minorities. Factual data, including statistical information, should be included to substantiate your conclusion concerning the civil rights impact.

Isidoro Rodriguez

ISIDORO RODRIGUEZ
Director

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1192C Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Isidoro Rodriguez, Director
USDA, Office of the Secretary
Office of Minority Affairs
Washington, DC 20250

We recognize your concern that the FEIS indicates explicitly the impact (favorable or unfavorable) your proposed work will have on minorities. Factual data, including statistical information, should be included to substantiate your conclusion concerning the civil rights impact.

We agree, this information has been added to the FEIS.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

DEPARTMENT OF THE AIR FORCE
AIR FORCE REGIONAL CIVIL ENGINEER CENTRAL REGION (AFESC)
1114 COMMERCE STREET
DALLAS, TEXAS 75242

23 September 1982

Mr. Dale Gorman, Forest Supervisor
Lewis and Clark National Forest
P O Box 871
Great Falls, Montana 59403

Dear Mr. Gorman

Thank you for allowing us the opportunity to review an abstract of the DEIS on the Lewis and Clark National Forest Land and Resource Management Plan.

We continue to support your efforts in the managing of the land and resources of our national forests. The Air Force concern on wilderness remains essentially unchanged from our stated position in previous correspondence with the Forest Service on similar issues. Our position is to retain use of existing and the establishment of future military flight training areas and routes which may traverse wilderness areas.

Review of Air Force air operations in the vicinity of the Lewis and Clark National Forest does not indicate any current training route activity. Although this situation may continue in the immediate future, you should be aware that flight training areas, routes, and airspace requirements of the military are subject to change and do frequently change.

Mission requirements, fuel costs and environmental constraints determine the decision to locate a military training activity. Because of general aviation and population pressures, low level high speed flights are relegated to areas which are least accessible and sparsely inhabited. Therefore, we request that you give full consideration to planning and management decisions made by your agency which may adversely affect or restrict use of low altitude airspace by the Air Force. The Air Force position on this matter is based on the high training and readiness values rendered by use of this low altitude airspace. Decisions to restrict military overflights will be opposed by the Air Force.

We are hopeful this information is useful in your planning. If additional information is needed, our staff point of contact is Mr. Raymond Bruntmyer, (214) 767-2514, or FTS 729-2514.

Sincerely

JOE C. LA FOY, JR., Lt Colonel, USAF
Chief, Environmental Planning Division

Cy to: AF/LEEV
Montana State Clearinghouse
Office of Budget and Program
Planning, Capitol Bldg,
Rm 237, Helena, MT 59620

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Joe C. LaFoy, Jr., Lt. Col.
Dept. of the Air Force
1111 Commerce Street
Dallas, TX 75242

The Forest Plan recognizes the need for flight training areas, routes, and airspace requirements. We will be glad to work with the U. S. Air Force on specific routes to ensure that wilderness and recreation values are protected. If your routes do change and will affect the Lewis and Clark National Forest, please let us know.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control
Atlanta, Georgia 30333

October 22, 1982

FOREST SERVICE
Lewis & Clark National Forest
Great Falls, Montana
OCT 26 1982
RECEIVED

Dale Gorman, Forest Supervisor
Lewis and Clark National Forest
P.O. Box 871
Great Falls, Montana 59403

Dear Mr. Gorman:

We have completed our review of the Lewis and Clark National Forest Plan Draft Environmental Impact Statement (EIS), Middle Fork Judith and Big Snowies Wilderness Study Report. We are responding on behalf of the U.S Public Health Service.

We believe the Forest Service has disclosed the effects of the proposed action and alternatives adequately. However, the DEIS is weak in the presentation of detailed mitigation measures. For example, we note that an increase in sedimentation and a decrease in water quality could occur, but mitigation measures are apparently listed in separate management guidelines for grazing in riparian zones. We believe that a summary of these mitigation measures and anticipated benefits of these measures should be included in the Final EIS.

Similarly, we note that the preferred alternative provides an opportunity to explore and develop mineral resources. Specific guidelines regarding mitigation measures should be included in the FEIS and reviewed carefully with prospective developers before exploration begins. Specific mitigation measures designed to reduce soil and water degradation and visual impacts should be noted regarding the creation of mine tailing disposal sites. General mitigation measures are briefly noted on page 4-40. These measures should be presented in more detail.

Because recreation use levels are expected to increase (pages 2-18,20), the number of lost persons, illnesses, injuries, fatalities, forest fires, and similar problems also have the potential to increase. Our concern lies mainly with the increase in dispersed recreation opportunities. Appropriate modifications to existing contingency plans and surveillance procedures, if necessary, should be developed for optimum protection of recreationists. These plans should be addressed in the final statment.

The above comments are relative to both the Lewis and Clark National Forest Plan and the Middle Fork Judith and Big Snowies Montana Wilderness Study Areas.

Thank you for the opportunity to review this draft document. We would appreciate receiving a copy of the final document when it becomes available. If you should have any questions about our comments, please contact Mr. Ken Holt of my staff at FTS 236-6649.

Sincerely yours,

Frank S. Lisella, Ph.D.
Chief, Program Development Branch
Environmental Health Services Division
Center for Environmental Health

Department of Agriculture Service

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Environmental Affairs Group
Dr. Stephen Margolis
Chamblee T-10
Centers for Disease Control
Atlanta, GA 30333

We recognize your concern that a summary of mitigation measures and anticipated benefits of grazing in riparain zones be included in the fianl EIS.

In response to public concern, management area direction for riparian area has been changed. Riparian areas will be protected by minimizing project activity. Consultation with the Montana Department of Fish, Wildlife, and Parks and the Montana Water Quality Bureau is required. Standards have been established for stream crossings and for avoiding stream contamination. To protect or enhance unique ecosystem values, Management Area R, Riparian Zones, has been rewritten, and gives preferential treatment to those resources dependent on riparian areas (water and wildlife habitat). The Forest-Wide Standards R-1, Riparian Zone Management, and W-1, Wetland Zone Management, have been expanded and incorporated into other mangement standards which deal with a particular activity. (See Forest Plan, Management Standards D-3, E-4, F-3, G-1, G-2, and L-4.) Management standards have been developed for riparian area protection in range and timber management. (Forest Plan Management Standards D-3 and E-4.) Additional information on mitigation methods and grazing benefits have been included in the final EIS.

We also recognize your concern that specific guidlines and mitigation measures should be developed to reduce soil and water degradation and visual impacts of mine tailing disposal sites.

The Forest Plan details the standards and guidelines on how mineral activities are to be conducted - to minimize the effects of the activity on other Forest resources. All mineral activities, such as the development of a mine, receive site-specfic environmetal analyses and additional mitigation measures are devlopled to protect surface resources.

We also recognize your concern that with the increase in dispersed recreation that there is a need to develope contingency plans and surveillance procedures to protect recreationists.

We share your concern with providing a safe environment for recreationists, but feel that established procedures, outside of forest planning, are adequate to provide the needed protection.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

State of Montana
Office of the Governor
Helena, Montana 59620

TED SCHWINDEN
GOVERNOR

DEC 21 1982

December 17, 1982

Mr. Dale Gorman, Supervisor
Lewis and Clark National Forest
P.O. Box 871
Great Falls, Montana 59403

Dear Mr. Gorman:

The State of Montana appreciates this opportunity to review and comment on the Draft Lewis and Clark Forest Plan. The following comments and attached list of major and specific concerns reflect Montana's interagency planning task force's review and recommendations.

In general, it was difficult to understand the effect the preferred alternative would have on the resources affected. Both the Draft Environmental Impact Statement (DEIS) and Plan itself contain numerous errors and contradictions, and the terminology is confusing. Although the documents are easy to read, map detail (timber suitability, wildlife habitat, soil conditions, etc.) is inadequate and the resource analysis necessary for determining the trade-offs between the resources and the appropriateness of the preferred alternative is absent. In addition, the management areas are too large and encompass too great an ecological diversity to provide for future, site-specific resource management direction.

Many of the standards and guidelines are too general and excessively vague. Because this appears to be one of the most important sections of the plan, they should be carefully detailed. I recommend that you solicit input from resource agencies that participate in the management of resources for which guidelines are being developed.

Because of the errors, contradictions, lack of resource inventory and analysis and their influence on the preferred alternative we recommend that a supplemental document be developed and distributed for public review and comment prior to completion of the Final Forest Plan. The supplemental document should clearly display and accurately portray the existing resource base, the trade-offs and mitigation strategy accompanying the preferred alternative, as well as, the other alternatives. Without this trade-off analysis and an accurate accounting and display of the correct facts and figures the public as well as, the state cannot clearly understand the costs or benefits of the Forest Service proposal.

Thank you for this opportunity to comment. We will be looking forward to a supplemental document and a review opportunity for the public.

Sincerely,

TED SCHWINDEN
Governor

Enclosure

cc: Tom Coston
Vern Fleischer
Forest Supervisors

AREAS OF MAJOR CONCERN

Sediment/Water Quality and Quantity/Fish Resources:

"Best Management Practices" should be adequately identified in the plan. Increased sediment and water yield are major items that various alternatives address in detail. An increase in average annual water production of up to 20,000 acre feet as a result of timber harvest should have minimal impact on water quality. However, "Best Management Practices" (BMP) associated with harvest methods, road construction, grazing and ground cover restoration can have a major impact on sediment production as runoff increases. Several alternatives state that increased sediment yield is expected to triple the present amount. Implementation of any alternative which increases sediment yield must be in accordance with the Memorandum of Understanding (MOU) between the Department of Health and Environmental Sciences and the U.S. Forest Service. If existing BMP's are not capable of adequately mitigating water quality problems, then better BMP's should be developed. Sediment yield should be measured and calculated for individual watersheds instead of forest-wide so that effects on sensitive or heavily disturbed drainages can be evaluated.

The DEIS states that all restoration to control management caused erosion will be completed by the year 2000 yet the preferred alternative projects continued increases in rates of sedimentation. This appears contradictory. The preferred alternative calls for an increase in sediment production over present direction; however, the state is concerned about this level of increase. Calculating the increase (p. 4-9, of the DEIS) results in a 25% increase, whereas it is stated on p. 3-25 of the Plan that the increase is only 8%. Numbers displayed in the Plan and DEIS should be carefully reviewed for accuracy.

The DEIS states that planned grazing in the preferred alternative can be accomplished "without mechanical damage and/or vegetative damage. . .", but also says that ". . .fisheries habitat will decrease due to livestock grazing in riparian areas. . .", this point needs clarification.

Predictions are that the preferred alternative will increase water yield by 10,000 acre feet per year; however, the timing of runoff is not addressed. Some hydrologic studies show that canopy removal results in a much earlier runoff that is of shorter duration; consequently, late summer flows may actually be reduced. Changing forest water yield and stream flow regimes have obvious implications for flood control, irrigation and stream dewatering. These concerns should be addressed in the DEIS.

The discussion on water (p. 3-14 of the DEIS) incorrectly states that water is a priced commodity and can be bid away from agricultural users by industrial and domestic users. This is not true. All water rights in Montana (regardless of use) are obtained and protected by the first-in-time first-in-right principle. They are not put on the auction block as suggested in the DEIS. Furthermore state law forbids the transfer of water from an agricultural to an industrial use if greater than 15 cubic feet per second (cfs).

The influence of the various alternatives on downstream fisheries that lie outside the forest boundary should be included in the analysis. Trout streams such as the Smith, Musselshell and Missouri Rivers are important to both nonresident and resident fishermen and contribute to local economies.

The preferred alternative calls for a decrease in "catchable" trout from 202,000 to 190,000. In view of the increasing demand for fishing opportunity, every effort should be made to maintain or preferrably enhance present levels of fish populations. Recreation is an important industry in Montana. Fishing opportunities contribute significantly to recreational importance in Montana.

2) Rocky Mountain Front:

The preferred alternative proposes a substantial increase in the annual timber sale program along the Rocky Mountain Front. However, timber in these mountains was reported in the early Rocky Mountain Front Planning Unit Draft Land Management Plan, November 1977, to be of negative economic value because of low timber volume and sites, low value species, rugged terrain, lack of roads, high cost of logging, and long distances to processing mills. Which of these factors have changed significantly for the Forest Service to alter its course so significantly?

Other forest values, however, are high. Livestock grazing is also important in the grasslands and open forests along the Front. A large quantity of high quality water flows from this watershed making irrigation possible over a large downstream area. Oil and gas potential in this part of the overthrust belt is considered the highest in Montana. The Front has received national acclaim for its scenic beauty and wildlife. The largest herd of Big Horn Sheep in the nation is found here. Grizzly bears, a threatened species, are found throughout the area, and much of the area is considered high value habitat. The Sun River elk herd, one of the largest herds in the nation, utilizes the area.

We recommend that timber harvest on the Rocky Mountain Front not exceed current levels for the following reasons:

a) It is questionable economics to allocate land to timber production when timber revenues fall far short of timber costs; indeed the so-called "marginal lands provision" of the National Forest Management Act (NFMA), Section 6(k), appears to <u>require</u> that these types of lands be classified as unsuitable for timber harvesting. Furthermore, the Preferred Alternative F proposes to increase timber outputs in a cost-effective manner, concentrating timber harvest on the most cost-effective areas. Obviously, timber harvest in the Front disregards this major objective and appears to violate the cost-effective analysis.

b) Monies invested in economically questionable timber sales could instead be invested to intensify silvicultural practices on better sites elsewhere on the Forest. Opportunities for greater silvicultural investment exist, as indicated by the fact that Preferred Alternative F has a

lower management intensity and smaller precommercial thinning program as compared to the levels suggested by the other alternatives.

c) Redirecting investment to silvicultural practices could ultimately result in greater employment and sustained timber harvest. Unemployed labor could be utilized in expanding labor-intensive silvicultural practices on better quality sites, ultimately resulting in decreased rotation periods and increased volume per acre.

d) Under the current direction the Rocky Mountain Division will, in the near future, be nearly completely leased for oil and gas exploration and development. The level of exploration and development ultimately resulting from these leases is conjecture at this time; however, extensive exploration and roading is likely, and, if expected discoveries are found, development could be large and impact heavily upon this essentially undeveloped area. These activities in combination with present uses will place greater demand on the soil resource of this important watershed for which the proposed plan projects substantial increases in sedimentation.

e) It is doubtful that increased timber harvest can improve wildlife habitat on the Rocky Mountain Front, as suggested, because it is considered to be near optimal now. Further, the negative impacts of increased timber harvesting (roads, decreased cover, sedimentation, etc.) would offset any wildlife benefits achieved from vegetative manipulation. Some old growth forests tend to increase habitat diversity along the Front.

f) Insect and disease problems, if they occur, are unlikely to be effectively restrained by timber harvest. Because the steep terrain limits cutting to valley bottoms, a large percentage of the forest cover would remain in an unharvested, susceptible condition.

g) Commercial and non-commercial firewood harvest and post and pole cutting could continue without further roading.

3) Jefferson Division/Middle Fork of the Judith River:

It is recommended that the Plan not include timber harvesting in the designated area of the Middle Fork of the Judith River Unit. The significance of the area to the continuation of the current recreation associated with the Judith River elk herd will be significantly affected by the proposal.

Currently, the area provides two-thirds (2/3) of the elk hunting recreation days associated with the Little Belt Mountains (approximately 33,000 hunter days). The area is one of the major locations for the recreational pursuits of the state's two major population centers (Great Falls and Billings). The present road system provides for access to most of the area along ridgeline and drainages. The Middle Fork Area constitutes the last unroaded portion of the elk herd range. Removal of escape cover and additional roads as a result of timber harvesting will allow for greater hunter success and ultimately lead to less recreation (hunter opportunity).

4) Consistency Between Documents:

There are contradictions throughout the Plan and DEIS as to the consequences of implementing the preferred alternative. The following are examples: a) The DEIS states that important fish and wildlife habitat will be maintained and disturbance to important big game habitat will be minimized (pg. 2-44). Alternatively, the section on relationships with other elements says that increased grazing in riparian areas and on winter range will reduce fish population and decrease elk numbers (pg. 2-60 and 4-24).

b) The DEIS states that the maximum timber benchmark yield of 68.5 million board feet would be possible and still meet "minimum requirements of laws and regulations concerning wilderness, threatened and endangered species, viable wildlife populations, improving habitat for selected species, and maintaining water quality." While at the same time it is stated that the maximum level ". . . would violate the managament standard and guidelines in the National Forest Management Act (NFMA) regulations. . ." by adversely effecting ". . .water quality, wildlife habitat effectiveness and diversity, aesthetic values, and semiprimitive dispersed recreation. . ." (pg. 2-13). These descriptions of the maximum timber benchmark yield leaves a feeling of ambiguity as to the difference between minimum requirements of laws and regulations and the management standards and guidelines in the NFMA regulations.

c) Many of the recommendations in the "Management Guideline and Recommendation for Wildlife Management" (referred to in the DEIS) contradict statements in the proposed plan. The guidelines specifically state on pages C1-4 through C1-6 -- "Wildlife and fish habitat shall be maintained and/or enhanced through:

a) Coordination with all other leasees of land and water
b) Restoration of damage, no matter how caused
c) Prevention and abatement of pollution
d) Enhance and maintain through direct captial involvement."

The DEIS and Plan however predict a decrease in trout and elk populations due to increases in grazing and timber harvesting. It is extremely important to maintain consistency and state clearly and concisely forest policy and direction.

d) The plan does not appear to be particularly cost effective when viewed from a quantitative perspective (return to the government for dollar invested). Obviously, considerable weight was given to qualitative judgments (net public benefit) when choosing the preferred alternative. If this is the case, there is a question as to the rationale for such a sophisticated and expensive system of economic analysis if so little weight is ultimately attached to it.

e) Page 3-17 of the Plan states that "Timber harvest activities are programmed only in those areas where extensive investment in roads are commensurate with the values to be removed." However, the plan proposes expanded harvest in the Rocky Mountain Division which ". . .contributes to high opportunity cost." (p.2-98, DEIS). Also the present net value

(PNV) of timber harvest in the Rocky Mountain Division over the five decade planning period is apparently negative. (See DEIS, p.2-99, Increment C discussion).

5) Reference to State Elk Goals:

The DEIS eludes to a state population goal for elk in the Lewis and Clark Forest of 13,600 animals. However, such a state goal does not exist.

6) Management Prescription and Guidelines:

The land management prescriptions made in the Preferred Alternative are neither reflective of, nor justified by the level of resource inventory information available in the draft. The expanded information base has been organized according to discrete, homogeneous land parcels with similar characteristics, while the few broad management prescriptions apply to large management areas including varied land parcels with many dissimilar characteristics. The result is reduced confidence that the management prescriptions properly reflect or respond to actual on-the-ground conditions.

For example, areas in the Jefferson Division such as the North Fork of the Smith River, Hoover Creek, Allan Park, Eagle Creek, Lake Creek, Middle Fork Judith River and the west Castle Mountains have been identified by the Department of Fish, Wildlife, and Parks (DFWP) as providing critical and essential elk security and breeding habitat (this information was provided to the Forest Service at the DFWP's request prior to the drafting of the Forest Plan). Nevertheless, all of these areas have been designatd "B" and will be managed primarily for timber harvest and grazing. Increased roading and cover removal within these areas may lead to more restrictive hunting seasons for elk and reduced recreation opportunity. It is recommended that the development of a more specific prescription to manage and protect other resource values of these areas be undertaken.

Virtually all Management Area prescriptions for the range resource call for a 20 year replacement schedule for range improvements. It is felt that this should be more flexible and done on a case by case basis as needed. Such things as location, weather conditions, frequency of use and degree of wildlife use may all contribute to a replacement need in 5 to 10 years in some instances and 30 to 40 years in others.

7) Monitoring:

Monitoring is one of the most important elements in the plan since it can provide the information necessary to evaluate the effects of forest practices. Unfortunately many of the proposed monitoring programs appear to lack the intensity necessary to adequately evaluate change (e.g. surface water monitoring). Furthermore, several of the monitored elements appear to be evaluated so infrequently (3-5 years) that would allow time for irreversible damage to occur. Increased monitoring intensity and frequency to detect changes to important resource elements is favored.

8) Road Management:

Although the plan calls for the closure of roads after commodity extraction, where, when, and how is not clearly defined. We recommend that road management guidelines indicate that road closures will be used to maintain hunting quality, preserve viable habitat, distribute big game harvest, reduce sedimentation and improve the opportunity for undisturbed recreation. We also recommend that consideration of those items in the DFWP road management policy be used in developing your road management program.

9) Range Management:

The state supports the Proposed Forest Plan formulation for the range resource that calls for a moderate increase in AUMs over the next 50 years. The fact that a portion of this increase will occur on big game winter range and riparian areas makes it essential that the special protection measures outlined in the Plan be implemented to help mitigate the impacts on other resource values.

Additionally, the state favors the use of transitory range, and prescribed burning of sagebrush to improve forage availability and condition. Such practices have the potential to increase forage available for livestock and wildlife.

The display of existing range conditions is lacking in the Plan. The range guidelines should be more specific in terms of the long-term range condition desired on forested lands. Range parcels in the poor and fair condition classes should be identified, and objectives set to bring these parcels to a good condition within a set time frame.

10) Riparian and Wetlands Area:

From reading the Forest Management Guidelines for Riparian and Wetlands Zones (pgs. 4-12 and 4-13 of the Plan) one gets the impression that no specific funding allocations are to be made for these areas. Instead, funding would be dependent on dipping into other resource funds. In view of the increasing awareness of the importance and fragility of these areas, specific funding allocations should be made for these areas to insure that their protection is not short-changed for lack of funds.

11) Timber Program/Mountain Pine Beetle:

The Plan states that a departure to reduce timber loss from epidemic infestations of the Mountain Pine Beetle was rejected for consideration as an alternative. A reason given for this rejection was that changes in vegetational succession stages could result in adverse impacts on other resources. We question this logic. The intent of the departure is to prevent catastrophic loss by harvesting highly susceptible trees before they are infested. Such a catastrophic loss of timber resulting from a pine beetle infestation could produce worse changes in vegetational succession than would harvesting,

especially considering the high probability of wildfire. The state submits that carefully planned harvesting is preferable environmentally to massive bug-kill and possible wildfire. Economic and other reasons may dictate that this departure not be considered, but certainly not successional changes.

12) Fire Protection:

Little mention was made of fire management policies. It would seem that either fire control costs or effectiveness would have to change based on the alternatives. If the same level of resource protection is to be maintained under all alternatives, then the costs of protection must change among the alternatives. Such factors as miles of road, acres harvested, activity fuels and public access all affect fire danger, and consequently must affect either cost or effectiveness.

There is also little mention of cooperative programs with other agencies. Discussions concerning air quality impacts from prescribed burning should reference the Montana Cooperative Smoke Management Plan and the activities of the State Airshed Group (of which the Forest Service is a member and cooperator). Also, fire control discussions should address varied land ownership and cooperation. Glacier, Pondera, Teton, Lewis and Clark, Cascade, Chouteau, Meagher, Wheatland, and Golden Valley counties all include a portion of the Lewis and Clark National Forest within their boundaries, and all are participating in the Montana County Cooperative Fire Protection Program. Each of these counties has a documented fire plan which covers private land adjacent to or intermingled with national forest lands. The type of cooperation planned with these counties should be explained.

13) Recreation:

Dispersed recreation is not adequately addressed. The DEIS state that: "The projected use will be far below the available dispersed recreation opportunity." This statement implies that there is no need to plan for more dispersed recreational opportunities. In fact, the statement is not accurate for many types of dispersed recreation -- i.e., hunting and fishing. The Final Forest Plan should address the management needs of each type of recreational use using management area prescriptions for recreation.

The National "willingness to pay" value of $21 used to assess the economic value of hunting and fishing recreation is too low. The averaging of values between states and types of hunting downplays the importance of hunting and fishing recreation to a state like Montana where it is a favored recreation of many residents and draws considerable nonresident use. We still view the use of the recent Wyoming study figures the best alternative at present.

Implementing the proposed plan will reduce the amount of trails available and no new trails are planned. This decrease in dispersed recreation opportunity should be avoided.

14) Oil and Gas Development:

Specific access roads for oil and gas development in the Rocky Mountain Division are shown on the Geographic Unit maps in Chapter 4 of the Plan. According to the narrative description these roads could be developed. It is unclear whether the presentation of these roads in the plan gives final approval to their eventual construction. Approval decisions for these locations should not be in the Plan, but only when specific proposals are requested and only after site-specific analysis of their feasibility and impacts. Some of the road locations have been previously found unsuitable in environmental assessments because of terrain and geologic considerations.

Many of the roads built for oil and gas development as well as other surface resource management roads are shown to transect Management G areas where "Generally, roads will not be constructed for surface resource management. . ." (pg. 4-72 of the Plan). This inconsistency is confusing and misleading. Areas to remain roadless should be defined as such and shown in the Plan.

15) Lack of Maps:

The maps provided do not depict the alternatives, but rather only portray areas where timber harvest and additional road construction activities will occur. Without map displays showing land allocations, it is difficult to understand and compare the alternatives. Maps displaying existing resources should accompany any and all forest plans. An accurate analysis of the alternatives and trade-offs without these maps is difficult.

AREAS OF SPECIFIC CONCERN

1) Timber sales:

Several timber sales along the Rocky Mountain Front have large areas that because of soil instability or steep slopes have been stipulated as unsuitable for oil and gas leases. However, suitability/non-suitability of these areas for timber removal is not scrutinized.

The Sawmill Creek timber sale should be shown to be located in a heavily utilized elk migration route. Cover removal in this area will result in loss of needed security during the fall migration to the Sun River Game Range. A careful analysis of the trade-offs must preceed this proposed timber sale. The Mills Creek and Falls Creek sales are also associated with elk migration routes and occur in areas restricted from oil and gas activity due to steep slopes and unsuitable soils. We recommend careful trade-off and resource analysis for these as well. The proposed Comb Creek timber sale encompasses an important security cover area for elk. Further trade-off analysis is needed here also.

2) Oil and Gas Development:

The construction of a forest arterial road for oil and gas development is indicated as possible along the north shore of Gibson Lake. This is in direct conflict with the Environmental Assessment (Deep Creek and Reservoir North Rare II Further Planning Areas), which states that access along the north slope of Gibson Reservoir is not physically feasible.

3) Fisheries:

The blackspotted cutthroat, a unique native trout east of the Continental Divide, is found in many of the management units throughout the forest yet it is not mentioned. This fish is an excellent indicator species that may be seriously impacted by the increases in sediment predicted by the DEIS. This should be acknowledged in the Plan.

Fisheries habitat should have been considered as an issue relative to logging activities. The importance of fish has not been acknowledged in geographic units RM-1 through RM-9. Streams in these areas have excellent populations of rainbow trout, cutthroat trout and some brook trout.

4) Hunting Opportunity Analysis:

Calculating reductions in hunter days on a forestwide basis is not very useful to the public. Hunters who traditionally hunt an area such as the Middle Fork of the Judith would be interested in knowing the level of reduced hunter days in their area. Showing changes by individual hunting district would be more meaningful and useful to the public.

5) Roads:

The map on page 4-131 indicates a forest collector road could be developed into the Renshaw Recommended Wilderness Area. However, this road is not shown on the RM-11 map on page 4-143. The Plan should not include a road in this area until the wilderness issue is resolved.

6) Wildlife:

The description of RM-8 fails to acknowledge the presence of extensive bighorn winter range and lambing areas as well as migration corridors for deer, elk and bighorn. The presence of important deer and elk summer-fall ranges are not acknowledged in LB-1, 3, 4, 5, 6, 7, 8, 10, and 11.

All of the land in the Loco Mountain Unit (CZ-1) along the forest boundary from Big Elk Creek north to the West Fork of Miller Creek is important elk winter range. A proposal to acquire the inholdings along the fringe and retain ownership of existing sections would greatly improve winter range. The state does not support the sale of public lands along the forest boundary in the Forest Lake Unit (CZ-2).

The plan does not discuss the cumulative impacts to grizzly bears in relation to activities on and off the forest such as campground development, increased recreation, residential developments, grazing, logging and firewood gathering. Considerable research is available discussing these affects, and guidelines have been developed to assess them. These should be addressed in the Plan.

The estimate of 100 bears is based on outdated information. The latest density figure for the Rocky Mountain East Front is one bear for every 14.2 square miles or about 85 grizzly bears. The grizzly bear recovery plan does not provide a figure of 81 grizzly bears as the recovery population size as stated in the Plan. This figure was apparently extrapolated by the Forest Service from recovery statistics and has not been agreed to by DFWP or the Fish and Wildlife Service. (The inference in these figures is that there are 20 bears to spare.) We recommend that references to other documents be accurate and if extrapolated information is used, it should be so stated.

The Plan implies that there is adequate baseline data for the grizzly bear, this is not the case. DFWP is presently involved in studies with the Forest Service and others to acquire that data base.

The plan implies that a good monitoring program will allow a high degree of accuracy and predictability of grizzly population trends. However, the state is not aware of any monitoring scheme that is accurate or highly reliable at this time. The Plan further suggests that surface stipulations can mitigate the affects of oil, gas and mining activites on grizzly bears. However, methods of effectively mitigating grizzly losses have not been defined. DFWP is conducting studies to determine if stipulations can mitigate grizzly losses.

The Rocky Mountain East Front has limited quantities of old growth and very open terrain. There are large open alpine areas and foothills with shrub fields and meadows. The benefits of the old growth timber to grizzly bears as well as the cover values far exceed any benefits of forage production from timber harvest. The need for the later is questionable.

The Two Medicine Geographic Unit (RM-1) presently has serious livestock-bear conflict problems, which have resulted in the removal of several bears. In addition, a high rate of poaching exists. Observation of sub-adult bears moving into the area and poor trapping success in recent years suggest that available habitat is not occupied. Additional development in the area could diminish the prospects for re-establishing the grizzly.

The Plan proposes road in many drainages where no timber activities are planned. Many of these access areas are listed under the semiprimitive or wildlife emphasis categories. The state does not support road access in the following areas: RM-2 (Badger), RM-3 (Lubec-Heart Butte), RM-4 (Birch Creek), RM-7 (Sun Canyon), RM-8 (Benchmark Willow), and RM-10 (Wilderness Study Deep Creek). These areas have high wildlife values that appear superior.

Monitoring criteria for initiating the evaluation of existing management practices should in some cases be more strict. Any trend downward in resource elements such as threathened and endangered species, elk winter range, other game species (e.g. bighorn sheep), or fish populations should initiate evaluation of that practice. Also, a 20% annual variation in allowable timber sold appears overly liberal.

An additional monitoring requirement of bull elk harvest greater than 40% during the first week of the elk hunting season is good monitoring criteria for evaluating habitat effectiveness. The Plan states the management of various range elements will be re-evaluated if there is a significant change in some parameter. However, the Plan should define "significant."

Management indicator species are listed in the DEIS, but specific monitoring criteria for these species are not listed under Monitoring. This should also be included.

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date: *

SUBJECT: Lewis and Clark Forest Plan

TO: Governor Ted Schwinden
State of Montana
Office of the Governor
Helena, MT 59620

1. Sediment/Water Quality and Quantity/Fish Resource

We share the concerns about erosion, sediment, and water quality. All reasonable practices, to prevent any new management-caused erosion, will be applied. These "Best Management Practices" have been further defined and Forest-wide guidelines have been developed for [1] range management, [2] timber harvest, [3] soil and water protection, [4] oil and gas activities, [5] road maintenance and construction, and [6] debris control which incorporates many of the "Best Management Practices" which will be used under the Forest Plan. Although the application of Forest-wide guidelines is intended to limit the amount and duration of the adverse effects, increased sedimentation will occur. Project planning examines the effect of an activity, such as a timber sale, on an individual drainage basis. The Forest Plan requires an analysis of each watershed where vegetation will be removed. As part of project planning, site-specific water quality effect will be evaluated and control measures designed to ensure that the project will meet Forest water quality goals; projects that will not meet water quality standards will be redesigned, rescheduled, or dropped.

Natural sediment was not displayed in the DEIS. The projected increase in sediment for each alternative was displayed. Projected percent of increase was calculated using both increases from 1981 to 2030 and increases from the current situation. This led to much confusion and inconsistency with sediment values. In the Supplement, base sediment is displayed along with projected increase by alternative. These values have been recalculated using the best available information. Percent of increase was calculated from the current situation.

In response your concern, we have calculated projected sediment yield for the major drainages where the most road construction and timber harvest will take place.

DRAINAGE	ALT G 1984-1994	ALT G 1984-1994	PERCENT INCREASE
Smith River-excluding Tenderfoot	1405	1464	4.2
Tenderfoot	2113	2106	-.3
Belt	3667	3673	.2
Lonetree	510	516	1.1
Dry Wolf	1621	1724	6.4
Middle Fork Judith	2174	2240	3.0
South Fork Judith	2008	2026	.9
Musselshell	1831	1949	6.4

2. Rocky Mountain Front--Timber harvest levels on the Rocky Mountain Division should not exceed current levels.

On the Rocky Mountain Division, under the final Plan several changes were made in timber management areas in response to better defining management area boundaries and protecting other resource values. The overall sale program on the Rocky Mountain Division was reduced to 0.5 million board feet yearly. Permanent roads will not be built under this program. We believe this program will meet local needs and protect other resource values.

Economically, it is less desirable to harvest timber on the Rocky Mountain Division than on the Jefferson Division. However, on the Rocky Mountain Division there is a local need for wood products, including sawlogs, and a need to use timber harvest to enhance other resource values. Present Net Value of harvesting timber in the Rocky Mountain Division is a positive value. Section 6[k] of the NFMA requires the Forest Service to identify lands not sutiable for timber production. Economics is one of the factors. Our analysis shows that 18,070 acres in the Rocky Mountain Division are suitable for timber production.

3. Jefferson Division/Middle Fork of the Judith. Do not harvest timber in the Middle Fork Judith River Unit.

We are proposing that about 11,600 acres of the Middle Fork be devloped for timber products. However, Congress has designated this area for wilderness study. No development would take place until Congress makes a decision on the area. Much of the area scheduled for development has a high potential for attack from the mountain pine beetle. Elk calving areas will be protected, elk security will be maintained and a through road system would not be built. Under the final Plan, the area proposed for timber management has been changed to Management Area C. This management area, while permitting timber harvest, will provide more securtiy for elk.

4. Consistency Between Documents.

The statement on page 2-60 and 4-63, the increased grazing in riparian areas and on winter range will reduce fish populations and elk numbers, is a fact and is not related to the Preferred Alternative.

We agree, the discussion on the maximum timber benchmark was confusing and has been re-written.

Wildlife guidelines have also been re-written. Goals, objectives and management direction are stated and the trade-offs between alternatives are displayed.

The NFMA regulations clearly direct the Forest Service to choose the alternative which maximizes net public benefits. These benefits have two components, priced and non-priced values. In analyzing the various alternatives, the ID team started with the maximum PNV benchmarks. This would maximize the PNV of those resources with market values. From this point constraints were added which represent non-priced issues, such as retaining roadless areas, improving plant diversity, or increasing elk hunting quality. Each of these constraints would lower the PNV of each alternative, or lower the priced public benefits, while at the same time increase the non-priced benefits. The trade-off in priced values can be carefully calculated while the non-priced values are more subjectively described.

Also see discussion on 2. Rocky Mountain Front.

5. Reference to State Elk Goal. The DEIS eludes to a State population goal for elk in the L&C National Forest of 13,600 animals. However, a State goal does not exist.

The State's elk goal was a disaggergation of the State's goal from the 1970 Montana State-Wide Comprehensive Outdoor Recreation Management Plan [SCORP]--a strategic plan for the protection, perpetuation, and use of Montana's wildlife, fish, and recreation resources. Because of your objection, this goal has been dropped.

6. Management Prescription and Guidelines. The land management prescriptions made in the Preferred Alternative are neither reflective of, nor justified by the level of resource inventory information available in the draft.

A management area is a unit of land with similar management objectives and capabilities and a common management prescription. Although four new management areas have been added, the management areas and prescriptions have been carefully reviewed to assure they reflect the intended management for an area.

The Forest Plan has been changed to provide elk security in Hoover Springs, Oti Park, Head of the Smith, and Judith River drainages. Additional elk security is provided by limiting cover removal and defining open road densities in areas where timber will be harvested.

The 20-year replacement schedule for range improvements is for programming funds, actual replacement is done on a case-by-case basis.

7. Monitoring.

The monitoring requirement for fish and wildlife have been revised. Indicator species which may be affected by the Forest Plan have been included in the monitoring plan. The criteria for further evaluation for some species, such as the grizzly bear and wolf have been made more restrictive. Many wildlife species are very difficult to monitor. We have proposed a way to monitor such species and still be cost effective.

8. Road Management.

The Montana Fish and Game Commission Road Management Policy and the Forest Service Road Regulations have been added to the Forest Plan as Appendix G.

9. Range Management.

The new Preferred Alternative [G] slightly increases the grazing level. Range and wildlife specialists carefully reviewed the opportunity to increase grazing while maintaining big-game winter range and riparian area values. Alternative grazing levels could be implemented, but specialists recommend no additional grazing on big-game winter range of riparian areas, unless wildlife needs could be fully met. Permitted use will increase from the current level of 71,000 AUMs to 73,600 AUMs by 2030. This increase will come from better distribution and use of forage, through the application of range improvement practices and more intensive management. Range in an unsatisfactory condition will be improved by 2030.

10. Riparian and Wetland Areas.

The Forest-wide Management Guideline R-1, Riparian Zone Management, and W-1, Wetland Zone Management, have been expanded and incorporated into other management guidelines which deal with a particular activity. Funding is tied to a paticular management practice for each specific area.

11. Timber Program/Mountain Pine Beetle.

Significant lodgepole pine loss could result from a mountain pine beetle epidemic. To harvest the timber, large tracts would have to be roaded, which would cost a great deal, as well as disturb wildlife habitat and semi-primitive recreation. Successional changes have been dropped as a reason not to consider a mountain pine beetle in detail.

12. Fire Protection.

Additional information has been added on fuels and fire management. Differences in fire management by alternative is discussed in Chapter II. Cooperative fire programs have been added to the Forest Plan.

13. Recreation.

The Forest Plan analyzes a spectrum of dispersed recreation opportunities, from primitive to rural. We feel that this is more useful than an activity analysis.

The value for a hunter day represents a "willingness to pay" value. A "willingness to pay" value is a surrogate market value. In contrast, the value of timber can be determined on the open market and the value for range can be estimated from private land charges. These values do not include getting to the timber and range, but include only the cost the user is willing to pay for the consumption of the resource. Therefore, it would not be correct to include additional costs in the calculation of hunter days. The value of a hunter day when compounded to present dollars and when added with the additional costs for fuel, expenditures, licenses, and ammunition is about $50.

14. Oil and Gas Development.

The Forest Plan identifies future road corridors for the Arterial-Collector System for both surface and subsurface [minerals] uses. Road design and the exact location are part of project planning for an activity and are subject to environmental analysis. Road corridors which were included in areas previously found unsuitable because of terrain and geologic considerations have been deleted from the Forest Plan.

15. Lack of Maps.

There are over 175 pieces of resource information for each land unit [capability unit]. We do not feel that the EIS is the appropriate place to display this information. The Alternative Maps show where timber harvest and additional road construction activities may occur during the next 50 years and between 50 and 150 years, where no timber harvest and additional road construction will take place, concentrated dispersed recreation areas, recommended wilderness, and areas of special visual concern.

1. Timber Sales.

We have reviewed each area to determine if timber harvest was an appropriate land use. On the Rocky Mountain Division, several changes were made in timber management areas. The reduction in volume should also reduce the impacts of timber harvest. Project analysis is part of all proposed activities including timber sales.

2. Oil and Gas Development.

The road shown along Gibson Reservoir was in error and has been removed from the Forest Plan.

3. Fisheries.

A discussion of the impacts on the habitat supporting populations of black-spotted cutthroat has been added to the Forest Plan. The discussion of impacts to the fisheries resource in Chapter IV has been expanded and include downstream effects. Fish in relation to logging was not identified as an issue, although we recognize the potential effects.

4. Hunting Opportunity Analysis.

Ideally, hunter days would be more meaningful if they were determined on a small unit basis. However, the number of hunting districts on the Forest, the inclusion of other landownerships, and the structure of the FORPLAN model make such an analysis impossible. Hunter days were developed by mountain range and were combined for display in the EIS. The uniform approach for determining hunter recreation days was developed by the Forest Service's Northern Region in consultation with the Montana Department of Fish, Wildlife, and Parks.

5. Roads.

The road shown in Renshaw Recommended Wilderness Area was in error and has been removed.

6. Wildlife.

Additional information on wildlife habitat has been added to several Geographic Unit descriptions.

The land adjustment plan in the Crazy Mountains has been adjusted to keep important elk winter habitat in Federal ownership.

A process to evaluate cumulative effects of activities on grizzly bears has been added to the Forest Plan.

The population estimate has been revised from the DEIS and is based on the latest information [85 bears]. The recovery goal in the DEIS is the Northern Region disggregation of the recovery goal for the Northern Continental Divide Grizzly Bear Ecosystem as identified in the DEIS-Supplement.

It was not our intent to imply that adequate baseline data for grizzly bears exists. Although grizzly bears have been studied for over 25 years, site-specific information is needed and the Forest is committed to obtaining it.

We feel the available data will allow for determining grizzly bear population trends with a high degree of accuracy. Management guidelines have been developed for timber harvest, livestock grazing, oil and gas development, and roads to insure that grizzly bears and their habitat are protected. We know of no grizzly bear losses from oil, gas, or mining activities, but these activities can displace bears. Habitat capacity for 85 bears would be provided under all alternatives, although the quality will change.

The continuing studies on the Rocky Mountain Front indicate a low grizzly bear population density on part of the North End. The reasons for a low density are just starting to be understood. The addition of the cumulative effects process to the Forest Plan will help analyze the effect of an activity on specific bear habitat components. Grazing which affects grizzly bears on their habitat will be made compatible with grizzly needs or such use will be eliminated.

There are over 22,000 acres of old-growth forest and 31,000 acres of mature sawtimber on the Rocky Mountain Division outside of classified wilderness. Some areas, like the Two Medicine Valley contain large continuous blocks. Diversity in these areas can be improved.

Monitoring requirements have been reviewed and changes have been made including making the criteria for some species, such as the grizzly bear and wolf more restrictive, adding old-growth habitat to the monitoring requirements, and adding a monitoring requirement of bull elk harvest greater than 40 percent during the first week of the elk hunting season. "Significant" has been defined in the range monitoring element. Monitoring criteria for all management indicator species has been included.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

DEPARTMENT OF COMMERCE

TED SCHWINDEN, GOVERNOR

CAPITOL STATION
1424 9TH AVENUE

STATE OF MONTANA

(406) 449-3494

HELENA, MONTANA 59620-0401

September 22, 1982

MEMORANDUM

TO: United States Department of Agriculture
Forest Service
P. O. Box 871
Great Falls, MT 59403

FROM: Economic and Community Development Division - Department of Commerce

SUBJECT: REQUEST FOR REVIEW: Notice - September 10, 1982

We acknowledge receipt of your Land and Resource Management Planning Workshops on Lewis and Clark National Forest Plan.

Due to limited staff time and resources we have not attempted an indepth review of this item. Our plans and continued effort will be to provide a comprehensive review for future items.

SIGNATURE: John Vaughn

TITLE: PROGRAM MANAGER DATE: September 22, 1982

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: John C. Vaughn, Program Manager
Department of Commerce
1424 9th Avenue
Helena, MT 59601

NO RESPONSE NECESSARY.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

MONTANA HISTORICAL SOCIETY

HISTORIC PRESERVATION OFFICE

225 NORTH ROBERTS STREET • (406) 449-4584 • HELENA, MONTANA 59601

AUG 1 1982
RECEIVED

August 11, 1982

Dale Gorman, Forest Supervisor
Lewis and Clark National Forest
P.O. Box 871
Great Falls, MT 59403

Dear Mr. Gorman:

Re: Draft Environmental Impact Statement
Lewis and Clark National Forest Plan
Draft Environmental Impact Statement

Thank you for the opportunity to comment on the above-named document. I note that the focus will remain on a policy to inventory on a project-by-project basis prior to design and implementation of activities which impact the cultural resources. The Final Environmental Impact Statement should clearly spell out how the procedures will comply with Section 106 of the National Historic Preservation Act, the procedures as outlined in 36CFR800, and Executive Order 11593. Also, the Final document should include a discussion of cultural resources under the headings of "Affected Environment" and "Environmental Consequences."

Sincerely,

Marcella Sherfy

Marcella Sherfy
Deputy SHPO

TAF/det

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Marcella Sherfy
Montana Historical Society
225 North Roberts Street
Helena, MT 59601

We recognize your feeling that the FEIS should clearly state how Forest procedures will comply with Section 106 of the National Historic Preservation Act, the procedures as outlined in 36 CFR 800, and Executive Order 11593. And, that the Final document should include a discussion of cultural resources under the headings of "Affected Environment" and "Environmental Consequences."

Specific procedures to comply with the National Historic Preservation Act have been added to the final Forest Plan. The final EIS includes a discussion of cultural resources under the headings of "Affected Environment" and "Environmental Consequences".

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

City-County Building
316 North Park
Helena, Montana 59623
Telephone 406/443-1010

LEWIS AND CLARK COUNTY

Board of County Commissioners

November 30, 1982

FOREST SERVICE
Lewis & Clark National Forest
Great Falls, Montana
DEC - 1 1982
RECEIVED

Mr. Dale Gorman, Supervisor
Lewis and Clark National Forest
United States Forest Service
215 1st Ave. North
Great Falls MT 59401

Dear Mr. Gorman:

I read with dismay of your agency's tentative plans to allow development in certain roadless areas of the Rocky Mountain Front. I believe that roadless acreages in the areas of Falls, Elk, and Willow Creeks and Renshaw Mountain, should be annexed to existing wilderness areas.

The Falls Creek and Renshaw Mountain areas are of particular concern to the Lewis and Clark County Commission. Please note in the attached resolution that the commission voted to recommend wilderness classification for these two areas.

Sincerely,

Bob Decker

Bob Decker, Chairman
Lewis and Clark County Commission

encl.

bd/mm

RESOLUTION 1982 - 7

SUPPORT OF WILDERNESS AREAS IN LEWIS AND CLARK COUNTY

WHEREAS, the United States Forest Service is responsible for making recommendations to the Secretary of Interior regarding applications for oil, gas, and mineral leases on National Forests; and

WHEREAS, in a letter to the Lewis and Clark County Board of County Commissioners, dated December 21, 1981, the Forest Service requested comments on proposed leases on units of the National Wilderness Preservation System, certain wilderness study areas, and recommended wilderness additions; and

WHEREAS, the Bob Marshall, Scapegoat, and Gates of the Mountains Wilderness Areas are located partially or entirely within Lewis and Clark County, as are three (3) areas recommended by the Forest Service for wilderness area addition; and

WHEREAS, on February 17, 1981, the Lewis and Clark County Board of County Commissioners approved Resolution 1981-9, "Support of the Bob Marshall Country," thereby entering the record opposition to exploration and leasing in the Bob Marshall Country, defined in the Resolution as "the Bob Marshall, Scapegoat, and Great Bear Wilderness Areas and adjacent wildlands"; and

WHEREAS, as a result of an extensive planning process and much public input, the Forest Service has officially recommended that three (3) areas be added to existing Wilderness Areas in Lewis and Clark County: "Renshaw Mountain" to become part of the Bob Marshall Wilderness; "Falls Creek/Silver King" to become part of the Scapegoat Wilderness, and "Big Log Gulch" to become part of the Gates of the Mountains Wilderness; and

WHEREAS, established Wilderness Areas in Lewis and Clark County are long-lasting, stable sources of income and employment in Lewis and Clark County by means of outfitting, tourism, hunting, fishing, and related enterprises; and

WHEREAS, additions recommended for Wilderness designation by the Forest Service are integral components of wilderness habitat and are invaluable supplemental acreages to formally protected areas for purposes of prime grizzly bear habitat (Renshaw Mountain) and popular, high-use recreation areas (upper Dearborn River addition to Scapegoat and Big Log Gulch addition to Gates of the Mountains, which includes Refrigerator Canyon, Big Log Gulch, and the eastern shore of the Missouri River in the "gates" of that river); and

WHEREAS, vast areas of public lands have been leased in Lewis and Clark County, the State of Montana, and the United States, and the acreages contained in existing Wilderness Areas is small by comparison; and

WHEREAS, the percentage of estimated potentially producible oil and gas within federally-owned lands that exists within Wilderness Areas is minimal; and

WHEREAS, oil and gas exploration in Wilderness Areas would possibly give cause for roads, disruption of wildlife habitat, degradation of expansive natural settings, and conflict with existing businesses and enterprises dependent on undistrubed wilderness land;

NOW, THEREFORE, BE IT RESOLVED that the Lewis and Clark County Board of County Commissioners believes that many lasting and stable benefits come from wilderness areas, including economical, recreational, and wildlife amenities, and that these durable benefits outweigh the immediate and short-lived gains to be made by oil, gas, or mineral development on said areas;

AND BE IT FURTHER RESOLVED that the Lewis and Clark County Board of County Commissioners goes on record in opposition to oil, gas and mineral leasing or exploration on lands in Lewis and Clark County designated as wilderness or recommended for wilderness by the Forest Service;

AND BE IT FURTHER RESOLVED that a copy of this resolution be sent to the Secretary of Interior, Secretary of Agriculture, Chief of the Forest Service, Regional Forester, and Montana Congressional delegation.

DATED this 27th day of January, 1982.

BOARD OF COUNTY COMMISSIONERS
LEWIS AND CLARK COUNTY

Bob Decker

Bob Decker, Chairman

Chris Gardner

John H. Wilkinson

ATTEST:

Helen Koyich, Clerk of the Board

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Bob Decker, Chairman
L&C County Board of Commissioners
316 North Park
Helena, MT 59623

We recognize your support for wilderness classification in the Falls, Elk, Willow, and Renshaw Mountain areas. The Forest has carefully reviewed the roadless land available for wilderness classification, and has made some changes in the wilderness recommendations on the Rocky Mountain Division. About 5,830 acres in the West Fork of the Teton have been added to the Forest's recommendation. However, no significant changes were made from the DEIS-Supplement recommendations for the Renshaw and Silver King areas. The final Forest Plan recommends 19,144 acres in Renshaw and 18,190 acres in Silver King for wilderness classification. None of the Elk or Willow Creek areas have been recommended for wilderness classification.

Because of the importance of such actions and conflicting viewpoints, Congress has reserved the right to make the final decision on wilderness classification. Their decision will be incorporated into the Forest Plan.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

FEIS

Appendix F

Respondents to DEIS-Supplement and Letters From Federal, State, and Local, Agencies and Forest Service Responses

RESPONDENTS - DEIS-SUPPLEMENT

RLT-1	Lewis & Clark County Commissioners
RLT-2	William V. Peterson
RLT-3	Randall H. Gray
RLT-4	Department of the Air Force
RLT-5	Chevron U.S.A., Inc.
RLT-6	Continental Divide Trail Society
RLT-7	Rostad & Rostad Cattle
RLT-8	Soil Conservation Service
RLT-9	Mr. & Mrs. Charles Neal
RLT-10	Robert Miller
RLT-11	Ron Gougler Family
RLT-12	John B. Murnane
RLT-13	Montana Historical Society
RLT-14	John Kranick Jr.
RLT-15	Lisle Chestnutt
RLT-16	National Aubudon Society
RLT-17	Richard L. Kroger
RLT-18	Brand S Corporation
RLT-19	Myron P. Chase
RLT-20	E. B. Fitzpatrick
RLT-21	Gene Sentz
RLT-23	Orville Gray
RLT-25	The Billings Motorcycle Club
RLT-26	Joseph C. Schott
RLT-27	David E. Anderson
RLT-29	Richard Hargreaves
RLT-30	John R. Swanson
RLT-31	Mark J. Berman
RLT-32	Nancy Swanson
RLT-33	Dale Baker
RLT-34	Rick Reese
RLT-35	Dennis Swift
RLT-36	Patricia R. Campbell
RLT-37	Edward DesRosier
RLT-38	John Gatchell
RLT-39	Back Country Horsemen of Missoula
RLT-40	Jack H. Severns
RLT-41	Plum Creek Timber Co., Inc.
RLT-53	U.S. Borax
RLT-54	Mildred Leonard
RLT-55	Robert H. Snyder
RLT-56	Hannes Jarka
RLT-57	Great Falls Cross Country Ski Club, Inc.
RLT-58	Barb McDonough
RLT-60	Mark A. Simonich
RLT-65	Ralph Klawitter
RLT-66	Ester Murray
RLT-67	Allen J. Milley
RLT-69	George J. King
RLT-70	American Wilderness Alliance
RLT-71	Hope Roszell
RLT-72	Tom R. Sewell
RLT-73	Fox Hill Ranch
RLT-74	Albert E. Honican
RLT-77	Philip E. Roy
RLT-82	Jack Hooker
RLT-84	Cedron Jones
RLT-86	The Great Bear Foundation
RLT-87	American Wilderness Alliance
RLT-88	Northern Engineering & Testing, Inc.
RLT-89	Spring Creek Forest Products, Inc.
RLT-92	Medicine Lake Outfitters
RLT-93	Jeff Denton
RLT-115	Wayne W. Ludeman
RLT-118	Bill Hill
RLT-119	Geoffrey E. Green
RLT-120	Merrill Bradshaw
RLT-121	Wheatland County Commissioners
RLT-123	Brent E. Hicks
RLT-124	Texaco, U.S.A.
RLT-126	Inland Forest Resource Council
RLT-140	Richard Christiaens
RLT-142	Les Carpenter
RLT-143	Jim Mepham & John Schmid
RLT-144	USDI Office of Environmental Project Review
RLT-145	Showdown Ski Area
RLT-149	Ed Levin
RLT-150	Larry Christiaens
RLT-151	Tony Moore
RLT-153	Thomas Geary Jr.
RLT-154	Dave Roberts
RLT-155	John R. Warne
RLT-156	Bill Cunningham
RLT-157	Robert & Debbie Bugni
RLT-158	Michael Hall
RLT-159	MT East Side Forest Practices Committee
RLT-160	Adela Awner
RLT-171	Goldie Perry
RLT-172	Montana Public Lands Council
RLT-173	Mission Valley Backcountry Horsemen
RLT-182	Randall Weeks
RLT-185	Robert Dello-Russo
RLT-187	Hochstrat Logging
RLT-188	Myron P. Chase
RLT-189	Bob Pellett
RLT-190	Cut Bank Snowgoers
RLT-191	Ann L. Babcock
RLT-192	Mrs. Jack Wall
RLT-193	Edward Norman
RLT-194	Elaine Sedlack
RLT-195	MWA Wilderness Management Committee
RLT-196	Michael DesRosier
RLT-197	Sierra Club - Upper Missouri Group
RLT-198	Alantic Richfield Company
RLT-199	Champion Timberlands
RLT-223	Gwen V-R McBride
RLT-224	Glacier-Two Medicine Alliance
RLT-225	Arnold "Smoke" Elser
RLT-226	Mark Shapley
RLT-227	Elaine Snyder
RLT-228	Marylane Pannell
RLT-229	Mr. & Mrs. William Lintner
RLT-230	Montana Citizens for Natural Resource
RLT-231	J. T. Weisner
RLT-232	Montana Bowhunters Association
RLT-233	Idaho Pole Company
RLT-234	Leslie A. Selyem
RLT-235	Richard & Susan Emery
RLT-236	Henry G. Hudson
RLT-237	Reuel G. Janson
RLT-238	Casey Greenwood
RLT-239	Lewistown Rod & Gun Club
RLT-240	Bob Leader
RLT-241	Dick Bucsis
RLT-271	National Audubon Society
RLT-272	David Carr & Mary H. Sexton
RLT-274	SOHIO Petroleum Company
RLT-275	Montana Wildlife Federation
RLT-276	Marty Edwards
RLT-277	Leon Carpenter
RLT-278	Ed Hanson
RLT-279	Gary George
RLT-280	John Unwin
RLT-281	Edward DesRosier
RLT-282	Great Divide Guiding & Outfitting
RLT-283	Jim Dusing
RLT-284	James C. McCauley
RLT-285	Western Environmental Trade Association

RESPONDENTS - DEIS-SUPPLEMENT

RLT-287	D. Walker
RLT-288	Glacier-Two Medicine Alliance
RLT-289	Jim Schreiber
RLT-290	Harold K. Matye
RLT-291	Ed Matye
RLT-292	Dave Peck
RLT-293	Bill Haglan
RLT-294	Mike Poore
RLT-295	Terry Sanderson
RLT-296	Frank B. Hruska
RLT-297	Charles M. Bristol
RLT-298	North Fork Preservation Association
RLT-300	Chuck Blixrud
RLT-301	Allen Schallenberger
RLT-302	Rie Hargraves
RLT-303	Jim Schreiber
RLT-304	The Bob Marshall Alliance
RLT-305	Mae J. Crawford
RLT-306	U.S. Environmental Protection Agency
RLT-307	Joseph M. Brekke
RLT-308	Trout Unlimited, Missouri River Chapter
RLT-309	Brian Jameson
RLT-310	Phillips Oil Company
RLT-311	Upper Missouri Breaks Audubon Society
RLT-312	National Wildlife Federation
RLT-358	Zane & Gloria Zell
RLT-359	Defenders of Wildlife
RLT-364	Mike Weitz
RLT-365	James McDonald
RLT-366	Coalition for Canyon Preservation
RLT-371	Carl Knoke
RLT-373	Mountain Woods
RLT-374	Mutual of Omaha
RLT-375	Wildlands & Resources Association
RLT-377	The Wilderness Society
RLT-387	George Wuerthner
RLT-388	Billings Rod & Gun Club & Southeastern Sportman Association
RLT-389	Virgil Counts
RLT-391	Susan VanRooy
RLT-395	State of Montana - Office of the Governor
RLT-396	Medicine Pine Lodge
RLT-397	Dave Louter
RLT-399	Department of Energy - Bonneville Power Administration
RLT-401	Paul Richards
RLT-403	Robert C. Balsam
RLT-405	Kenneth Goldsmith

OCB-1	Bob Pellet
OCB-2	Kathy Hollingstad
OCB-3	Jacky Stevens
OCB-4	Donna Caruso-Hirst
OCB-5	Marty Edwards
OCB-6	Bill Fewel
OCB-7	Dan Boggs
OCB-8	Leslie Selyem
OCB-9	Patricia Scott
OCB-10	Brian Heady
OCB-11	Doug Abelin
OCB-12	Ed Levin
OCB-13	Cindy Taylor
OCB-14	Joe Jessepe
OCB-15	Cathy Mannings

FLT-1-1	John D. McIntosh
FLT-1-2	Jeanette Rushford
FLT-1-3	Bob Liston
FLT-1-4	Melanie S. Liston
FLT-1-5	Sandra Coyle
FLT-1-6	Tony S. Jakovac
FLT-1-7	William L. Walling
FLT-1-8	Vanne Schatz
FLT-1-9	Ron Schatz
FLT-1-10	John Syness
FLT-1-11	Bill D. Miller
FLT-1-12	Darrell Lamping
FLT-1-13	Lauretta Lamping
FLT-1-14	Dennis Ogle
FLT-1-15	Ken Sampling
FLT-1-16	Dennis Schindler
FLT-1-17	Rose Schindler
FLT-1-18	Richard E. Mintyala
FLT-1-19	Myrna Mintyala
FLT-1-20	Carol L. Mikkelsen
FLT-1-21	Darrell Mikkelsen
FLT-1-22	Judith R. Schill
FLT-1-23	Bob Bushnell
FLT-1-24	Beth Simmons
FLT-1-25	Michael Hossfeld
FLT-1-26	Gary Nordahl
FLT-1-27	Steven Lejaden
FLT-1-28	Terry Gloege
FLT-1-29	Kathleen Stubblefield
FLT-1-30	Phillip LeMieux
FLT-1-31	C. B. LeMieux

FLT-2-1	Doug Abelin
FLT-2-2	Jerald Lotvedt
FLT-2-3	Marilyn Lotvedt
FLT-2-4	Geraldine Jolliffee
FLT-2-5	Arley Jolliffee
FLT-2-6	Joyce Hannah
FLT-2-7	James N. Hannah
FLT-2-8	Richard O. Kullberg
FLT-2-9	Bernice Kullberg
FLT-2-10	Arthur Tomsheck
FLT-2-11	Rodney A. Podall
FLT-2-12	James Racki
FLT-2-13	Tom Simonson
FLT-2-14	Judy A. Hughes
FLT-2-15	Jay Worth
FLT-2-16	R. Rene Jacobson
FLT-2-17	L. Kim Jacobson
FLT-2-18	Jack G. Locker
FLT-2-19	Ronda Banik
FLT-2-20	Jane L. Drynan
FLT-2-21	JoAnn E. Gustafson
FLT-2-22	Shirley Schnee
FLT-2-23	Harley L. Schnee
FLT-2-24	Herb Sammons
FLT-2-25	David E. Leck
FLT-2-26	Shirley Leck
FLT-2-27	Sharon R. Raemacker
FLT-2-28	Anna M. Stores
FLT-2-29	Cal Stores
FLT-2-30	Robert C. Clark
FLT-2-31	Mrs. Jean Clark

RESPONDENTS - DEIS-SUPPLEMENT

FLT-2-32	Marvin Hammer
FLT-2-33	Doug Clark
FLT-2-34	Blanche Hammer
FLT-2-35	Cathy Widhalm
FLT-2-36	Robin Markuson
FLT-2-37	Lyn Markuson
FLT-2-38	Bill Wagner
FLT-2-39	Leon Nation
FLT-2-40	Rita Nation
FLT-2-41	Ronald Buenemeier
FLT-2-42	Helen Baiar
FLT-2-43	Richard Riley
FLT-2-44	Ken Rada
FLT-2-45	John Klein
FLT-2-46	Douglas Hoerner
FLT-2-47	James Vandegrift
FLT-2-48	Herb Schaefer
FLT-2-49	Linda Schaefer
FLT-2-50	Tom Moulton
FLT-2-51	Rhonda Moulton
FLT-2-52	Larry Moulton
FLT-2-53	Mervin Widhalm
FLT-2-54	Tom Tuma
FLT-2-55	Claire Abell
FLT-2-56	A. L. Abell
FLT-2-57	John A. Chase
FLT-2-58	Vincent G. Sullivan
FLT-2-59	Joseph L. O'Rourke
FLT-2-60	Richard G. Robinson
FLT-2-61	E. Randall Adams
FLT-2-62	Michael S. Ware
FLT-2-63	Jean R. Kriz
FLT-2-64	Mark Reed
FLT-2-65	Carla J. Sullivan
FLT-2-66	Glenn H. Conklin
FLT-2-67	Allen C. Eurkins
FLT-2-68	Les Westerlund
FLT-2-69	Allan W. Gabert
FLT-2-70	Edwin Covell
FLT-2-71	Cal Larson
FLT-2-72	Bob Shanks
FLT-2-73	Pete Zarnowski
FLT-2-74	Greg Ordway
FLT-2-75	Jay A. Smith
FLT-2-76	Dan Pettit
FLT-2-77	Robert Brien
FLT-2-78	Carol Landers
FLT-2-79	Michael Hotchkiss
FLT-2-80	Sharon Hotchkiss
FLT-2-81	Eric Torgerson
FLT-2-82	Selden Frisbee
FLT-2-83	Bob Raemaeker

FLT-3-1	Kay Unger
FLT-3-2	Don Smith
FLT-3-3	Ripley S. Hugo
FLT-3-4	Paul L. Zarzyski
FLT-3-5	Mary Gorton
FLT-3-6	Arlo Skari
FLT-3-7	Bill Stewart
FLT-3-8	W. F. Thomas
FLT-3-9	Dexter M. Roberts
FLT-3-10	Kim Zupan
FLT-3-11	Kenneth & Alice Gleason
FLT-3-12	Zane Zell
FLT-3-13	Janet Schemm
FLT-3-14	Randy & Diane Martin
FLT-3-15	Lisa Grunstein
FLT-3-16	Liz Lee
FLT-3-17	Catlin Fox
FLT-3-18	Dave Louter
FLT-3-19	Blaine Mooers
FLT-3-20	Rachael Glaze
FLT-3-21	Joe Newman
FLT-3-22	Jerry Berner
FLT-3-23	North Fork Hostel
FLT-3-24	Charles Parker
FLT-3-25	Susan VanRooy & Mary Leonard
FLT-3-26	Sara Stephens
FLT-3-27	L. D. Wisocki
FLT-3-28	William Council
FLT-3-29	Paul Council
FLT-3-30	F. B. Engstrom
FLT-3-31	Ann Claghorn
FLT-3-32	Ingrid Nielsen
FLT-3-33	Margaret Dowd & John Neeling
FLT-3-34	Lois Welch
FLT-3-35	Linda Smith
FLT-3-36	Annick Smith
FLT-3-37	Mrs. F. R. Schemm
FLT-3-38	Julie Walker
FLT-3-39	Don Baughman
FLT-3-40	Colleen Murphy
FLT-3-41	Richard E. Yates

FLT-4-1	Bud Miller
FLT-4-2	Everett Smith
FLT-4-3	Lloyd A. McGuire
FLT-4-4	Pete Tuss
FLT-4-5	Hines Motor Supply
FLT-4-6	Wayne Burskein

FPC-1-1	Richard Jetty
FPC-1-2	Lucianne Brieger
FPC-1-3	Rosalind Veinishevsky
FPC-1-4	Mary Caldwell
FPC-1-5	Mrs. R. H. Chase
FPC-1-6	Joe Newman
FPC-1-7	Dean Fuchs
FPC-1-8	Linda Hays
FPC-1-9	K. C. Hartranft
FPC-1-10	Marguerite Christoph
FPC-1-11	Paul Smith
FPC-1-12	Stuart Lewin
FPC-1-13	Janet Barker
FPC-1-14	Stan Voreyer
FPC-1-15	Abbie Frederick
FPC-1-16	Jack Sommars
FPC-1-17	Stew Dagger
FPC-1-18	Tamara Black
FPC-1-19	Susan Garwood
FPC-1-20	Kathryn Jacobs
FPC-1-21	Janet Tatz
FPC-1-22	Leroy Seth
FPC-1-23	Deborah Hanson
FPC-1-24	Traci Boggs
FPC-1-25	Carl Wetzler
FPC-1-26	Mrs. Steve O'Neal
FPC-1-27	Bebe Kezar
FPC-1-28	Alice Austin

RESPONDENTS - DEIS-SUPPLEMENT

FPC-1-29 Judith Nielsen
FPC-1-30 Colleen Murphy
FPC-1-31 Ralph Waldt
FPC-1-32 Cecelia Fortner
FPC-1-33 David Smith
FPC-1-34 Paul Richards
FPC-1-35 William Dunis
FPC-1-36 Donald Read
FPC-1-37 Blakely Hessian
FPC-1-38 Ripley Hugo
FPC-1-39 Garry Manning
FPC-1-40 Ann Sutton
FPC-1-41 Norman Searah
FPC-1-42 Kathleen Welch
FPC-1-43 Robert Oset
FPC-1-44 Loraine Bundrock
FPC-1-45 Roy Burkhart
FPC-1-46 Irene Rosetta
FPC-1-47 Helen Bibler
FPC-1-48 Mark Mackin
FPC-1-49 Helen Yaw
FPC-1-50 Denise Trosilair
FPC-1-51 Jack Hoterman
FPC-1-52 Marilyn Lazo
FPC-1-53 Bruce Von Alten
FPC-1-54 David Rockwell
FPC-1-55 Paulette Lawrence
FPC-1-56 Debi Corcoran
FPC-1-57 Melissa Hansen
FPC-1-58 Lynda Alfred
FPC-1-59 Thomas McNamee
FPC-1-60 F. Smith Willis
FPC-1-61 Tom Kaisuler
FPC-1-62 W. A. Blood
FPC-1-63 Dennis Sinacola
FPC-1-64 Donna Prudmore
FPC-1-65 William C. Summers
FPC-1-66 Stanley Rose
FPC-1-67 Jack Johns
FPC-1-68 Nancy Swanson
FPC-1-69 Charles Ensign
FPC-1-70 William Pinkney
FPC-1-71 "Resident"
FPC-1-72 Jana Bowler
FPC-1-73 Malcolm Lawrence
FPC-1-74 Carolyn Sood
FPC-1-75 Sally Brown
FPC-1-76 Don Burgard
FPC-1-77 Perot Walker
FPC-1-78 E. Carroll Speck
FPC-1-79 William Clawson
FPC-1-80 Jon Heberling
FPC-1-81 Kathy Willis
FPC-1-82 Barry Coher
FPC-1-83 G. P. Epling
FPC-1-84 Bill Stewart
FPC-1-85 David Percival
FPC-1-86 Steve Gary
FPC-1-87 L. R. Sargent
FPC-1-88 George Fenzl
FPC-1-89 Cathy Strote
FPC-1-90 James Stoltz
FPC-1-91 Ruth Gardner
FPC-1-92 Margie Piersall
FPC-1-93 Margie Miller
FPC-1-94 Don Burgess
FPC-1-95 Gil Jordan
FPC-1-96 Bill Martin
FPC-1-97 D. Dustin Posner
FPC-1-98 Malcolm O'Leary
FPC-1-99 F. D. Hacker
FPC-1-100 Mary Bradshaw
FPC-1-101 Richard Meis
FPC-1-102 Henry Logsdon
FPC-1-103 John Davis
FPC-1-104 Alan Reynolds
FPC-1-105 Michael Pray
FPC-1-106 Michael Velinex
FPC-1-107 Steven Kelly
FPC-1-108 Newman Brojoosky
FPC-1-109 Barbara Steele
FPC-1-110 Jack Schmidt
FPC-1-111 Nance Craft
FPC-1-112 Paula Galles
FPC-1-113 Richard Wilson
FPC-1-114 Linden Martineau
FPC-1-115 Rachael Potter
FPC-1-116 Frank Vitale
FPC-1-117 Rudy Wiedenbeck
FPC-1-118 North Fork Preservation Assoc.

FPC-2-1 Pat Mikesell
FPC-2-2 Gary Roszell
FPC-2-3 Julie Schram
FPC-2-4 William Norton
FPC-2-5 Jay Hargrove
FPC-2-6 Tom Jarguer
FPC-2-7 Don Scheen
FPC-2-8 Kurtis L. Fremont
FPC-2-9 Craig O'Rourke
FPC-2-10 Roger Barnett
FPC-2-11 Lloyd Baxter
FPC-2-12 Tim Sperry
FPC-2-13 Harry Williams Jr.
FPC-2-14 Terry Carter
FPC-2-15 Carl Rockhill
FPC-2-16 Gilbert Arts
FPC-2-17 Sherry Tonnesen
FPC-2-18 Doug Russell
FPC-2-19 Mitch Marx
FPC-2-20 Lee Rockhill
FPC-2-21 John Sorenson
FPC-2-22 Greg T. Lingard
FPC-2-23 Wally Chambers
FPC-2-24 Fred G. Mcadom
FPC-2-25 Brad Hicks
FPC-2-26 Denis G. Brandon
FPC-2-27 Harry Joachim
FPC-2-28 Roger Gardner
FPC-2-29 Jim Madison
FPC-2-30 R. Schaefer
FPC-2-31 Gerald Haerr
FPC-2-32 Kyle Sullivan
FPC-2-33 L. O. Kelley
FPC-2-34 Warren L. Delich
FPC-2-35 Mark B. French
FPC-2-36 Ken Buckley
FPC-2-37 Larry W. Jones
FPC-2-38 Jim Haerr
FPC-2-39 Jack Stewart
FPC-2-40 Tim Willson
FPC-2-41 R. D. Barber
FPC-2-42 Mike Ryles

RESPONDENTS - DEIS-SUPPLEMENT

FPC-2-43	Bruce Berg
FPC-2-44	Robert Buchanan
FPC-2-45	Roger L. Livermore
FPC-2-46	Brent Hicks
FPC-2-47	Kevin Jordon
FPC-2-48	John Curtis
FPC-2-49	Virgil Counts
FPC-2-50	Lynn Coffman
FPC-2-51	Leroy Sperry
FPC-2-52	Kenneth Harold
FPC-2-53	Robert J. Kamps
FPC-2-54	Glen Hicks
FPC-2-55	Joe VanBlaricom

PLT-1	Ronald Peterson
	Konrad & Andree Deligdisch
	Adele Clark
	Deborah Drorded
	James Winter
PLT-2	Martin Reisinger
	Connie Webster
	Patty Platt
	David Epstein
PLT-3	Mark A. Raines
	Arnold Raines
	Christine Raines
	Barbara Raines
	Mike B. Moyee
PLT-4	Nolan LaPlante
	Haven LaPlante
	Marlene Vielle
	Robert Guardipee

RESPONDENTS - DEIS-SUPPLEMENT

The following letters were received on the DEIS Supplement and Revised Proposed Forest Plan from Federal Agencies, State Government, Local Government, and Indian Tribes. Included also is the Forest Service response to each letter.

Federal Agencies
- U.S. Environmental Protection Agency
- U.S. Department of Interior, Office of the Secretary
- U.S. Department of Interior, Fish and Wildlife Service
- U.S. Department of Agriculture - Soil Convention Service
- U.S. Department of Air Force
- U.S. Department of Energy

State Government
- State of Montana
- Montana Historical Society

Local Government
- Ferges County Commissioners
- Lewis and Clark County Commissioners
- Wheatland County Commissioners

Indian Tribes
- Blackfeet Tribal Council

United States
Environmental Protection
Agency

Region 8, Montana Office
Federal Building
301 S. Park, Drawer 10096
Helena, Montana 59626

EPA

REF: 8MO

March 15, 1985

Mr. John D. Gorman
Forest Supervisor
Lewis & Clark National Forest
P.O. Box 871
Great Falls, Montana 59403

Dear Mr. Gorman:

Under authority of Section 309 of the Clean Air Act, we have reviewed your agency's draft environmental impact statement (EIS) and management plan for the Lewis and Clark National Forest. Our major comments follow. More specific comments are contained in the attachment.

Our major concerns are related to your proposal to greatly increase long-term timber harvest. This harvest may have significant impacts on water quality. As pointed out in the draft EIS, the greatest threat to water quality on the Forest is the road building associated with increased timber harvests. In addition, the timber harvest and associated road building proposed over the next 50 years will take place in many presently unroaded, steep upper-watershed areas.

If these areas are to be logged, the Forest Service must be very careful to insure that water quality standards are met by controlling erosion. For this reason, we strongly support statements such as the one appearing on page 2-6 of the Forest Plan that: "Soil productivity will be maintained and sediment resulting from soil erosion will be minimized by the application of soil and water conservation practices. When soil productivity is being decreased or soil erosion is approaching unacceptable levels, project design will be changed or more intensive conservation practices will be applied..." The Forest Service should also consider stopping projects if needed to protect water quality standards.

The Forest Service must adequately monitor the water quality impacts of its activities. Periodic monitoring is essential to develop a true picture of water quality impacts. For this reason, we are concerned with the level of water quality monitoring displayed under Table 6.1 of the Forest Plan. Though little specific information is presented on monitoring in this Table, it appears that only periodic monitoring on representative streams is planned.

The final EIS, therefore, should present more specifics on proposed water quality monitoring. We believe that monitoring should be conducted on individual watersheds that are undergoing some type of major disturbance.

According to EPA's system for rating draft impact statements, this draft EIS is rated EC-2 (environmental concerns - insufficient information). Our concerns are as described in this letter. The insufficient information rating is because more specific information is needed on water quality monitoring.

If you have any questinns, please contact Mr. Gene Taylor of this Office at 449-5486.

Sincerely yours,

John F. Wardell

John F. Wardell, Director
Montana Office

Attachment

SPECIFIC COMMENTS ON
LEWIS AND CLARK NATIONAL FOREST DRAFT EIS AND FOREST PLAN

Draft EIS

(1) p. 2-55 - We do not understand why the Forest Service proposes to harvest "nine percent of the steep, low productivity sites on the Jefferson Division." Are potential adverse water quality impacts worth the harvesting of low productivity areas?

(2) p. 2-63 - The statement that there are 370 acres of Forest land needing restoration due to management-caused erosion strengthens our belief that pre-planning and monitoring of soils and water quality must be given emphasis if future problems are to be prevented.

(3) P. 4-12 and 4-13 - Table 4.1 shows that the Current Plan will not improve Water Quality (expressed in thousand acre feet/year) over the next 50 years. The preferred alternative will apparently improve water quality (+10 percent increase) from 2021 to 2030 even though much more timber harvesting will occur. The reasons for this conclusion are not clearly outlined.

Revised Forest Plan

(1) p. 2-11 and 2-15 - The narrative statement on page 2-15 describes an additional 875 miles of road to be built in the Forest by the end of the planning period. However, the "road miles to be built" figures shown in the table on page 2-11 are much less than this 875?

(2) p. 2-18 - You state that "soil and water data is needed to validate assumptions important in both long range and project planning." We believe this is most important and underlies our emphasis on the needs for water quality monitoring of actual land disturbing activities.

(3) p. 2-42 through 2-42 - We strongly endorse all of these water quality protection measures.

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: John F. Wardell, Director
U.S. Environmental Protection Agency
Federal Building
301 S. Park Drawer 10096
Helena, MT 59626

We share your concern that water quality standards are met by controlling erosion.

The effects of resource programs on soil and water have been reanalyzed.

Sediment as used in the EIS refers to solid material (eroded soils) being transported in flowing streams and is quantified as average tons per year. Sediment is a natural phenomenon in the Forest, noteably during the spring run off. Any significant ground disturbance (such as construction of trails and roads or concentrated animal use, particulary along stream banks) will increase that amount of sediment in the stream. A reasonable amount of sediment increase must be allowed if any use is to be made of an area. Even trails in the wilderness or heavy elk use on spring habitat contributes sediment to the water.

The State of Montana has defined "naturally-occurring" conditions as water quality existing after all reasonable soil and water practices have been applied. The key is to use any reasonable means to control sediment and to insure that the cumulative sediment yield increase does not unreasonably impact other values, particulary fish habitat. Indications are that fish habitat may be adversely impacted when sediment yield increases exceed 20 to 30 percent (Platts).

In response to public concern, additional requirements have been added to Management Standards D-3, Riparian Area, Soil, and Water Protection in Range Management; F-3, Soil, Water, and Air Protection; and L-3, Maintenance and Construction of Roads, Trails, and Other Facilities. Item (3) of Standard F-3, specifically requires a watershed analysis where significant vegetation removal is planned. Roads will be kept to the minimum number and standard to meet Forest objectives.

The final Plan also states, "As a part of project planning, site specific quality effects will be evaluated and control measures designed to ensure that the project will meet Forest water quality goals; projects that will not meet water quality standards will be redesigned, rescheduled, or dropped." (Page 5-3, final Forest Plan).

The Monitoring Plan has been carefully reviewed and some changes have been made. The water monitoring section has been revised. Funding for monitoring is tied to many resource programs and will have the highest priority for Forest Plan implementation. Monitoring has been a part of many Forest activities. However, the Forest Plan formalizes and strengthens this program, establishes a educational procedure, and informs the public of the results.

Most all water monitoring is done on a sample basis. Past water quality monitoring has consisted of data collection, first of broad sampling of mostly common chemical parameters, then of intensive sampling of sediment and related characteristics. These types of data have always been difficult to analyze and to apply and are also expensive, time-consuming, and requires years of data collection because of extreme year-to-year variation.

Monitoring of water quality prior to 1972 was limited to a very few samples of turbidity or suspended sediment, insufficient to describe any streams or effects. A monitoring program between 1972 and 1978 involved the field measurement of common chemical parameters at 31 stations. This program allowed a very general characterization of the basic chemical water quality of the streams of the Jefferson Division.

Suspended sediment is now recognized as the parameter most likely to be affected by management activities. The monitoring program between 1979 and 1983 used automatic sampling of sediment (turbidity) at six stations on both the Jefferson Division and the Rocky Mountain Division. Samples were collected automatically every six hours during the high-flow season. This program will continue in the future as specific project needs for monitoring are identified.

The current Forest water quality monitoring program is outlined in items C-11, and F-1 through F-9 of Chapter VI of the final Forest Plan. Water quality monitoring now includes (or even emphasizes) field reviews to assure the use of Best Management Practices and to assure that project areas are promptly stabilized and revegetated. Verification of water quality protection by sampling of streams is also used to help quantify the effects of critical projects.

SPECIFIC COMMENTS

Draft EIS

(1) Most of these areas have already been roaded. We do think water quality will be adversely impacted.

(2) We agree. Adequate monitoring is essential.

(3) The major reason for this is increased soil and water funding under the Preferred Alternative.

Revised Forest Plan

(1) The 875 miles is a 50-year projection. Local, arterial, and collector roads are shown on Page 2-11. These are average annual figures for the decade.

(2) We concur, water quality monitoring is essential.

(3) We appreciate the support for these water quality protection measures.

JOHN D. GORMAN
Forest Supervisor

Enclosures

United States Department of the Interior
OFFICE OF THE SECRETARY
OFFICE OF ENVIRONMENTAL PROJECT REVIEW
Room 488, Building 67
Denver Federal Center
Denver, Colorado 80225

IN REPLY
REFER TO:
ER 84/1475

March 7, 1985

FOREST SERVICE
Lewis & Clark National Forest
MAR 11 1985
RECEIVED

Mr. John D. Gorman
Forest Supervisor
Lewis and Clark National Forest
P.O. Box 871
Great Falls, MT 59403

Dear Mr. Gorman:

This is in response to your request for the Department of the Interior's review of the supplement to the draft Environmental Impact Statement (EIS) and revised proposed Forest Plan for the Lewis and Clark National Forest. The following constitutes a supplement to our November 16, 1982 comments on the draft EIS and proposed Forest Plan and, together with that review, comprise the Department's review.

GENERAL

We note that provision has been made for subsequent environmental analyses during the development of specific projects. This is most appropriate, since this EIS recognizes only the general types of impacts resulting from Plan implementation, not their extent or severity. Depending on location and/or timing, timber harvest or oil and gas development activities will have significant, site-specific impacts beyond the general coverage of this EIS. We suggest that the final Plan and EIS define the categories of actions which would likely require a subsequent EIS.

FISH AND WILDLIFE

In our 1982 comments, we expressed concern that the proposed Plan did not appear to provide for the maintenance and improvement of habitat for indicator species. Having reviewed the revised documents, we continue to have the same reservations. For example, the Badger Two Medicine Area (Unit RM-1) is a very important wildlife area and has the potential of being heavily impacted by oil and gas activities. In spite of this, much of the area has been assigned to the timber/range management presciption. We urge the Lewis and Clark Forest to put all such valuable wildlife areas under a wildlife prescription.

Based on information informally provided by the Montana Department of Fish, Wildlife, and Parks (MDFWP), we believe there are a number of proposed timber sales that will have serious conflicts with wildlife. These are the Yogo, Lower Sage, Etlien Ridge, Hoover Springs, Mill-Lion, Mizpah, North Fork Musselshell, Deadhorse, Running Wolf, East Fork Spring Creek, Comb Creek, Loco Grouse, Target Rock, and Little Snowies. These areas contain excellent wildlife habitat. Further consideration should be given to avoiding impacts to wildlife resulting from the proposed timber sales, such as by placing these areas under wildlife prescriptions.

Based partly on the information provided by MDFWP, we are quite concerned with what appears to be a significant increase in the small sales program. Many of the areas proposed for small sales contain critical wildlife habitat. Some very important wildlife areas that may be affected by small sales include the South Fork of the Two Medicine, Green Gulch, West Fork Teton, Willow Creek, Beavermark, Petly Creek, Elk Creek, and Baily Basin. These small sales do not usually receive the scrutiny that scheduled sales do and therefore a special effort must be made among concerned agencies to avoid impacts to fish and wildlife resources.

For both the Rocky Mountain and Jefferson Divisions, large acreages of timber will be harvested, habitat and grazing acreages treated, and extensive new roads built, yet it is stated that wildlife populations will not change. Data and analyses are needed in the EIS to support this conclusion.

The statement on page 4-69 (Plan), describing the elk winter range in the Middle Fork should be revised. The Middle Fork area actually provides an important component of the Judith River elk herd winter range, and should be managed accordingly.

We also suggest that serious consideration should be given to closing all roads that are developed for logging or oil and gas exploration/development, to reduce impacts on the threatened grizzly bear and other wildlife.

More emphasis needs to be placed on protecting fisheries and describing the expected impacts upon fishery habitat. The proposed Forest Plan does not describe the nature or extent of the proposed habitat improvement program or describe the existing fishery. It is extremely difficult to analyze the impacts of the various alternatives without such information, particularly when major impacts to stream fisheries are expected to result from sediment caused by logging and roading practices. We strongly recommend that the Lewis and Clark Forest provide additional information in the final Forest Plan and EIS, identifying the important fish species, the locations of important populations, the expected impacts on them, and proposed mitigation measures. The Missouri River cutthroat trout is designated as a species of special concern in Montana. We believe the Forest Plan should emphasize management of this species. Management should be designed to prevent any degradation or loss of habitat, especially in Geographic Unit RM-1.

We also believe that Lewis and Clark Forest should look more closely at protecting riparian areas which are particularly important in providing habitat for fish and wildlife and for maintaining water quality. We are concerned with the apparent definition that this includes all areas within a horizontal distance of 100 feet from the edge of perennial streams or other water bodies. The riparian area will extend much more than 100 feet in some instances and less in other instances.

THREATENED & ENDANGERED SPECIES

The documents should be more specific as to how threatened and endangered (T&E) species protection will be achieved. This is particularly needed since much of the subject area has been leased and oil and gas exploration/development is well under way. More explicit discussion of the measures to be applied will also more clearly define the impacts and constraints on development of oil and gas resources. Conflicts between oil and gas development and T&E protection have not been adequately addressed, and it is

critical to resolve this issue in this EIS and Plan. The outcome can have significant impacts on interagency and intra-agency public resources management on the Rocky Mountain Front.

Also, in light of the recent Congressional direction, we suggest that a discussion of grizzly bear augmentation be included.

In our comments on the previous draft Plan and EIS, we noted the need for Section 7 consultation with the Fish & Wildlife Service. We understand that a draft Biological Assessment is currently under review, and that a request for formal consultation will be made in the near future. This consultation should be completed prior to Plan approval and the results reflected in both the final Plan and EIS.

OIL & GAS

The proposed Plan shows numerous hypothetical well locations within the Rocky Mountain Division, and the EIS sets forth "most probable" and "large discovery" development scenarios. However, Chapter 4 of the EIS provides only a brief discussion of the types of impacts which could occur and mitigation measures which might reduce adverse effects. Other than social/economic, potential cumulative impacts under each scenario are not quantified; site-specific effects are not addressed. Consequently, this document does not provide a sufficient basis for subsequent oil and gas decisionmaking.

The Plan and EIS should make clear that once sufficient exploratory wells have been drilled to determine that a specific area will be developed for oil and gas production, cumulative environmental impacts of full field development will be thoroughly analyzed, and if found to be significant, that additional EIS's will be prepared. In addition, the Forest Plan and EIS should set forth the specific criteria or development thresholds which will trigger subsequent EIS's.

The section dealing with "sour gas" (EIS, pp. 4-49-50) is too brief. Potential degradation of adjacent Class I airsheds should be discussed. Exhaust and dust are of minor import by comparison to venting of H_2S. Even incidental amounts associated with producing wells should be evaluated more thoroughly. It would be appropriate to discuss remote siting of storage and treating facilities as a mitigating measure. It should be emphasized that many of the standard oil field production practices will require unique modifications to make production compatible with other resources in the area.

The Interagency guidelines as given in Appendix I differ in a number of instances from the restrictions given under forestwide management direction on pages 2-44 through 2-52. These differences are particularly noticeable in the time periods specified for surface occupancy on Table 2.2 and those time periods whereby oil and gas activities may be allowed as given in the Interagency guidelines. We suggest you identify which management direction takes precedence over the other.

OUTSTANDING NATURAL AREAS

A discussion of BLM management direction on contiguous lands along the Rocky Mountain Front is needed, particularly regarding Outstanding Natural Areas (ONAs). Perhaps one of the maps could identify these BLM special management areas and existing

oil and gas operations (i.e., the Blackleaf Unit) that are contiguous to the U.S. Forest Service (USFS) lands.

There is a general inconsistency with respect to oil and gas related management direction between the BLM and USFS in RM-2, RM-3, and RM-4 and the public lands immediately adjacent to the east. Approximately 12,500 acres of BLM lands adjacent to USFS lands in these geographic units have been designated Outstanding Natural Areas (ONAs). As such, they are protected by no leasing and no surface occupancy stipulations. The adjoining USFS lands have either standard stipulations or no surface occupancy. We suggest some wording be added to the final Forest Plan such as, "Forest lands in RM-2, RM-3, and RM-4 may adjoin existing BLM Outstanding Natural Areas (ONAs). Any surface disturbing activities on the USFS land within one mile of these ONAs must include adequate provisions so that the natural values of the ONAs are not adversely affected."

For example, the proposed road up the South Fork Deep Creek (Plan, p. 4-9), must cross BLM surface for almost one mile. This surface is the Deep Creek/Battle Creek ONA designated in July 1984. In accordance with the management prescription for this ONA, no road construction is allowed. Further consultation on this access situation between the BLM and USFS will be needed.

GLACIER NATIONAL PARK

In the preferred alternative (G), the area bordering Glacier National Park should be given special consideration. In management areas A and E, actions which modify the landscape should not be undertaken when clearly viewed from critical viewpoints in the park. A map showing these viewpoints is enclosed.

We continue to support a more protective land use classification of the Two Medicine and Lubec-Heart Butte area to afford greater protection for Glacier National Park as well as for wildlife and threatened and endangered species.

RECREATION

The Plan should identify the Continental Divide National Trail through USFS lands and its interface with the trail on adjacent park land. The National Park Service portion of this trail crosses Highway 2 at Marias Pass. Related to this trail is a need for trailhead facilities such as parking and information. These needs are largely met in existing USFS facilities at the pass. The National Park Service is interested in participating with the USFS in planning for future recreational facility development in this area.

NATIVE AMERICANS

We note your goal (Plan, p. 2-2), of developing closer ties with local Indian tribes and non-traditional groups. We fully support this goal and encourage active Forest Service cooperation and cooperation with the Blackfeet Tribe.

We also note that livestock grazing permits will have an increase of 2,030 AUM's. The Blackfeet Tribe should be considered for utilization of these grazing privileges.

CULTURAL RESOURCES

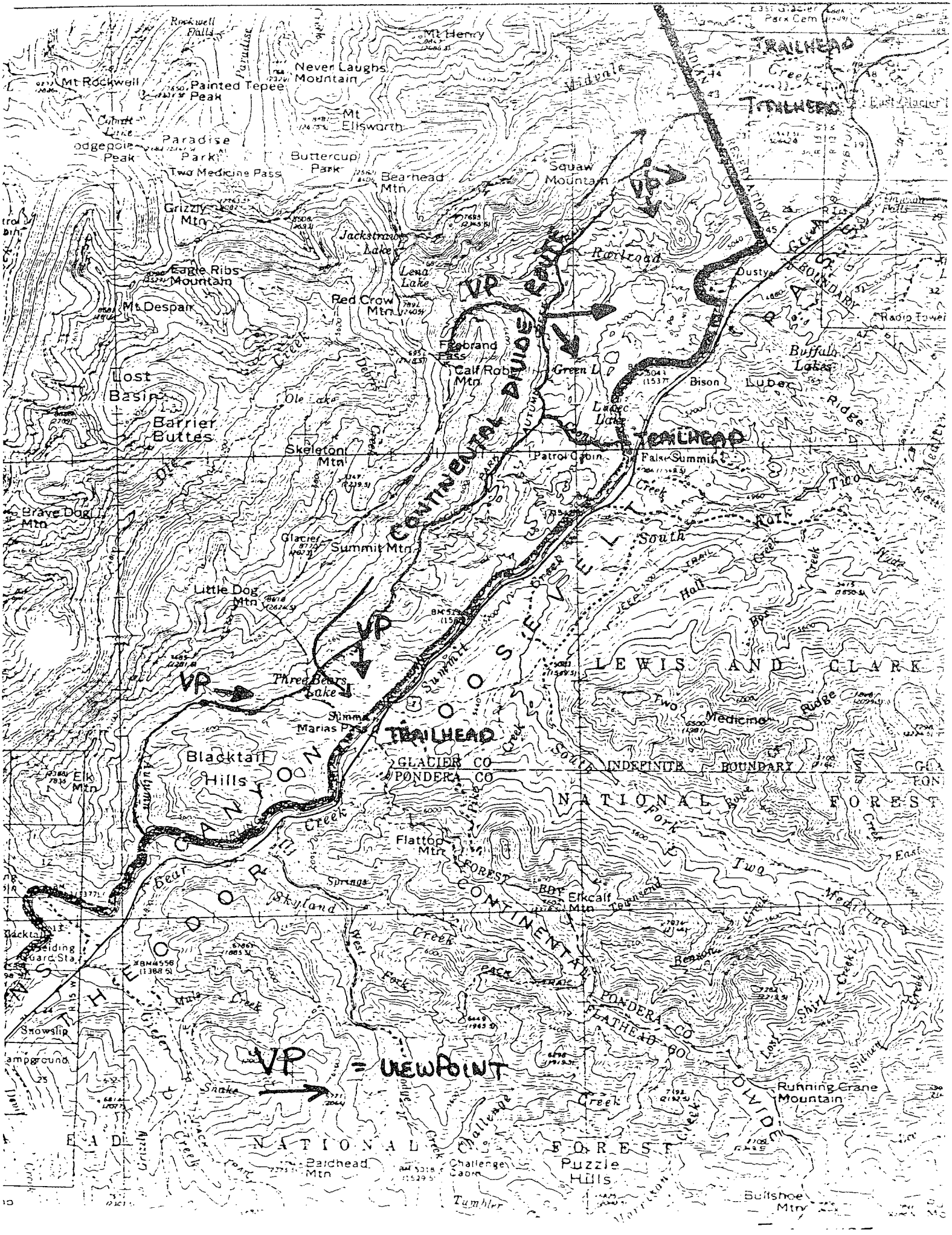
The proposed Plan (p. 2-3), indicates that an overview of prehistory and history of the Forest will be completed by the year 2000. BLM is concerned that they will be delayed in fully interpreting cultural resources on their lands adjacent to forest areas where the overview is not available until this date. The Blackfeet Tribe should also be advised and consulted in identifying archeological sites that may be important to them.

Sincerely,

Robert F. Stewart

Robert F. Stewart
Regional Environmental Officer

Enclosure


Mt Rockwell
Rockwell Falls
Mt Henry
Never Laughs Mountain
Painted Tepee Peak
Mt Ellsworth
Paradise Park
Lodgepole Peak
Buttercup Park
Two Medicine Pass
Bearhead Mtn
Squaw Mountain
Grizzly Mtn
Jackstraw Lake
Lena Lake
Eagle Ribs Mountain
Mt Despair
Red Crow Mtn
Firebrand Pass
Calf Robe Mtn
Green L
Bison
Lubec
Buffalo Lakes
Dusty
Radio Tower
Lost Basin
Barrier Buttes
Ole Lake
Skeleton Mtn
Patrol Cabin
False Summit
Brave Dog Mtn
Glacier Summit Mtn
Little Dog Mtn
Three Bears Lake
Summit
Marias Pass
TRAILHEAD
Blacktail Hills
Elk Mtn
GLACIER CO
PONDERA CO
INDEFINITE BOUNDARY
LEWIS AND CLARK
NATIONAL FOREST
Two Medicine
Flattop Mtn
Elkcalf Mtn
Benson
Running Crane Mountain
Snowslip
Campground
Skyland
Bear Creek
Snake
Challenge Creek
Puzzle Hills
Bullshoe Mtn
Baldhead Mtn
Challenge Cabin
Tumbler
VP = VIEWPOINT
VP

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: U.S. Department of Interior
Office of the Secretary
Office of Environmental Project Review
Room 488, Building 67
Denver Federal Center
Denver, CO 80225

GENERAL

We recognize your concern that the final Plan and EIS define the categories of actions which would likely require a subsequent EIS.

The usual way to arrive at this conclusion is to do an environmental assessment and let the analysis process lead to a logical conclusion - either a finding of significant impacts or a finding of no significant impact.

FISH AND WILDLIFE

All Management Areas have been reviewed by resource specialists and land managers to ensure the proposed management area direction fits the land's capability and reflects the intent of the Forest Plan. Specific changes in the management areas are shown on page 1-3 in the final Plan.

On the Rocky Mountain Division, timber harvest is still proposed in the Teton, Benchmark/Willow, and Elk Creek/Falls Creek Geographic Units. However, in response to public concern, sales will be limited to posts, poles, firewood, houselogs, and other miscellaneous products.

There have been some adjustments of management area boundaries to reduce resource conflicts. The Upper West Fork (Olney Creek) of the Teton has been recommended for wilderness classification. Bailey Creek has been removed from the O designation. Regulated timber harvest in the Badger-Two Medicine Geographic Unit is limited to the Blackfeet Tribe under their Treaty Rights. Additional wildlife areas have been designated on the Rocky Mountain Division. Ford Creek Plateau has been designated Management Area I.

We have re-analyzed wildlife habitat management. The Forest Plan promotes high quality wildlife and fish habitat. Over 65 percent of the Forest will be managed for wilderness, semi-primitive recreation, and wildlife values.

About 30 percent will be roaded and developed mainly for their timber resource. In response to State and other public concern, Management Area C has been expanded to include another 15,000 acres, which have been identified as important elk habitat including the Harrison drainage in the Middle Fork Judith.

Management Area I, which protects elk migration routes, has also been expanded to include another 8,000 acres including the Ford Creek Plateau area. The timber program on the Rocky Mountain Division has been reduced to .5 million board feet yearly. Individual timber sales are reviewed by a wildlife biologist and recommendations are made on a case-by-case basis.

The management standard for Wildlife Coordination, C-1, has been strengthened. The EIS analyzes the effects of various activities on the wildlife resource. Additional information has also been provided on the effect of the proposed activities on the wildlife resource (see Chapter IV).

The small sales program in the Forest will not change significantly under the Forest Plan. However, larger sales that were identified on the Rocky Mountain Division in the original draft Plan have been removed, as only small sales are planned on that part of the Forest. This change effects about 1/2 million board feet annually (about 50 acres yearly). Small sales are subject to the same environmental analysis as large sales, however they are approved by the District Ranger instead of the Forest Supervisor. Areas where regualated timber management will be practiced have been identified on Forest Plan maps.

Under the final Plan only eight percent of the current roadless lands will be affected over 50 years. Rhe Forest has one of the smallest road construction programs in the Northern Region, with more than 65 percent of the Forest managed for wilderness, wildlife, and semi-primitive recreation values. There will be only a slight increase in the grazing level over 50 years. All of these items support that the elk, catchable trout, grizzly bear, and wolf population potential will not change under the Prferred Alternative.

The statement describing elk winter range in the Middle Fork of the Judith has been revised.

We have re-analyzed fish habitat management. The Forest Plan recognizes the importance of fish and fish habitatand will maintain the population potential for 202,000 trout. Management Standard F-3, Fish Habitat, sets the standards for coordinating fish habitat with other resources, coordinating the Forest annual program of work with the Montana Department of Fish, Wildlife, and Parks, designing and scheduling fish habitat surveys and studies to improve the fisheries resource, and emphasizing the maintenance or enhancement of habitat supporting populations of Upper Missouri River (blackspotted) Cutthroat Trout.

The management of soil and vegetation in riparian areas is essential to fish habitat management. We feel these standards provide the guidance necessary to protect fish habitat, including the habitat of Upper Missouri River Cutthroat Trout.

Also, additional information on the effects of activities on downstream fisheries has been provided (see Chapter IV). A five-year Wildlife Habitat Improvement Program has been added to the Forest Plan (Appendix M). This program contains specific fish habitat improvement practices.

The reference to 100 feet in riparian areas has been removed in the final Plan.

THREATENED & ENDANGERED SPECIES

Consultation with the U.S. Fish and Wildlife has been completed and is included in the Forest Plan as Appendix D. Their opinion is that implementation of the revised Forest Plan will not jeopardize T&E species. In response to public concerns, Management Standard C-2, Threatened and Endangered Species, in the final Forest Plan has been strengthened to ensure compliance with the Endangered Species Act. The Forest shares the concern of the effect of road construction, oil and gas, and other activities on T&E species and their habitat.

Efforts are underway to increase the Forest analytical ability to assess these activities (see Grizzly Bears, this section). Any planned activity found to create a jeopardy situation would be modified so the jeopardy situation would be eliminated or the activity would not be permitted.

We are committed to maintain the necessary funding levels for these programs. (See Forest Plan, Appendix H.) We feel that proposed activities are in compliance with the Endangered Species Act, and should not be suspended. The regulated timber harvest in the Badger-Two Medicine area (Management Area O) has been eliminated. While the Blackfeet Indians have retained certain rights in the Badger-Two Medicine area, we feel the road use can be controlled to protect the grizzly bear. We are working with the Blackfeet Indian Tribe on a road use-access agreement, which supports this contention.

Based on previous environmental analyses, 423,373 acres of the Forest have been leased for oil and gas exploration and development. Special stipulations have been used to protect surface resources (see Chapter III). We have had three applications for a permit to drill. One request was to re-enter an existing shut-in gas well in Blackleaf Canyon. The re-entry of the well has been completed and it was found capable of production. Drilling on the other two sites has not yet begun. These sites are Hall Creek, (near U.S. Highway 2), and Muddy Creek (near Blackleaf Canyon).

The Hall Creek Application has been approved by the Bureau of Land Management, but the decision has been appealed. Forest-Wide Standards G-1 and G-2 have been revised to insure oil and gas development is done in a manner which protects surface resources. (See Forest Plan.)

When the existing leases in the Forest expire, the issuance of new leases will be based on an analysis of current resource and other information, including oil and gas potential, T&E and other wildlife habitat needs, water quality, soils, and other resource values. New leases and subsequent leases will undergo additional analysis as required by NEPA, tiering to the Forest Plan and EIS. In addition, further analysis will be undertaken in compliance with NEPA when drilling on development projects are proposed.

We feel that grizzly bear augmentation is not appropriate until the NCDGBE reaches a recovery level.

OIL & GAS

The Forest Plan EIS is not a site-specific document for oil and gas decision making. The Forest Plan EIS is meant to analyze different ways the Forest could be managed and the effect of this management. All activities under the Forest Plan, including oil and gas development, are subject to appropriate environmental analysis.

The discussion on "sour gas" and other effects has been expanded (see Chapter IV, FEIS).

The Forest-wide standards dealing with the Interagency guidelines will not be duplicated. Only the Interagency guidelines will be used (see Chapter II, final Plan).

OUTSTANDING NATURAL AREAS

A discussion on the contiguous BLM lands has been added to the FEIS. The adjacent National Forest lands were leased by the BLM in 1981 for oil and gas exploration. Our understanding is that the Outstanding Natural Areas identified by the BLM in 1983 are also leased for oil and gas exploration, although the leases will not be reissued. The road in the South Fork of Deep Creek was constructed in the 1960s for seismic exploration across both BLM and National Forest lands. Although it is now closed, it could be reopened with minimal work. We will continue to work with the BLM to resolve these problems.

GLACIER NATIONAL PARK

We recognize the importance of maintaining the landscape from critical viewpoints in Glacier National Park and the support for a more protective classification for the Badger-Two Medicine area.

The Badger-Two Medicine area has been changed from Management Area O (timber/range) to Management Area G (custodial management) in the final Plan.

RECREATION

The Continental Divide National Scenic Trail study which identified the specific route, has just been completed. We will continue to cooperate with Glacier National Park in the management of this trail and related facilities at Marias Pass.

NATIVE AMERICANS

We appreciate your support of our Native American programs. Several Blackfeet currently graze cattle in the Forest. They will be considered for any increases under established procedures for issuing grazing permits.

CULTURAL RESOURCES

We recognize the concern of the BLM in the completion of the cultural resource overview. However, regional priorities and the need to concentrate our efforts on ground-disturbing activities prevent completing this overview in a more timely manner.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
Endangered Species, Field Office
Federal Bldg., U.S. Courthouse
301 South Park
P.O. Box 10023
Helena, Montana 59626

IN REPLY REFER TO:

6-1-85-F-009

August 22, 1985

Mr. Tom Coston
Regional Forester
U.S. Forest Service
Region 1
P.O. Box 7669
Missoula, MT 59807

FOREST SERVICE
Lewis & Clark National Forest
Great Falls, Montana
AUG 23 1985
REC

Dear Mr. Coston:

This is the Fish and Wildlife Service's (FWS) biological opinion prepared in response to your April 10, 1985 request for formal consultation on the Revised Proposed Lewis and Clark National Forest Plan. The consultation period was extended to the end of August by mutual agreement between our agencies in order to prioritize consultation requests from the Lewis and Clark National Forest and to allow the Forest to formulate changes in the proposed Plan that would benefit endangered and threatened species. The FWS has examined the proposed Plan in accordance with the Section 7 Interagency Cooperative Regulations (50 CFR 402, 43 FR 870) and the Endangered Species Act, as amended. This biological opinion refers only to the potential effects on endangered and threatened species and not the overall environmental acceptability of the proposed action.

Project Description

The proposed Lewis and Clark Forest Plan sets forth Forest-wide goals and objectives, land use allocations, management area prescriptions, standards and guidelines, and monitoring and evaluation requirements to establish direction for management of the Lewis and Clark National Forest over the next 50 years.

Biological Opinion

It is the FWS biological opinion that implementation of the revised proposed Lewis and Clark Forest Plan is not likely to jeopardize the continued existance of the grizzly bear or gray wolf. We concur with the conclusion of the biological evaluation prepared for the Forest Plan, that the Plan should not adversely affect the bald eagle and peregrine falcon.

Basis of Opinion

In this consultation, the FWS has reviewed the Forest Plan to determine if the allocation of land resources will preclude the survival and recovery of the grizzly bear and gray wolf and whether the management areas and their management direction and guidelines will provide for their recovery.

While the Forest Plan projects the amount of grazing, timber to be harvested, and facilities to be constructed as well as the acres to developed in the management areas it is impossible to: (1) identify site specific impacts of programs or activities; (2) relate specific project impacts to specific biological components and how they will affect the manner in which endangered species use an affected area; (3) identify cumulative impacts; (4) predict the degree of compliance/coordination with Forest standards and guidelines and the Management Guidelines for Selected Species, Rocky Mountain Front Studies (Interagency Guidelines). Therefore, it is impossible through one consultation to render a biological opinion on all programming and activities identified in the Forest Plan. Thus, additional consultation will be required on each program, activity, or project the Forest Service determines may affect threatened and endangered species at the time it is designed and implemented.

Grizzly Bear

To assure the viability of the Northern Continental Divide Grizzly Bear (NCDGB) population and habitat, forest activities must be at a level and conducted in a manner to assure that (1) bears are not adversely impacted directly, indirectly or cumulatively; (2) important habitat components are not adversely modified or destroyed; and (3) that sufficient space is left undisturbed from detrimental human activities to meet the biological requirements of grizzly bears. These objectives can be met in the Forest planning process by: (1) allocating sufficient space to accommodate grizzly recovery in which grizzly management is the primary use or grizzly bear supportive allocations are made, and (2) prescribing in areas of occupied grizzly habitat that have non-supportive allocations sufficient grizzly prescriptions to assure that the activities are made compatible with the biological requirements of the bear.

The lands allocated to grizzly bear Management Situations 1, 2, and 3, implementation of their attendant management direction, and adherence to the Interagency Guidelines provide a process to assure that the above objectives are met. We believe that if the occupied habitat is managed in accordance with the direction for Management Situations 1, 2 and 3 and that human/bear conflicts are minimized so as to prevent human-induced mortalities, the grizzly

population will respond by expressing the parameters identified for recovery in the Grizzly Bear Recovery Plan. Thus, this opinion is contingent upon the management direction for Management Situations 1, 2, and 3 being fully implemented, that the stratification submitted in this consultation remains in effect, and that the Interagency Guidelines are followed.

The additional information submitted June 3, 1985 by the Lewis and Clark National Forest for this consultation indicates that:

1) Management Areas A (Timber/Visual) and O (Timber/Range) have been eliminated from the North End Geographic Unit, Rocky Mountain Division.

2) The timber program on the Rocky Mountain Division has been reduced to .5 million board feet annually and that permanent roads will not be constructed under this program.

3) Management Area O on the Rocky Mountain Division, which provides for regulated timber harvest, has been reduced from 49,757 to 22,702 acres.

4) An additional 5,500 acres have been added to Management Area I adjacent to the Sun River Game Range. The unleased portion of this area will be available for non-surface occupancy oil and gas leasing during the first decade of the Plan.

In the June 26, 1984 biological opinion on the Hall Creek APD by American Petrofina, we discussed potential impacts that additional roading in the "Ceded Strip" may have on the grizzly and wolf. The impacts were in part due to uncertainies with respect to the legal authorities of the Forest Service to implement and enforce road closures because of access rights Blackfeet Indians have under treaty agreements with the United States. The FWS fully supports the Forest decision to remove Management Areas A and O (allocations that require roading) from the North End Geographic Unit.

These changes to the Forest Plan indicated above will significantly help in maintaining grizzly bear habitat effectiveness at a level that is compatible with recovery objectives. Grizzly habitat management goals will eventually be established for each bear management unit now being identified through the cumulative effects analysis model and will be expressed as a percent habitat effectiveness needed to recover the grizzly. The cumlative effects analysis model will help identify levels of activities and open road densities that are compatible with bear management objectives.

Gray Wolf

Two major factors in managing for wolf recovery include: (1) the maintenance of a year-round prey base (primarily deer, elk, moose and beaver) and (2) avoidance of wolf/human conflicts/encounters that result in mortality. The proposed northwest Montana recovery area generally coincides with the NCDGBE. Review of the grizzly bear guidelines and those for coordinating elk and timber management (Coordinating Elk and Timber Management--Final Report of the Montana Cooperative Elk-Logging Study 1970-1985) indicate that the two are very similar. Thus, the management direction and guidelines developed for grizzlies on the Lewis and Clark National Forest will also have direct beneficial effects on the wolf. This direction plus the Forest-wide guidelines for elk and riparian habitat and the elk guidelines within the Interagency Guidelines helps insure that a year-round prey base for wolves is maintained. The decision to remove Management Area O from the North End Geographic Unit will help in maintaining security for the wolf and minimize the opportunity for human-induced mortalities.

Recommendations

1) Implementation of the Interagency Guidelines (Appendix I) is a key element to the no jeopardy conclusion of this biological opinion. Management Standard C-2 should clearly state that the Interagency Guidelines will be used to coordinate multiple use activities with the biological requirements of endangered and threatened species. Standard #5 would be the appropriate standard to incorporate this language.

2) The Interagency Guidelines represent the most current up-to-date information on how to coordinate oil and gas activities with endangered and threatened species found on the Rocky Mountain Front and are reviewed annually by Technical Committee, Interagency Rocky Mountain Front Wildlife Monitoring/Evaluation Program. The dates for coordinating oil and gas activities on key seasonal ranges identified in Management Guideline G-1 should correspond with those in the Interagency Guidelines.

3) The Interagency Guidelines recommend seasonal restrictions (August 1 - November 30) in the subalpine fir/whitebark pine habitat types and should be included in the list of key seasonal grizzly habitats in Management Guideline G-1.

4) Road closures are an effective management tool to increase security and habitat effectiveness both for the grizzly and for prey species of the wolf. To more fully clarify the Forest's intent to manage roads, we recommend that Management Guideline L-4(26) include the following or similar language:

Implement seasonal or year-round closures on existing and proposed roads if the biological evaluation indicates they are necessary to allow grizzly use of important habitat, to reduce human/bear conflicts, and to meet stated habitat effectiveness objectives.

This completes the FWS biological opinion on the proposed Lewis and Clark National Forest Plan. If the proposed plan should change significantly resulting in impacts not considered in this biological opinion, consultation should be reinitated. Your cooperation and interest in meeting our joint responsibility under ESA is appreciated.

Sincerely,

Wayne G. Brewster

Wayne G. Brewster
Field Supervisor
Endangered Species

cc: Director, FWS, Washington D.C. (OES)
Regional Director, FWS, Region 6, Denver, CO (FA/SE)
Grizzly Bear Recovery Coordinator, Missoula, MT
Field Supervisor, FWS, Billings, MT (ES)
Forest Supervisor, Lewis & Clark National Forest

Introduction

This assessment summarizes and discusses information and management direction contained in the Lewis and Clark National Forest Plan (Revised Proposed) and the Supplement to the Draft Environmental Impact Statement. These documents identify a preferred alternative and propose land allocations and management prescriptions which include both construction and nonconstruction activities during the life of the Plan. The purpose of this assessment is to facilitate the review of the two planning documents in the consultation process.

The Forest Plan recognizes four Federally listed T&E species on the Lewis and Clark National Forest: grizzly bear (threatened), gray wolf (endangered), bald eagle (endangered) and peregrine falcon (endangered). A letter dated August 22, 1984 from Wayne Brewster of the Endangered Species Field Office, U.S. Fish and Wildlife Service in Helena verifies the listed species as those expected to occur on the Forest. No threatened or endangered plant species are known to occur on the Forest. Consideration of these listed species is consistent with previous biological evaluations and formal consultation with the Fish and Wildlife Service.

T&E Species Present and Habitat Identified

Brief discussions of the listed T&E species are found in the Forest Plan (7-8) and in the Draft EIS Supplement (2-46). The information presented in this section will supplement that found in the two documents.

Grizzly Bear (*Ursus arctos horribilis*) - Occupied grizzly bear habitat on the Rocky Mountain Front includes all of the Rocky Mountain Ranger District (776,259 acres) and extends eastward for several miles onto BLM, State, Nature Conservancy and private ownerships as well as portions of the Blackfeet Indian Reservation. Continuous occupied grizzly habitat extends northward through Glacier National Park into Canada and to the west and south onto the adjoining Flathead, Lolo and Helena National Forests. Essential grizzly bear habitat was initially identified by the Forest Service in 1975-76. This delineation was reviewed and expanded considerably in 1977 when 475,836 acres were identified on the Lewis and Clark Forest. There has been no further refinement of the essential habitat delineation since 1977, and that designation has little significance under the current grizzly bear management situation.

The grizzly bear population was reported to be 100 animals for the Lewis and Clark National Forest on the annual wildlife report through the 1970's. That population estimate was based strictly on scattered visual observations which were recorded each year by agency personnel, outfitter/guides and public recreationists. Since more intensive monitoring studies were initiated on grizzly bear in 1977, better information has been developed on bear distribution and population densities upon which to base a total population estimate. The Forest has reported a population of 85 bears on the annual

report since 1982. Further changes in the estimated population may be made as the monitoring study effort shifts to new areas. The change in population estimate from 100 to 85 reported in 1982 was based entirely on better study data and does not refect any known or documented decline in actual bear numbers. It should also be noted, that many of the bears reported for the Forest spend a portion of the year on other landownerships adjacent to the Forest.

Known grizzly bear mortalities on the Rocky Mountain Front for the period 1977-83 totalled 16 bears or an average of about 2.3 per year (Aune et al. 1984). Half of these mortalities were legal hunting kills and the others were from non hunting causes. In 1984 there were 5 grizzlies known to have been lost to the Rocky Mountain Front population. Of this total, 2 were legal hunting kills, 2 were illegal non-hunting mortalities and 1 bear was relocated to the Flathead National Forest following sheep depradations on private land east of the Forest.

Gray Wolf (Canus lupus) - Suitable occupied gray wolf habitat was delineated on 735,700 acres of the Rocky Mountain Ranger District in 1978. This area was included in a recommendation for gray wolf essential habitat prepared by the Northern Region of the Forest Service early in 1980. No additional review or refinement of the essential habitat delineation has taken place since that time.

During the early 1970's the number of wolf sightings and observations of wolf sign increased steadily to a peak of about 40 reports in 1977 and then dropped rapidly in 1978 and 1979 (Ream and Mattson, 1979). During that period of high wolf observations, Ream and Mattson (1978) estimated a population of 5 to 8 wolves on the Rocky Mountain Front. However, even during the period of apparently higher wolf activity in the mid-1970's, no establishment of territories or pack activity by wolves was documented. There have been very few reliable observations of wolves or their sign along the Rocky Mountain Front since 1979. During the summer of 1984, two observations of probable wolf tracks were reported by Forest Service employees along trails in the upper reaches of the North Fork Sun River in the Bob Marshall Wilderness. The low number of wolf observations in recent years would seem to indicate lone wolves dispersing southward from Alberta, Canada.

Two gray wolf mortalities have been documented on the Rocky Mountain Front during the past 20 years. In December 1968, a wolf was shot on private land along the Middle Fork Dearborn River about 8 miles east of the southern end of the Forest. In November 1974, a hunter found a dead female wolf that had been shot on the North Fork Sun River near Cabin Creek. Both animals were verified as gray wolves by a taxonomist after examination of the skulls (Ream and Mattson, 1978).

Bald Eagle (Haliaeetus leucocephalus) - Bald eagles are observed quite regularly on various parts of the Lewis and Clark National Forest during spring and fall migrations. Most of these observations are made near the Forest boundary along the larger drainages. There is a major migration corridor for bald eagle east of the Forest on the Rocky Mountain Front. There is also a significant spring migration corridor north from the Shields River valley through the White Sulphur Springs area. High populations of Richardson's ground squirrels provide the major eagle prey species in that area.

There are no winter concentrations of bald eagles on or immediately adjacent to the Forest. A few eagles do winter along the Sun River, Smith River, North Fork Musselshell River and Judith River below the Forest boundary and probably make occasional use of big game winter ranges on the Forest in those areas.

There are no known active or historic bald eagle nest sites on the Forest. A historic nest was located on the Sun River a short distance below the Forest boundary. This nest was last active in the 1950's, and it was located in a snag along the river which has since blown down. (DuBois 1984). An active bald eagle territory was reported in 1983 near the forks of the Two Medicine River on the Blackfeet Indian Reservation. The general location would be several miles east of the Forest boundary, and the status of this territory has not been verified.

The Lewis and Clark Forest identified essential habitat for bald eagle in 1978 for inclusion in the Northern Region's recommendation to the U.S. Fish and Wildlife Service. Two areas of suitable-unoccupied nesting habitat for bald eagles have been delineated on the Forest. The larger of these areas, approximately 10,800 acres, is located on the Rocky Mountain District and includes the country adjacent to the lower Sun River canyon and Gibson Reservoir. A second area, of about 6,000 acres of potential nesting habitat was identified along the Smith River canyon on the Kings Hill District in the Little Belt Mountains. Both of these areas appear to have the natural features, including suitable nesting trees and available food sources, necessary to support bald eagle nesting territories. Additional areas of suitable-unoccupied nesting habitat may be identified in the future on the Forest.

Peregrine Falcon (Falco peregrinus) - Peregrine falcon are occassionally observed during seasonal migrations along the Rocky Mountain Front east of the Forest boundary. There are several sightings of migrating peregrines at Freezout Lake each year (DuBois 1983). A few unconfirmed reports of adult peregrines being observed on the Forest during the breeding season have been received in recent years. An employee of ARCO, Bob Kook, reported that he saw an adult peregrine falcon during a helicopter flight north of the Teton River near the wilderness boundary during the week of June 14, 1984. Mr. Kook is a falconer and felt positive of his observation (R. Escano, pers. comm.).

Essential habitat for peregrine falcon was identified for the Lewis and Clark National Forest in 1978 as a part of the Northern Region's effort to delineate essential habitat for the species. A total of 11 areas in the Rocky Mountains and 5 areas in the Little Belt Mountains were classified as suitable-unoccupied habitat. The areas delineated total about 64,000 acres.

There are no known active or historic peregrine falcon eyries on the Lewis and Clark Forest. Four criteria were used to delineate suitable-unoccupied habitat for peregrine falcon on the Forest:

1. A cliff or series of cliffs over 200 feet high that dominate the landscape.

2. Available nesting sites with an east, south or west exposure below 9,500 feet elevation.

3. Adequate prey base within 10 miles of potential nesting areas.

4. Very little or no human disturbance in vicinity of nesting habitat.

DuBois (1984) evaluated cliff areas along the Rocky Mountain Front for their potential as suitable nesting habitat for peregrine falcon. The areas she felt had the best potential for peregrine falcon nesting were included in the areas identified as essential habitat by the Forest in 1978.

Current T&E Habitat Management Direction

The management of T&E species and their habitat on National Forest System lands is guided by a number of Federal laws, executive orders and implementing regulations. In addition, internal management direction is documented in Chapter 2600 of the Forest Service Manual in the form of habitat management objectives, policy statements and operating procedures. State laws and regulations specify the protection and/or restricted taking of resident wildlife species which are Federally classified as threatened or endangered. The long term management program projected in the Revised Proposed Forest Plan would be implemented within and subject to all of the currently existing management direction described in this section.

The Forest Plan specifies long range goals (2-2) and Forest-wide objectives (2-4) as they relate to habitat management for T&E species. Management Guideline C-2 (2-28) summarizes most of the current management direction for T&E species in effect on the Lewis and Clark National Forest. Further expansion on this direction is found in Appendices H, I, J, K, L and M of the Forest Plan. Much of the management direction and operational procedures discussed are viable and subject to considerable change prior to approval of a Final Forest Plan. As an example, the cumulative effects evaluation process (Appendix L) is evolving rapidly, and it will be developed into a standard format for computer modeling in the near future.

In addition to the foregoing guidance dealing with T&E species, there are several other sources of existing management direction which are not mentioned specifically in the Forest Plan. An Interagency Grizzly Bear Committee (IGBC) was formed in 1983 which includes representatives from the Forest Service, National Park Service, U.S. Fish and Wildlife Service, Bureau of Land Management and State Game Departments in Montana, Wyoming, Idaho and Washington. After the IGBC became functional, sub-committees were formed for the major grizzly bear ecosystems.

Early in 1983, the Northern Region-Forest Service developed a Grizzly Bear Action Plan for 1983-84 which included specific items to be accomplished by the various Forests involved. This Regional Action Plan was updated for 1984, and a Forest Grizzly Bear I and I Plan was prepared as a result.

In addition to the stratification of occupied grizzly bear habitat by management situations according to the "Yellowstone Guidelines", two other levels of grizzly bear habitat mapping are also being completed. Constituent element mapping is available for the Lewis and Clark Forest based on Keith Aune's grizzly monitoring work, but is subject to modification as additional bear data is collected. Habitat component mapping was started in 1984 on the

southern portion of the Rocky Mountain Front with a total of 72,000 acres completed of which 32,000 were on National Forest land. It will take several years to complete habitat component mapping on the Rocky Mountain Front using the existing methodology. The possibility of using NASA's landsat imagery to expedite the completion of component mapping is currently being explored. Habitat component mapping is a vital element in the cumulative effects evaluation process.

Recovery plans are in effect for three of the four classified species which are listed for the Forest.

The American Peregrine Falcon Recovery Plan (Rocky Mountain and Southwest Populations) was approved in August 1977. During the past couple of years, this plan has been revised, gone through technical and agency reviews, and is scheduled for approval and release early in 1985. The Pacific States Bald Eagle Recovery Plan has also been through the required review process and should be approved and released early in 1985. Neither of these plans sets recovery objectives which are specific to the Lewis and Clark National Forest. However, the establishment of active nesting territories on the Forest by either species would aid in meeting the over-all recovery plan objectives.

The Northern Rocky Mountain Wolf Recovery Plan was approved in May 1980. A revision of this plan was initiated in 1983 and distributed for technical review late that year. The revised wolf recovery plan still has to go through an agency review before it can be finalized and approved. The original recovery plan set a primary objective --- "To reclassify Canis lupus irremotus to threatened status by re-establishing and maintaining at least two populations within its former range." The Northern Regional Plan which was approved by the Chief of the Forest Service in December 1981 disaggregated wolf population objectives and established a tentative target of 10 wolves for the Lewis and Clark National Forest. The population goal for wolf recovery is likely to be changed when the revised recovery plan is approved and management zone stratification is completed.

The Grizzly Bear Recovery Plan was approved in January 1982. This plan is divided into separate sections for the major grizzly bear ecosystems in the Northern Rocky Mountains. The recovery goal for northwestern Montana is --- "Secure and/or maintain a viable, self-sustaining grizzly bear population in the Northern Continental Divide Grizzly Bear Ecosystem (NCDGBE)." In order to achieve this goal the step-down plan states, "The grizzly bear population in the NCDGBE will be viable and self-sustaining when monitoring efforts indicate that recruitment, natality, and mortality are at levels supporting a stable or increasing population." The plan also describes a recovered population as the current estimated levels (440-680 bears) or above and/or monitoring efforts which document several reproductive parameters and average annual mortality rates computed as a running six year average. The Northern Regional Plan disaggregated grizzly bear population goals for the NCDGBE based on occupied habitat and established a tentative target of 81 grizzlies for the Lewis and Clark Forest. This population goal is subject to revision based on the collection of additional bear monitoring data and the completion of habitat component mapping.

Effects of Plan Implementation on T&E Species

The discussion in this section will deal with the expected effects of the various resource programs proposed in the Revised Lewis and Clark Forest Plan on the four classified species.

Bald Eagle - The suitable, unoccupied bald eagle nesting habitat found along the Smith River in the Little Belt Mountains is all in Management Area F. The emphasis in the management area is for semi-primitive recreation opportunities, and no road construction or development activities are scheduled for the area. The major activity in the area is and will continue to be river related recreational use along the Smith River corridor. The period of peak floating use on the river is from late May to mid-July which would coincide with the bald eagle nesting season. Potential impacts on the future establishment and occupancy of bald eagle nesting territories will be largely dependant upon their location in relation to site specific recreation activities such as boat camps, day use areas, etc.

The suitable, unoccupied bald eagle nesting habitat located adjacent to Gibson Reservoir and along the lower Sun River canyon in the Rockies lies in portions of several management areas (F, H, I, N and Q). None of these areas contain management direction which emphasizes roading or extensive resource development activities. Management Area H - Developed Recreation is the least compatible with the possible future establishment of bald eagle nesting territories. While this management area provides for the construction of new developed recreation sites or the expansion and improvement of existing sites, there are no plans for such development at this time. The management area currently includes a resort, several recreation summer homes, two campgrounds, an outfitter-guide base facility and a boat launch ramp on Diversion Lake. There is a block of private land in Mortimer Gulch which is also developed primarily for recreational pursuits. No major changes in activities or human use levels are foreseen during the next 10 to 15 years.

Peregrine Falcon - Suitable, unoccupied peregrine falcon nesting habitat identified on the Rocky Mountains and the Little Belt Mountains falls within a number of management areas (E, F, G, H, I, M, N, O, P and Q). The Forest Plan management direction for most of these areas is compatible with the maintenance of the potential peregrine falcon habitat identified. The area along the Smith River Canyon in the Little Belts appears to have a high potential for the establishment of peregrine falcon eyries. The expected human impacts on peregrines would be similar to those previously described for bald eagle in that area.

A small amount of the delineated peregrine falcon habitat in the Rockies falls within Management Areas H and O. A portion of Area H in the lower Sun River canyon which was identified for peregrines was discussed under the section on bald eagle. The main cliff on Castle Reef which appears to have the highest potential for a peregrine falcon eyrie site, is located about two miles from the heavy recreation use along the Sun River bottom. Potential peregrine habitat is also delineated in H Management Areas along the North and South Forks of the Teton River just inside the Forest boundary. Although the same types of recreation use occur in that area as on the Sun River, the level of human activity is much lower and seasonal in nature. There is also a small portion of Management Area O - Timber/Range delineated as peregrine habitat in the vicinity of Cave Mountain on the North Fork Teton River. However, all of

the area involved is very steep and the potential for any timber harvest in the future is low.

Much of the identified suitable, unoccupied peregrine falcon habitat in the Rockies is in areas which have been leased for oil and gas exploration. All of the potential cliff nesting habitat and much of the adjacent area have no surface occupancy stipulations applied due to slope limitations. Most of the exploration completed to date has been by helicopter supported seismic surveys. While such surveys could have temporary impacts on occupied nest sites, no adverse modification of unoccupied habitat will occur.

Potential impacts resulting from the drilling of an exploratory or development well in suitable peregrine habitat would depend upon the specific location of the access road and well site. Indirect impacts from disturbance during drilling activity could occur if a nearby eyrie site were occupied or a territory was being established. In such situations, there could also be varying amounts of long term disturbance associated with a producing well. There would not be any physical destruction of suitable cliff nesting habitat expected as a result of oil and gas exploration or development.

Due to the current unoccupied status of suitable habitat for both peregrine falcon and bald eagle, the Supplement to the Draft EIS discusses both species under non-significant factors in Chapter IV - Environmental Consequences (4-1). The foregoing discussion considers potential impacts to those species assuming future establishment of nesting territories.

Gray Wolf - Considering the current status of the gray wolf population on the Rocky Mountain Front, the most serious impact would result from activities which would increase the potential for human caused wolf mortality. Direct or indirect effects upon wolf habitat are difficult to assess under the current situation, but would become increasingly important if a viable wolf population becomes established. In the event a wolf pack is formed and establishes a territory, the possible adverse effects resulting from proposed human activities on important wolf habitat components such as rendezvous sites, denning areas and ungulate prey base seasonal ranges would require a thorough evaluation. Such evaluations would need to consider both the potential site specific impacts as well as an analysis of cumulative effects related to the entire pack territory.

Potential effects of resource activities on gray wolves and their habitat are discussed in Chapter IV - Environmental Consequences of the Supplement to the Draft EIS. Specific references to wolves are found in sections on Recreation (4-18), Wilderness (4-23), Fish and Wildlife (4-28 to 4-30), Timber (4-40) and Minerals (4-47 to 4-49).

Grizzly Bear - The effects of implementation of the Forest Plan on grizzly bear can be more clearly identified due to their population status and the increasing amount of data available on the species and its habitat on the Rocky Mountain Front. Potential adverse impacts on grizzlies resulting from various resource activities can be either direct or indirect in nature. Direct effects include illegal bear mortality and the destruction or long term modification of important grizzly habitat components.

Indirect impacts on grizzly bear habitat associated with resource programs scheduled by the Forest Plan will be more widespread, and they have the potential to result in more adverse effects on grizzlies than the direct impacts. Projects which increase human access and use, either temporarily or permanently, will reduce grizzly bear habitat effectiveness. This could result in less use and more selective use of the habitat affected or could completely displace bears from seasonally important habitat components. Another indirect impact is the establishment of food sources by humans which may act as attractants to bears resulting in an increased potential for human/grizzly interactions.

The effects of resource activities on grizzly bears and their habitat are discussed in Chapter IV - Environmental Consequences of the Supplement to the Draft EIS. Specific references to grizzly bears are found in the sections on Recreation (4-18), Wilderness (4-23), Fish and Wildlife (4-27 to 4-29), Range (4-34), Timber (4-40), Minerals (4-47 to 4-49) and Facilities (4-59). A brief discussion of the various resource programs proposed in the Forest Plan as they may affect grizzly bear habitat follows.

Developed recreation use is projected to increase gradually in the Rockies. No new developed sites are scheduled for construction during the first decade. Dispersed recreational use in classified wilderness and roadless areas is also expected to increase gradually. The opportunity for the legal harvest of grizzly bears may be sharply curtailed or eliminated in the near future. Other than that, little change in the effects of recreational uses on grizzly bears or their habitat is projected in the first decade of the Forest Plan.

An increase in the amount of classified wilderness in the Rockies is anticipated in the next few years. The Forest Plan recommends 47,000 acres of additional area be classified as wilderness, but Federal legislation will be necessary to determine the actual amount designated. The management direction for the Bob Marshall-Great Bear-Scapegoat Wilderness recognizes grizzlies as an important wilderness resource (App. D-11). The fire management policy for the wilderness which allows certain wildfires to burn should provide some long term grizzly bear habitat benefits.

The wildlife and fish program calls for 85 acres of habitat improvement annually for grizzly bear (2-8). Most of the improvement work will consist of prescribed burning to maintain or enhance early successional forage areas. Other types of habitat improvement will be considered if promising opportunities are identified.

The proposed range management program schedules a small increase in permitted livestock grazing of 200 animal unit months by the year 2000 (2-9). This amounts to about 40 cow/calf pairs for the Rocky Mountain District. Forest-wide management guidance calls for the termination of the one remaining sheep grazing allotment at the earliest opportunity (2-36). Emphasis on the protection and/or enhancement of riparian areas for wildlife and fish (2-4 and 2-34) should prove benefical to grizzlies.

The proposed level of timber harvest on the Rockies is 1 million board feet annually through the entire 50 year planning period. This allowable harvest level and the amount of suitable timber acres allocated (2-9) are considerably less than under the current multiple use and timber management plans. Although

a 1 1/2 million board foot sale was sold in 1983, the average volume of sawtimber sold in recent years has been less than 1/2 million board feet. In order to support the proposed timber harvest program, up to 8 miles of new roads may be constructed.

Under the minerals program, oil and gas exploration is the major activity in progress on the Rocky Mountain Front. The potential for hard rock mineral exploration or development on the Forest in the Rockies is low. The non-wilderness lands on the Forest are all leased for oil and gas exploration with the exception of the Renshaw and Falls Creek Recommended Wildernesses. Lease applications are pending on those two areas, subject to whether or not they are classified as wilderness. Most of these leases were issued in 1981 and 1982 and they are valid for a 10 year period.

Geophysical exploration for oil and gas became active in the late 1970's and has continued at a moderate to high level since then. A majority of this exploration has been conducted by helicopter supported seismic surveys including both surface charge and porta-drill shot hole methods. Seismic survey activity will continue in 1985 although at a reduced level from that of last year based on current information.

One old gas well was redrilled on the Forest in 1981 and then capped after production testing. This well is located in the mouth of Blackleaf Canyon less than 1/2 mile inside the Forest boundary. An APD was recently approved by BLM for an exploratory well on Hall Creek in the Two Medicine drainage. Another APD has been filed by Woods Petroleum in the mouth of Muddy Creek and is pending approval.

Future activity levels associated with oil and gas exploration are difficult to predict due to numerous external factors which affect the entire industry. Seismic activity is expected to continue at a low to moderate level in the next few years with most of the activity in specific target areas. It also appears likely that the Forest may receive at least 1 to 2 APD's annually in the near future. This number is likely to increase later in the decade as the leases approach expiration. One or more significant oil or gas discoveries on the Forest would also spur the amount of exploration activity.

Coordination and Mitigation Measures

Coordination requirements and procedures established between the Forest Service and other agencies, particulary the U.S. Fish and Wildlife Service, are well documented and summarized in the Forest Plan (2-28 and 2-29). Further expansion on existing coordination direction and processes is found in Appendices I, J, K, L and M of the Plan and was previously discussed in this assessment in the section on Current T&E Habitat Management Direction. The information in Appendix J relating to Forest Service Manual direction was amended in July 1984 with changes being made in objectives, policy and cooperation with other agencies. The amended direction is found in Chapter 2670 of the Forest Service Manual and will be incorporated into the Final Forest Plan.

The cumulative effects evaluation process (Appendix L) is currently being adopted to a computer modelling system for the Rocky Mountain Front by a team

of wildlife biologists from the agencies involved. The cumulative effects model will be patterned after one which was developed for the Yellowstone Grizzly Bear Ecosystem which is now operational. Three sub-models will be developed to address grizzly bear habitat quality, habitat effectiveness related to human activities and the risk of human caused grizzly mortality. A conceptual model incorporating these factors will be completed this spring. Habitat component mapping is scheduled on portions of the Rocky Mountain Front this summer, and the cumulative effects model should be operational by sometime next winter.

There have been some additional consultations with the U.S. Fish and Wildlife Service (FWS) besides those discussed in Appendix J, pages 5 and 6. As is noted (Appendix J-6), informal consultation was completed in 1982 on an environmental assessment for geophysical exploration on nonwilderness lands on the Lewis and Clark Forest. Due to reported violations of interagency guidelines in 1984, the FWS requested formal consultation on the Forest's 1985 seismic exploration program in a letter to the Regional Forester dated January 2, 1985.

Formal consultation was recently concluded with the FWS on the Hall Creek APD in the South Fork Two Medicine River drainage. This followed resolution of several issues which had originally resulted in a jeopardy biological opinion for both grizzly bear and gray wolf based on the original EA for the project. Changes in the location of the access road to the site and planned public use of the area following well drilling were significant factors in resolving the jeopardy situation. The BLM has recently approved the APD based on the revised EA for the Hall Creek site.

Informal consultation has been undertaken with the FWS on a number of additional projects on the Rocky Mountain District in recent years. These include small timber sale proposals, motorcycle races in the Badger-Two Medicine country and the Muddy Creek APD which is currently pending approval by the BLM.

Specific mitigation measures contained in the Forest Plan are largely directed at grizzly bear habitat while more general measures are listed for the other classified species considered. The main emphasis for bald eagle and peregrine falcon is to maintain suitable, unoccupied habitat which has been identified. Should active nest territories or other important habitat components become established for either of these species, a nest management plan or similar site specific management direction would be developed (2-29). The interagency guidelines developed under the Rocky Mountain Front Wildlife Monitoring Program provide guidance for both occupied and potential habitat for these raptor species (Appendix I-14 and 15).

Management emphasis for the gray wolf in the Forest Plan is directed at maintaining a suitable prey base and important habitat components such as rendezvous sites. The Plan also provides guidance for the compilation of all reports of wolf sightings, sign, or other activity in order to gain knowledge on present distribution and population level (2-29). In addition to this general direction, much of the specific management guidance and mitigation measures proposed for the grizzly bear should also prove beneficial in managing gray wolf habitat. Forest-wide management guidelines (2-20 to 2-62) designed to maintain or enhance big game habitats will provide indirect benefits to

wolves by maintaining ungulate prey bases. Management guidance for elk and other big game species is also contained in Appendices F, G, H and I.

The Forest Plan contains a significant amount of management direction and guidance for grizzly bear habitat. Specific reference is made to grizzlies in the long range goals (2-2) and Forest-wide objectives (2-4). Projected habitat improvement outputs call for 85 acres to be treated annually for grizzly bear (2-8). Prescribed burning to maintain or enhance early successional foraging areas will be the major type of improvement in the near future. Numerous specific references providing management direction or mitigation measures for grizzlies are contained in the Forest-wide management guidelines (2-28, 2-29, 2-35, 2-36, 2-37, 2-39, 2-40, 2-45, 2-46, 2-50 and 2-61). General or specific guidance for T&E species or grizzly bear is contained in Appendices D, E, H, I, J, K, L and M.

Chapter 3 of the Forest Plan sets forth management prescriptions for the various management areas on the Forest. The Rocky Mountain District which is all occupied grizzly bear habitat contains all of Management Areas N, O, P and Q as well as portions of A, E, F, G, H, I and R. The wildlife practice for operation, protection and maintenance (CW2) calls for either the maintenance or enhancement of T&E species habitat for all management areas with the exception of H - Developed Recreation. The wildlife management direction in this area specifies that impacts on T&E species habitat will be minimized. Much of Management Area H in the Rockies has been stratified as management situation 3 for grizzly bear. Wildlife habitat improvement practices (CW3) are prescribed for all management areas with the exception of H, P and Q.

Regulated timber harvset is scheduled only in Management Areas A and O. Overall management goals and resource management practices prescribed for these Areas appear to be compatible with grizzly bear habitat management. Oil and gas leases are in effect on all management areas with the exception of P (classified wilderness), Q (recommended wilderness) and areas adjacent to Q which were recommended for wilderness through the RARE II process.

Chapter 4 of the Forest Plan describes various geographic units on the Forest including 10 areas on the Rocky Mountain District (4-1 to 4-40). Brief descriptions of grizzly bear habitat elements present are included for most areas, and a general summary of past activities provides an indication of factors which relate to grizzly bear management. The section on future management activity for each geographic unit is described by management area emphasis.

The monitoring and evaluation portion of the Forest Plan (Chapter 6) establishes the procedures by which the progress and results of implementing the Plan can be measured. The monitoring and evaluation procedure provides for an evaluation report on any item when the established variability goal is exceeded based on the parameter being measured (6-1, 6-2 and 6-12). Monitoring items which relate directly or indirectly (wolf prey base) to T&E species are C-1, C-2, C-3, C-4, C-5, C-12 and C-13 (6-4 and 6-5).

Determination of Affect on T&E Species

Based on the foregoing assessment of permitted and scheduled activities proposed in the Lewis and Clark National Forest Plan, the determination of affect on T&E species is presented as follows.

Bald Eagle and Peregrine Falcon - No Affect.
No measurable adverse or beneficial affects are expected on the suitable, unoccupied habitat identified for these species as a result of Forest Plan implementation. Although temporary or short term reductions in habitat effectiveness may result from resource development activities in the vicinity of suitable nesting habitat, no physical destruction or long term habitat degradation is forseen. Should one or more nesting territories for either of these species be established, it will be appropriate to reevaluate the determination of affect for that species.

Gray Wolf - May Affect.
Adverse affects upon the gray wolf or its habitat may result from individual resource projects or a combination of several projects being conducted concurrently. Such affects could include reductions in habitat effectiveness, displacement of ungulate prey bases, or increases in the potential for human caused wolf mortality. Habitat improvement programs designed to maintain or enhance big game ranges may provide indirect benefical affects for the wolf by protecting or increasing habitat capacity for ungulate populations.

As was mentioned for the bald eagle and peregrine falcon, the establishment of a viable wolf population would provide a more definitive basis for the determination of potential adverse or beneficial affects. The cumulative effects model currently being developed for grizzly bear habitat evaluation should prove useful as a basis for analyzing effects on wolf habitat related to human activities. If a wolf pack should become established, the pack territory would be the logical unit for the evaluation of cumulative effects.

Grizzly Bear - May Affect.
The potential adverse affects from individual resource projects or a combination of projects on grizzly bear and their habitat would be similar to those discussed for the gray wolf. In addition, the site specific destruction or long term modification of important vegetative habitat components is another potential adverse affect on grizzly habitat. The Forest Plan schedules a continuing habitat improvement program for grizzly bear, primarily prescribed burning of important habitat components, which should result in long term benefical affects for grizzlies.

The Forest Service will continue to prepare a biological evaluation on all proposed resource projects, programs or uses which may have an affect (adverse or beneficial) upon the grizzly bear or its habitat. Such evaluations will consider both site specific impacts as well as a cumulative effects analysis of the entire Bear Evaluation Unit (BEU). The completion of grizzly bear habitat component mapping and the development of the cumulative effects model are important factors in strengthening the biological evaluation process.

The foregoing determination of affects on T&E species relative to the Forest Plan includes the following assumptions:

1. A biological evaluation will be prepared by a qualified wildlife biologist on all proposed projects, programs or uses which may affect any T&E species or their habitat.

2. Should a jeopardy opinion result from formal consultation with the FWS, options to resolve the jeopardy situation include project modification, use of more restrictive stipulations or elimination of the proposed activity.

3. Previous biological evaluations and biolgical opinions completed on oil/gas leasing or exploration activities will remain valid until collection of additional resource data or changes in procedures result in a new evaluation.

Roger L. Evans

ROGER L. EVANS
Wildlife Biologist
March 27, 1985

Literature Cited

Aune, K., T. Stivers, and M. Madel. 1984. Rocky Mountain Front grizzly bear monitoring and investigation. Montana Department of Fish, Wildlife and Parks. Helena. 239 pp.

DuBois, K. 1984. Rocky Mountain Front raptor survey-December 1982 - August 1984. Montana Department of Fish, Wildlife and Parks. Helena. 116 pp.

DuBois, K. 1984. Rocky Mountain Front raptor survey-December 1982 - November 1983. Montana Department of Fish, Wildlife and Parks. Helena. 135 pp.

Ream, R.R. and U.I. Mattson. 1979. Wolf ecology project: annual report, October 1978 - September 1979. Wilderness Institute, University of Montana, 33 pp.

Ream, R.R. and U.I. Mattson. 1978. Current status of the gray wolf (Canus lupus) in the Rocky Mountain Front: July 1978. University of Montana. Mimeo, rept. 18 pp.

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Wayne G. Brewster
U.S. Department of Interior
Fish and Wildlife Service
Endangered Species, Field Office
P.O. Box 10023
Helena, MT 59626

Thank you for your biological opinion on the Lewis and Clark Forest Plan.

The final Plan has been revised as suggested by your recommendations 1 and 4.

To avoid any differences, as discussed in your recommendations 2 and 3, the final Plan omits any duplication of the Interagency Guidelines. These guidelines will be use to coordinate multiple-use activities with the biological requirements of endangered and threatened species.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

United States Department of Agriculture
Soil Conservation Service
Federal Building-Room 443
10 East Babcock
Bozeman, MT 59715

December 26, 1984

JAN - 3 1985
RECEIVED

John D. Gorman
Forest Supervisor
USFS-Lewis & Clark National Forest
P. O. Box 871
Great Falls, MT 59403

Dear Mr. Gorman:

We have reviewed the Supplement to the Draft Environmental Impact Statement on the Lewis and Clark National Forest Land and Resource Management Plan and the Revised Proposed Lewis and Clark National Forest Plan.

We feel you have adequately addressed the resource considerations, identified resource problems and considered provisions for minimizing adverse effects.

Some concern does exist relative to our snow survey program and the proposed Forest Plan. As you are aware, we do have a Memorandum of Understanding with the Forest Service that covers our snow measuring sites consisting of both snow courses and automated SNOTEL sites. Each of these sites are covered by a separate Supplemental Agreement. It has been our experience that many files are not complete and thereby, location, access and authorization for these sites is not recognized.

There is an automated SNOTEL site in Crazy Mountains roadless area and there are snow courses in the Bluff Mountain and Castle roadless area. In the Plan, the protection of the existing sites is addressed. However, we are equally concerned with access to these sites for both winter measurements and summer maintenance. We generally use snow machines and helicopters for winter access and 4-wheeled ATV, motorbike and helicopter for summer access. We would like to request that our need to access these sites be considered relative to road closures, wilderness studies or other management decisions. We have recently found access to some of our sites closed on other forests, and we were not aware of closures until our crews attempted to visit the sites.

We are also very interested in seeing you obtain the right-of-way for Dupuyer Creek as we use this access for our SNOTEL site that is located on National Forest Land.

We appreciate the opportunity to comment on this Plan. If you need assistance from our staff to identify site locations and access, or replace copies of the Supplemental Agreements, please let me know.

Sincerely,

James S. Johnson (Acting)

Glen H. Loomis
State Conservationist

F-44 Appendices

The Soil Conservation Service is an agency of the Department of Agriculture

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Glen H. Loomis, State Conservationist
Soil Conservation Service
Federal Building-Room 443
10 East Babcock
Bozeman, MT 59715

We recognize your need for summer and winter access to snow cources, snotel, and other hydrometeorogic data sites. This need has been added to Management Standard F-2 in the final Plan. Additional information on these sites in included in Charter IV of the Plan. We are continuing in our effort to obtain the right-of-way in Dupuyer Creek.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

DEPARTMENT OF THE AIR FORCE
AIR FORCE REGIONAL CIVIL ENGINEER CENTRAL REGION (AFESC)
1114 COMMERCE STREET
DALLAS, TEXAS 75242

10 DEC 1984

DEC 17 1984

Mr. John D. Gorman, Forest Supervisor
Lewis and Clark National Forest
P.O. Box 871
Great Falls, MT 59403

Dear Mr. Gorman:

Thank you for allowing us the opportunity to review the Supplement to the Draft Environmental Impact Statement and Revised Proposed Lewis and Clark National Forest Plan, Montana.

We continue to express our support of the Forest Service in developing functional management plans for lands under its control. The Air Force concern for these management issues contains the need to retain use of existing and the establishment of future military flight training areas and routes which may traverse these areas.

Currently no Air Force air operations cross any portion of the study area. Although flight training areas, routes, and airspace requirements of the military are subject to change and do change frequently, it is not anticipated that new routes will be established in the immediate future.

We are hopeful this information is useful in your planning. If additional information is needed, our staff point of contact is Mr. Raymond Bruntmyer, (214) 767-2514, or FTS 729-2514.

Sincerely,

DON-MICHAEL BRADFORD, Captain, USAF
Director, Environmental Planning Division

Cy to: HQ USAF/LEEV
Tom Coston, Rgnl Forester
Northern Region
USDA Forest Service
Federal Building
Missoula, MT 59807

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Don-Michael Bradford, Captain, USAF
Director, Environmental Planning Division
Department of the Air Force
AFESC
1114 Commerce Street
Dallas, Texas 75242

The Forest Plan recognizes the need for flight training areas, routes, and airspace requirements. We will be glad to work the U. S. Air Force on specific routes to ensure that wilderness and recreation values are protected. If your routes do change and will affect the Lewis and Clark National Forest, please let us know.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208

In reply refer to: SJ

MAR 28 1985

Mr. John D. Gorman, Forest Supervisor
Lewis and Clark National Forest
P.O. Box.871
Great Falls, MT 95403

Dear Mr. Gorman:

Our Office of Engineering and Construction has reviewed the Supplement to the Draft Environmental Impact Statement (EIS) and the Revised Proposed Lewis and Clark National Forest Plan, and they offer the following suggestions.

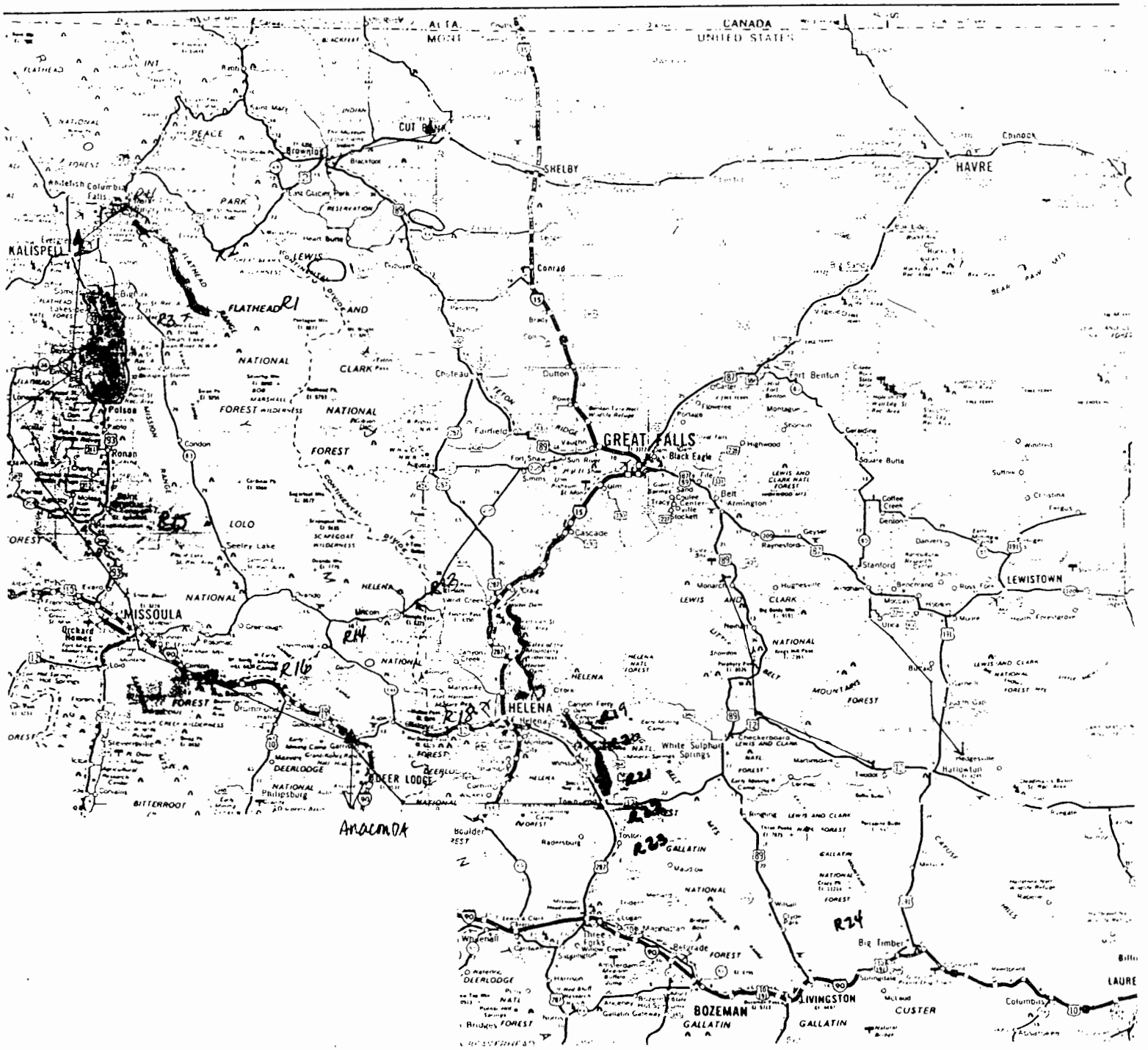
1. We suggest that the Plan give more consideration to the management and protection of existing utility rights-of-way or potential corridors in accordance with the requirements of the Federal Land Management and Policy Act (FLMPA) and also the National Forest Direction on Transportation and Utility Corridors Planning (FSM 1922.51). The EIS and Plan briefly mention energy corridors but no mention is made of corridor windows, exclusion, or avoidance areas. Several corridor segments which would effect the Lewis and Clark National Forest were identified by the joint BPA/USFS Pacific Northwest Long-Range East--West Energy Corridor Study. These corridor segments, which are marked on the enclosed map, should be shown in the EIS and Plan. Although the energy load assumptions used in the East-West Corridor Study are no longer valid, it is important to retain viable energy corridors for future use.

2. We recommend that you address the potential of Lewis and Clark National Forest Lands for energy resource development, particularly renewable resources.

I hope these suggestions will be useful in preparing the final documents. Please contact me if you need further information.

Anthony R. Morrell
Environmental Manager
Bonneville Power Administration

Enclosure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LIVINGSTON
LEWISTOWN
Polson
Ronan
Conrad
Cascade
Dutton
Fort Benton
Black Eagle
Belt
Stanford
Big Timber
Belgrade
Three Forks
Townsend
White Sulphur Springs
Philipsburg
Seeley Lake
Condon
Fairfield
Choteau
Raynesford
Hobson
Hedgesville
Columbus
FLATHEAD
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United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Anthony R. Morrell, Environmental Manager
Department of Energy
Bonneville Power Administration
P.O. Box 3621
Portland, OR 97208

We recognize your concern for utility corridor management. Each management area contains direction for utility-transportation management. This direction can be found in Chapter III under Land Use-Special Use Permits. The direction identifies exclusion, avoidance, and available areas.

In response to your concern, additional information on potential corridor segments and energy resource development has been added to the final Plan and FEIS (Appendix A).

JOHN D. GORMAN
Forest Supervisor

Enclosures

State of Montana
Office of the Governor
Helena, Montana 59620

March 26, 1985

TED SCHWINDEN
GOVERNOR

Mr. Dale Gorman, Supervisor
Lewis and Clark National Forest
P.O. Box 871
Great Falls, MT 59403

Dear Mr. Gorman:

The State of Montana appreciates this opportunity to review and comment on the revised Draft Lewis and Clark National Forest Plan (Plan). Your agency's cooperation and presentation of the Plan to Montana's interagency planning task force are also appreciated. The attached comments reflect the task force's review and concerns regarding the Plan.

Although the Plan has been significantly improved from the 1983 draft Plan and Environmental Impact Statement (EIS), many of the State's previous comments have not been adequately addressed. Serious concerns remain regarding the economics of proposed timber harvest and the effects of additional road building in the Rocky Mountain Division, an area nationally recognized for its premier wildlife and recreational values. In addition, many of the programs proposed to monitor the effects of timber harvest on those resources are inadequate to accomplish their stated goals.

The importance of supporting and encouraging a viable wood products industry in Montana can hardly be overemphasized. However, the economics of substantial additional harvesting on low production sites, as proposed, should be more carefully considered. The Lewis and Clark National Forest does not need to return a profit on every timber sale. However, priorities need to be re-examined when below cost sales also adversely affect other important resource values.

Thank you for the opportunity to comment.

Sincerely,

TED SCHWINDEN
Governor

Attachment

cc: Tom Coston
Dale Bosworth

State of Montana
Office of the Governor
Helena, Montana 59620

TED SCHWINDEN
GOVERNOR

MONTANA COMMENTS ON THE 1984 DRAFT LEWIS AND CLARK NATIONAL FOREST PLAN AND ENVIRONMENTAL IMPACT STATEMENT

The Revised Proposed Lewis and Clark National Forest Plan (Plan) has been considerably improved in response to public and state comment on the original draft plan. The increased emphasis on interagency coordination is appropriate and appreciated. The reduction in the Rocky Mountain Division Timber program is also appropriate, although the state continues to have serious concerns about the economics of timber harvest and the effect of increased roading in this highly important recreation, watershed and wildlife area.

In the revised documents, some of the state's concerns outlined in the Governor's response to the 1983 draft Plan and Environmental Impact Statement (EIS) were addressed. However, many of the previous comments were not. In general, the Plan lacks equitable consideration for fish, wildlife and recreational values, even though these values on the Lewis and Clark National Forest (LCNF) are among the highest of any national forest in Montana. Equally disturbing is the fact that many of the programs designed to monitor the effects of timber management on fish, wildlife and watersheds are inadequate.

The Plan's financial commitment to timber production would be more acceptable if adequate consideration were given to other outputs. Our analysis indicates that for the period between 1985 and 1992, LCNF will experience a significant net revenue loss on scheduled timber sales. Many of these sales will also adversely affect wildlife, fisheries and recreational values.

The revised Plan recommends 46,844 acres of additional wilderness, while the 41,838 acre Deep Creek/Reservoir North area would remain designated as a "further planning" area. This is a decrease from the acreage recommended previously in RARE II. More significantly, excluding the Deep Creek/Reservoir North area, this recommendation is 70,000 acres less than the Governor's recommendation made to Montana's Congressional Delegation in 1984.

The following discussion addresses specific areas of concern.

Wilderness.

a. General.

The basis for the Plan's 46,844 acre wilderness recommendation is not clearly identified, but appears based almost entirely on potential conflicts with oil and gas interests and on "management considerations." In examining the figures describing existing, projected future, and potential wilderness

recreational use, very little consideration was given to future recreational demand for wilderness. Currently, the optimum wilderness recreational use is 47,000 recreational visitor days (RVD) per year in LCNF (pg. 2-8). Current use, however, is in excess of 58,000 RVD's per year. By the end of the planning cycle, demand is expected to reach almost 150,000 RVD's. The revised Plan calls for increasing the use potential to only 52,000 RVD's. Demand will almost triple, although the Plan proposes to increase capacity by less than 11%. Given these figures from the revised Plan, it is difficult to understand the recommendation of only 46,844 additional wilderness acres and the relatively insignificant financial commitment to future wilderness recreation management. We encourage the LCNF to reconsider its wilderness recommendations along the East Front, possibly the most significant undesignated wilderness country left in the continental United States.

b. Deep Creek/Reservoir North Area.

The revised Plan proposes that the Deep Creek/Reservoir North Area remain designated as a further planning area. The EIS states: "Once the oil and gas potential is determined, a recommendation regarding wilderness will be made..." We are concerned, however, whether oil and gas potential can be satisfactorily determined while maintaining the wilderness quality of the area. A very careful review of future exploration proposals, and the development and strict enforcement of special operating conditions will be necessary if the integrity of the area as a further wilderness planning area is to be maintained.

c. Middle Fork Judith Area.

The revised Plan does not provide detailed information relative to management goals if wilderness is not established for the Middle Fork Judith Wilderness Study Area (WSA) by Congress. To comment on future development, one must refer to data presented in the original draft EIS. The data indicates that approximately 32 million board feet of timber will be harvested over the last 4 decades of the Plan, requiring about 51 miles of new road. Activity will be concentrated in the upper portion of the drainage. The development of roads as a result of the proposed timber harvest within the Middle Fork Judith WSA, will adversely affect the elk population and elk hunter recreation by reducing hiding cover for elk. Table M2.2, draft EIS shows a decrease in both elk numbers and hunter days. Page M2-47, draft EIS states: "The decrease in big game hunting benefits are offset by high timber revenues." However, our analysis of timber sales scheduled for the first decade indicated that costs to produce 31 mmbft will result in a net revenue loss (without road credits). Thus, the tradeoffs of harvesting timber in the Middle Fork are questionable.

Wildlife.

We are concerned that the wildlife resource values of the LCNF do not appear to have been given equitable consideration with the commodity values in several instances. This is especially evident in the Rocky Mountain Division, but is also true for the Jefferson Division, as was pointed out in our 1983 comments concerning the Plan. The Badger-Two Medicine Area (unit RM-1) is very important for wildlife, especially for grizzly bears, and could be heavily

influenced by future oil and gas activities. A significant portion of the area has been assigned to the timber/range management prescription. This assignment could result in serious cumulative impacts to wildlife and may erode the natural setting of the Rocky Mountain Front.

While considerable emphasis is placed on fish and wildlife habitat improvement, the Plan is vague about specific practices, especially stream improvements for fish habitat. The success of habitat improvement structures in high gradient mountain streams is questionable. Maintaining water quality and existing fishery habitat should be primary goals.

It is important that timber management activities in grizzly bear habitat maintain more than just a "degree of isolation" (Management Guideline E-4(13)) in the Rocky Mountain Division. Where timber values are marginal, management should emphasize security and minimize potential conflicts between humans and grizzly bears. Vehicle access should be limited and occupied areas should be closed to off-road vehicle use. Road construction should be avoided, timber harvesting minimized and existing management guidelines strictly followed.

In many cases, wildlife cover and security are more important than forage production. Vehicle access in wildlife management areas should be minimized and off-road use should be limited to maintain wildlife security. Road construction guidelines listed in the Plan and its appendices are very good.

The Plan predicts that recreation use will double throughout the planning period. At the same time, elk hunter recreation is predicted to decrease by 10% because of increased access (the existing road system will increase 60%). Considering the growing demand for elk hunting and the contribution that elk hunting makes to Montana's economy, this projected increase in access should be re-evaluated. The LCNF provides some of the finest elk hunting in the nation; compromising elk hunting quality for marginal timber returns is questionable and should be avoided.

The monitoring program (Table 6.1 of the Plan) proposed to evaluate the impacts of the timber program on wildlife populations is inadequate. To be effective, the program must be designed to collect and evaluate data for individual cutting units and drainages. Reliance on data collected for other purposes will not allow for adequate impact assessment.

Fisheries.

Fishery impacts should be evaluated by individual watershed. Analyzing fishery effects on a forest-wide basis has little or no meaning to resource users, and tends to mask the effects of timber management in the most heavily roaded and logged drainages.

The Missouri River cutthroat trout, which occurs in many forest streams, is designated by the State of Montana as a species of special concern. The distribution of this species should be determined and mapped, and management activity designed to prevent any degradation or loss of habitat. Making it an indicator species will not ensure that the species is protected.

There appears to have been no attempt to address the effects of Forest Service management activities on downstream fisheries. Waters originating on National Forest lands in Montana supply some of the world's finest trout streams. Management and monitoring should appropriately reflect Forest Service responsibility to protect these watersheds.

Minerals.

The Plan's statement that oil and gas related roads may be retained for public and administrative use may result in conflicts with other resources. The decision to retain such roads should be made only after thorough interagency and public review. It appears that all the potential road locations for oil and gas development have not been displayed in the Plan, (reference: American Petrofina Hall Creek APD, Environmental Asessment) especially in the Badger-Two Medicine area. This should be corrected.

Proposed restrictions (p. 2-51, Table 2-2) on the timing of new mineral activities to protect wildlife values should be flexible to account for varying weather conditions in different years. For example, new activities on elk winter range are allowed between May 1 and November 30. In some years, elk may need the winter range prior to November 30. Table 2.2 further states that some activity restriction could be required from March 1 to July 15 near raptor nesting sites. This vague wording leaves no guarantee of protection for nesting raptors.

The secondary employment resulting from oil and gas development, as described on page 4-51 of the draft EIS, is overestimated and should be re-evaluated. A multiplier effect, as used in the draft EIS, usually results from relatively permanent employment changes in a basic industry. The short-term, direct employment changes associated with oil and gas development (2-4 years) cannot be expected to cause major changes in secondary employment.

Range.

The Plan contains little information about the current condition of the range resource. Ideally, all allotments should be in good to excellent condition. Stocking rates, livestock distribution, duration of grazing, and season of use should be adjusted to achieve this goal on allotments that are in very poor, poor or fair condition, e.g., the Highwoods.

Range management guidelines are generally good, especially those relating to riparian areas and possible conflicts of livestock with grizzly bears or other threatened and endangered species. No guidelines, however, were included for predator or rodent control programs. We suggest an Integrated Pest Management (IPM) approach. We also encourage monitoring and IPM for noxious weeds on the entire forest, not just environmentally sensitive areas. Districts should also contact and cooperate with County Weed Boards and Conservation Districts to help prevent the introduction or spread of noxious weeds.

Standards for packstock feed should be developed to prevent the spread of noxious weeds into wilderness areas.

The state supports the projected increase in AUMs by the year 2030 as well as the goal of improving unsatisfactory range by the same year. It would be helpful however, to have areas of unsatisfactory range specifically identified in the Plan.

The Plan should commit to coordinating the development of allotment management plans for parcels that include state-owned lands with the Montana Department of State Lands (DSL), particularly with respect to the determination of range condition and the allocation of AUM's.

Timber.

a. General.

We support and encourage a viable wood products industry in Montana. While some increase in the LCNF harvest level may be necessary as private timber supplies become exhausted, the economics of the proposed substantial additional harvesting on low-production sites should be carefully re-evaluated.

Considering harvest limitations on different land types, (Management Guideline E-4(6)) as described in the Lewis and Clark Soil Resource Inventory, is appropriate. This is the key to effective land management and should be the basis for timber sale feasibility analyses as well as other activities. Consideration of land type according to this document may limit the area suitable for timber harvest along the rugged East Front of the Rockies. The capability of the land to support a given activity without resource degradation should be the basis for all land management decisions -- not RPA targets or other criteria.

If potential timber regeneration is poor on certain sites, the option of not harvesting timber on such sites should be considered. Many sites on the LCNF are not suitable for timber harvest regardless of the silvicultural alternatives considered.

The Plan (p. 2-37) describes the basic approach to forest regeneration. The assumption seems to be that natural regeneration is always the best choice. This should be based on an economic analysis. Some form of artificial regeneration may be viable if alternatives are evaluated by an economic criterion. Page 2-1 of the Plan states that harvests will be "...programmed only in those areas where it is financially efficient considering direct timber costs and benefits." This indicates there will no longer be below cost sales on the forests, and that benefits accrued to other resources will limit timber harvest. The Plan needs further clarification on this issue.

Consideration should be given to managing regrowth on a much shorter rotation (which may be more economic) to reduce the continual demand for old-growth timber. This would promote efficient and, perhaps more intensive, use of the most productive commercial forestland, and would reduce the need for expanded road systems.

Page 2-55 of the draft EIS refers to the harvesting of steep, low productivity sites on the Jefferson Division. The profitability of managing such a site is questionable, and we are concerned whether a harvest on these steep, low productivity sites can be financially efficient when only direct costs and benefits are considered. Was the profitability of these sites examined?

Integrated Pest Management (IPM), which includes use of the best combination of pest control methods and encompasses the concept of an economic threshold for each pest, should be implemented on the entire forest. Ponderosa Pine is a shade-intolerant species, and cannot be effectively managed under an uneven-age regime or prescription. Silvicultural prescriptions for selective cuts and uneven-age management should be considered, especially on wildlife management areas. Sanitation and salvage operations should be limited on non-commercial forest and areas where timber values are not high.

b. Rocky Mountain Division.

Although the volume of timber scheduled to be cut along the Rocky Mountain Front has been reduced from the 1983 LCNF Plan proposal, a number of serious concerns remain as to the impact of the proposed Plan.

The necessity for cutting 1 million board feet per year of timber on the Rocky Mountain Division should be more adequately documented in the Plan. Wildlife, watershed and wilderness values are very high in this area, while timber values appear to be marginal. Considering the potential for oil and gas development, the need for any additional disturbance must be clearly documented.

The proposed timber harvesting activities on the Rocky Mountain Front could have a significant impact on wildlife and watersheds, yet none of the roads associated with these sales are shown on the Plan's maps. The public should have an opportunity to review and comment on the locations of these roads.

An apparent discrepancy occurs in the discussion of acreage on page 2-14. If timber harvesting will take place on only 10,000 acres, then it is very unclear why "43,000 acres of presently roadless lands are developed..." The Plan needs to clarify the development of an additional 33,000 acres.

Compared to the 1983 LCNF Plan, all scheduled timber sales have been eliminated except the small sales program, which has been increased significantly. It is unclear whether some of the previous scheduled sales have been reclassified as small sales, or have been eliminated and new areas added for small sale harvest. Small sales do not receive the public review that scheduled sales do. For this reason, it is imperative that district rangers seek greater communication and coordination with appropriate state agencies in the planning of these sales.

The departure schedule for Alternative G indicates that an additional 5 million board feet could be offered for sale somewhere on the forest during the fourth decade. However, there is no discussion of possible departure sale locations or of impacts on recreation and other resources. It would be unacceptable for any significant portion of this departure to take place on the Rocky Mountain Division.

The Rocky Mountain Division is nationally recognized for its wildlife values, yet many critical wildlife areas are programmed for small sales. For example, the South Fork of the Two Medicine contains important elk and grizzly bear habitat. Other very important areas where small sales may occur include

Green Gulch, West Fork Teton, Willow Creek, Benchmark, Petty Creek, Elk Creek and Baily Basin. If a small sale program is implemented on the Rocky Mountain Forest, it should occur only after careful planning and the full opportunity for public review and comment.

c. Timber Sales.

The main emphasis for timber production to meet forest-wide timber quotas has been shifted primarily to the Jefferson Division. The concentration of roads in this area could have severe impacts on watersheds. Improved monitoring is essential if LCNF expects to minimize the effects of its activities on water quality.

The Spring Creek Unit of the Little Belts is slated for extensive timber harvest. This could directly affect water quality in the North Fork of the Musselshell.

Forest Lake, located in Unit CZ-2, has been given a timber/range prescription. It contains a unique cutthroat trout population and is the site of a habitat improvement project to mitigate past timber/grazing impacts. It is also an important headwater for the South Fork of the Musselshell. Timber harvest activities proposed for this area should be carefully reviewed to ensure that fishery habitat is not damaged.

Recreation.

The LCNF Plan for recreation is flawed in that it bases the projections for increased RVD's "directly proportional to Montana's population growth" (Section 7, page 1). Noting that only 17% of visitors to Glacier National Park in 1983 were Montana residents, it is erroneous to assume that increased RVD's is a function of Montana's population. In fact, just the opposite is true. More and more non-residents are projected to be visiting Montana to take advantage of outdoor recreational opportunities. RVD projections should be based on both Montana population trends and non-resident visitation projections. We believe the RVD's could be understated in the Plan by a factor of two to three.

The Plan should make a greater and much more definitive commitment to developed recreation, in both improvement of existing sites (i.e., dumping stations) as well as development of new sites.

Although there is a reference to "implementing the Recreation Opportunity Guide throughout the Forest" (Section 2, page 3), nowhere does the Plan explain what the guide is and how it would be made available to the public. The key to visitor usage is visitor knowledge. An active plan for informing the public (all public - not just Montanans) about the opportunities for both dispersed and developed recreation should be implemented by LCNF.

Section 2, page 3 states that "Expansion or new construction (of developed recreation) is not expected before the second decade." This assumes Montana population-related increases in RVD's and no marketing of developed or dispersed recreation. To enhance Montana's position in the tourism industry, new sites should be developed and marketed during the first decade.

While the demand for developed recreation opportunity is expected to increase by 97%, the Plan would increase opportunity by only 16%. By the end of the planning cycle, demand for developed recreation use would far exceed the opportunity projected by the Plan.

While the Plan states that "Dispersed recreation opportunities in the general forest environment will be emphasized," numerous specifics of the Plan show this statement to be very misleading:

1. wilderness recreational demand will almost triple, but use potential is only planned to increase by 11%,

2. while 500 miles of trails will be built or reconstructed, LCNF will have an overall decrease in trail miles,

3. hunter opportunity on the Jefferson Division will decrease by 10% (pg. 2-15),

4. the acreage available for semi-primitive recreation will decrease by 139,000 acres or 15%.

These figures clearly indicate that rather than being "emphasized," dispersed recreational opportunities will be sacrificed for commodity production - mainly a significant increase in timber harvest rates. The only form of dispersed recreation potential that is proposed to significantly increase is roaded area use. Presently, the available supply of this type of recreation far exceeds demand.

The 10% decrease in hunter opportunity projected for the Jefferson Division is of particular concern to the state. The decrease is considered very conservative because it does not include the loss of habitat security that results when roads are built, even if they are later closed to vehicle entry. In addition, the loss of habitat security from pre-commercial thinning is not considered.

The LCNF Plan is in conflict with Montana's DFWP's Statewide Comprehensive Outdoor Recreation Plan (SCORP) that proposes to increase hunter opportunity in this forest. The decrease in hunter opportunity is also inconsistent with a number of the Plan's statements that elk habitat quality will be maintained. In our comments on the original LCNF Plan and EIS in 1983, we requested that the impact on hunter opportunity be displayed by individual hunting districts. This has not been done.

If levels of timber harvest above 5-6 MMBF continue to occur annually in the Jefferson Division, some hunting districts may require changes in season type from general bull hunting plus permits to "permit only" hunting for all elk. The result could be a decrease in hunter opportunity of up to 80%. Currently, hunter related recreation comprises about 80% of all recreational use on the LCNF, and probably more on the Jefferson Division. Under the proposed Plan, much of this pressure will shift to other areas, where additional problems will be generated.

Off-road vehicle use should be limited to specific trails in all areas with wildlife management emphasis, in recommended wilderness and wilderness study areas, in the research natural area, and in the experimental forest. This would help protect the resources, reduce user conflicts, and provide adequate opportunities to enjoy both motorized and non-motorized recreation.

The state supports the continuation of the winter cabin rental program and the cooperative development of a Smith River Management Plan. We support land aquisition along the Smith River corridor, if landowners voluntarily agree to an exchange or to a specified price. This would assist in eliminating possible conflicts between river users and adjacent landowners and would improve access to land near the river.

The emphasis on cost efficiency with regard to developed recreation sites (as well as other programs) represents sound planning. Hopefully, the same reasoning will be applied to the timber program. Cost efficiency is often missing from the guidelines for timber harvest in the Plan.

Management Prescriptions - Wildlife.

A number of positive changes were made in the Management Area description from the previous Plan. Several areas remain that need further restrictions, especially in the Rocky Mountain Division. The "Management Guidelines Analysis Report" has a stated policy (p. C1-5), that "Wildlife or fish habitat shall be established as the primary use on areas of land or water which are essential to their survival..." Given this policy, it is very difficult to understand why the LCNF has proposed to place almost 50,000 acres of land (in the Rocky Mountain Division) in a timber/range prescription, and less than 30,000 acres in a wildlife prescription. As an example, portions of the Benchmark-Willow Creek Unit contain essential wildlife habitat, yet portions of the area are allocated to timber production. A more liberal allocation to wildlife appears prudent in view of the high wildlife value of the area.

In the Bureau of Land Management's (BLM) Headwater's Resource Area RMP, the BLM lands from approximately Antelope Butte south Indian Head Rock were given the designation of Outstanding Natural Area. This means that the scenic values, wildlife habitat, unique geological features, primitive recreation opportunities and natural ecosystems are considered to be of national significance. In the proposed LCNF Plan, much of the area adjacent to the Blindhorse Creek Outstanding Natural Area has been proposed for a Range/Wildlife management emphasis. We believe the LCNF should adjust their management direction to be consistent with that proposed by the BLM.

If the forest opening definition at the bottom of page 3-10 in the Plan was strictly used during the calculation of the impact of timber harvest on elk hunting opportunity, the results have significantly underestimated the impact potential. Trees that are 2.5 feet high do not provide escape cover for elk. By definition, forest openings should, at a minimum, include all areas where the vegetation is less than 6 feet tall.

In some management prescriptions, the development of water services is mentioned as a potential habitat improvement item for wildlife. This type of development in most mountain or foothill areas would be of very little value to wildlife. Such development could prove to be detrimental if livestock were attracted to areas they normally would not frequent.

The hiding cover percentages under Management Area C should be based on the number of roads (open and closed) in a timber compartment, not on an arbitrary percentage.

In the management prescriptions under minerals administration (Management Areas are A, E, F, G, H, I, N, O and Q), the following statement should be included: "Administer geographical prospecting and oil and gas exploration through permits and leases, respectively, applying Interagency Wildlife Management Guidelines where applicable."

Management Guidelines - Wildlife.

In a number of places, the Forest-wide Management Guidelines are in need of revision and/or updating. On page 2-27, the last sentence infers that the Forest Service has management authority over resident wildlife. The sentence should be changed to read: "These guidelines will be used in the management of land-use activities occurring within the habitat of these species." On page 2-28, the guidelines referred to in Appendix I have been approved, and are no longer "interim."

If the LCNF intends to comply with agreements reached with several other agencies and to avoid conflict with the BLM managed mineral estate, a number of changes need to be made in the Mineral guidelines beginning on page 2-45. Guideline 6 of the Minerals section (p. 2-44) indicates roads may be built for seismic operations. This is specifically prohibited in the already approved "Environmental Assessment Geophysical Exploration Non-wilderness Lands." In Item (10), the introduction should read: "Prohibit seismic activity in big game and other wildlife habitat components (as listed in Appendix I) during periods as summarized below:

Elk and Deer Winter range	12/01 - 05/15
Elk calving areas	05/01 - 06/30
Bighorn Sheep Winter range	09/15 - 05/15
Bighorn Sheep lambing areas	04/15 - 06/30
Mountain Goat winter range	10/15 - 05/15
Mountain Goat kidding areas	05/01 - 07/15
Moose winter range	12/01 - 04/30
Raptor nest sites (general)	02/01 - 07/31

Migration routes have been mapped and are available; they need not be designated by the district ranger. These changes will eliminate conflicts with Appendix I.

On page 2-24, the paragraph following (14) should be deleted. On the same page, number (17) should read: "Prohibit seismic activities in seasonal grizzly bear habitat during these periods."

Grizzly bear spring range	04/01 - 06/30
Grizzly bear breeding areas	05/01 - 07/15
Grizzly bear high use alpine feeding areas	07/01 - 09/15
Grizzly bear denning habitat	10/15 - 04/30

On page 2-46, guideline (18) should read: "Maintain a minimum spacing of nine air miles between concurrent active seismic lines." Delete remainder of (18) since it is in opposition to guidelines.

Guideline 21 of the Minerals section (p. 2-47) indicates the district ranger may allow seismic activity during the general big game hunting season. Guidelines have been set forth in the document "Environmental Assessment Geophysical Exploration Nonwilderness Lands" prepared by LCNF to adddress this situation. This section should be amended to comply with this document.

Table 2.2 shows that new activities may be initiated in important habitat elements at any time during an activity window, i.e., drilling may begin on a winter range November 30th. Wording should be changed to restrict activities to taking place only during the activity window. As these restrictions are placed on activities carried out on BLM controlled minerals, the precedent has been set. Also in guideline 10 (pg. 2-50), the clause dealing with varying the degree of restrictions needed depending on a species' sensitivity to human activity, the importance of the habitat element to maintaining population levels, and the availability of alternative habitat removes a good deal of authority from the guidelines, and puts scheduling development or exploratory drilling at the descretion of the district ranger.

Guidelines 12 and 13 on pgs. 2-50 and 2-52 indicate that LCNF may have areas designated where roads built for oil and gas will be used to "manage surface resources." The draft EIS states all roads built for oil and gas exploration or development will be in addition to those developed in this planning process. If the LCNF intends to expand the management of surface resources following road construction, these areas should be described in this Plan and included in the evaluation of alternatives.

Guideline (2) on page 2-49 should restrict occupancy within the flood plain, not just "within the vicinity of (generally 100 feet) the streams."

Water Quality.

a. General.

We strongly support the commitment in the proposed LCNF Plan for consultation with the Montana DFWP and the Montana Department of Health and Environmental Sciences (DHES), Water Quality Bureau, prior to planned activities in or adjacent to stream channels. It is especially important that watersheds, timber management activities should be adequately monitored within public water supply areas.

b. Sediment.

There are inconsistencies in the sediment yield calculations that cause concern for the results that are shown. For example, in the Plan it is stated that sediment yield will increase by only 1% over the current level, yet the draft EIS (p. 2-68) shows that sediment yield will increase from 37,000 tons per year to 41,200 tons per year; a 10.3% increase. Sediment production from logging and roading is the major impact to stream fisheries. More emphasis should be placed in the Plan on increased site specific monitoring and the prevention of habitat deterioration.

In our previous 1982 comments on the LCNF Plan, we noted that water yield and sediment yield calculations are meaningless unless they are generated for individual watersheds. There is no evidence in the revised document that

this deficiency has been corrected. The USDA Northern Region Guide to Predicting Sediment Yield from Forested Watersheds (October 1982, p. 3) specified that "any sediment yield and analysis must be done on a watershed basis to be meaningful." This is particularly important and necessary in watersheds in the Jefferson District where extensive roading and logging are planned. We again request that this be provided in the final LCNF Plan.

The State of Montana pointed out in its comments on the U.S. Forest Service (USFS) 1983 RPA goals that for any forest plan to be satisfactorily implemented, sufficient funds must be available to support a responsible monitoring program. Lack of adequate monitoring continues to be a major concern in this Plan, particularly watershed monitoring. We share the concern expressed in the recent summary report on watershed policy and review for the Northern Region, that "at present funding levels, watershed monitoring and inventory activities will not be able to properly evaluate the effects of land management activities on soil and water resources, document compliance with legal requirements, validate coefficients and assumptions used in the planning process, or respond to public inquiries and appeals."

The inadequacy of current watershed monitoring is further exemplified in the sediment production model being used by the USFS for the northern and intermountain regions. The model itself is based on assumptions with little or no substantiating data. As a result, sediment yield calculations being used in the Plan could easily be off by several orders of magnitude. Because of this, we are concerned that LCNF cannot properly evaluate what effects management activities are having on important watersheds. Adequate soils and sediment yield information must be included as a basis for responsible land management decisions. Specific deadlines for collecting these data should be included in the LCNF Plan. Projects requiring these data should not be initiated until the necessary data are available.

In view of the tremendous value of the LCNF's watersheds (e.g., Smith River, Musselshell River) it is imperative that LCNF make a commitment in the Plan to improved monitoring. This may require redirecting funds from the timber program into monitoring.

Timing of stream runoff as discussed in the Plan continues to be a concern. Increased water yield in the spring may equate to lower flows during critical parts of late summer. Moreover, increased flow also means increased sedimentation. This has obvious implications to downstream irrigators and to stream fisheries. Portraying increased water yield as a benefit to timber management is not justified.

c. Riparian Areas.

Riparian areas are defined in the Plan glossary as all areas within 100 horizontal feet from the edge of a stream. In some cases, however, riparian areas may extend well beyond 100 feet from the edge of a stream. Strict use of this definition by timber planners in forest management activities could result in significant impacts on streams.

Riparian areas for the most part are recommended in the Plan to receive the "same management as adjacent lands." Riparian areas are often very fragile, constitute a very important part of the management area, and are

particularly important for maintaining water quality and providing habitat for fish and wildlife. Riparian areas deserve special management consideration both in planning timber sales and in assigning grazing allotments.

Guideline D-3(5) proposes that grass/forb use will be used as an index of overgrazing by cattle in riparian areas. It is not clear from the Plan whether livestock use will be monitored frequently enough to prevent overgrazing in riparian areas. A commitment to frequent monitoring and enforcement of cattle trespass to prevent damage to streams is needed in the Plan. In addition, Guideline E-4(1)(a) should add an appropriate buffer zone requirement to ensure that streamside timber and vegetation will not be removed. Guidelines L-4(24) and L-4(5) should specify that "instream activities be permitted only between July 1 and September 15."

Within the Plan, only 474 acres of riparian land are considered sensitive enough to be excluded from grazing. Forest-wide, however, the 1,600 miles of stream identified in the Plan equates to approximately 38,788 riparian acres. A comparison of acreage available to acreage actually excluded from grazing indicates that additional consideration is necessary regarding the amount of riparian areas needing and provided adequate protection from grazing.

Visual.

The use of "should" when referring to visual quality rehabilitation makes the intent of the discussion unclear. The Plan must provide commitment to the visual rehabitation of these areas and provide a firm time frame for its accomplishment. Further, the cost of visual rehabilitation must be included in the cost of proposed projects.

In Management Area G, the Plan states that the Modification VQO "may not be appropriate." We suggest it is inconsistent and inappropriate, and should be deleted.

Management Area N is a wilderness study area. The management direction contained in the Plan only allows for retention or partial retention of VQO, with further modification acceptable under certain conditions. Preservation VQO for Management Area N should be mandated until the wilderness decision is made.

Fire.

The Plan, on pages 2-7, states that the LCNF will plan, implement, and maintain a fire management program that will result in the "lowest total cost." It is suggested that this should be reworded to say the "lowest cost plus net value change," since that is the basic economic criterion applied in the National Fire Management Analysis System.

On page P-9 of the appendices to the Plan, coordination by the LCNF with the counties enrolled in the County Cooperative Fire Program is mentioned. It should be stated here that in compliance with Forest Service Regional Office policy, all such coordination and contact with counties by the LCNF will be made through the Central Land Office, Department of State Lands, Helena, Montana.

The Montana DSL will be assuming fire protection responsibility for over 100,000 acres of LCNF lands in Management Area B. The LCNF management guidelines for debris (slash) disposal indicate that considerable fuel may be left on site after harvest operations for silvicultural reasons. Although this procedure may be acceptable on specific sites, DSL should be consulted regarding specific fuel treatment practices for those areas under their protection.

Roads.

The Plan calls for the existing road system to increase by 875 miles, or about 60%. A significant portion of these roads will be "capital investment" facilities. Given the apparent economic reality of selling timber below cost, the plan to construct these "hard money" roads is questionable, especially when the values that the roads will sacrifice are considered. It therefore appears that these "capital investment" roads may not be a wise investment.

The overview document (p. 16) eludes to the 110 miles of collector roads that will be constructed over the next 50 years, but fails to mention plans for constructing 763 miles of local roads. As most of the public will read only the overview, this must be brought to their attention if they are to adequately comment on the proposed roading program. In addition, there are many miles of roads shown in the oil and gas transportation feasibility study document that are not identified in the Plan. These roads should be shown on Geographic Unit maps to assist the public in their review and comment efforts.

Management guidelines for road construction identified in the Plan are generally good. Erosion hazards would be identified to avoid or mitigate erosion. Off-road use or vehicular access on trails should also be limited on sensitive soils.

With a proposed 60% road mileage increase over the next 50 years, erosion and run-off on local watersheds may increase, even if suitable precautions are taken. In addition, increased access within or adjacent to wildlife management areas may adversely effect important wildlife populations. Because of the importance of these public values, road construction plans should be re-evaluated on a case-by-case basis to insure that the roads are necessary and economically feasible. These concerns especially apply to the Little Belts, the South Fork Judith and Spring Creek Whitetail Units, and the Castle Mountains.

Management Guideline E-2, states that new roads should be open to the public for 2-3 years for firewood harvest and then permanently closed. This guideline should be more flexible. In some cases, roads should be closed immediately following timber harvest to protect other values. In other cases, the road closure may not be necessary. Road closures should be evaluated on a case-by-case basis following interagency consultation. In no case should roads be built into diverse complexes of Threatened and Endangered (T&E) habitat components as indicated in E-2(2).

Management Guideline L-4(21) states that roads may not be constructed on slopes greater than 60%, but that exceptions may be made when "project analysis determines it is environmentally acceptable." It is possible that some slopes less than 60% are not suitable for road construction as well. The Lewis and Clark Soil Resource Inventory and on-site inspection should be the basis for such decisions.

Employment and Income.

Only in income and employment impacts does the preferred alternative appear to result in an outcome significantly below the average for the 16 proposed alternatives. It is unclear, however, why the income and employment effects are as low as they are for the preferred alternative. The predicted market outputs (timber, range and recreation) for the various alternatives are very similar for the preferred alternative and alternatives I and J. The employment and income impacts for alternatives I and J are, however, quite different than in the preferred alternative. It would seem that employment and income projections should be most sensitive to the market products produced. This apparent discrepancy should be clarified.

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Governor Ted Schwinden
State of Montana
Office of the Governor
Helena, MT 59620

Each area was reviewed by the planning and management teams to determine if timber harvest was an appropriate land use. On the Rocky Mountain Division, in response to public concern, the timber program has been reduced to .5 million board feet (from 1.0 million board feet). The harvest of posts, poles, firewood, and houselogs will be emphasized. Only short, nonpermanent roads will be constructed in support of this program. After the wood products have been removed, these roads would be permanently closed and the surface entirely revegetated.

In response to the Blackfeet Indian Tribe, the State, and other public concern, the regulated timber harvest in the Badger-Two Medicine area has been eliminated. However, under the 1896 Treaty Agreement, the Blackfeet Indian Tribe (see Chapter III) retained the right to harvest timber for agency and domestic purposes.

The Preferred Alternative (G) provides for an increase in grazing, the timber sale program, and recreation. Dispersed recreation opportunities are emphasized. The Preferred Alternative also provides opportunities to explore for and develop mineral resources. Wildlife habitat and water quality are maintained. Multiple-use has not been abandoned in favor of commodity production, especially on the Rocky Mountain Division.

Under the final Forest Plan, the Rocky Mountain Division will be managed as follows:

Final Plan

Wilderness	384,407	(50%)
Recommended Wilderness	51,834	(7%)
Wilderness Study	41,838	(5%)
Timber/Range	22,702	(3%)
Range/Wildlife	68,014	(9%)
Semi-Primitive Recreation	56,504	(7%)
Custodial Management	113,665	(15%)
Developed Recreation	4,664	(1%)
Wildlife	14,866	(2%)
Riparian	7,674	(1%)

The Monitoring Plan has been carefully reviewed and some changes have been made. Wildlife species are most difficult to monitor. We have proposed a way to monitor such species and still be cost-effective. (See Water Quality for a discussion on watershed monitoring.)

Our objective is to put together the best economic timber sale package possible. The economic situation of timber sales that may not return as many dollars in receipts as are spent to offer the sale is termed "below cost." We have not determined "below cost" sales in the Forest Plan analysis. This can only be accomplished with a project-by-project analysis of individual sales scheduled in the Forest Plan 10-Year Timber Sale Program. However, in the development of the Forest Plan, National Forest system lands were examined and those lands suitable for timber production were identified. Suitability determinations are not based solely on economic criterian because of the multiple-use considerations that are used in the analysis. Constraints applied to the management of these lands produce additional costs and benefits that are not measurable in dollar terms. Therefore, economic considerations are only one of many considerations used in suitability determinations.

Market conditions greatly influence the dollars received for National Forest timber. These conditions are determined by national-level markets for housing construction and other business activities over which the Forest Service has no control. Local bidding competition for National Forest timber is also a factor that is not controlled by the Forest Service. Buyers of National Forest timber bring their own costs, market expectations, and efficiency situations with them. Each of these items affects the amount of money timber buyers will pay for stumpage.

Forest Service costs can be controlled item to a certain degree. However, many of the costs involved in selling timber result from legal requirements or policies enacted to protect, manage, and perpetuate Forest resources. Some costs can be reduced through increased efficiency, but many are required and will have to be paid if timber harvesting is going to take place. Road construction and reforestation are long-term costs that may make the cash flow situation look poor in the short-term. Benefits are derived over time, but the costs occur today.

The cash flow situation can vary significantly as Forest Service costs are reduced through efficiency improvements and market conditions that affect price changes. The consideration of timber sale economics is one of the important considerations in Forest management and will play a major role in the implementation phase of forest planning. When the analysis is made of a specific timber sale it is expected that some sales will be "below cost". This economic analysis will be used along with environmental and other resource management needs in the final determination of whether or not to proceed, modify the sale, or delay any timber harvesting in the area (see Management Standard E-4, Timber Harvest, Forest Plan). We expect significant results in assuring timber sales are prepared in the most cost-efficient manner, through improving the cash flow posture of the timber sale and road program.

We have carefully reviewed the roadless land available for wilderness classification. In response to public concern, some changes have been made in the wilderness recommendations on the Rocky Mountain Division. About 5,830 acres in the West Fork of Teton has been added to the Forest's recommendation. Because of the right-of-way problems, a slight decrease was

made in the Forest's recommendation in the Silver King area. This change will permit the development of trail head facilities on National Forest land near the Dearborn River and provide a valuable public access to the Rocky Mountain Division lands.

Under the Preferred Alternative (G), part of the Teton, Renshaw, Benchmark/Elk Creek, and Silver King/Falls Creek roadless areas (totaling 51,834 acres) is recommended to Congress for wilderness classification. If these areas are designated by Congress over 55 percent (436,000 acres) on the Rocky Mountain Division will be classified wilderness.

With the adjacent Forest's recommendation (163,640 acres), the Bob Marshall-Scapegoat-Great Bear Wilderness Complex will exceed 1.7 million acres. The complex encompasses some of the nation's outstanding wildlands including the South Fork of the Flathead, Middle Fork of the Flathead, Swan Crest, Swan Front, Monture, Danaher, Dearborn, South Fork of the Sun, North Fork of the Sun, and the North Fork of the Teton. The recommendation also provides for other roadless lands on the Rocky Mountain Division (1) 174,466 acres to be managed for nonwilderness purposes including motorized recreation, developed camping, oil and gas activities, and timber harvest, and (2) 102,100 acres for Indian Treaty rights, and other nonwilderness uses.
The following discussion addresses specific areas of concern:

Wilderness.

a. General.

"The basis for the Plan's 46,844-acre wilderness recommendation is not clearly identified, but appears based almost entirely on potential conflicts with oil and gas interests and on 'management considerations.' In examining the figures describing existing, projected future, and potential wilderness recreation use, very little consideration was given to future recreational demand for wilderness."

Wilderness use has been re-analyzed and additional information has been added to the final EIS and Forest Plan (see Chapter III, Management Area P, and Appendix U). The reasons for the wilderness recommendation are described in the Record of Decision. The future demand for wilderness recreation is based on past use and population projections for Montana. Ours are the best estimates available and will be monitored.

The Forest Plan does not meet the additional demands anticipated for primitive recreation opportunities. The wilderness as a whole is not overused on the Lewis and Clark National Forest, and the establishment of additional wilderness will not alleviate the high use levels experienced during the hunting season and along portals. More visitor contact and improved trail maintenance will help improve user distribution.

b. Deep Creek/Reservoir North Area.

"We are concerned, however, whether oil and gas potential can be satisfactorily determined while maintaining the wilderness quality of the area. A very careful review of future exploration proposals, and the development and strict enforcement of special operating conditions will be necessary if the integrity of the area as a further wilderness planning area is to be maintained."

While the Forest Plan provides overall direction for oil and gas activities, drilling requests are handled on an individual basis, and receive site-specific environmental analyses at the time of the request. This analysis considers among many things access needs and road management. Under the drilling permit process, the Forest conducts an environmental analysis, and writes a biological evaluation considering the potential effects on T&E species.

The U.S. Fish and Wildlife Service formally consults on the project and the biological evaluation to determine whether the project would adversely affect any T&E species. If the consultation results in a non-jeopardy situation for T&E species, the Forest Service then makes a recommendation to the BLM to approve the permit. Public and interagency involvement are a part of this process. In response to public concern, additional information has been added to the chapter on the environmental consequences on oil and gas development (Chapter IV).

c. Middle Fork Judith Area.

"The revised Plan does not provide detailed information relative to management goals if wilderness is not established for the Middle Fork Judith Wilderness Study Area (WSA) by Congress."

The Forest Plan proposals and existing wilderness include 57 percent of the Rocky Mountain Division. An additional 5 percent will remain as a wilderness study area. Of the balance of the area, 22 percent will be managed to maintain semi-primitive recreation opportunities, 12 percent for riparian, grazing and wildlife management and the remaining 4 percent will be managed for timber and developed recreation. This "balance" will provide large areas for semi-primitive and primitive recreation experiences outside wilderness.

As part of the Forest planning process, the Regional Forester has recommended nonwilderness for the Middle Fork Judith and the Big Snowies Wilderness Study Areas. Final recommendations on the Middle Fork Judith and Big Snowies Wilderness Study Areas will be made through a separate EIS. Congress has reserved the right to make final decisions on all wilderness designation. Their decision will be incorporated into the Forest Plan.

The Forest Plan describes how the Middle Fork Judith Wilderness Study Area will be managed. (See Management Areas C, F, I, and L in the final Plan.) The opportunity to harvest timber while protecting the high elk values in the Middle Fork was carefully reviewed. In response to the State and others concerns, the area proposed for timber management (111,600 acres) has been changed from Management Area B to C. This will place additional emphasis on elk security cover. Our analysis shows the area proposed for timber management has a positive value. Detailed information on the schedule of activities and their effects is a part of the final study report and EIS.

"We are concerned that the wildlife resource values of the LCNF do not appear to have been given equitable consideration with the commodity values in several instances. The Badger-Two Medicine Area (unit RM-1) is very important for wildlife, especially for grizzly bears, and could be heavily influenced by future oil and gas activities. A significant portion of the area has been assigned to the timber/range management prescription. This assignment could result in serious cumulative impacts to wildlife and may erode the natural setting of the Rocky Mountain Front."

The Forest Plan promotes high quality wildlife and fish habitat. Over 65 percent of the Forest will be managed for wilderness, semi-primitive recreation, and wildlife values. About 30 percent will be roaded and developed mainly for their timber resource. In response to the State's and other public concern, Management Area C has been expanded to include another 15,000 acres, which have been identified as important elk habitat including the Harrison drainage in the Middle Fork Judith. Management Area I, which protects elk migration routes, has also been expanded to include another 8,000 acres including the Ford Creek Plateau area. Regulated timber management will not be practiced in the Badger-Two Medicine area.

The management standard for Wildlife Coordination, C-1, has been strengthened. The EIS analyzes the effects of various activities on the wildlife resource. Additional information has also been provided on the effect of the proposed activities on the wildlife resource. (See Chapter IV.)

> "While considerable emphasis is placed on fish and wildlife habitat improvement, the Plan is vague about specific practices, especially stream improvements for fish habitat. The success of habitat improvement structures in high gradient mountain streams is questionable. Maintaining water quality and existing fishery habitat should be primary goals."

The best opportunity for fish habitat improvement in the Forest is the installation of stream channel structures to provide pools and resting areas for trout. A five-year habitat improvement program has been added to the final Plan (Appendix M). Maintaining water quality and existing fishery habitat are Forest objectives. (See Chapter II, Forest Plan.)

> "It is important that timber management activities in grizzly bear habitat maintain more than just a 'degree of isolation' (Management Guidelines E-4(13) in the Rocky Mountain Division. Where timber values are marginal, management should emphasize security and minimize potential conflicts between humans and grizzly bears. Vehicle access should be limited and occupied areas should be closed to off-road vehicle use. Road construction should be avoided, timber harvesting minimized and existing management guidelines strictly followed."

We're committed to the recovery of the threatened grizzly bear. Consultation with the U.S. Fish and Wildlife Service has been completed and is included in the final Plan. Their opinion is that the revised Forest Plan will not jeopardize the grizzly bear. The Forest has identified occupied grizzly bear habitat (all of the Rocky Mountain Division) according to "The Yellowstone Guidelines." More than 98 percent of the Division is in Management Situation 1 (areas that are essential for the survival of the grizzly). Seasonal ranges have been mapped. Important areas, such as feeding sites and denning areas, are being inventoried (habitat component mapping). In response to public concern, additional information on the grizzly bear has been added to Chapter II, III, and IV of the FEIS.

The regulated timber harvest in the Badger-Two Medicine area (Management Area O) has been eliminated. However, under the 1896 Treaty Agreement with the Blackfeet Indian Tribe, the Blackfeet retain the right to harvest timber. (See Chapter III.) Other timber areas have been eliminated or reduced. These changes have resulted in a 27,055-acre reduction in the area available for regulated timber harvest on the Rocky Mountain Division. All of these actions will be beneficial to the grizzly bear.

The standards for timber harvest in grizzly bear habitat do maintain more than a "degree of isolation". Regulated timber harvest on the Rocky Mountain Division will affect only about three percent of the Division (Management Area O). We recognize the effect of road construction and timber harvest activities on grizzly bears and their habitat. The Forest Plan proposes several standards to minimize this effect by maintaining security habitat and reducing the contact with humans. Most all new roads will be closed to public use. (Many old roads are also being closed or restricted to use during important wildlife use periods.)

> "In many cases, wildlife cover and security are more important than forage production. Vehicle access in wildlife management areas should be minimized and off-road use should be limited to maintain wildlife security."

The balance between wildlife cover and security over forage production must be made on a case-by-case basis. Often forage production can be increased through prescribed burning without adversely affecting cover and security for wildlife. Incompatible ORV use will be restricted in important wildlife areas. Road construction also will be reduced.

> " The Plan predicts that recreation use will double throughout the planning period. At the same time, elk hunter recreation is predicted to decrease by 10 percent because of increased access (the existing road system will increase 60 percent). Considering the growing demand for elk hunting and the contribution that elk hunting makes to Montana's economy, this projected increase in access should be re-evaluated. The LCNF provides some of the finest elk hunting in the nation; compromising elk hunting quality for marginal timber returns is questionable and should be avoided."

We have re-analyzed elk habitat management. The Forest Plan views elk habitat as a major resource and will maintain the population potential for 8500 elk. In response to public comment, several Management Standards have been added to the final Plan to minimize logging-related impacts on elk. These standards include: a cover analysis for big-game, maintaining effective cover on big-game summer range at 30 percent or greater, and implementing a road management program to maintain big-game habitat capacity.

Research findings from the Montana Cooperative Elk-Logging Study, which had its start on the Lewis and Clark National Forest, are the basis for several management recommendations that were designed to minimize logging-related impacts on elk. This 15-year study found, "Elk responses to road building and logging demonstrated that significant losses in security can be minimized when appropriate restrictions are used by the land manager." The Forest agrees that all of these recommendations should be included in the Forest Plan. (See Appendix F, Forest Plan.)

We share your concern at the reduction in elk hunter opportunity and have attempted to mitigate and limit these effects by managing roads, providing adequate cover for elk, and maintaining large areas of undeveloped country. However, continued road construction and timber harvest will result in a slight decrease in elk hunter opportunity. The Forest feels that this reduction (eight percent) is acceptable to maintain the timber program on the Forest...and that part of this reduction can be offset by an aggressive road-use management program.

We have also re-analyzed our road construction program. However, while no significant changes were made on the Jefferson Division, on the Rocky Mountain Division permanent roads will not be built for surface resource management. Of all the National Forests in the Northern Region, ours rank second (behind the Custer) as the forest with the smallest road construction program. Again, we feel this is in keeping with the high wildlife values found throughout the Forest.

" The monitoring program (Table 6.1 of the Plan) proposed to evaluate the impacts of the timber program on wildlife populations is inadequate. To be effective, the program must be designed to collect and evaluate data for individual cutting units and drainages. Reliance on data collected for other purposes will not allow for adequate impact assessment."

See response on Page 1.

Fisheries.

"Fishery impacts should be evaluated by individual watershed. Analyzing fishery effects on the forest-wide basis has little or no meaning to resource users, and tends to mask the effects of timber management in the most heavily roaded and logged drainages.

The Missouri River cutthroat trout, which occurs in many forest streams, is designated by the State of Montana as a species of special concern. The distribution of this species should be determined and mapped, and management activity designed to prevent any degradation or loss of habitat. Making it an indicator species will not ensure that the species is protected."

The management of soil and in riparian areas is essential to fish habitat management. The Forest feels these standards provide the guidance necessary to protect fish habitat, including the habitat of Upper Missouri River Cutthroat Trout. In response to public concern, additional fish habitat improvement has been provided in the final Plan. The Forest Service has the responsibility for managing wildlife and fish habitat, and the Montana Department of Fish, Wildlife, and Parks has the responsibility for managing the actual wildlife and fish populations. We feel the mapping and distribution of Missouri River Cutthroat is a State responsibility, but we will be glad to assist in this effort.

"There appears to have been no attempt to address the effects of Forest Service management activities on downstream fisheries. Waters originating on National Forest lands in Montana supply some of the world's finest trout streams. Management and monitoring should appropriately reflect Forest Service responsibility to protect these watersheds."

Additional information on the effects of activities on downstream fisheries has been provided. (See Chapter IV.)

Minerals.

> "The Plan's statement that oil and gas related roads may be retained for public and administrative use may result in conflicts with other resources. The decision to retain such roads should be made only after thorough interagency and public review. It appears that all the potential road locations for oil and gas development have not been displayed in the Plan, especially in the Badger-Two Medicine area."

The Forest Plan only shows arterial and collector road corridors. It does not attempt to show all potential road locations. Area and project analysis are additional planning levels to which the more site-specific aspect of a project would be identified and displayed prior to actual implementation. Public involvement is a part of project implementation of all activities including new road construction.

> "Proposed restrictions (p. 2-51, Table 2-2) on the timing of new mineral activities to protect wildlife values should be flexible to account for varying weather conditions in different years. Table 2.2 further states that some activity restriction could be required from March 1 to July 15 near raptor nesting sites. This vague wording leaves no guarantee of protection for nesting raptors."

The Interagency Guidelines (Appendix I) apply to all activities on the Rocky Mountain Division. The Forest Plan has been changed to reflect this. The standard in the Forest Plan dealing with wildlife (G-1 and G-2) has been eliminated to avoid any confusion. The Forest will rely on the Interagency Guidelines.

> "The secondary employment resulting from oil and gas development, as described on page 4-51 of the draft EIS, is overestimated and should be re-evaluated."

Secondary employment for oil and gas was re-evaluated, but no changes were made.

Range.

> "The Plan contains little information about the current condition of the range resource."

Information on range condition has been added to the final EIS and Plan. The goal to achieve good to excellent range condition by 2030 is being pursued. For example, a management plan recently has been completed in the Highwoods. Adjustments were made in the season of use and range improvements were scheduled to improve cattle distribution and forage production. About 1 percent of suitable range in this allotment is classified as excellent, 87 percent good, 12 percent fair, 0 percent poor, and 0 percent very poor. Stocking levels are based on average yearly conditions. Adjustment can be made if range conditions warrant it.

> "No guidelines, however, were included for predator or rodent control programs. We suggest an Integrated Pest Management (IPM) approach. We also encourage monitoring and IPM for noxious weeds on the entire forest, not just environmentally sensitive areas. Districts should also contact and cooperate with County Weed Boards and Conservation Districts to help prevent the introduction or spread of noxious weeds."

We're committed to take a leadership role in the control of noxious weeds on National Forest and intermingled lands. Recently funding has been substantially increased to deal with this serious problem. In response to public concern, additional information on noxious weeds has been added to both the FEIS (Chapter III) and the final Forest Plan (Chapter VI).

We're using an integrated pest management approach for controlling noxious weeds. (See Management Standard D-2.) Special attention is given to sensitive nontarget habitat which may be adversely affected by application of herbicides. We agree and the requirements have been changed to monitor noxious weed invasions throughout the Forest, not just sensitive areas. We do not feel that guidelines are necessary for rodent and predator control as we're not engaged in these activities.

> "Standards for packstock feed should be developed to prevent the spread of noxious weeds into wilderness areas."

We encourage the use of weed-free hay for pack stock. However, a requirement for weed-free hay would be very difficult and expensive to administer. (See Forest Plan, Management Area P.)

> "It would be helpful to have areas of unsatisfactory range specifically identified in the Plan."

About 20 percent of the Forest is classified as is fair condition; less than one percent is in poor condition. This information has been added to the final Plan.

> "The Plan should commit to coordinating the development of allotment management plans for parcels that include state-owned lands with the Montana Department of State Lands (DSL), particulary with respect to the determination of range condition and the allocation of AUMs."

Allotment management plans will be coordinated with adjacent and inclusive landowners (Management Standard D-3).

Timber.

a. General.

> "We support and encourage a viable wood products industry in Montana. While some increase in the LCNF harvest level may be necessary as private timber supplies become exhausted, the economics of the proposed substantial additional harvesting on low-production sites should be carefully re-evaluated."

We carefully reviewed the proposed level of timber harvest in relationship to the supply potential, demand, effects on other resources, and net public benefit. In response to public concern, some changes in the timber program have been made. Timber management will be practiced on 282,307 acres of suitable land in the final Forest Plan, 15 percent of the total Forest acreage. A 14-million-board-feet sale program will continue for the first 10 years, and will increase to 20 million board feet by the third decade of the Plan. Most of the timber will be harvested from the Jefferson Division. Although the total harvest on the Jefferson Division has not be changed from the Revised Proposed Plan, the scheduling has been adjusted so that an additional 1.5 million board feet will be available yearly for harvest during

the first decade of the Plan. We've reviewed the allocation for tentatively suitable lands and feels they are correct. We also feel we're promoting sound timber management practices on these tentatively suitable acres.

> "Consideration of land type according to this document may limit the area suitable for timber harvest along the rugged East Front of the Rockies. The capability of the land to support a given activity without resource degradation should be the basis for all land management decisions -- not RPA targets or other criteria."

Landtype information is used for all soil disturbing activities including timber harvest. Landtype information was used to help determine timber suitability throughout the Forest. RPA targets were not used as criteria, but were used to help define the range of alternatives and resource potentials.

> "If potential timber regeneration is poor on certain sites, the option of not harvesting timber on such sites should be considered. Many sites on the LCNF are not suitable for timber harvest regardless of the silvicultural alternatives considered."

> "Some form of artificial regeneration may be viable if alternatives are evaluated by an economic criterion."

Natural regeneration has little cost associated with it, while planting costs average about $300/acre. Based on economics, planting cannot be justified when an area will regenerate naturally. Over 283,000 acres of Forest land has been removed because it is not capable of producing crops of industrial wood. (See Appendix A, Forest Plan.) The key to assuring regeneration on other areas is using the proper silvicultural method (for example, not clearcutting any dry Douglas fir sites).

> "Page 2-1 of the Plan states that harvests will be '...programmed only in those areas where it is financially efficient considering direct timber costs and benefits.' This indicates there will no longer be below costs sales on the forests, and that benefits accrued to other resources will limit timber harvest. The Plan needs further clarification on this issue."

Financially efficient does not mean that each and every timber sale will make money for the government. Financially efficient means timber is produced in the most cost-effective way. This is why only nine percent of the roadless lands on the Forest will be developed under the Plan.

> "Consideration should be given to managing regrowth on a much shorter rotation (which may be more economic) to reduce the continual demand for old-growth timber."

The NFMA is very specific on when a timber stand may be harvested, "The stand will have generally have reached the culmination of mean annual increment." Exceptions to this standard are permitted for the use of sound silvicultural practices, such as thinning or other stand improvement measures; for salvage or sanitation harvesting of timber stands which are substantially damaged by fire, windthrow, or other catastrophe, or which are in imminent danger from insect and disease attack; for experimental and resource purposes; or for removing a particular species of trees. Increase silvicultural practices, to increase timber production, such as thinning, are not cost-efficient.

"Page 2-55 of the draft EIS refers to the harvesting of steep, low productivity sites on the Jefferson Division. The profitability of managing such a site is questionable, and we are concerned whether a harvest on these steep, low productivity sites can be financially efficient when only direct costs and benefits are considered. Was the profitability of these sites examined?"

The nine percent of the steep, low productivity sites are interdispersed with other more productive sites or already accessed by road. We feel these areas can be developed without adverse water quality impacts.

"Integrated Pest Management (IPM), which includes use of the best combination of pest control methods and encompasses the concept of an economic threshold for each pest, should be implemented on the entire forest."

An additional standard has been added to P-1, Protection, which deals with the use of IMP practices to control insects and disease.

"Ponderosa Pine is a shade-intolerant species, and cannot be effectively managed under an uneven-aged regime or prescription. Silvicultural prescriptions for selective cuts and uneven-age management should be considered, especially on wildlife management areas. Sanitation and salvage operations should be limited on non-commercial forest and areas where timber values are not high."

We have reviewed the proposed even-aged management on ponderosa pine and wildlife management area and feels that it is the appropriate method where applied. Ponderosa pine, a seral species, has been managed successfully in the Little Snowy Mountains under an even-aged system for over 30 years. Uneven-aged management will favor plant succession toward Douglas fir, which is the major climax species in the Little Snowies. The objective in using even-aged management is to retain ponderosa pine as a major component in these stands. Uneven-aged management is appropriate for some wildlife areas, such as riparian areas. Selection harvest is also appropriate under the Rocky Mountain Division timber program. Sanitation and salvage operations are not planned on noncommercial forest land.

b. <u>Rocky Mountain Division</u>.

"Although the volume of timber scheduled to be cut along the Rocky Mountain Front has been reduced from the 1983 LCNF Plan proposal, a number of serious concerns remain as to the impact of the proposed Plan."

"The necessity for cutting 1 million board feet per year of timber on the Rocky Mountain Division should be more adequately documented in the Plan."

Timber harvest on the Rocky Mountain Division has averaged 1 million board feet annually over the last several years in response to public demand for posts, poles, houselogs, sawlogs, and firewood.

"The proposed timber harvesting activities on the Rocky Mountain Front could have a significant impact on wildlife and watersheds, yet none of the roads associated with these sales are shown on the Plan's maps. The public should have an opportunity to review and comment on the locations of these roads."

The Forest Plan only shows arterial and collector road corridors. It does not attempt to show all potential road locations. Area and project analysis are additional planning levels to which the more site-specific aspect of a project would be identified and displayed prior to actual implementation. Public involvement is a part of project implementation of all activities including new road construction. Under the final Plan, only non-permanent roads will be built with the Rocky Mountain Division's timber sale program.

> "If timber harvesting will take place on only 10,000 acres, then it is very unclear why '43,000 acres of presently roadless lands are developed...' The Plan needs to clarify the development of an additional 33,000 acres."

The actual acres where timber will be harvested is 13,000 acres, the other 30,000 acres would be affected by the development of these acres.

> "It is unclear whether some of the previous scheduled sales have been reclassified as small sales, or have been eliminated and new areas added for small sale harvest. Small sales do not receive the public review that scheduled sales do."

Only supervisor sales are shown on the 10-year program. The remainder of the sales are sold under District Ranger authority. Public and agency review is part of the project implementation process.

> "The departure schedule for Alternative G indicates that an additional 5 million board feet could be offered for sale somewhere on the forest during the fourth decade. However, there is no discussion of possible departure sale locations or of impacts on recreation and other resources."

Alternative G-Departure was not studied in detail, nor was a departure alternative selected as the Preferred Alternative.

> "The Rocky Mountain Division is nationally recognized for its wildlife values, yet many critical wildlife areas are programmed for small sales. For example, the South Fork of the Two Medicine contains important elk and grizzly bear habitat. Other very important areas where small sales may occur include Green Gulch, West Fork Teton, Willow Creek, Benchmark, Petty Creek, Elk Creek and Baily Basin. If a small sale program is implemented on the Rocky Mountain Forest, it should occur only after careful planning and the full opportunity for public review and comment."

All Management Areas have been reviewed by resource specialists and land managers to ensure the proposed management area direction fits the land's capability and reflects the intent of the Forest Plan. Specific changes in the management areas are shown on page 1-3 in the final Plan.

On the Rocky Mountain Division, timber harvest is still proposed in the Teton, Benchmark/Willow, and Elk Creek/Falls Creek Geographic Units. However, in response to public concern, sales will be limited to posts, poles, firewood, houselogs, and other miscellaneous products. Some adjustments of management area boundaries have been made to reduce resource conflicts.

The Upper West Fork (Olney Creek) of the Teton has been recommended for wilderness classification. Bailey Creek has been removed from the O designation. Regulated timber harvest in the Badger-Two Medicine Geographic Unit is limited to the Blackfeet Tribe under their Treaty Rights.

c. Timber Sales.

> "The main emphasis for timber production to meet forest-wide timber quotas has been shifted primarily to the Jefferson Division. The concentration of roads in this area could have severe impacts on watersheds. Improved monitoring is essential if LCNF expects to minimize the effects of its activities on water quality."

The slight increase in the timber harvest level in the Jefferson Division was made after careful review of the effects on wildlife and recreation values, and consideration of the economic values. The majority of commercial forest land is located along the Little Belt Divide and in the Castle Mountains. The Forest has historically harvested timber in these areas. During the 1950s and 1960s, the Forest harvested up to 36 million board feet (1964). However, much of this volume was removed as pulp. The average volumes sold during the 1960s was 20 million board feet. However, timber sales dropped substantially in the 1970s averaging only about 8 million board feet. Thus far in the 1980s, we've sold about 12 million board feet annually.

Water monitoring is discussed under Water Quality.

> "The Spring Creek Units of the Little Belts is slated for extensive timber harvest. This could directly affect water quality in the North Fork of the Musselshell."

The Forest has reviewed the proposed timber harvest in the Spring Creek Geographic Unit, and has analyzed the effects on sedimentation on the North Fork of the Musselshell. Although sediment is projected to increase by about 6 percent, the Forest feels water quality standards will be met.

> "Forest Lake, located in Unit CZ-2, has been given a timber/range prescription. It contains a unique cutthroat trout population and is the site of a habitat improvement project to mitigate past timber/grazing impacts. It is also an important headwater for the South Fork of the Musselshell. Timber harvest activities proposed for this area should be carefully reviewed to ensure that fishery habitat is not damaged."

We have reviewed the management area designation around Forest Lake. No changes have been made. Riparian values will be protected through established standards and management direction.

Recreation.

> "The LCNF Plan for recreation is flawed in that it bases the projections for increased RVD's "directly proportional to Montana's population growth" (Section 7, page 1)."

Projections on recreational use incorporate the best information available. We recognize the important role of non-resident visitors. Recreational use will be closely monitored to ensure projections are reasonable (see Forest Plan, Chapter V). We've found the weather is a major factor in yearly recreational use.

"The Plan should make a greater and much more definitive commitment to developed recreation, in both improvement of existing site (i.e., dumping stations) as well as development of new sites."

The Forest Plan calls for replacement or rehabilitation of worn or substandard facilities and sites, in accordance with the Northern Regional Guide (Management Standard A-2).

"Although there is a reference to 'implementing the Recreation Opportunity Guide throughout the Forest' (Section 2, page 3), nowhere does the Plan explain what the guide is and how it would be made available to the public. The key to visitor usage is visitor knowledge. An active plan for informing the public (all public--not just Montanans) about the opportunities for both dispersed and developed recreation should be implemented by LCNF."

As defined in the glossary, the Recreation Opportunity Guide is a catalogue describing the recreation activities on a particular Ranger District. Management Standard A-1, Recreation Information, will be used to inform all publics about both dispersed and developed recreation opportunities.

"Section 2, page 3 states that 'Expansion or new construction (of developed recreation) is not expected before the second decade.' This assumes Montana population-related increases in RVDs and no marketing of developed or dispersed recreation. To enhance Montana's position in the tourism industry, new sites should be developed and marketed during the <u>first</u> decade."

"While the demand for developed recreation opportunity is expected to increase by 97 percent, the Plan would increase opportunity by only 16 percent. By the end of the planning cycle, demand for developed recreation use would far exceed the opportunity projected by the Plan."

Based on a review of our analysis no need is seen for new campgrounds until the year 2005 as the Forest will continue to meet the demand for developed recreation until that time. However, developed recreation use will be closely monitored, and if the projected use changes, the need for additional facilities will be re-evaluated. Suitable site for campgrounds is the major reason the Forest will not meet this demand after the fourth decade of the Plan.

"While the Plan states that 'Dispersed recreation opportunities in the general forest environment will be emphasized,' numerous specifics of the Plan show this statement to be very misleading."

We've reviewed the role of dispersed recreation in the Forest Plan. The Lewis and Clark National Forest will continue to offer a wide variety of dispersed recreation opportunity. Activities will range from those requiring a natural environment to those requiring a more developed setting (roads and campgrounds). Over 65 percent of the Forest will be managed for wilderness, semi-primitive recreation, and wildlife values.

The Forest Plan emphasizes a spectrum of dispersed recreation opportunities, from primitive to rural. Under the final Forest Plan, dispersed recreation will be provided in the following settings:

Primitive	436,000 acres
Semi-Primitive	867,000 acres
Roaded Natural	528,000 acres
Rural	17,000 acres

Through increasing recreation information, maintaining the winter cabin rental program, providing winter snow trails for both motorized and non-motorized use, permitting a travel shelter program, and increasing the trail construction/reconstruction programs, the Forest feels it is emphasizing dispersed recreation (Management Standards A-1, A-4, and A-5, Forest Plan).

> "The 10 percent decrease in hunter opportunity projected for the Jefferson Division is of particular concern to the State. The decrease is considered very conservative because it does not include the loss of habitat security that results when roads are built, even if they are later closed to vehicle entry. In addition, the loss of habitat security from pre-commerical thinning is not considered."

We shares your concern at the reduction in elk hunter opportunity and have attempted to lessen and limit these effects by managing roads, providing adequate cover for elk, and maintaining large areas of undeveloped country. However, continued road construction and timber harvest will result in a slight decrease in elk hunter opportunity. We feel that this reduction (8 percent) is acceptable to maintain the timber program on the Forest...and that part of this reduction can be offset by an aggressive road-use management program.

We also recognize that even roads with restricted or closed travel status will continue to impact elk security although to a lesser degree. Because of this, the reduction in hunter opportunity included loss from building roads. Loss of security from thinning was also included in the analysis because it is part of the cover removed through timber management practices.

> "The LCNF Plan is in conflict with Montana's DFWP's Statewide Comprehensive Outdoor Recreation Plan (SCORP) that proposes to <u>increase</u> hunter opportunity in this forest. The decrease in hunter opportunity is also inconsistent with a number of the Plan's statements that elk habitat quality will be maintained. In our comments on the original LCNF Plan and EIS in 1983, we requested that the impact on hunter opportunity be displayed by individual hunting districts. This has not been done."

We recognize the Forest Plan is in conflict with SCORP. This information has been added to the FEIS. Habitat quality and hunter opportunity are not directly related. For example, the Sun River Game Preserve provides high elk habitat quality, but no hunter opportunity. As discussed with the State, we do not have the analytical capabilities to evaluate hunting opportunity on a hunting unit basis. However, we would welcome the opportunity to work with the State on hunting unit objectives so the road management, habitat improvements, and other projects and activities could be coordinated to help meet hunting unit objectives.

"If levels of timber harvest above 5-6 MMBF continue to occur annually in the Jefferson Division, some hunting districts may require changes in season type from general bull hunting plus permits to 'permit only' hunting for all elk. The result could be a decrease in hunter opportunity of up to 80 percent. Currently, hunter related recreation comprises about 80 percent of all recreation use on the LCNF, and probably more on the Jefferson Division. Under the proposed Plan, much of this pressure will shift to other areas, where additional problems will be generated."

The slight increase in the timber harvest level in the Jefferson Division was made after careful review of the effects on wildlife and recreation values, and consideration of the economic values. While there are some opportunities to use timber harvest to improve wildlife habitat and forage production, a major concern of the Forest is the access roads associated with timber production. The road management program restricts travel on many of the Forest roads to maintain effective elk habitat. However, we feel that additional roading would greatly offset the benefits gained in forage and habitat production.

The Forest contains about 1.8 million acres, of which about 1/3 are classified as commercial forest lands available for timber harvest. This commercial forest land is found throughout the Forest (excluding existing wilderness). Some areas have less than 25 percent commercial forest, many areas have between 25 and 50 percent, and some areas have over 50 percent commercial forest land. The majority of the later areas are located along the Little Belt Divide and in the Castle Mountains. The Forest has historically harvested timber in these areas. During the 1950s and 1960s, the Forest harvested up to 36 million board feet (1964). However, much of this volume was removed as pulp. The average volumes sold during the 1960s was 20 million board feet. However, timber sales dropped substantially in the 1970s averaging only about 8 million board feet. Thus far in the 1980s, we've sold about 12 million board feet annually.

In 1984, camping was the most popular activity on the Forest providing 124,700 RVDs of use (18 percent of the total recreation use). Auto travel was the second most popular activity providing 102,300 RVDs of use (15 percent of total recreation use). Hunting ranked third providing 85,100 RVDs of use (12 percent of the total recreation use). Other popular activities included horseback riding 70,400 RVDs (10 percent); hiking 53,900 RVDs (8 percent); snowmobiling 47,700 RVDs (7 percent); gathering forest products 35,300 RVDs (5 percent); fishing 31,400 RVDs (5 percent); downhill skiing 29,900 (5 percent); motorcycling 26,000 RVDs (4 percent); and picnicking 15,200 RVDs (2 percent).

"Off-road vehicle use should be limited to specific trails in all areas with wildlife management emphasis, in recommended wilderness and wilderness study areas, in the research natural area, and in the experimental forest."

All of the Rocky Mountain Division (both wilderness and nonwilderness lands) has special restrictions governing ORV and other vehicle use. Wilderness is closed to all motorized use. Nonwilderness lands are either closed or restricted to the type of vehicle or season of use. In addition, 34 miles of road and 176 miles of trail are also closed or restricted.

About 20 percent of the Jefferson Division (222,400 acres) has special restrictions governing ORV and other vehicle use. In addition, 176 miles of roads and 469 miles of trail are also closed or restricted to the type of vehicle or season of use, most new local roads will be closed or restricted.

In response to public concern, Management Standard L-2, Travel Planning, has been revised to strengthen the criteria for road management and emphasize compliance and enforcement. We have just implemented a new Travel Plan which governs roads, trails, area closures, and restrictions.

Additional information on trail and road management has also been added to Chapter IV of the FEIS.

> "The State supports the continuation of the winter cabin rental program and the cooperative development of a Smith River Management Plan. We support land acquisition along the Smith River corridor, if landowners voluntarily agree to an exchange or to a specified price. This would assist in eliminating possible conflicts between river users and adjacent landowners and would improve access to land near the river."

The Forest appreciates the support for its winter cabin rental program and the Smith River Management Plan. We're also working with winter user groups on a travel shelter system (see Management Standard A-4, Travel Shelters, Forest Plan).

<u>Management Prescriptions - Wildlife</u>.

> "A number of positive changes were made in the Management Area description from the previous Plan. Several areas remain that need further restrictions, especially in the Rocky Mountain Division. The "Management Guidelines Analysis Report" as a stated policy (p. C1-5), that "Wildlife or fish habitat shall be established as the primary use on areas of land or water which are essential to their survival..." Given this policy, it is very difficult to understand why the LCNF has proposed to place almost 50,000 acres of land (in the Rocky Mountain Division) in a timber/range prescription, and less than 30,000 acres in a wildlife prescription. As an example, portions of the Benchmark-Willow Creek Units contain essential wildlife habitat, yet portions of the area are allocated to timber production. A more liberal allocation to wildlife appears prudent in view of the high wildlife value of the area."

> "In the Bureau of Land Management's (BLM) Headwater's Resource Area RMP, the BLM lands from approximately Antelope Butte south Indian Head Rock were given the designation of Outstanding Natural Area. We believe the LCNF should adjust their management direction to be consistent with that proposed by the BLM."

Like the BLM Outstanding Natural Area, all of the adjacent lands are leased. However, surface management of the area is compatible with the BLM designation.

> "If the forest opening definition at the bottom of page 3-10 in the Plan was strictly used during the calculation of the impact of timber harvest on elk hunting opportunity, the results have significantly underestimated the impact potential."

The minimum definition of a tree opening (2.5 feet) was not used in analyzing hunter opportunity.

> "In some management prescriptions, the development of water services is mentioned as a potential habitat improvement item for wildlife. This type of development in most mountain or foothill areas would be of very little value to wildlife. Such development could prove to be detrimental if livestock were attracted to areas they normally would not frequent."

The Forest recognizes your concern with water developments. However, because of extremely dry nature of places like the east Little Belts and Big Snowies, we feel water developments are appropriate.

> "The hiding cover percentages under Management Area C should be based on the number of roads (open and closed) in a timber compartment, not on an arbitrary percentage."

Hiding cover percentages are based on information from the elk-logging studies, and not arbritary percentages. They have been revised to reflect information from the final study report.

> "In the management prescriptions under minerals administration (Management Areas are A, E, F, G, H, I, N, O and Q), the following statement should be included: 'Administer geographical prospecting and oil and gas exploration through permits and leases, respectively, applying Interagency Wildlife Management Guidelines where applicable.'"

This recommendation is covered by Forest-Wide Management Standards G-1 and G-2.

<u>Management Guidelines - Wildlife</u>.

> "In a number of places, the Forest-wide Management Guidelines are in need of revision and/or updating. On page 2-27, the last sentence infers that the Forest Service has management authority over resident wildlife. The sentence should be changed to read: 'These guidelines will be used in the management of land-use activities occurring within the habitat of these species.' On page 2-28, the guidelines referred to in Appendix I have been approved, and are no longer 'interim.'"

We appreciate the suggestions. They are included in the final Plan.

> "If the LCNF intends to comply with agreements reached with several other agencies and to avoid conflict with the BLM managed mineral estate, a number of changes need to be made in the Mineral guidelines beginning on page 2-45."

The Interagency Guidelines (Appendix I) apply to all activities on the Rocky Mountain Division. The Forest Plan has been changed to reflect this. The standard in the Forest Plan dealing with wildlife (G-1 and G-2) has been eliminated to avoid any confusion. We will rely on the Interagency Guidelines.

In response to your concern, the Forest-Wide Management "Standards" have been revised and updated, including G-1 and G-2. Seismic activity will not be permitted during the general big-game season. Areas where oil and gas roads will be used to manage surface resource are identified in the Forest Plan. On the Rocky Mountain Division it is Management Area O.

Crew camps will only be used as a mitigation measure to protect grizzly bear habitat.

> "Guideline (2) on page 2-49 should restrict occupancy within the flood plain, not just 'within the vicinity of (generally 100 feet) the streams.'"

We agree. The reference to 100 feet has been deleted in final Plan.

Water Quality.

a. General.

> "We strongly support the commitment in the proposed LCNF for consultation with the Montana DFWP and the Montana Department of Health and Environmental Sciences (DHES), Water Quality Bureau, prior to planned activities in or adjacent to stream channels. It is especially important that watersheds, timber management activities should be adequately monitored within public water supply areas."

Activities which will effect municipal watersheds require special monitoring (see Chapter V, F-3). The Montana Department of Health and Environmental Sciences, Water Quality Bureau, must approve road construction, timber harvest, and mining activities in municipal watersheds.

b. Sediment.

> "There are inconsistencies in the sediment yield calculations that cause concern for the results that are shown. For example, in the Plan it is stated that sediment yield will increase by only 1 percent over the current level, yet the draft EIS (p. 2-68) shows that sediment yield will increase from 37,000 tons per year to 41,200 tons per year; a 10.3 percent increase. More emphasis should be placed in the Plan on increased site-specific monitoring and the prevention of habitat deterioration."

We appreciate support for any measures to protect water quality. The 37,000 tons per year is the base sediment yield that would occur if there were no roads, logging, or livestock grazing. These uses have occurred for nearly a century; current sediment yield is estimated at about 10 percent greater to begin with because of existing roads, grazing, and other activities. By 2030, under the Current Plan, 39.9 thousand tons of sediment would be produced. The Preferred Alternative is projected to increase sediment to 40.4 thousand tons. Thus the 1 percent increase over the current level.

> "In our previous 1982 comments on the LCNF Plan, we noted that water yield and sediment yield calculations are meaningless unless they are generated for individual watersheds. We again request that this be provided in the final LCNF Plan."

In response to public concern, the Forest estimated sediment yields for major drainages where the most road construction and timber harvest will occur (see Forest Service response to your letter on the DEIS). These sediment increases varied from less than zero to six percent. These projected increases should not decrease survival of salmonids within the Forest.

However, in low gradient sections of streams off the forest where sedimentation is the factor limiting reproductive success, decreases of up to five percent in over winter survival of young fish are likely. The reduction in survival of young fish will translate into a similar reduction of adult trout over a few years. About 50 percent of the projected increase in sediment yield is attributed to timber harvest and associated road construction, and 50 percent to grazing.

> "The State of Montana pointed out in its comments on the U.S. Forest Service (USFS) 1983 RPA goals that for any forest plan to be satisfactorily implemented, sufficient funds must be available to support a responsible monitoring program. Lack of adequate monitoring continues to be a major concern in this Plan, particularly watershed monitoring."

The Monitoring Plan has been carefully reviewed and some changes have been made. The water monitoring section has been revised. Monitoring has been a part of many Forest activities. However, the Forest Plan formalizes and strengthens this program, establishes a educational procedure, and informs the public of the results.

Most all water monitoring is done on a sample basis. Past water quality monitoring has consisted of data collection, first of broad sampling of mostly common chemical parameters, then of intensive sampling of sediment and related characteristics. These types of data have always been difficult to analyze and to apply and are also expensive, time-consuming, and requires years of data collection because of extreme year-to-year variation.

Monitoring of water quality prior to 1972 was limited to a very few samples of turbidity or suspended sediment, insufficient to describe any streams or effects. A monitoring program between 1972 and 1978 involved the field measurement of common chemical parameters at 31 stations. This program allowed a very general characterization of the basic chemical water quality of the streams of the Jefferson Division.

Suspended sediment is now recognized as the parameter most likely to be affected by management activities. The monitoring program between 1979 and 1983 used automatic sampling of sediment (turbidity) at six stations on both the Jefferson Division and the Rocky Mountain Division. Samples were collected automatically every six hours during the high-flow season. This program will continue in the future as specific project needs for monitoring are identified.

The current Forest water quality monitoring program is outlined in items C-11, and F-1 through F-9 of Chapter VI of the final Forest Plan. Water quality monitoring now includes (or even emphasizes) field reviews to assure the use of Best Management Practices and to assure that project areas are promptly stabilized and revegetated. Verification of water quality protection by sampling of streams is also used to help quantify the effects of critical projects.

"The inadequacy of current watershed monitoring is further exemplified in the sediment production model being used by the USFS for the northern and intermountain regions. The model itself is based on assumptions with little or no substantiating data. As a result, sediment yield calculations being used in the Plan could easily be off by several orders of magnitude. Because of this, we are concerned that LCNF cannot properly evaluate what effects management activities are having on important watersheds. Adequate soils and sediment yield information must be included as a basis for responsible land management decisions. Specific deadlines for collecting these data should be included in the LCNF Plan. Projects requiring these data should not be initiated until the necessary data are available."

Sediment was calculated by the method given in the document, "Sediment Production for Long Range Planning," USDA-Forest Service, Northern and Intermountain Regions.

Although a regional sediment model was used to project sediment increases, the model was adjusted to reflect local conditions. Accuracy or reliability of these estimates are poor. The data can be used for comparison between alternatives, not as an absolute measurement. Sediment is a natural part of the environment, but is highly variable seasonally and from year to year (sometimes this difference exceeds 1000 percent).

The huge variation in sediment indicates that "baseline" data may not be of great help except in a research situation. An upstream-vs.-downstream sampling and careful review of apparent effectiveness of management effects will provide an adequate basis for evaluation of impacts. Additional sampling will help improve the accuracy of the model.

In response to public concern, additional information on sediment models has been added to the FEIS. While hydrologists differ on the amount of water yield and sediment produced, the research is clear that timber harvest and associated road construction increases water yields and sedimentation.

"In view of the tremendous value of the LCNF's watersheds (e.g., Smith River, Musselshell River) it is imperative that LCNF make a commitment in the Plan to improved monitoring. This may require redirecting funds from the timber program into monitoring."

Funding for monitoring is tied to many resource programs and will have the highest priority for Forest Plan implementation. Monitoring has been a part of many Forest activities.

"Timing of stream runoff as discussed in the Plan continues to be a concern. Increased water yield in the spring may equate to lower flows during critical parts of late summer. Moreover, increased flow also means increased sedimentation. This has obvious implications to downstream irrigators and to stream fisheries. Portraying increased water yield as a benefit to timber management is not justified."

Additional information on water quality and quantity and timing and direction of peak flows has been added to the FEIS. Both the costs and benefits of increased water yields are discussed.

c. Riparian Areas.

"Riparian areas are defined in the Plan glossary as all areas within 100 horizontal feet from the edge of a stream. In some cases, however, riparian areas may extend well beyond 100 feet from the edge of a stream."

In response to your concern, the use of "100 feet from..." has been deleted from the final Plan.

"Riparian areas for the most part are recommended in the Plan to receive the 'same management as adjacent lands.' Riparian areas are often very fragile, constitute a very important part of the management area, and are particularly important for maintaining water quality and providing habitat for fish and wildlife. Riparian areas deserve special management consideration both in planning timber sales and in assigning grazing allotments."

We recognize the importance of riparian area management for wildlife. Management Area R, sets the overall management direction for riparian areas. Management Standards for Riparian Area, Soil, and Water Protection in Range Management (D-3); Timber Harvest (E-4); Soil, Water, and Air Protection (F-3); Seismic Exploration (G-1); Oil and Gas Leasing, Exploratory Drilling, Field Development, and Production (G-2); Maintenance and Construction of Roads, Trails, and Other Facilities (L-4); and Debris Control (P-2) set the standard for coordinating these activities with riparian area management. The statement, "Adjacent management area will dictate the type of activity", means that the recreation setting, visual quality objective, and trail and road management will be managed to be compatible with adjacent management areas.

"Guideline D-3(5) proposes that grass/forb use will be used as an index of overgrazing by cattle in riparian areas. It is not clear from the Plan whether livestock use will be monitored frequently enough to prevent overgrazing in riparian areas. A commitment to frequent monitoring and enforcement of cattle trespass to prevent damage to streams is needed in the Plan. In addition, Guideline E-4(1)(a) should add an appropriate buffer zone requirement to ensure that streamside timber and vegetation will not be removed. Guidelines L-4(24) and L-4(5) should specify that 'instream activities be permitted only between July 1 and September 15.'"

The Forest Plan sets the monitoring requirements to ensure riparian areas are maintained. Allotment administration is used to prevent overgrazing in riparian areas and enforcement of cattle trespass. Sometimes the removal of vegetation is necessary to improve the overall condition of a riparian area. We have consider adding that "instream activities be permitted only between July 1 and September 15." However, there are times when work should be performed outside of these time periods in order to protect watershed and fisheries values.

"Within the Plan, only 474 acres of riparian land are considered sensitive enough to be excluded from grazing. Forest-wide, however, the 1,600 miles of stream identified in the Plan equates to approximately 38,788 riparian acres. A comparison of acreage available to acreage actually excluded from grazing indicates that additional consideration is necessary regarding the amount of riparian areas needing and provided adequate protection from grazing."

The Plan lists the acres of suitable range on which grazing is excluded to protect other resources. Grazing is excluded on about 15 percent of the suitable acres. These are not total acres.

Visual.

"The use of 'should' when referring to visual quality rehabilitation makes the intent of the discussion unclear. The Plan must provide commitment to the visual rehabilitation of these areas and provide a firm time frame for its accomplishment. Further, the cost of visual rehabilitation must be included in the cost of proposed projects."

We've reviewed the use of "should" in the Visual Quality Objective (page 3-3, Forest Plan) and feels that its usage is appropriate. Because of some uncertainity with rehabilitation, the Forest cannot guarantee that disturbed areas can be rehabilitated to an EVC (Existing Visual Condition) Class 3 within 2 years. In some instances, the rehabilitation may take longer. Visual rehabilitation cost are included as cost to a project.

"In Management Area G, the Plan states that the modification VQO 'may not be appropriate.' We suggest it is inconsistent and inappropriate, and should be deleted."

The VQO in Management Area G is usually retention and partial retention. Modification may not be appropriate, but it will take site-specific analysis to determine this.

"Management Area N is a wilderness study area. The management direction contained in the Plan only allows for retention or partial retention of VQO, with further modification acceptable under certain conditions. Preservation VQO for Management Area N should be mandated until the wilderness decision is made."

Preservation is not appropriate because the area is leased for oil and gas exploration. The practice has been reworded to clearify this point.

Fire.

"The Plan, on pages 2-7, states that the LCNF will plan, implement, and maintain a fire management program that will result in the 'lowest total cost.' It is suggested that this should be reworded to say the 'lowest cost plus net value change,' since that is the basic economic criterion applied in the National Fire Management Analysis System."

The objective has been reworded as suggested.

"On page P-9 of the appendices to the Plan, coordination by the LCNF with the counties enrolled in the County Cooperative Fire Program is mentioned. It should be stated here that in compliance with Forest Service Regional Office policy, all such coordination and contact with counties by the LCNF will be made through the Central Land Office, Department of State Lands, Helena, Montana."

The suggested change has been made on page P-9.

"The Montana DSL will be assuming fire protection responsibility for over 100,000 acres of LCNF lands in Management Area B. The LCNF management guidelines for debris (slash) disposal indicate that considerable fuel may be left on site after harvest operations for silvicultural reasons. Although this procedure may be acceptable on specific sites, DSL should be consulted regarding specific fuel treatment practices for those areas under their protection."

We agree with this concern and will consult with all agencies regarding specific fuel treatment practices in those areas under their protection.

Roads.

"The Plan calls for the existing road system to increase by 875 miles, or about 60 percent. A significant portion of these roads will be 'capital investment' facilities. Given the apparent economic reality of selling timber below cost, the plan to construct these "hard money" roads is questionable, especially when the values that the roads will sacrifice are considered. It therefore appears that these "capital investment" roads may not be a wise investment."

Local roads are usually constructed on the Forest to access and utilize the timber resource. Construction costs are usually part of timber sale contract requirements. Arterial and collector roads are part of the general Forest Road System. Actually few new arterial or collector roads have been built in the last few years even though the projects may have been labeled "construction" for programming purposes. Rather, substandard facilities have been upgraded to handle logging traffic and improve serviceability for all users. Much of the Forest's existing arterial and collector system was not "constructed" per se, but simply developed through use. As such, these roads are largely unmaintainable, limited to four-wheel drive for much of the year, and in some places are hazardous. Wheel track erosion cannot be controlled. We have spent the bulk of our construction/reconstruction budget over the past several years in this area of improving the existing arterial/collector system. A substantial portion of our road construction/reconstruction budget has little or nothing to do with the timber resource. (Crystal Lake, Dupuyer Creek, Dearborn River Trailhead, Kings Hill Snowmobile Parking, Belt Park Connector, Divide Road, Ford Creek Bridge, Hannon Gulch Bridge, Checkerboard Road, Sun River Road, and North Fork Teton Road, etc.)

Upwards of 96 percent of the benefactors of the improved arterial/collector road system are recreationists including firewood cutters, hunters, and general Forest visitors.

The economic analysis for proposed timber sales takes into account road cost. An additional standard has been added to the Forest Plan to minimize road density, cost, and standards (Management Standard L-4, Forest Plan).

"The overview document (p. 16) eludes to the 110 miles of collector roads that will be constructed over the next 50 years, but fails to mention plans for constructing 763 miles of local roads. In addition, there are many miles of roads shown in the oil and gas transportation feasibility study document that are not identified in the Plan. These roads should be shown on Geographic Unit maps to assist the public in their review and comment efforts."

The "Overview" did not identify the arterial and collector road system. The final "Overview" will include both systems.

"Off-road use or vehicular access on trails should also be limited on sensitive soils."

Resource protection, including unacceptable damage to soils and watersheds, is one or the criteria for managing off-road vehicles.

"With a proposed 60 percent road mileage increase over the next 50 years, erosion and run-off on local watersheds may increase, even if suitable precautions are taken. In addition, increased access within or adjacent to wildlife management areas may adversely effect important wildlife populations. Because of the importance of these public values, road construction plans should be re-evaluated on a case-by-case basis to insure that the roads are necessary and economically feasible. These concerns especially apply to the Little Belts, the South Fork Judith, and Spring Creek Whitetail Units, and the Castle Mountains."

In response to public concern, road construction on the Rocky Mountain Division has been re-analyzed and only nonpermanent roads will be constructed for surface resource management. However, roads may be built for oil and gas exploration and development. We recognize that new road construction affects almost all Forest resources and uses. Management Standard L-4, Maintenance and Construction of Roads, Trails, and Other Facilities has been strengthened. We have also reviewed road needs in the Little Belts and Castle Mountains; however, no changes have been made.

"Management Guideline E-2, states that new roads should be open to the public for 2-3 years for firewood harvest and then permanently closed. This guideline should be more flexible. In some cases, roads should be closed immediately following timber harvest to protect other values. In other cases, the road closure may not be necessary. Road closures should be evaluated on a case-by-case basis following interagency consultation. In no case should roads be built into diverse complexes of Threatened and Endangered (T&E) habitat components as indicated in E-2(2)."

New roads will be evaluated to determine if leaving them open is appropriate so firewood can be used. Road closures are evaluated on a case-by-case basis, just as is new road construction into diverse complexes of Threatened and Endangered habitat.

"Management Guideline L-4(21) states that roads may not be constructed on slopes greater than 60 percent, but the exceptions may be made when 'project analysis determines it is environmentally acceptable.' It is possible that some slopes less than 60 percent are not suitable for road construction as well. The Lewis and Clark Soil Resource Inventory and on-site inspection should be the basis for such decisions."

The Lewis and Clark Soil Resource Inventory will be used to determine limitations and hazards for road construction (Management Standard L-4, 22). On-site review and location are a part of project planning. (See page 1-11.)

Employment and Income.

> "Only in income and employment impacts does the preferred alternative appear to result in an outcome significantly below the average for the 16 proposed alternatives. It is unclear, however, why the income and employment effects are as low as they are for the preferred alternative."

Income and employment, while heavily influenced by the the timber sale level, consider the total output of the alternatives. We have reviewed the income and employment for Alternatives G (Preferred), I, and J and feel they are correct.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

MONTANA HISTORICAL SOCIETY

HISTORIC PRESERVATION OFFICE

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uary 10, 1985

Dale Gorman
Forest Supervisor
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RE: Review of the Revised Proposed Lewis and Clark National Forest Plan.

Dear Mr. Gorman:

Thank you for the opportunity to comment on the Forest Plan cited above. The Plan demonstrates an awareness that cultural resources occur within Forest boundaries. We are encouraged by the Forest's commitment to continue to conduct inventories in proposed project boundaries and manage these resources within the context of the National Historic Preservation Act, 36CFR800, etc. The following comments are intended to assist you in meeting those commitments.

1. We note that a cultural resource overview is to be prepared by the year 2000. An overview, however usually precedes a management plan. Postponing development of this document for another 15 years locks the Forest into a less efficient and more haphazard approach to cultural resource management. It also likely means that many areas of the forest will have been impacted before the plan is developed. Cultural resource management entails far more planning than a commitment to survey project areas and avoid impact whenever possible. Rather, acquiring the capability to actually manage this resource requires the development of a cultural resource management plan. Such a plan should incorporate the current data base with prehistoric problem domains, research questions, and public concerns relevant to the kinds of resources identified to date. Such information should then be used to formulate management goals that account for the variety and information potential of cultural resources within the Forest, the means by which these goals will be achieved, and a time frame for achieving them.

2. A cultural resource survey should be conducted to identify and record cultural resource properties within the area of environmental impact. Surveys of less than intensive coverage must be proposed and defended.

3. The eligibility of a property for listing on the National Register of Historic Places is determined in consultation with the SHPO. The Forest should not proceed with an undertaking (whether properties have been identified or not) until the SHPO has been provided an opportunity to comment on the survey methodology and the significance of all resources found (36CFR800.4 (a)(2)(3)).

4. It is our understanding that the Lewis and Clark National Forest may soon reduce time for or eliminate its cultural resource position. We believe that reductions in time for or loss of this position will make it very difficult for the forest to meet the minimum compliance standards outlined in the Forest plan. We recommend that the plan explain how the Forest proposes to meet its intended cultural resource work.

Sincerely,

Alan L. Stanfill,
Archaeologist/Anthropologist

cc: Ralph Driear

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Alan L. Stanfill
Montana Historical Society
Historic Preservation Office
225 North Roberts Street
Helena, MT 59620

We appreciate your support of the cultural resource program of the Lewis and Clark National Forest as outlined by the Forest Plan. The Forest recognizes the completion of the cultural resources overview will not be accomplished for several years. However, it is a matter of available funds and regional prorities. The Lewis and Clark National Forest, because of the amount of planned development (low) and the level of cultural resources (moderate), is near the bottom in priorities.

The Forest agrees with your suggested changes in Management Standard A-6, Cultural Resource Management. These changes have been incorporated into the final Plan.

The Forest plans to maintain the cultural resource position.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

to: Mr. ?
Northern Region
USDA - Forest Service
Federal Building
Missoula, Mt. 59807

or: John D. Gorman - Forest Supervisor
Lewis and Clark National Forest
P.O. Box 871
Great Falls, Mt. 59403
406-727-0901

Dear Sir;

I am strongly opposed to the proposal to create a wilderness area in the Snowy Mountains.

The limited wilderness uses of this area are not justified when balanced against the economic impact on an already economically depressed area.

Let's first examine the wilderness uses: There is one good access road, and it goes right to (and around) the only body of water in the area. There remains the one trail down the backbone of the mountains; I've hiked it and you'd better be in good shape and carry plenty of water. Every wilderness I've hiked in had maintained trails, how are these paid for; access fees?

On the other side of the scales is the economic impact this wilderness area would have on the local economy; already depressed by low prices for locally produced products while paying high prices for materials and energy. Mining is revived in this area; recent exploratory drilling under this area has disclosed substancial oil and gas reserves; there are two major sawmills and numerous small mills employing many logging companies. All of these industries do, or will in the near future, rely on sources of raw materials within the proposed boundries of wilderness.

These industries make up a large percentage of the economic base for this area. A single industry example bases on the 500+ million board feet of timber in the proposed area has an estimated value of twenty-million dollars, not counting for future inflation. On top of this, about $60 per thousand board feet of logs is spent locally by logging companies; and another $80 per thousand board feet of lumber is spent locally by sawmills. Therefore the timber alone in the proposed area represents one-hundred and forty million dollars to the local economy.

If the proposed wilderness area were to be established, those government agencies that depend on mineral, gas, and oil leases; as well as timber sales to fund their operations would have to turn to other sources for their funding. How does the Forest Service plan to replace the twenty-million dollars of lost revenue in this small area? The base of all federal funding is either generated revenue or taxes; and we've plenty of taxes already thank you!!

A concerned citizen and taxpayer;

Bud Miller
County Comm.

BOARD OF COUNTY COMMISSIONERS
FERGUS COUNTY COURTHOUSE
712 WEST MAIN
LEWISTOWN, MT 59457

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Bud Miller, County Commissioner
Board of County Commissioners
Fergus County Courthouse
712 West Main
Lewistown, MT 59457

We recognize your opposition to wilderness classification for the Big Snowies. As part of the Forest planning process, the Regional Forester has recommended nonwilderness for the Big Snowies Wilderness Study Area. Final recommendations on the Big Snowies Wilderness Study Area will be made through a separate EIS. Congress has reserved the right to make final decisions on all wilderness designation. Their decision will be incorporated into the Forest Plan. We also recognize your concern that the Big Snowies be managed for their oil and gas and timber values.

Under the final Forest Plan, lands presently developed will be managed for timber and developed recreation. However, most of the area will be managed for semi-primitive recreation. If Congress designates the area for nonwilderness, it will be available for oil and gas leasing.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

City-County Building
316 North Park
Helena, Montana 59623
Telephone 406/443-1010

FOREST SERVICE
Lewis & Clark National Forest
Great Falls, Montana
NOV 29 1984
R

LEWIS AND CLARK COUNTY

Board of County Commissioners

November 28, 1984

Forest Supervisor
Lewis and Clark National Forest Plan
P. O. Box 871
Great Falls MT 59403

Dear Sirs:

We have reviewed your "Revised Proposed Lewis and Clark National Forest Plan" and are saddened that your acreage recommendations for wilderness additions along the Rocky Mountain Front have been decreased since your last plan. For several years, pursuant to numerous public hearings and testimony, the Lewis and Clark County Board of Commissioners has supported the continuation of roadless land management on wildlands along the front and adjacent to the Scapegoat and Bob Marshall wilderness areas.

We are particularly interested in wilderness designation for the areas generally described as Renshaw Mountain and Silver King/Falls Creek. In a July 26, 1984, letter to members of the Montana congressional delegation, we made the following suggestions (see also attached map):

> Renshaw: Approximately 35,000 acres in the Lewis and Clark Forest, an integral part of the Bob Marshall/Scapegoat/Sun River Game Preserve complex on the eastern front. Preservation of this area will ensure the continued wildlife and big game hunting habitat so important to Lewis and Clark County residents. This area is recommended for wilderness by the Governor.
>
> Silver King/Falls Creek: Approximately 80,000 acres in both the Lewis and Clark and Helena Forests. We understand that this area, located entirely within Lewis and Clark County, received an extremely high rating for wilderness suitability by the Forest Service. Upon our own inspection, we agree. This acreage is worth much more to the nation and the long term local economy as a preserved natural area than as a potential source of minerals and slow-growing, east slope timber.

We read in your revised proposal that you have reduced your Renshaw recommendation "by almost half" by deleting "a narrow strip of land that would have been difficult to administer; accordingly, this 'finger' of land was deleted in the revised plan." Your deletion includes the Fairview and Ford Creek Plateaus, areas which were judged to be best managed as wilderness by the RARE II process, by your previous Forest Plan, and by Governor Schwinden. We, too, believe this "finger" of land to possess excellent wilderness potential.

In another explanation of your rationale for decreasing the Renshaw wilderness recommendation, you state that "Boundaries along the Ford and Fairview Plateaus would be difficult to identify." This argument, and others referring to the difficulty of "administering" the area, are unconvincing in the face of the area's wilderness suitability and our belief that "boundary identity" should be a deterrent neither insurmountable nor costly to mitigate.

We are aware that some neighboring landowners along the front object to additional formal wilderness designations, yet we also know that many of these same landowners appreciate the forest management which has resulted in the present front situation: large tracts of unclassified, yet de facto wilderness areas, e.g., Renshaw and Silver King/Falls Creek. In this regard, you have written (in discussion of "Public Involvement," pg. c-32):

> "Local landowners and residents adjacent to the area have expressed strong support for managing this area to retain its present characteristics and uses."

The Renshaw "finger" and the Crown/Steamboat Mountain area of the Silver King/Falls Creek additions are exemplary subject areas of this sentiment, yet we know of no Forest Service management approach that will ensure the presence of de facto wilderness other than formal, deliberate classification as "Wilderness."

The Revised Proposed Plan justifies the Silver King wilderness reduction of "about one third" from the previous plan by noting the "oil and gas potential in the eastern portion of the area." We understand that the Forest Service "rating" for wilderness suitability (as determined in the RARE II process) for the Silver King/Falls Creek area was extremely high, and we are told that oil and gas production from this area would fuel the United States for a day or two <u>if</u> oil and gas are discovered and <u>if</u> extraction and production are technically and economically feasible.

Few will deny that the grandeur of nature is more evident or accessible than in the segment of the Rocky Mountain Front drained by the Dearborn and its tributaries, yet this grandeur would be jeopardized by the effort to squeeze a drop into the nation's energy bucket.

Thank you for considering our comments on your revised plan. We believe that our concern to preserve the roadless character of the Renshaw and Silver King areas is best served by wilderness designation, and we believe that our views represent the prevalent opinion of Lewis and Clark County residents.

Sincerely,

BOARD OF COUNTY COMMISSIONERS
LEWIS AND CLARK COUNTY

Kathleen Ramey

Kathleen Ramey, Chairman

Linda Stoll-Anderson

Linda Stoll-Anderson

Bob Decker

Bob Decker

encs

c Senator Melcher
Senator Baucus
Representative Williams
Representative Marlenee
Governor Schwinden
bd/ck

RESOLUTION 1982 -7

SUPPORT OF WILDERNESS AREAS IN LEWIS AND CLARK COUNTY

WHEREAS, the United States Forest Service is responsible for making recommendations to the Secretary of Interior regarding applications for oil, gas, and mineral leases on National Forests; and

WHEREAS, in a letter to the Lewis and Clark County Board of County Commissioners, dated December 21, 1981, the Forest Service requested comments on proposed leases on units of the National Wilderness Preservation System, certain wilderness study areas, and recommended wilderness additions; and

WHEREAS, the Bob Marshall, Scapegoat, and Gates of the Mountains Wilderness Areas are located partially or entirely within Lewis and Clark County, as are three (3) areas recommended by the Forest Service for wilderness area addition; and

WHEREAS, on February 17, 1981, the Lewis and Clark County Board of County Commissioners approved Resolution 1981-9, "Support of the Bob Marshall Country," thereby entering the record opposition to exploration and leasing in the Bob Marshall Country, defined in the Resolution as "the Bob Marshall, Scapegoat, and Great Bear Wilderness Areas and adjacent wildlands"; and

WHEREAS, as a result of an extensive planning process and much public input, the Forest Service has officially recommended that three (3) areas be added to existing Wilderness Areas in Lewis and Clark County: "Renshaw Mountain" to become part of the Bob Marshall Wilderness; "Falls Creek/Silver King" to become part of the Scapegoat Wilderness, and "Big Log Gulch" to become part of the Gates of the Mountains Wilderness; and

WHEREAS, established Wilderness Areas in Lewis and Clark County are long-lasting, stable sources of income and employment in Lewis and Clark County by means of outfitting, tourism, hunting, fishing, and related enterprises; and

WHEREAS, additions recommended for Wilderness designation by the Forest Service are integral components of wilderness habitat and are invaluable supplemental acreages to formally protected areas for purposes of prime grizzly bear habitat (Renshaw Mountain) and popular, high-use recreation areas (upper Dearborn River addition to Scapegoat and Big Log Gulch addition to Gates of the Mountains, which includes Refrigerator Canyon, Big Log Gulch, and the eastern shore of the Missouri River in the "gates" of that river); and

RESOLUTION 1981- 9

SUPPORT OF THE BOB MARSHALL COUNTRY

WHEREAS, the Bob Marshall, Scapegoat, and Great Bear Wilderness Areas and adjacent wildlands, referred to as the Bob Marshall Country, comprise one of the largest and most spectacular natural areas in the lower 48 states, and

WHEREAS, the Bob Marshall Country is the most historic, most naturally diverse, and is truly the crown jewel of our nation's wilderness system, and

WHEREAS, protection of the Bob Marshall Country is essential to the local, regional, and state economics of Montana, and

WHEREAS, millions of dollars of new money is attracted each year by the Bob Marshall Country by means of outfitting, tourism, and related industries, and

WHEREAS, the Bob Marshall Country is threatened by speculative exploration for unproved sources of natural gas, and

WHEREAS, proposals for seismic exploration and oil and gas leases in the Bob Marshall Country could cause havoc to local economies, especially Helena and Lewis and Clark County, with a subsequent loss of stable long-term jobs in the outfitting, tourism, and related industries, and

WHEREAS, residents of Helena and Lewis and Clark County make extensive use of the Bob Marshall Country for recreational purposes,

NOW, THEREFORE, BE IT RESOLVED that the Lewis and Clark County Commission goes on record in opposition to the unnecessary and potentially destructive exploration and leasing of any portion of the Bob Marshall Country, and

BE IT FURTHER RESOLVED that a copy of this resolution be sent to the Secretary of Interior, Secretary of Agriculture, Chief of the Forest Service, Regional Forester, and the Montana Congressional Delegation.

DATED this 17th day of February, 1981

BOARD OF COUNTY COMMISSIONERS
LEWIS AND CLARK COUNTY

John H. Wilkinson, Chairman

Chris Gardner

Bob Decker

ATTEST:

Helen Kovich, Clerk of the Board

WHEREAS, vast areas of public lands have been leased in Lewis and Clark County, the State of Montana, and the United States, and the acreages contained in existing Wilderness Areas is small by comparison; and

WHEREAS, the percentage of estimated potentially producible oil and gas within federally-owned lands that exists within Wilderness Areas is minimal; and

WHEREAS, oil and gas exploration in Wilderness Areas would possibly give cause for roads, disruption of wildlife habitat, degradation of expansive natural settings, and conflict with existing businesses and enterprises dependent on undistrubed wilderness land;

NOW, THEREFORE, BE IT RESOLVED that the Lewis and Clark County Board of County Commissioners believes that many lasting and stable benefits come from wilderness areas, including economical, recreational, and wildlife amenities, and that these durable benefits outweigh the immediate and short-lived gains to be made by oil, gas, or mineral development on said areas;

AND BE IT FURTHER RESOLVED that the Lewis and Clark County Board of County Commissioners goes on record in opposition to oil, gas and mineral leasing or exploration on lands in Lewis and Clark County designated as wilderness or recommended for wilderness by the Forest Service;

AND BE IT FURTHER RESOLVED that a copy of this resolution be sent to the Secretary of Interior, Secretary of Agriculture, Chief of the Forest Service, Regional Forester, and Montana Congressional delegation.

DATED this 27th day of January, 1982.

BOARD OF COUNTY COMMISSIONERS
LEWIS AND CLARK COUNTY

Bob Decker

Bob Decker, Chairman

Chris Gardner

John H. Wilkinson

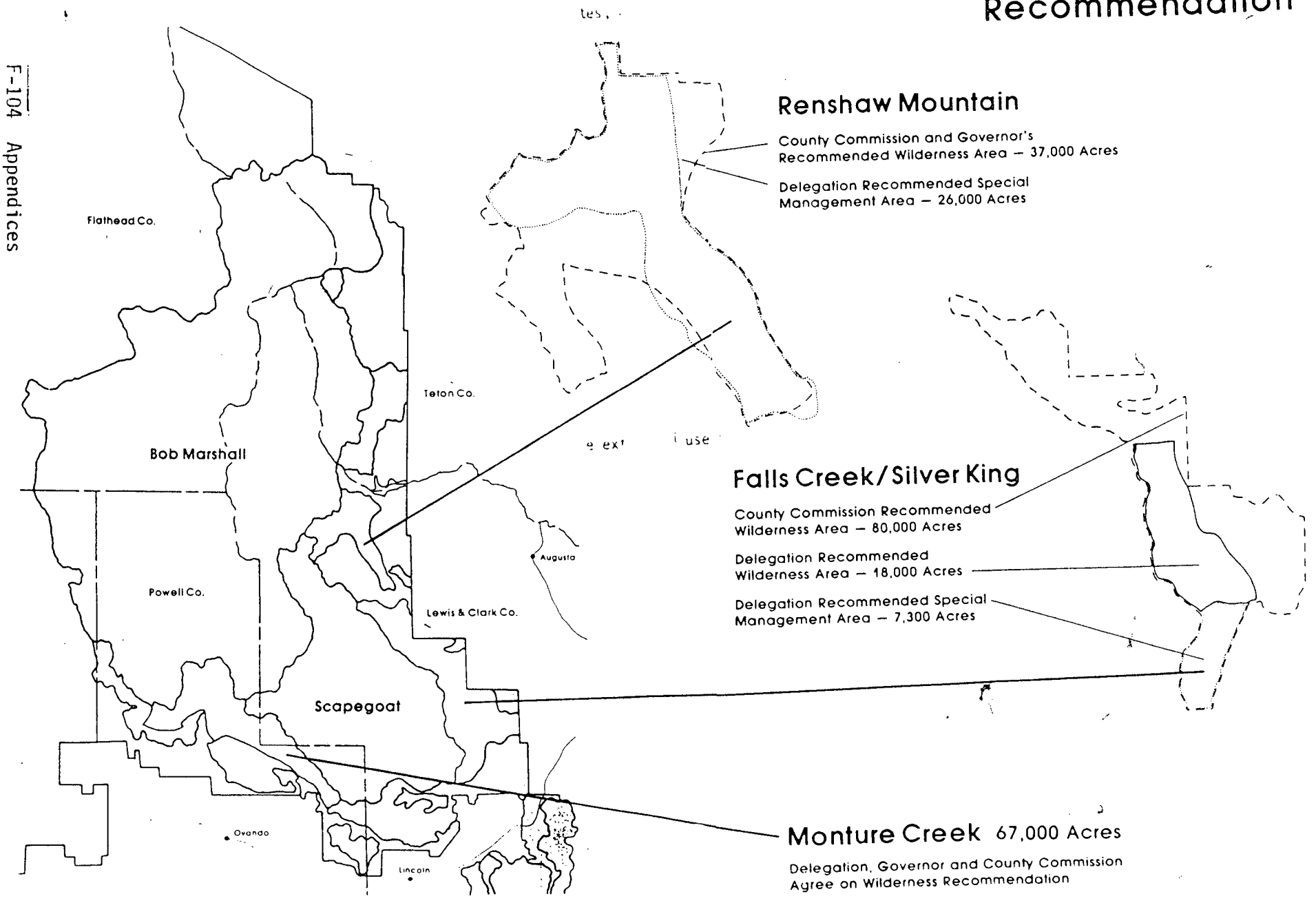
ATTEST:

Helen Kovich, Clerk of the Board

Lewis & Clark County

Helena and Lewis & Clark National Forests/Montana

County Commission Wilderness Recommendation



United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Lewis and Clark County
Board of County Commissioners
City-County Building
316 North Park
Helena, MT 59632

We have carefully reviewed the roadless land available for wilderness classification. In response to public concern, some changes have been made in the wilderness recommendations on the Rocky Mountain Division. About 5,830 acres in the West Fork of Teton has been added to the Forest's recommendation. Because of the right-of-way problems, a slight decrease was made in the Forest's recommendation in the Silver King area. This change will permit the development of trail head facilities on National Forest land near the Dearborn River and provide a valuable public access to the Rocky Mountain Division lands. Under the Preferred Alternative (G), part of the Teton, Renshaw, Benchmark/Elk Creek, and Silver King/Falls Creek roadless areas totaling 51,834 acres are recommended to Congress for wilderness classification. If these areas are designated by Congress over 55 percent (436,000 acres) on the Rocky Mountain Division will be classified wilderness.

With the adjacent Forest's recommendation (163,640 acres), the Bob Marshall-Scapegoat-Great Bear Wilderness Complex will exceed 1.7 million acres. The complex encompasses some of the Nations outstanding wildlands including the South Fork of the Flathead, Middle Fork of the Flathead, Swan Crest, Swan Front, Monture, Danaher, Dearborn, South Fork Sun, North Fork of the Sun, and the North Fork of the Teton. The recommendation also provides for other roadless lands on the Rocky Mountain Division (174,466 acres) to be managed for nonwilderness purposes including motorized recreation, developed camping, oil and gas activities, and timber harvest. And, Indian Treaty rights, along with other nonwilderness uses, on 102,100 acres of roadless lands.

The Regional Forester will not make a recommendation on the Deep Creek-Reservoir North Wilderness Study Area until the area's oil and gas potential has been determined.

Congress has reserved the right to make final decisions on all wilderness designation. Their decision will be incorporated into the Forest Plan.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

WHEATLAND COUNTY

HARLOWTON, MONTANA

March 7, 1985

Dale Gorman, Forest Supervisor
Lewis and Clark National Forest
Box 871
Great Falls, Montana 59403

Dear Sir:

The Commissioners of Wheatland Count would like to comment on the Lewis and Clark Forest Plan.

Based on information we have received there is adaquate timber for saw logs to supply the needs of the saw mills in this area, without endangering the forest harvest.

We feel without the larger timber harvest, these mills would be in jeopardy and perhaps cause a loss of job and tax base in our county.

Wheatland County Commission

David Miller, Chairman

David Miller

DM;djg

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: David Miller, Chairman
Board of County Commissioners
Wheatland County
Harlowton, MT 59036

We have carefully reviewed the proposed level of timber harvest in relationship to the supply potential, demand, effects on other resources, and net public benefit. In response to public concern, some changes in the timber program have been made. Timber management will be practiced on 282,307 acres of suitable land in the final Forest Plan, 15 percent of the total Forest acreage. A 14 million board feet sale program will continue for the first 10 years...and will increase to 20 million board feet by the third decade of the Plan. Most of the timber will be harvested from the Jefferson Division. Although the total harvest on the Jefferson Division has not be changed from the Revised Proposed Plan, the scheduling has been adjusted so that an additional 1.5 million board feet will be available yearly for harvest during the first decade of the Plan.

We have also reviewed the allocation for tentatively suitable lands and believe they are correct. We also feel that we are promoting sound timber management practices on these tentatively suitable acres.

We realize we are not meeting the local timber industry demand for timber. However, when reviewed with other landownerships, other National Forests that provide sawlog materials, and with other resource values, the Forest feels the timber program provides a fair share of this demand while maintaining important wildlife and semi-primitive recreation values.

Sawmills at Judith Gap, Townsend, Livingston, and Lewistown have an annual one-shift, production capacity of about 50 million board feet. Currently the Forest supplies about 25 percent of this production capacity. By the year 2005 the Forest will be supplying 40 percent. The Forest contains about 40 percent of the areas commercial forest land within reasonable milling distance. Therefore, the sawmills must continue to rely on private lands, State, and other Federal lands for much of their supply.

We are confident that the timber level can be increased while maintaining wildlife, and protecting soil and water quality. This balanced timber supply base will provide the greatest net public benefit for the management of the Lewis and Clark National Forest.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

Law Office of Philip E. Roy
Attorney at Law
P.O. Box 849
Browning, Montana 59417
(406) 338-7777

February 14, 1985

Mr. Dale Gorman
Forest Supervisor
U.S. Forest Service
P. O. Box 871
Great Falls, Montana 59403

Dear Mr. Gorman:

We are pleased to send you the Position Paper of the Blackfeet Tribe on the 1895 Agreement Lands. We believe you will find it useful as we begin to negotiate on these issues.

We request that you immediately direct your attention to the Tribe's request that the oil and gas development at Hall Creek be delayed until 1986 (page 7 of Position Paper). We would like to hear your views on this by February 22, 1985 so that we can take appropriate action.

We very much look forward to hearing from you on these matters. Vicky Santana is now the Special Counsel for the Tribe on these matters and you may reach her at (406) 338-5525.

Sincerely,

Philip E. Roy

PHILIP E. ROY
General Counsel
Blackfeet Legal Department

PER/tag

enclosure

POSITION PAPER OF THE BLACKFEET TRIBE

OF THE BLACKFEET INDIAN RESERVATION:

REGARDING THAT PORTION OF LEWIS AND CLARK NATIONAL FOREST WHICH WAS IN 1896 DIVESTED FROM THE BLACKFEET INDIAN RESERVATION BY AN ACT OF CONGRESS.

> PROVIDED, that said Indians shall have, and do hereby reserve to themselves, the right to go upon any portion of the lands hereby conveyed so long as the same shall remain public lands of the United States, and to cut and remove therefrom wood and timber for agency and school purposes, and for their personal uses for houses, fences, and all other domestic purposes: And Provided Further, that said Indians hereby reserve and retain the right to hunt upon said lands and to fish in the streams thereof so long as the same shall remain public lands of the United States under and in accordance with the provisions of the game and fish laws of the State of Montana.

-Article I
Agreement with the Indians of the Blackfeet Indian Reservation in Montana
29 Stat. 321, 353-354 (1896)

In 1894, there was a sudden flurry of mining activity in the northern mountains of the Blackfeet Indian Reservation.[1] The federal government's agents on the Reservation, in collusion with others, sought the cession of these lands by the Blackfeet Tribe. On September 23, 1895, at the third fruitless negotiation session regarding this surrender, the representatives of the government were asked if the Blackfeet could "go ahead and develop this land ourselves?" George Bird Grinnell, a Commissioner who was appointed by the federal government to negotiate the agreement, responded that he thought "it cannot be done under the present law. New laws would have to be made by Congress. The Secretary has not that power now."[2] In fact, an act specifically allowing mining of such land was passed by Congress in 1891[3], and the 1894 regulations of the Department of the Interior directed all agency superintendents to contact the Central Office of the Bureau of Indian Affairs regarding specific procedures to be followed for mining leases.[4] The negotiation session ended so poorly that it seemed no agreement would be reached at all.

When negotiations resumed two days later, a sudden change had obviously occurred in the attitude of the Blackfeet. Oral history of the Blackfeet holds that at an unreported session late the preceding night, the Blackfeet were told that they could agree to a fifty year mining lease. It was this new option that the Blackfeet agreed to on September 25, 1895.[5] This resolution of the contentious issue was not reported by the Commissioners and is not contained in the Agreement ratified by the Congress in 1896.

To turn this oral history into evidence in any legal case, this oral history must be gathered from the memories of the Blackfeet People.

The papers of government agencies and of the men involved

must be carefully researched.

The Blackfeet Tribe takes no official position on this matter at this time. The Blackfeet Tribe will carefully consider the evidence gathered on this matter by the Lewis and Clark Project prior to determining what type of legal resolution it will seek on this issue.

In full awareness of the difficulties inherent in the establishment of any interim position, the Blackfeet Tribe now wishes to advance the following points regarding the 1895 Agreement lands:

I.

SUGGESTED AMENDMENTS TO THE REVISED PROPOSED LEWIS AND CLARK NATIONAL FOREST PLAN

To management guideline H-2 add:

(5) Consult with the Blackfeet Tribe regarding the establishment of proper procedures to implement the American Indian Religious Freedom Act. Using as a basis President Carter's 1978 Report to the Congress on that Act, the Forest Service will negotiate an agreement with the Blackfeet Tribe on this issue.

Replace existing management guideline H-1(2) with the following statement:

(2) Any decision respecting 1895 Agreement lands will be made only after consultation with the Blackfeet Tribe. Notice of any proposed action respecting these lands will be sent to the Chairman of the Blackfeet Tribe in sufficient time to enable the Blackfeet Tribe to properly consult with the Forest Service. All Forest Service documents regarding these

lands will be shared with the Blackfeet Tribe.

To management guideline H-1 add:

(3) Establish a working group with representatives of the Blackfeet Tribe in order to negotiate agreements which will enable both the Forest Service and the Blackfeet Tribe to share in the management of those resources reserved by the Blackfeet Tribe. An agreement under this guideline need not affect the legal status of those reserved rights.

II.

NEGOTIATIONS WITH THE FOREST SERVICE

Lewis and Clark Project Staff will negotiate with the Forest Service observing the following constraints:

A. Care is to be taken to establish and preserve a good working relationship with our neighboring federal agency.

B. Any agreement proposed to the Blackfeet Tribal Business Council shall contain the following disclaimer:

> The rights and privileges reserved to the Indians of the Blackfeet Indian Reservation by Article I of the Agreement set forth in, and accepted, ratified and confirmed by, the Act of Congress approved June 10, 1896, respecting that portion of their Reservation now known as RM-1 Geographic Unit of the Lewis and Clark National Forest, shall be in no way infringed or modified by this Agreement.

C. An agreement negotiated by the Lewis and Clark Project shall be of no legal effect until it is approved by the Blackfeet Tribal Business Council and the Secretary of Agriculture.

D. The Lewis and Clark Project Staff will share with the Forest Service all legal materials which:

(1) are a matter of public record, including specifically the material exhibited to the Court in Blackfeet v. U.S. II[6];

(2) are available to the Blackfeet Tribe under the Freedom of Information Act; or

(3) would be available to the Forest Service under the Federal Rules of Procedure for Discovery were the Blackfeet Tribe to bring the issue to a federal court for a declaratory judgment.

III.

BOUNDARY

The possibility exists that the points from the "western extremity of the Lower Two Medicine Lake; thence in a straight line to a point on the southern line of the right-of-way of the Great Northern Railway Company four miles west of the western end of the Railway Bridge across the north fork of the Two Medicine River...[7]" are not located correctly. These points were included in Docket 279-B of Blackfeet v. U.S. II, and a re-survey was done for the Tribe in that case.[8] Papers from the original survey, the 279-B Survey and relevant Forest Service material will be evaluated by the Project Staff and the Office of General Counsel. If they agree that another survey should be done, project monies may be used for that purpose.

IV.

AMERICAN INDIAN RELIGIOUS FREEDOM ACT

The Blackfeet Tribe wishes to secure protection for the practice of Blackfeet religion on all lands in Region I of the Forest Service. The Blackfeet Tribe held recognized Indian title to these lands through the Treaty signed with the United States in 1855.[9] Believing that this matter can best be handled if little paper is produced regarding it, the Blackfeet Tribe requests

that the Forest Service designate a specific person with whom the Blackfeet Tribe may reach an agreement on these matters.

V.

RESERVED RIGHTS

Any agreement proposed regarding the rights reserved in the 1895 Agreement should take into account the conservation of the resources affected. If the possibility exists that these lands may some day be restored to tribal ownership, data must be gathered on these lands by the Tribe to enable the Blackfeet Tribe to negotiate with the Forest Service regarding the management of these lands. The resources on these lands must be preserved free from imprudent development which may lessen their value and limit the developmental options available to the Blackfeet Tribe.

Any proposed agreement should favor joint management of the resources by the Blackfeet Tribe and the Forest Service.[10] The agreement should provide that the Blackfeet Tribe control the use of its right by its members.[11] The agreement should be for a limited time period, renewable at stated intervals after review by the Blackfeet Tribe and the Forest Service.

The Blackfeet Tribe requests that the Forest Service recognize that authorized representatives of the Blackfeet Tribe may enter upon these lands to conduct technical and other necessary studies of the resources reserved by the Blackfeet Tribe.

Further specific expressions regarding the reserved rights are as follows:

A. Entry: This expressed right was litigated for Glacier National Park lands in U.S. v. Kipp.[12] The proclamation establishing the National Forest character of these lands does expressly recognize the rights reserved by the Blackfeet in the 1895 Agreement,[13] unlike the law establishing Glacier National Park[14] at issue in the Kipp case. It is the position of the Blackfeet

Tribe that U.S. v. Kipp is an excellent precedent regarding the right of entry of its members onto the Lewis and Clark National Forest lands.

B. Timber: In order to properly plan for the use of this expressed right, the Blackfeet Tribe requests that the Forest Service conduct no timber sales on these lands until the Blackfeet Tribe has had the opportunity to study the information available on this resource.

C. Hunting and Fishing: The Blackfeet Tribe requests that the Forest Service recognize this expressed right to include the associated implied rights to trap and gather roots, berries and other natural materials.

The Blackfeet Tribe believes that joint game management on these lands could best be served by regulation of tribal members through tribal laws enforced through the Blackfeet Tribal Court. This would allow for standards to be set according to professional game management considerations rather than the actions of the State of Montana.

D. Grazing: One explanation of the repeated use of the terms "peak to peak" and "just the rocks" in the oral tradition of the Blackfeet Tribe on this matter is that the actual boundary was to run to the tree line around each mountain valley. It was thus our understanding that we had reserved use of the surface below the tree line on the entire mountain front under consideration. Obviously we would have thought that we could graze our cattle and horses on these lands should conditions such as drought require the use of these upstream mountain valleys.

E. Water Rights: These lands contain the headwaters of streams flowing onto the Blackfeet Indian Reservation. Any agreement made regarding these lands will take into account the importance of protecting these watersheds in order to safeguard the quality and quantity of the water entering the Reservation.

The Blackfeet Tribe requests that the Forest Service recognize that it is entitled to use these lands to provide storage space for water to

irrigate lands on the Blackfeet Indian Reservation.[15]

F. Employment and Contracting Preference: The 1895 Agreement included a provision for Indian preference in federal employment.[16] In line with the reasoning behind this provision the Forest Service is encouraged to employ members of the Blackfeet Tribe for work to be done on these lands and other lands within Region 1. Lewis and Clark Project Staff and the Tribal Employment Rights Office (TERO) are to coordinate negotiations regarding this issue. Negotiations for a Public Law 94-148 Human Resource Cooperative Agreement[17] may be conducted apart from the 1895 Agreement negotaitions. The Memorandum of Law prepared by Attorney Daniel Press in 1984 will be the basis for negotiation of any agreement regarding employment of or contracting with members of the Blackfeet Tribe.

G. Specific Forest Service Actions Affecting Reserved Rights: The Blackfeet Tribe opposes all motorized activity on these lands. The Blackfeet Tribe opposes the building of any more roads on these lands. The Blackfeet Tribe opposes the granting of any outfitter or guide permits for use on these lands to any person other than a member of the Blackfeet Tribe acting under Blackfeet Tribal Law enforced in the Blackfeet Tribal Court. The Blackfeet Tribe opposes any fencing activity on these lands. The Blackfeet Tribe opposes any archaeological activity on these lands not authorized by the Blackfeet Tribe.

VI.

PROPOSED OIL AND GAS DEVELOPMENT AT HALL CREEK

The Blackfeet Tribe requests that the Forest Service delay the proposed development until 1986 to demonstrate their good faith upon entering into negotiations on 1895 Agreement issues with the Blackfeet Tribe.

The Blackfeet Tribe wishes to fully explore the fifty-year mining lease issue prior to adopting an official position on this matter. It is difficult to do so while the mineral resources are being mined. The Blackfeet Tribe will

carefully consider any Forest Service and Bureau of Land Management action on this matter, and may seek resolution of this issue by legal action if the Blackfeet Tribal Business Council so desires.

The Blackfeet Tribe believes that the approval of the drilling permit by the Bureau of Land Management does not address the serious environmental considerations presented to the Forest Service by the Blackfeet Tribe in our comments on the Hall Creek Application for Permit to Drill Environmental Assessment.[18] The Project Staff may share technical environmental data with groups seeking fuller consideration of the environmental issues addressed in the Blackfeet Tribe's comments on the Hall Creek Application for Permit to Drill Environmental Assessment.

VII.

THE GOVERNMENT TO GOVERNMENT RELATIONSHIP

The Blackfeet Tribe confidently expects that the federal government will negotiate reasonably and rationally on this issue. The Blackfeet Tribe belieives that the trust responsibility of the federal government requires it to attempt the amicable settlement of all conflicts between it and Indian Tribes.

The Blackfeet Tribe may request the assistance of the Bureau of Indian Affairs on all or part of the matters referred to in this Position Paper. Such assistance will be specifically requested by a separate document when needed.

The Project Staff may consult with other Tribes in order to coordinate activities among Tribes confronted by similar circumstances. Project Staff may consult with National Indian Organizations in order to obtain support for the positions of the Blackfeet Tribe expressed in this Position Paper.

VIII.

DIFFICULTIES IN NEGOTIATIONS

Any difficulties in negotiations which in the judgment of the Project Staff may affect the outcome of the negotiations will be brought to the immediate

attention of the Chairman of the Land Board and the Chairman of the Legal Committee of the Blackfeet Tribal Business Council. These Council Members will then decide whether the difficulty warrants prompt discussion by the Blackfeet Tribal Business Council.

FOOTNOTES

1. See Foley, Michasel F., An Historical Analysis of the Administration of the Blackfeet Indian Reservation by the United States, 1855-1950's; Chapter IV, Part Two, pages 181-198. Presented to the Indian Claims Commission in Docket 279-B of Blackfeet v. U.S. II. The entire book was reprinted by the Glacier Reporter during 1983 and 1984.

2. "Proceedings of the meetings of the Commissioners to the Blackfeet and Fort Belknap Indians", page 17. Mr. Horace Clark asked the question in response to Grinnell's "few words before we adjourn."

3. 25 USC 397 (1891). That this Act does apply to this Reservation was authoritively decided by the United States Supreme Court in British American Oil Production Co. v. Board of Equalization, 299 US 159 (1936).

4. Regulations of the Indian Office, Government Printing Office, 1894.

5. The enthusiasm generated by this compromise may be judged by Big Beaver's statement on page 20 of the Proceedings previously cited in Note 2:

> What these two old men [White Calf and Three Suns] have said I repeat. I raise my hand for every man, woman, and child on this reservation. What I say, they say. I raise my hand to say that we want to hunt game, fish and cut timber in these mountains. I hope we will have no more talk with Commissioners for fifty years. (Great Applause).

6. Blackfeet v. U.S. II was filed before the Indian Claims Commission as Docket 279. The boundary issue was decided in 15 ICC 561 and affirmed by the Court of Claims in App. No. 12-65, May 2, 1966.

7. 29 Stat. 321, 353 (1896)

8. The law on whether res judicata would apply to this issue is nowhere more specifically stated that in 50 CJS Section 745 (page 255, footnotes omitted):

> Boundaries: An adjudication in a proceeding to ascertain or settle disputed boundaries is final and conclusive as to the points at issue and determined, including the location of the boundary, as against the parties and their privies, but does

not settle anything as to the titles of the parties except where the practice authorizes the question of title to be put in issue and it is put in issue and determined. The judgment is not conclusive as to matters not determined, such as boundaries not located, or as to persons not parties to the proceedings or in privity with a party. It has been held that strangers to a judgment establishing boundaries may rely on it by way of estoppel for their protection as against parties to it, when they have acted on the faith of its recitals to their injury. A judgment establishing boundaries which is so indefinite that lines cannot be run in accordance therewith will not sustain a plea of res judicata.

9. 11 Stat. 657

10. In Swims v. Bergland, 10 ILR 2034 (9th Cir. 1983), the "priority" nature of Indian off-reservation treaty rights was held to require the modification or cancellation of privileges held by non-Indian permitees using resources within a National Forest.

11. See Settler v. Lameer, 507 F2d. 231 (9th Cir. 1974), and U.S. v. Washington, F.Supp. 312 (W.D. Wash., 1974), aff'd 520 F2d. 676 (9th Cir. 1975), cert. denied, 423 US 1086 (1976).

12. 369 F. Supp. 774 (D. Mt. 1974)

13. 33 Stat. 2311 (1903)

14. 16 USC 161 (1910)

15. Letter from F.H. Newell, Director, Bureau of Reclamation to the Secretary of the Interior. Approved May 5, 1910 by R.A. Ballinger, Secretary of the Interior.

16. Article III, 1895 Agreement, See Note 17

17. 16 USC 565, 1-1-3 (~~December 12~~, 1975)

18. Letter from Philip E. Roy, General Counsel, Blackfeet Tribe, to Dale Gorman, Forest Supervisor, U.S. Forest Service, dated May 16, 1984.

United States Department of Agriculture | Forest Service | Lewis & Clark NF

REPLY TO: 1920 Land and Resource Management Date:

SUBJECT: Lewis and Clark Forest Plan

TO: Philip E. Roy
Attorney at Law
P.O. Box 849
Browning, MT 59417

Your suggested changes for Management Standards H-1 and H-2 have been incorporated into final Forest Plan. Also, the following standard has been added to H-1:

1) The rights and privileges reserved to the Indians of the Blackfeet Indian Reservation by Article 1 of Agreement set forth in, and confirmed by the Act of Congress approved June 10, 1896, respecting that portion of their Reservation now known as the North End Geographic Unit (RM-1) of the Lewis and Clark National Forest, shall in no way be infringed or modified by this Plan.

Your other concerns have been addressed in previous correspondence. I hope this information will be helpful and informative.

Dale Gorman

JOHN D. GORMAN
Forest Supervisor

Enclosures

FEIS

Appendix G

Letters From Other Commentators and Forest Service Responses

This Appendix is not included in the document because of its bulk. The Appendix is available for review at the:

Lewis and Clark National Forest
Supervisor's Office
1601 2nd Ave. North
Great Falls, Montana 59401