

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

ANALYSIS PROCESS

The environmental impacts of Alternatives A through E were analyzed by an interdisciplinary team of staff specialists. They employed an analysis process in which each management area prescription was evaluated to determine the impacts that prescribed management goals and guidelines would have on each resource. This process is called networking. The documents developed in the networking process may be examined at the Garnet Resource Area Office.

A list of significant change agents and indicators was produced from the networking process. This list was then used to analyze the impacts of various actions via the Systematic Environmental Analysis process of impact analysis (Haug 1984a,b).

ANALYSIS GUIDELINES

The following guidelines were used by the interdisciplinary team in determining impacts.

Only significant changes or impacts are discussed.

Impacts which would be mitigated through the application of Standard Operating Procedures are not discussed, unless mitigation would be only partial and significant impacts would remain.

Immediate impacts are those that occur during the construction or start up phase of a project. Short-term impacts occur after the project is in place and may continue for a period of ten years. Long-term impacts can occur up to twenty years after the project is in place.

ANALYSIS ASSUMPTIONS

The following assumptions were used by the interdisciplinary team in determining impacts.

Funding and personnel will be adequate to fully implement all management actions associated with each alternative within ten years following plan approval. Implementation of the plan will begin in 1986.

All RMP recommendations that require action outside of the authority of the District Manager and State Director will be accepted and implemented. For example, recommendations for the revocation of existing withdrawals and the establishment of new withdrawals will be favorably acted upon by the Secretary of the Interior.

Areas recommended as suitable for wilderness designation will be so designated by Congress. Section 603 wilderness study areas recommended as nonsuitable for wilderness designation will be released by Congress from the BLM Interim Management Policy and Guidelines for Lands Under Wilderness Review and will be managed in accordance with nonwilderness RMP guidelines. Section 202 wilderness study areas



recommended as nonsuitable for wilderness designation will be released for multiple use when the State Director signs the Record of Decision for the RMP.

Market conditions, encumbrances, resource values, and other factors will permit only 25 percent of the public land outside of the retention zones to be processed in successful disposal actions during the life of the plan. Approximately 95 percent of disposal actions will be exchanges; the remainder will be sales. There will be no significant net gain or loss of resource values resulting from exchanges in the long term (e.g., for every acre of CFL disposed of through exchange, an equivalent acre will be acquired). The total acreage of public land will remain at 145,660 acres.

Forty percent of the acres identified in each alternative for timber harvest will be reentries into stands that have previously had some type of silvicultural treatment.

The average timber yield based on the Missoula Sustained Yield Unit extensive forest inventory, is 76.4 board feet per acre of CFL per year.

One and one-half miles of road are constructed per million board feet of timber harvested. These estimates are based on past harvest practices in the forests on the GRA.

Nine jobs harvesting, planting, and thinning timber are created for every million board feet of timber harvest.

Except for trails, trailheads, parking, and information signing no new recreational facilities would be constructed at undeveloped recreation sites during the 20-year life of the RMP. However, recreation site potential would be protected within Management Area 10.

Mineral exploration would disturb about ten to twenty acres per year.

The net effect of management area goals and guidelines on timber output, expressed as an estimated percent reduction from the potential yield expected under Standard Operating Procedures, is shown in Table 4-1.

Project costs include the initial cost of the project, maintenance over a ten-year period, and the cost of replacement if the project has a life of less than 20 years. Table 4-2 lists the values used in these calculations.

SUMMARY OF IMPACTS

Table 4-3 summarizes the impacts that are discussed in detail in this chapter.

ALTERNATIVE A

Impacts on Air Quality

Dust from construction activities and road use related to oil, gas, and forest management practices such as road building, mining, pump site locations, and pipelines can have immediate adverse impacts on localized air quality. Slash disposal via burning will also adversely impact air quality at the time it occurs. However, these intermittent adverse impacts are normally not significant.

Conclusion

This alternative would adversely impact air quality in localized areas during the time of project construction or slash burning. However, these impacts would not be significant to overall air quality.

TABLE 4-1
ESTIMATED REDUCTION IN TIMBER
OUTPUT DUE TO MANAGEMENT AREA
PRESCRIPTIONS

No.	Management Area	% Reduction
1	Riparian Protection Zone	100
2	Riparian Multiple Use Zone	20
3	General Forest Management	0
4	Elk Summer and Fall Habitat Components	20
5	Big Game Summer and Fall Range	20
6	Big Game Winter Range	20
7	Noncommercial Forest and TPCC Withdrawn Commercial Forest	N/A
8	Areas Recommended For Wilderness Designation	100
9	Special Management Areas	100
10	Developed and Undeveloped Recreation Sites	20
11	Historical and Cultural Sites	100
12	Visual Corridor	0
13	Nonforest Habitat	N/A
14	Mineral Production Area	100

TABLE 4-2
COSTS OF BUILDING, MAINTAINING, AND
REPLACING RANGE IMPROVEMENTS

Improvement Or Treatment	Initial Or Replacement Cost*	Annual Maintenance Cost
Fence	5,000/mile	175/mile
Pipeline	12,000/mile	32/mile
Spring	2,500/each	60/each
Tank	500/each	8/each
Cattleguard	2,500/each	24/each
Weed Control	.16/acre	32/acre

*Cost includes material and labor.
Replacement is needed every 20 years.

Impacts on Soil and Water Resources

The greatest potential impact upon soils and water quality is the construction and use of roads, including skid trails. Road construction exposes soil to erosion and can create a potential for slumps and landslides. During the construction phase it is often necessary to enter stream channels when constructing stream crossings, and fill material may be cast into or adjacent to the stream.

This type of activity, if properly designed in time and space, will have minimal immediate adverse impacts. Short-term impacts of road construction typically last less than four years, after which time sufficient soil stabilization occurs and surface erosion returns to near predisturbance levels. Field analysis has shown that these impacts can be of little significance when Best Management Practices (Appendix B) are used.

Land area dedicated to roads is a permanent loss in vegetative production and typically represents about 2 percent of the harvest area, which is a significant loss in productive capacity. Roads also cause a permanent increase in basin runoff, which is usually less than 6 percent of management caused runoff increases. This impact is of little significance.

Increases in runoff caused by vegetative manipulation through forestry, grazing, and minerals development will remain until revegetation occurs. Forest harvest practices have the greatest potential for increasing runoff. In these instances, vegetative recovery will occur in 20 to 40 years. Vegetative manipulation does not result in a significant increase in stream discharge until a net threshold level of 20 to 25 percent clearcut equivalency has been realized.

Runoff increases, beyond a threshold limit of about 15 to 20 percent removal of vegetative cover, can adversely impact stream channel stability causing channel erosion with both onsite and offsite effects. Runoff caused by management activities is normally limited to amounts analysis indicates to be a level which avoids adverse impact.

Soil compaction, caused by logging practices and grazing, can reduce water infiltration resulting in increased overland flow and erosion. Soil compaction can also reduce vegetative productivity. These impacts are mitigated through identification of compaction prone soils and by application of appropriate management techniques such as season of use and handling of the soil. With proper management these impacts are usually not significant.

Trampling displacement of soil by livestock and big game, especially along streambanks, is a form of erosion that can markedly reduce water quality and vegetative productivity. This form of impact, which occurs most readily when the soil is very wet or very dry, will be reduced slightly with this alternative. The extent of this impact is small and of moderate significance insofar as water quality and vegetative productivity are concerned. This alternative, which has

118,460 acres available for grazing, will have 11,939 acres in excellent condition, 27,433 acres in good condition, 7,739 acres in fair condition, and 1,223 acres in poor vegetative condition.

Most mining activity in the resource area is placer mining. Soil disturbance is directly associated with these activities; and due to the washing of materials, water quality may be temporarily degraded. With proper mining techniques and adequate reclamation these problems should be minimized. Impacts upon riparian areas and, for short periods of time, upon water quality and aquatic habitat are significant. However, with proper use of 3809 Regulations long-term impacts can be reduced to an acceptable level.

Standard Operating Procedures will continue to be used to maintain or enhance site productivity, water quality, and stream stability. Continued use of allotment management plans will reduce grazing impacts.

Conclusion

Road construction associated with forestry, oil, gas, and minerals development will be the greatest source of sediment production. Mitigation will substantially reduce the extent of these impacts. Immediate and short-term impacts of road construction will be controlled by use of BMPs (see Appendix B) and last only about four years. Activities that may cause an increase in runoff, soil compaction, and erosion or a decrease in water quality or soil productivity can be designed to avoid or mitigate long-term impacts to an environmentally acceptable level.

Impacts On Energy and Minerals

Oil and Gas

This alternative allows surface occupancy on oil and gas leases issued on 84 percent (172,246 acres) of the surface and mineral estate. Sixty-six percent (135,372 acres) of occupancy would be permitted with standard stipulations, while 18 percent (36,874 acres) would be permitted with seasonal restrictions. Sixteen percent (33,340 acres) would require no surface occupancy.

Leases issued with standard stipulations are the least confining to the lessee while providing protection for other important resources. In some cases, application of the standard stipulations may prohibit occupancy on steep slopes and adjacent to surface water.

Special stipulations are required in areas where standard stipulations are not adequate. These areas total 70,214 acres and include both seasonal restrictions and stipulations prohibiting surface occupancy. Seasonal restrictions, which limit oil and gas activities during a designated period each year, are implemented mainly to provide wildlife security, reduce road maintenance needs, and reduce recreation conflicts and are located in existing road closure areas. If additional road closures are imposed, exploration and development activities could be restricted. However, even in areas of moderate potential this should not prove to be a significant impact.

TABLE 4-3

SUMMARY OF THE IMPACTS OF THE ALTERNATIVES ON RESOURCES

A No Action	B Production	C Protection	D Partial Wilderness	E Proposed Action
Air Quality. Project construction on approximately 1,275 acres/year and slash burning in the resource area will cause a decrease in localized air quality.	Air Quality. Project construction on approximately 1,730 acres/year and slash burning in the resource area will cause a decrease in localized air quality.	Air Quality. Project construction on approximately 1,170 acres/year and slash burning in the resource area will cause a decrease in localized air quality.	Air Quality. Project construction on approximately 1,375 acres/year and slash burning in the resource area will cause a decrease in localized air quality.	Air Quality. Project construction on approximately 1,425 acres/year and slash burning in the resource area will cause a decrease in localized air quality.
Soil and Water. Watershed conditions will improve on 6,746 acres resulting in a long-term decrease in soil compaction and erosion along with a long-term increase in streambank stability, ground cover, vegetative productivity, and water quality.	Soil and Water. Watershed conditions will improve on 12,996 acres resulting in a long-term decrease in soil compaction and erosion along with a long-term increase in streambank stability, ground cover, vegetative productivity, and water quality.	Soil and Water. Watershed conditions will improve on 23,926 acres resulting in a long-term decrease in soil compaction and erosion along with a long-term increase in streambank stability, ground cover, vegetative productivity, and water quality.	Soil and Water. Watershed conditions will improve on 23,926 acres resulting in a long-term decrease in soil compaction and erosion along with a long-term increase in streambank stability, ground cover, vegetative productivity, and water quality.	Soil and Water. Watershed conditions will improve on 15,409 acres resulting in a long-term decrease in soil compaction and erosion along with a long-term increase in streambank stability, ground cover, vegetative productivity, and water quality.
Road construction totaling 9.6 miles/year will cause short-term increases in sediment production in streams.	Road construction, which will increase to 12.9 miles per year, will cause short-term increases in sediment production in streams.	Road construction, which will increase to 9.0 miles per year, will cause short-term increases in sediment production in streams.	Road construction, which will increase to 10.2 miles per year, will cause short-term increases in sediment production in streams.	Road construction, which will increase to 10.5 miles per year, will cause short-term increases in sediment production in streams.
<p>Energy and Minerals. The removal of some withdrawals and release of the WSAs will cause a long-term increase in opportunities for mineral exploration.</p> <p>The seasonal closure of roads in the resource area will cause short and long-term impacts by restricting access to 36,874 acres of public land.</p> <p>No surface occupancy on 33,340 acres will cause a long-term decrease in the opportunities for oil and gas exploration.</p>	<p>Energy and Minerals. The removal of some withdrawals and release of WSAs will cause a long-term increase in opportunities for mineral and energy exploration.</p> <p>Some land exchanges may cause long-term increases in the amount of land having private ownership over public minerals and associated problems.</p> <p>The formal withdrawal of up to 160 acres at historic mining sites will cause a long-term decrease in opportunities for mineral exploration.</p>	<p>Energy and Minerals. Wilderness designation for 27,737 acres will cause long-term impacts by excluding energy and mineral exploration and development.</p> <p>The seasonal closure of roads in the resource area will cause short and long-term impacts by restricting access to 66,050 acres of public land.</p> <p>Some land exchanges may cause long-term increases in the amount of land having private ownership over public minerals and associated problems.</p>	<p>Energy and Minerals. Wilderness designation for 14,350 acres will cause long-term impacts by excluding energy and mineral exploration and development on areas of low and medium potential.</p> <p>The seasonal closure of roads in the resource area will cause short and long-term impacts by restricting access to 78,550 acres of public land.</p> <p>Some land exchanges may cause long-term increases in the amount of land having private ownership over public minerals.</p>	<p>Energy and Minerals. Wilderness designation for 520 acres will cause long-term impacts by excluding energy and mineral exploration and development on areas of low energy and medium mineral potential.</p> <p>The seasonal closure of roads in the resource area will cause short and long-term impacts by restricting access to 84,076 acres of public land.</p> <p>Some land exchanges may cause long-term increases in the amount of land having private ownership over public minerals.</p>

	<p>The continuance of 1,300 acres in powersite withdrawals will cause a short-term or possibly a long-term (depending on withdrawal review recommendations) decrease in opportunities for mineral exploration.</p>	<p>The removal of some withdrawals will cause a long-term increase in opportunities for mineral and energy exploration.</p> <p>The creation of an ACEC to protect a unique geologic site will allow its continued use by educational institutions.</p>	<p>The removal of some withdrawals will cause a long-term increase in opportunities for mineral and energy exploration.</p> <p>The creation of an ACEC to protect a unique geologic site will allow its continued use by educational institutions.</p>	<p>The removal of some withdrawals will cause a long-term increase in opportunities for mineral and energy exploration.</p> <p>The creation of an ACEC to protect a unique geologic site will allow its continued use by educational institutions.</p>
<p>Lands. The present scattered land pattern and access limit effective use and management of resources.</p> <p>Withdrawal removal will cause a long-term increase in resource use on 500 acres of public land.</p> <p>Restricting transportation and utility corridors to 75% of the resource area will cause a long-term decrease in possible corridor routes.</p>	<p>Lands. Land base adjustment allows consolidation of public lands and acquisition of important resource values.</p> <p>Providing access to an additional 9,500 acres of public land allows greater public use and improved management.</p> <p>Removal of withdrawals will cause a long-term increase in resource use and make the land available for land base adjustment.</p>	<p>Lands. Land base adjustment allows consolidation of public lands and and acquisition of important resource values.</p> <p>Providing access to an additional 9,500 acres of public land allows greater public use and improved management.</p> <p>Removal of withdrawals will cause a long-term increase in resource use and make the land available for land base adjustment.</p> <p>Restricting transportation and utility corridors to 73% of the resource area will cause a long-term decrease in possible corridor routes.</p>	<p>Lands. Land base adjustment allows consolidation of public lands and acquisition of important resource values.</p> <p>Providing access to an additional 9,500 acres of public land allows greater public use and improved management.</p> <p>Removal of withdrawals will cause a long-term increase in resource use and make the land available for land base adjustment.</p> <p>Restricting transportation and utility corridors to 82% of the resource area will cause a long-term decrease in possible corridor routes.</p>	<p>Lands. Land base adjustment allows consolidation of public lands and acquisition of important resource values.</p> <p>Providing access to an additional 9,500 acres of public land allows greater public use and improved management.</p> <p>Removal of withdrawals will cause a long-term increase in resource use and make the land available for land use adjustment.</p> <p>Restricting transportation and utility corridors to 88% of the resource area will cause a long-term decrease in possible corridor routes.</p>

<p style="text-align: center;">A</p> <p style="text-align: center;">No Action</p>	<p style="text-align: center;">B</p> <p style="text-align: center;">Production</p>	<p style="text-align: center;">C</p> <p style="text-align: center;">Protection</p>	<p style="text-align: center;">D</p> <p style="text-align: center;">Partial Wilderness</p>	<p style="text-align: center;">E</p> <p style="text-align: center;">Proposed Action</p>
<p>Recreation. Timber harvest on 1,216 acres and 9.6 miles of road construction/year will have long-term impacts on dispersed recreation causing both a decrease in recreation opportunities associated with undeveloped land and an increase in motorized recreation.</p> <p>Mineral development could cause both a short and long-term impact by disturbing scenery and recreation sites.</p> <p>Special management for 28,500 acres will allow an increase in primitive recreation activity.</p>	<p>Recreation. Timber harvest on 1,660 acres and 12.9 miles of road construction/year will have long-term impacts on dispersed recreation causing both a decrease in recreation opportunities associated with undeveloped land and an increase in motorized recreation.</p> <p>Mineral, oil and gas, and possible transportation and utility corridor development could cause short and long-term impacts by disturbing recreation sites.</p> <p>Opening WSAs for multiple use would cause a long-term increase in seasonal motorized recreation and long-term decrease in primitive recreation.</p>	<p>Recreation. Timber harvest on 1,120 acres and 9 miles of road construction/year will have long-term impacts on dispersed recreation causing both a decrease in opportunities associated with undeveloped land and an increase in motorized recreation.</p> <p>Wilderness designation for 27,737 acres and special management for 2,400 acres will allow maintenance of existing primitive recreation activity and backcountry hunting opportunities.</p> <p>Mineral development could cause both a short and long-term impact by disturbing recreation sites.</p>	<p>Recreation. Timber harvest on 1,313 acres and 10.2 miles of road construction/year will have long-term impacts on dispersed recreation causing both a decrease in opportunities associated with undeveloped land and an increase in motorized recreation.</p> <p>Wilderness designation for 14,350 acres and special management for 440 acres will allow primitive recreation activity and backcountry hunting opportunities.</p> <p>Mineral development could cause both a short and long-term impact by disturbing recreation sites.</p>	<p>Recreation. Timber harvest on 1,352 acres and 10.5 miles of road construction/year will have long-term impacts on dispersed recreation causing both a decrease in opportunities associated with undeveloped land and an increase in motorized recreation.</p> <p>Wilderness designation for 520 acres and special management on 8,140 acres will allow primitive recreation activity.</p> <p>Mineral, oil and gas, and possible transportation and utility corridor development could cause short and long-term impacts by disturbing recreation sites.</p>
<p>Visual. Timber harvest on 1,216 acres/year, 9.6 miles of road construction per year, range developments, oil and gas leasing on 135,372 acres with standard stipulations, and possible utility corridor development on 115,600 acres will cause long-term impacts that bring about some evident changes in the landscape.</p> <p>Mineral development will cause short-term impacts that bring about evident changes in the landscape.</p>	<p>Visual. Timber harvest on 1,660 acres/year, 12.9 miles of road construction per year, range developments, oil and gas leasing on 205,426 acres with standard stipulations, mineral development on 20 to 40 acres/year and possible utility corridor development on 145,500 acres will cause short and long-term impacts causing changes in the landscape in visually sensitive areas.</p>	<p>Visual. Timber harvest on 1,120 acres/year, 9.0 miles of road construction per year, oil and gas leasing on 109,239 acres with standard stipulations, possible utility corridor development on 105,650 acres will cause long-term impacts that bring about some evident change in the landscape.</p> <p>Mineral development will cause short-term impacts that bring about evident changes in the landscape.</p>	<p>Visual. Timber harvest on 1,313 acres/year, 10.2 miles of road construction per year, oil and gas leasing on 112,086 acres with standard stipulations, possible utility corridor development on 119,650 acres will cause long-term impacts that bring about some evident change in the landscape.</p> <p>Mineral development will cause short-term impacts that bring about evident changes in the landscape.</p>	<p>Visual. Timber harvest on 1,352 acres/year, 10.5 miles of road construction per year, oil and gas leasing on 112,810 acres with standard stipulations, possible utility corridor development on 127,500 acres will cause long-term impacts that bring about some evident change in the landscape.</p> <p>Mineral development will cause short-term impacts that bring about evident changes in the landscape.</p>

<p>Management of 6,500 acres along the Clark Fork, Blackfoot, and Bear Gulch corridors emphasizing visual quality will result in maintenance of scenic quality.</p>		<p>Management of 10,200 acres along Clark Fork River, Blackfoot River, Bear Gulch, Flint Creek, and Rock Creek as scenic corridors will result in the maintenance of their scenic quality.</p>	<p>Management of 10,200 acres along Clark Fork River, Blackfoot River, Flint Creek, and Rock Creek as scenic corridors will result in the maintenance of their scenic quality.</p>	<p>Management of 7,850 acres along Clark Fork River, Blackfoot River, Flint Creek, and Rock Creek as scenic corridors will result in the maintenance of their scenic quality.</p>
<p>Cultural. Increased resource management activities will stimulate discovery of cultural sites in the resource area.</p>	<p>Cultural. Increased resource management activities stimulate discovery of cultural sites in the resource area.</p>	<p>Cultural. Increased resource management activities stimulate discovery of cultural sites in the resource area.</p>	<p>Cultural. Increased resource management activities stimulate discovery of cultural sites in the resource area.</p>	<p>Cultural. Increased resource management activities stimulate discovery of cultural sites in the resource area.</p>
<p>Interpretive recreation programs will contribute to a long-term decrease in vandalism and unintentional trespass.</p>	<p>Interpretive recreation programs will contribute to a long-term decrease in vandalism and unintentional trespass.</p>	<p>Interpretive recreation programs will contribute to a long-term decrease in vandalism and unintentional trespass.</p>	<p>Interpretive recreation programs will contribute to a long-term decrease in vandalism and unintentional trespass.</p>	<p>Interpretive recreation programs will contribute to a long-term decrease in vandalism and unintentional trespass.</p>
<p>Wilderness. Grazing on 11,900 acres will cause short-term impacts on wilderness values by allowing the use of motorized vehicles on established trails for herd management and construction of range projects.</p> <p>Mineral exploration and development could cause short and long-term impacts to wilderness values by use of motorized vehicles and development at discovery sites including roads, drill pads, etc.</p> <p>Recreation restrictions on motorized vehicle use will protect solitude and naturalness values over most of the 27,737 acres of special management area. Recreational vehicles would be limited to only existing access roads.</p>	<p>Wilderness. Most of the 27,737 acres would be available for timber harvest; however, during the life of the plan, the acreage cut would be about 3,737 acres, causing a loss of naturalness and solitude.</p> <p>Timber harvest would create transitory range and allow grazing to increase on the 27,737 acres causing short and long-term impacts on wilderness values by expanding the need for motorized vehicles for herd management and construction of range projects.</p> <p>Energy and mineral exploration and development without special stipulations to protect solitude and natural values would cause short-term impacts, if no discoveries were made, from the use of motorized and seismic equipment. If discoveries were made, long-term impacts would result from access roads, drill pads, etc.</p>	<p>Wilderness. Wilderness values will receive protection on 27,737 acres of public lands allowing natural systems to continue with minimum impact from the development of other resources.</p> <p>Mineral development would be limited to existing 40 claims; oil and gas activity would be limited to existing leases and controlled by special stipulations. The impacts of development of these claims would be similar to Alternative A, but affect a limited amount of acreage.</p>	<p>Wilderness. A total of 13,387 acres would be available for timber harvest; however, during the life of the plan, the acreage cut would be about the same amount as Alternative B. Therefore impacts would be similar.</p> <p>Impacts from grazing would be the same as Alternative A.</p> <p>Energy and mineral exploration and development on 13,387 acres could cause short and long-term impacts to wilderness values by use of motorized vehicles and development at discovery sites including roads, drill pads, etc.</p> <p>Wilderness values will receive protection on 14,350 acres of public lands allowing natural systems to continue with minimum impact from the development of other resources.</p>	<p>Wilderness. A total of 19,617 acres would be available for timber harvest; however, during the life of the plan the acreage cut would be about the same amount as Alternative B. Therefore, impacts would be similar.</p> <p>The impacts of grazing would be the same as Alternative A.</p> <p>Energy and mineral exploration and development on 19,617 acres could cause short and long-term impacts to wilderness values by use of motorized vehicles and development at discovery sites including roads, drill pads, etc.</p> <p>Recreation restrictions on motorized vehicle use on 7,600 acres will protect solitude and naturalness values over most of the special management area.</p>

<p style="text-align: center;">A No Action</p>	<p style="text-align: center;">B Production</p>	<p style="text-align: center;">C Protection</p>	<p style="text-align: center;">D Partial Wilderness</p>	<p style="text-align: center;">E Proposed Action</p>
<p>Timber harvest restrictions will maintain the wilderness values on 27,737 acres of public lands allowing natural systems to continue with minimum impact from the development of other resources.</p>	<p>Utility and transportation corridor development in these areas could result in long-term impacts on solitude and naturalness by altering the landscape, if a line or roads were built. The development would draw motorized use to the corridor.</p>	<p>Utility and transportation corridor development would be considered for 13,387 acres and, if a line and roads were to be built, could result in long-term impacts on solitude and naturalness by altering the landscape.</p>	<p>Wilderness values will receive protection on 520 acres if the adjacent national forest is designated as wilderness. This would allow natural systems to continue with minimum impact from the development of other resources.</p> <p>Utility and transportation corridor development would be considered for 19,617 acres and, if a line or roads were to be built, could result in long-term impacts on solitude and naturalness by altering the landscape.</p>	<p>Forestry. The total CFL available for harvest is reduced by 22 percent over the long term due to special management of 24,540 acres.</p> <p>The timber yield on 22,460 acres of CFL will be reduced by 20 percent over the long term due to harvest restrictions that benefit wildlife.</p> <p>Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages.</p> <p>Visual corridor management will impose additional restrictions on 6,500 acres.</p>
<p>Forestry. The total CFL available for harvest is reduced by 22 percent over the long term due to special management of 24,540 acres.</p> <p>The timber yield on 22,460 acres of CFL will be reduced by 20 percent over the long term due to harvest restrictions that benefit wildlife.</p> <p>Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages.</p> <p>Visual corridor management will impose additional restrictions on 6,500 acres.</p>	<p>Forestry. Forest productivity would be enhanced by comprehensive management of nearly all CFL thereby controlling outbreaks of forest infestations and improving stand structure. There would be no reduction in CFL for WSAs or special management areas, and no volume restrictions for wildlife habitat.</p> <p>Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages. However, land adjustment programs could alleviate much of this impact by reducing scattered ownership.</p>	<p>Forestry. The total CFL available for harvest is reduced by 22 percent over the long term due to wilderness and special management of 24,540 acres of CFL.</p> <p>The timber yield on 49,430 acres of CFL will be reduced by 20 percent over the long term due to harvest restrictions that benefit wildlife.</p> <p>Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages. However, land adjustment programs could alleviate much of this impact by reducing scattered ownership.</p> <p>Visual corridor management will impose additional restrictions on 10,200 acres.</p>	<p>Forestry. The total CFL available for harvest is reduced by 13 percent over the long term due to wilderness and/or special management of 14,790 acres of CFL.</p> <p>The timber yield on 61,880 acres of CFL will be reduced by 20 percent over the long term due to harvest restrictions that benefit wildlife.</p> <p>Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages. However, land adjustment programs could alleviate much of this impact by reducing scattered ownership.</p> <p>Visual corridor management will impose additional restrictions on 10,200 acres.</p>	<p>Forestry. The total CFL available for harvest is reduced by 6 percent over the long term due to special management of 7,440 acres of CFL.</p> <p>The timber yield on 64,720 acres of CFL will be reduced by 20 percent over the long term due to harvest restrictions that benefit wildlife.</p> <p>Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages. However, land adjustment programs could alleviate much of this impact by reducing scattered ownership.</p> <p>Visual corridor management will impose additional restrictions on 7,850 acres.</p>

Range. The number of AUMs available for livestock grazing would remain at 5,930 AUMs over the short term. However, a 18 percent increase in livestock forage to 6,981 AUMs is predicted over the long term due to the creation of transitory range in logged areas.

Vegetative condition will improve on 6,746 acres due to intensive range management.

The spread of noxious weeds would be checked with herbicides along 3 miles of road per year.

Range. Management actions would have a short-term impact of increasing AUMs available for livestock grazing to 9,211 AUMs, a 55% increase. In the long-term the total increase would be 11,662 AUMs, a 97 percent increase. This would be the result of improved vegetative condition and increased timber harvest.

Vegetative condition will improve on 12,996 acres due to establishment of AMP programs.

The spread of noxious weeds would be checked along 4 miles of roads with herbicides and on 10 acres of spot treatment per year.

Range. In the short term, riparian habitat management would cause a 39 percent reduction in 3,595 AUMs available for livestock grazing. In the long term, AUMs for livestock grazing would increase to 4,232 but still would represent only a 29 percent reduction from the present level of use.

Vegetative condition will improve on 23,926 acres due to riparian habitat management.

Noxious weeds would spread in drainages and along roads if only biological controls were used.

Range. In the short term, riparian habitat management would cause a 39 percent reduction to 3,595 AUMs available for livestock grazing. In the long term, AUMs for livestock grazing would increase to 4,232 but still would represent only a 29 percent reduction from the present level of use.

Vegetative condition will improve on 23,926 acres due to riparian habitat management.

Noxious weeds would spread in drainages and along roads if only biological controls were used.

Range. In the short term, management actions would increase the AUMs available for livestock grazing by 5 percent over the present 5,930 AUMs increasing AUMs to 6,245. Over the long term, the total increase would be 35 percent increasing to 8,013 AUMs due to improved vegetative condition and increased timber harvest.

Vegetative condition will improve on 15,409 acres due to establishment of AMP programs.

The spread of noxious weeds would be checked with herbicides along 4 miles of roads per year.

A No Action	B Production	C Protection	D Partial Wilderness	E Proposed Action
<p>Wildlife and Fisheries. Management activities on about 24,320 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, increasing social intolerance and forage competition with livestock, and increasing the destruction of habitat by road building and other resource development.</p> <p>Intensive grazing management will improve forage conditions on about 3,290 acres of big game winter range and on 2,038 acres of riparian habitat.</p> <p>Mineral development on about 98 acres, 1.5%, of riparian habitat will destroy habitat for many wildlife species, as well as disrupt stream beds.</p> <p>Short-term impacts to fisheries habitat will be caused when road construction at stream crossings disturbs stream beds.</p> <p>Long-term improvement, due to intensive grazing management, is expected along 3 miles of stream presently in suboptimum condition.</p> <p>Special management on 24,400 acres would maintain or slightly improve habitat quality over the long term.</p>	<p>Wildlife and Fisheries. Management activities on about 33,200 acres will cause long-term impacts to wildlife summer and winter range by reducing security cover, thermal cover, and old-growth timber stands; disturbing riparian sites and areas where young are reared; increasing social intolerance and forage competition with livestock; and increasing the destruction of habitat by road building and other resource development.</p> <p>Intensive grazing management will improve forage conditions on about 5,450 acres of big game winter range and on 3,585 acres of riparian habitat.</p> <p>Mineral development on about 98 acres, 1.5%, of riparian habitat will destroy habitat for many wildlife species, as well as disrupt stream beds.</p> <p>Short-term impacts to fisheries habitat will be caused when road construction at stream crossings disturbs stream beds.</p> <p>Long-term improvement, due to intensive grazing management, is expected along 8 miles of stream presently in suboptimum condition.</p>	<p>Wildlife and Fisheries. Management activities on about 22,400 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, increasing social intolerance and forage competition with livestock, and increasing the destruction of habitat by road building and other resource development.</p> <p>Intensive grazing management will improve forage conditions on about 5,929 acres of big game winter range and on 3,603 acres of riparian habitat.</p> <p>Mineral development on about 98 acres, 1.5%, of riparian habitat will destroy habitat for many wildlife species, as well as disrupt stream beds.</p> <p>Short-term impacts to fisheries habitat will be caused when road construction at stream crossings disturbs stream beds.</p> <p>Long-term improvement, due to intensive grazing management, is expected along 6 miles of stream presently in suboptimum condition.</p>	<p>Wildlife and Fisheries. Management activities on about 26,260 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, increasing social intolerance and forage competition with livestock, and increasing the destruction of habitat by road building and other resource development.</p> <p>Intensive grazing management will improve forage conditions on about 5,929 acres of big game winter range and on 3,603 acres of riparian habitat.</p> <p>Mineral development on about 98 acres, 1.5%, of riparian habitat will destroy habitat for many wildlife species, as well as disrupt stream beds.</p> <p>Short-term impacts to fisheries habitat will be caused when road construction at stream crossings disturbs stream beds.</p> <p>Long-term improvement, due to intensive grazing management, is expected along 8 miles of stream presently in suboptimum condition.</p>	<p>Wildlife and Fisheries. Management activities on about 27,040 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, increasing social intolerance and forage competition with livestock, and increasing the destruction of habitat by road building and other resource development.</p> <p>Intensive grazing management will improve forage conditions on about 5,370 acres of big game winter range and on 3,094 acres of riparian habitat.</p> <p>Mineral development on about 98 acres, 1.5%, of riparian habitat will destroy habitat for many wildlife species, as well as disrupt stream beds.</p> <p>Short-term impacts to fisheries habitat will be caused when road construction at stream crossings disturbs stream beds.</p> <p>Long-term improvement, due to intensive grazing management, is expected along 6 miles of stream presently in suboptimum condition.</p>

	<p>The sale of public lands could have adverse impacts on wildlife habitat if the lands were converted to uses not compatible with wildlife.</p>	<p>Wilderness, special management areas, and an emphasis on habitat management on 55,920 acres would maintain or improve habitat quality over the long term.</p> <p>The sale of public lands could have adverse impacts on wildlife habitat if the lands were converted to uses not compatible with wildlife.</p>	<p>Wilderness, special management areas, and an emphasis on habitat management on 55,920 would maintain or improve habitat quality over the long term.</p> <p>The sale of public lands could have adverse impacts on wildlife habitat if the lands were converted to uses not compatible with wildlife.</p>	<p>Wilderness, special management areas, and an emphasis on habitat improvement on 68,120 acres would maintain or improve habitat quality over the long term.</p> <p>The sale of public lands could have adverse impacts on wildlife habitat if the lands were converted to uses not compatible with wildlife.</p>
<p>Socioeconomic. Forest management has created 57 primary jobs in the private sector cutting, planting, and improving timber stands. Secondary jobs of processing the timber would also be created.</p> <p>Grazing management would contribute an increase in ranch income of less than one percent to lessees and permittees over the long term.</p> <p>PILT payments for BLM lands in Granite, Missoula, and Powell counties will continue at about \$19,600 per year.</p> <p>Recreation on public lands will contribute at least \$1,400,000/year to the local economy. The recreation opportunities provided enhance the western lifestyle which incorporates backcountry activities, hunting, and visiting historical sites.</p> <p>Mining on public lands will contribute jobs and money to the local economy.</p>	<p>Socioeconomic. Forest management would create 77 primary jobs in the private sector cutting, planting, and improving timber stands. Secondary jobs of processing the timber would also be created.</p> <p>Grazing management could contribute an increase in ranch income of up to two percent to lessees and permittees over the long term.</p> <p>PILT payments for BLM lands in Granite, Missoula, and Powell counties may be affected by land adjustment if lands from different counties are exchanged. Grazing permittees and lessees may also be affected by such adjustments.</p> <p>Recreation on public lands will contribute about the same opportunities as in Alternative A.</p> <p>Mining on public lands will contribute jobs and money to the local economy.</p>	<p>Socioeconomic. Forest management would create 53 primary jobs or four less than Alternative A in the private sector cutting, planting, and improving timber stands. Secondary jobs of processing the timber would also be created.</p> <p>Grazing management could reduce ranch income by as much as one percent to lessees and permittees over the long term.</p> <p>Mining in traditional areas will continue to provide jobs and money to the local economy. The withdrawal of 29,217 acres would preclude any future development and the number of jobs and money that could be generated from mineral exploration and development would not materialize.</p> <p>Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A.</p> <p>Land adjustments would have similar impacts as in Alternative B.</p>	<p>Socioeconomic. Forest management would create 62 primary jobs in the private sector cutting, planting, and improving timber stands. Secondary jobs of processing the timber would also be created.</p> <p>Grazing management impacts would be similar to Alternative C.</p> <p>Mining in traditional areas will continue to provide jobs and money to the local economy. The withdrawal of 15,830 acres would preclude any future development. The effect on jobs and money, which could be generated, would be small.</p> <p>Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A.</p> <p>Land adjustments would have similar impacts as in Alternative B.</p>	<p>Socioeconomic. Forest management would create 63 primary jobs in the private sector cutting, planting, and improving timber stands. Secondary jobs of processing the timber would also be created.</p> <p>Grazing management impacts would be similar to Alternative A.</p> <p>Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A.</p> <p>Land adjustments would have similar impacts as in Alternative B.</p> <p>Mining in traditional areas would continue to provide jobs and money to the local economy. The withdrawal of 2,000 acres would preclude any future development. The number of jobs and money that would not be generated would be very small.</p>

Stipulations prohibiting surface occupancy are applied primarily to river tracts along the Blackfoot and Clark Fork rivers, to cultural and historical sites (Garnet, Coloma, Blackfoot City, etc.), and to the special management areas. These stipulations are the most restrictive and allow only directional drilling. Although directional drilling is a negative impact because of cost feasibility, it should not prove to be significant as many of these are scattered tracts, small in size, and have moderate to low potential.

No ACECs are recommended in this alternative.

Other Leasables

Under this alternative, 5,536 acres are available for phosphate leasing, all in areas of high potential. Approximately 4,023 acres have been leased; 1,893 acres were issued with standard stipulations and 2,130 acres with special stipulations. Since no wilderness areas and ACECs are proposed in areas of phosphate leasing, no impacts would occur. An additional road closure in Warm Springs Creek could temporarily impact phosphate exploration and development because of seasonal disruption of exploration.

Locatables

Mineral location is available on a total of 203,850 acres, of which 22 percent (45,000 acres) contain recorded unpatented mining claims. Twenty-three percent (46,386 acres) are classified as having high potential for locatable minerals. Under the 3809 Regulations, 6,360 acres are under a notice for exploration and development surface disturbance. The notice obligates the mining operator to reclaim any disturbed sites.

Mineral exploration is presently restricted within the four Wilderness Study Areas (WSAs). This constraint could be significant in the southern portion of the Wales Creek WSA where mineral potential is moderate to high and where claimants have located approximately 40 mining claims. Their exploration activities may not degrade or impair wilderness values or suitability. This may affect their use of mechanized equipment in the WSA and cause the claimant to file a plan of operations under the 3802 Regulations. However, under Alternative A, minerals will not be impacted since no wilderness will be designated, but the WSAs will become special management areas that will require a notice in most cases or a plan of operations. Also, no ACECs are proposed that could restrict mineral development.

Road closures, existing and potential, impose an impact on mining claimants as they may be required to file a plan of operations under the 3809 Regulations, rather than a notice. This could be significant in areas of high potential, as it would be more costly and time consuming to fulfill the plan of operations requirements.

Presently, 500 acres are withdrawn by R&PP and C&MU classifications, primarily to protect recreation, scientific, and cultural sites. Potential power sites, existing power projects, and administrative

sites occupy 1,300 acres and are withdrawn for the use of other government agencies. Both classifications and withdrawals, totalling 1,800 acres, segregate those areas against locatable mineral location. This is a significant localized impact to the minerals resource, especially in areas of high potential such as Garnet, Coloma, etc. However, such areas represent less than one-half percent of the public land base. The effect is a loss of opportunity and incentive to prospect for locatables, as no claims may be located to protect the right to a discovery. However, under this alternative all BLM classifications (R&PP and C&MU) are to be dropped on 500 acres, leaving only the withdrawals intact and 160 acres proposed for formal withdrawal, so this would be a positive gain in availability for land open to mineral location.

Salables

Presently, 98,747 acres are available for the disposal of salable mineral materials, while 48,360 acres are unavailable for salable disposal because of existing withdrawals, classifications, valid unpatented mining claims, and riparian protection areas. Since the classifications are to be dropped under this alternative, 500 additional acres would be opened for the disposal of salable minerals, creating a positive impact.

Under the guidance for WSAs, salable permits may be issued for the removal of mineral materials so long as the operation can be conducted consistent with the nonimpairment criteria. Since this alternative does not designate any wilderness areas, the WSAs will become special management areas, still allowing issuance of mineral material permits.

Conclusions

Recommending the four WSAs for nondesignation would mean fewer restrictions on the minerals industry as a whole, and dropping the 500 acres of BLM classifications (R&PP and C&MU) would increase the area open to mineral exploration. Operations would be regulated by the 3809 Regulations.

Any additional closures of existing roads would restrict some mineral exploration and development activities. This could be locally significant in areas of high potential; but over the whole resource area, the effect would be minor.

Impacts On Lands

Land Ownership

Under this alternative, public land would remain fixed, perpetuating the existing intermingled land ownership pattern. Improvement of the land pattern through land tenure adjustment would not occur.

More than half the tracts are under 160 acres, and over 70 percent are less than 320 acres. This means a continuing need for boundary identification, which costs in excess of \$1,800/mile, making program expenses high. The additional difficulties of coordination, access, and distance involved in efforts to manage isolated and scattered tracts would continue.

Access

At present BLM has legal public access to 28 percent of its tracts, which represent 78 percent of the public land base. Administrative access is available to an additional 4 percent of the tracts. At least 25 percent of the tracts without access require active management. No additional access would be secured under this alternative and these management needs would not be met.

Withdrawals and Classifications

Withdrawals have been secured by other federal agencies for powersites, power projects, and administrative sites. These total less than 1,600 acres. They will be reviewed under the current BLM withdrawal review process.

In 1973 over 200,000 acres were under classification (de facto withdrawal) by BLM. In 1982 these classifications were reviewed and reduced to 500 acres. Under all alternatives classification would be removed from the remaining 500 acres. This would increase the public land base available for land adjustment or multiple use.

Major Utility Corridors

Identified avoidance areas for major utility corridors in this alternative comprise approximately 25 percent of the resource area, including special management areas, major riparian areas, elk summer and fall habitat, developed and undeveloped recreation areas, and cultural sites. The special management areas represent the bulk of the acreage and could result in increased costs for utilities by requiring additional miles of line to avoid these areas.

Conclusion

Alternative A, with no change in the intermingled land ownership pattern and with no additional access, would preclude improvement in land ownership pattern and effective management. Possible transportation and utility corridor routes would be limited to 75 percent of the public lands. The avoidance areas are mainly high elevation, roadless areas that pose significant obstacles for efficient transportation and utility siting.

Impacts on Recreation Resources

Impacts of forest management on the five Special Recreation Management Areas (SRMAs) would not be significant. The RMAs would be protected and managed under Standard Operating Procedures.

The 12 existing walk-in hunting areas are managed under Standard Operating Procedures and would not be significantly impacted. Potential hiking and riding trails, on the other hand, could be severed, the tread could be destroyed, or use shifted to other areas by road construction or by timber harvesting activities. The recreation experience would also be reduced with temporary losses of visual quality (see visual quality section). These impacts could, in part, be mitigated by project location and design.

The amount and quality of hunting would be impacted by timber management activities. Since the quality of hunting is closely linked to habitat conditions and numbers of game animals, negative impacts on habitat and wildlife numbers would adversely impact hunting and positive impacts would enhance hunting. Rooding would provide increased access while cutting units would increase sight distances. Both of these actions would reduce game security areas and increase hunting pressures. Impacts from rooding and timber harvesting can partly be mitigated with strategically located road closures.

Although the experience of hunting in unroaded areas would be reduced, there is a possibility of an increase in the number of hunters. New roads that remain open seasonally or yearlong would increase opportunities for motorized vehicle use, snowmobiling, and cross-country skiing.

The cumulative impacts would be significant by benefiting some recreation activities and adversely impacting others. During the 20-year life of the plan, 14,400 acres of previously unharvested CFL would be harvested and nearly 200 miles of new roads would be constructed. Motorized vehicle use, road hunting, and auto touring would increase if roads remain open, while activities associated with unroaded backcountry would decrease.

Livestock impacts on SRMAs or on most dispersed recreation opportunities would not be significant. However, impacts would occur to the quality of hunting where livestock use and big game use of forage and cover conflict. The degree of impact would be defined in the wildlife section.

Impacts of oil and gas activities on recreation use would not be significant, if standard and special stipulations are imposed on key recreation use areas. Highly significant adverse impacts could occur from ground breaking activities associated with mineral exploration and development. Impacts on water quality downstream from mining activities would also adversely impact recreation use. These impacts would be localized and could occur in riparian areas, recreation sites, and special management areas. SRMAs where the greatest impacts may occur include the Blackfoot River, the Clark Fork River, and Garnet Ghost Town. However actual disturbance is somewhere between 10 to 20 acres per year and all the above sites except Garnet have been withdrawn or have low potential.

Motorized vehicle use would enjoy a high potential level of activity since 107,720 acres would be available for use. Vehicles would, however, be restricted to open roads and trails. Seasonal and yearlong road closures would further restrict motorized vehicle use.

Impacts of utility and transportation corridors on recreation use would be minimized because sensitive areas would be avoided by rights-of-way. Since no public lands are open to land adjustment under Alternative A, no adverse impacts to recreation would occur to existing patterns and use. However,

there would be no opportunity to acquire recreation lands that are threatened by development activity. Isolated tracts, without access, would remain unavailable for recreation use.

No wilderness designations are proposed under Alternative A; however, 28,500 acres would be managed under special management. These lands would be available for recreation users attracted to unroaded backcountry opportunities. Also, those lands not yet roaded or developed would temporarily offer these types of experiences.

Conclusion

Under this alternative, most recreation opportunities have been provided for by directing developmental activities away from key recreation sites. Certain dispersed recreation activities would be impacted by road construction and timber harvesting but mitigation could reduce these impacts. Grazing and mining could impact recreation sites and activities if they occur in riparian zones particularly along major rivers and streams. Benefits would accrue to motorized vehicle use and to unroaded backcountry activities under this alternative. Cumulative impacts to roadless recreation opportunities would result from timber harvesting and road construction. Other cumulative impacts would not be significant.

Impacts on Visual Resource Management

Under this alternative, timber management practices and cutting unit configuration would be constrained in visually sensitive VRM Class II and III areas thus maintaining present visual quality on about 24,500 forested acres. Timber harvest practices would be adjusted to accommodate scenic values on an additional 2,560 acres in riparian multiple use zones, undeveloped recreation sites, and visual corridors. However, some road construction and slash burning would be allowed. The visual impacts of roads and burning in sensitive areas would be mitigated in part during project planning and implementation.

Ninety-seven percent of the timber volume is harvested from lands with low to moderate visual sensitivity. In most cases, these areas are classified as background or seldom seen and would fall into VRM Class IV. Because of the location and characteristics of these lands, visual impacts from timber harvesting, road construction, and prescribed burning would not be significant.

The cumulative impact on visual resources would be one of constant change primarily in vegetative heights and contrasts. During the 20-year life of the plan, 24,000 acres of timber would be harvested and nearly 200 miles of road would be constructed. Most of the cutting would be concentrated in VRM Class IV areas and the overall impact would be an acceptable change in the visual landscape while maintaining the visual quality of a VRM Class IV rating.

The grazing management impacts to visual resources would not be significant. Most of the proposed range improvement projects would be located in VRM Class III and IV landscapes. Relatively minor or localized negative impacts would result if 22 miles of fence, 2 miles of pipeline, 7 cattleguards, and 25 springs were constructed. All of these developments would meet VRM guidelines.

The existing levels of oil and gas leasing would result in minimal impacts to visual resources. Visually sensitive areas along major travel and recreation corridors are within the zones where surface occupancy is prohibited for oil and gas leases. Developments associated with this activity could be accomplished within the guidelines for VRM classes.

Overall, current levels of mineral activities would not create significant visual impact. High negative impacts could occur from ground breaking activities in localized areas if these sites occur in riparian areas, recreation sites, special management areas, and visual corridors.

Existing levels of motorized vehicle use and management would have insignificant impacts on visual resources. Approximately 38,000 acres are not available for motorized vehicle use, and 108,000 acres are available but restricted to open roads and trails.

If guidelines for implementing VRM classes (Appendix F) are followed, utility and transportation corridor developments, would have minimal adverse impacts on visual resource values. Corridors would avoid 30,060 acres in riparian protection zones, special management areas, recreation sites, and cultural sites. The location and design of projects in visually sensitive corridors would be further constrained to minimize visual impacts.

Since no public lands are open to land adjustment under this alternative, no direct impacts are evident. Benefits could be derived, however, by retaining visually sensitive lands such as areas seen from I-90; MT-200, MT-10, and the Rock Creek corridor.

No wilderness designations are proposed under Alternative A; however 28,500 acres are recommended for special management with management emphasis on maintenance of wildlife habitat, watershed, and dispersed recreation. Positive benefits would be derived to visual resources by retention of existing visual characteristics.

Conclusions

Generally, the negative impacts to visual resources from timber management, road construction, range developments, oil and gas leasing, or developments of utility or transportation corridors would be evident but not significant if adequate mitigation measures are imposed. Strict adherence to VRM guidelines during project planning and implementation would minimize most negative impacts. Certain development projects would create significant short-term impacts in localized areas but would be mitigated to reduce long-term impacts. Cumulative impacts from timber

harvesting and road construction over the next 20 years would cause changes to appear constantly in the visual landscape.

Impacts on Cultural Resources

Implementation of the provisions of the National Historic Preservation Act and 36 CFR 800 will jointly serve to eliminate impacts to significant cultural resource properties under this or any other alternative. While residual effects due to vandalism, wildfire, and trespass actions can be expected to occur, no change in such residual effects can be contemplated under any alternative. Interpretive and nonimpairment prescribed management of significant cultural resource properties operates as a beneficial effect in limiting the potential for such residual effects. Increased activity in various management areas will serve to increase the number of identified cultural properties since new properties are located at a projected rate of one property per 360 acres of inventory directed by specific project needs. A proportion of these cultural resource properties will be added to the managed list and acreage allocations can be expected to increase.

The environmental consequences to cultural resources under this and all other alternatives is beneficial. With implementation of BLM regulations, policies, and prescribed management of significant cultural resource properties such properties will be protected against adverse impacts and be enhanced for public enjoyment and education.

Impacts on Wilderness Resources

This alternative would set aside timber harvest on 27,737 acres in Wales Creek, Gallagher, Hoodoo, and Quigg West WSAs. This would protect the WSAs from adverse impacts associated with timber harvest.

Approximately 27,200 acres including Wales Creek, Quigg West, Gallagher Creek, and portions of Hoodoo Mountain would remain unavailable for livestock grazing. This will protect these WSAs from impacts to wildlife habitat and watershed. The special management guidelines indicate that livestock grazing will not be allowed because these areas have been determined to be unsuitable for grazing (see Appendix L).

Wilderness values would be adversely affected by recommending 27,737 acres as unsuitable since the lands would be open to mineral entry. In the short-term exploration-connected vehicle use, drill pads, and the visual and audio impact of exploration and development could mar a wilderness experience. Impacts such as access roads and drilling pads could degrade the solitude and natural appearance of the areas in the long term.

All acres in the former WSAs would be classified as avoidance areas for transportation and utility corridors. These projects, if undertaken, could result in major impacts on the natural scenery of the area and in both the short-term, due to construction disruption

and noise, and in the long-term, because of the appearance of utility projects, would significantly impact solitude values.

Selection of this alternative would allow the public access to existing open roads and trails but would continue the prohibition on motorized vehicle use off roads and trails. Temporary noise and visual impacts on solitude values caused by motorized vehicles and an increase in compaction, vegetative removal, and rutting would occur on existing trails.

Wilderness values would be adversely affected by nondesignation as potential developments would be allowed without protective stipulations to protect natural and solitude characteristics. However, special administrative site-specific management aimed at the protection of wildlife, watershed, and dispersed recreation opportunities would tend to safeguard some of these wilderness characteristics.

Conclusion

A total of 27,737 acres would not be recommended suitable for wilderness, but would receive protective special management. This means that wilderness values would be open to more short and long-term impacts.

Protective special management would tend to minimize some of these impacts. However, long-term protection would not be as secure since an administrative commitment to protect the values of an area is not as permanent as wilderness designation.

Impacts on Forest Resources

Under current management approximately 1,216 acres could be harvested at a rate of 6,370 mbf/year from an available CFL base of 87,920 acres (78 percent of the total CFL). This level of harvest would require about 9.6 miles of new road annually and remove approximately 58 acres annually from productive forest land. This is an acceptable impact if the forest resource is to be managed.

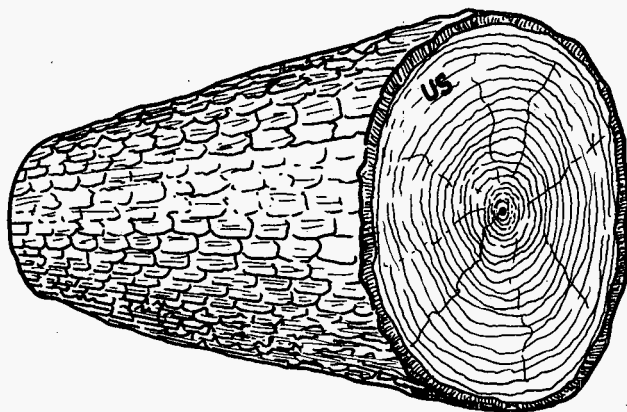
Practices that restrict forest management, such as limiting the size of cutting units and scheduling of entries, would be imposed on 21,820 acres (24 percent of the available CFL). These restrictions will result in a 20 percent reduction in volume available on the 21,820 acres. This equates to an overall 5 percent reduction in volume available from the CFL base. Forest management would not be practiced on an additional 24,540 acres (22 percent) of CFL. As compared to the harvest without any restrictions or withdrawals this represents 24.7 percent less volume harvested annually. If withdrawn areas become infested with insects or disease, they cannot be treated by timber management activities. Therefore, they can become host areas to outbreaks. Also, some restrictions may require uneven-aged management and optimum productivity will not be approached. Logging costs will be greater where cutting units are smaller, where logs have to be winched out of buffer stands, and where selection or single tree harvest is required.

Sale scheduling will probably be the most significant problem in restricted management areas, requiring an additional 12 to 20-year delay before reentering cutting units or adjacent stands. Also visually sensitive areas may restrict the type of harvest methods but will not reduce the volume harvested. The present ownership pattern can result in scheduling problems because of restrictions for watershed protection. Delayed entries are necessary where private lands have been harvested in a drainage to the extent that watershed balance is in danger. Significant increases in water production can be expected where a drainage has been harvested to more than 20 percent clearcut equivalency. A ten-year delayed entry is about the minimum period required to overcome the impact.

Livestock grazing can have an impact on seedling establishment, survival, and vigor. Over half the CFL is in the Douglas-fir habitat type series and will probably be shelterwood cut. The understory vegetation in this habitat series produces substantial amounts of forage when the overstory is opened. Approximately 67 percent of the series is under 45 percent slope and susceptible to livestock grazing. Under this alternative nearly 14,700 acres of CFL (17 percent) in this series will be grazed. Years of grazing can develop a sod ground cover that makes natural regeneration difficult. Tree seedlings can be damaged by trampling. The significant problem areas are generally localized where cattle tend to concentrate for shade, salt, water, or bedding. Proper grazing on cut-over CFL, after the seedlings are five years old, is acceptable. Temporary fencing or herding should alleviate the most serious problems.

Conclusion

The combination of management restrictions, withdrawn or set aside areas, and available CFL result in an annual yield or harvest of 6,370 mbf which is a significant reduction from the potential level of timber harvest. Management restrictions require smaller cutting units and adjusted scheduling of sales which hinder optimum timber management. Construction of logging roads would remove approximately 58 acres annually from production. Livestock grazing causes localized impacts which can be alleviated by temporary fencing or herding. Overall this alternative has a moderately significant impact on forest resources, primarily due to the 24,540 acres of CFL unavailable for management.



Impacts on Range Resources

Under this alternative, there will be no short-term adjustments in any of the 84 grazing leases. In the long term, livestock forage production would increase by about 1,051 AUMs, a 17 percent increase over current licensed use. These increased AUMs are primarily due to the cumulative effect of intensive grazing management systems already in place and the continued creation of transitory range as a result of timber harvest. Appendix I displays the short-term target allocations and projected AUM figures for the long term, by allotment, for each alternative.

Over the long term, range improvement costs for Alternative A will total approximately \$217,400 for material and labor. Table 4-4 summarizes the improvements. Maintenance on the existing range improvements are estimated to cost \$299,300 for the 20-year period and \$57,500 for expected maintenance of improvements yet to be constructed.

**TABLE 4-4
RANGE IMPROVEMENTS AND COST
DATA FOR ALTERNATIVE A**

Improvement/ Treatment	Unit	Quantity	Cost*
Weed Control	Acres	200	3,400
Fences	Miles	22	110,000
Cattleguard	Each	7	17,500
Springs	Each	25	62,500
Pipeline	Miles	2	24,000

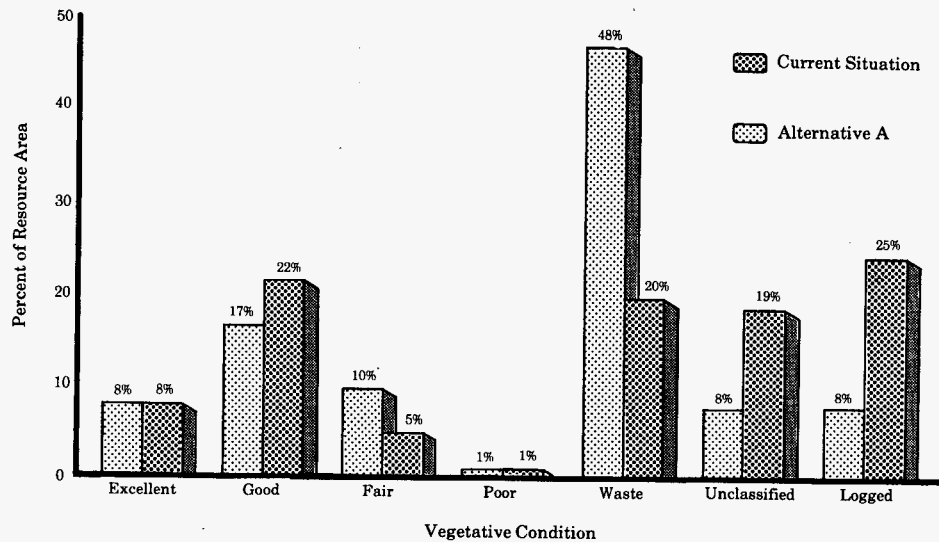
*Cost data over 20-year period includes materials and labor.

The short-term impacts on vegetative condition would generally be a continuation of present trends. Those leases already under an intensive grazing management system would remain under intensive management. All ten existing AMPs show either a static or upward trend. Most of the remaining 74 custodial leases show a static vegetative condition. Adverse impacts to vegetation and livestock grazing can be mitigated by careful placement and design of range improvements and treatments coupled with tighter compliance control. Because this alternative proposes no short-term change in present management direction, it has a negligible impact on livestock grazing.

Long-term vegetative trend under this alternative is projected to remain static on 74 leases and show a slight upward trend on the 10 existing AMPs. Current projections indicate that approximately 6,633 acres in fair and poor condition in the existing AMPs will be improved up one condition class to good and fair condition. Figure 4-1 illustrates the projected changes in vegetative condition in the long term. Figure 4-1 is a comparison of only those lands under grazing lease and does not include approximately 35,391 acres administratively excluded or otherwise unavailable for livestock grazing.

Figure 4-1

Predicted Changes In Vegetative
Condition Under Alternative A



Presently there are 27,200 acres where livestock grazing has been excluded. Under Alternative A these acreages will remain excluded from livestock grazing. Most of these excluded areas are heavily forested and offer an insignificant quantity of usable livestock forage. These scattered tracts are in the Chamberlain, Wales, Yourname, Cottonwood, and Gallagher Creek drainages.

Weed control efforts will consist of control work on approximately 200 acres over the long term. This control effort will be primarily directed at roadside infestations of knapweed, musk thistle, and leafy spurge in an effort to control the advance of these weeds along logging roads up into areas free of weeds. Approximately ten acres of roadside area (three to four miles of road) will be treated using chemical spray each year. Spot weed control efforts are primarily designed to eradicate or lessen the density of weeds in a relatively small area to improve the quantity of the native grasses and forbs and reduce the weed seed source for the immediate area. Knapweed, for instance, can reduce livestock forage by 67 percent and double the amount of soil erosion when it invades rangeland (French, Lacey 1983).

Conclusion

This alternative proposes no short-term adjustments in grazing preference; a long-term increase in grazing preference of 17 percent is projected primarily due to more available forage from timber harvest areas. Livestock operators will see no short-term changes in grazing, but overall livestock production should improve over the long term. Both structural and non-structural range improvements and maintenance are proposed at a long-term total cost of \$581,000 or an average annual cost of \$29,050.

Modest improvement in vegetative condition is expected in the long term. About 52 percent of lands available for livestock grazing should be in good and excellent condition as compared to 33 percent presently.

Tracts presently unleased would continue to be unleased through the long term. Some short duration livestock grazing trespass can be expected on these unleased tracts, but generally this type of incidental use is quickly resolved.

Impacts on Wildlife and Fisheries

This alternative would propose managing 74,500 acres (51 percent of the total land base) with stated wildlife habitat goals in the MA guidelines. The remaining acreage (71,160 acres) would be managed with wildlife considerations through application of Standard Operating Procedures and mitigative or restrictive recommendations.

Mountain Coniferous Habitat

The resource area contains about 130,000 acres (89 percent) of mountain coniferous habitat. Timber management on 87,920 acres of CFL occurs primarily on big game summer range at the rate of 1,216 acres treated and 9.6 miles of new roads constructed annually. The short-term impacts of this action will disturb most species and displace some species. Potential impacts include reduced fall security cover for big game; loss of effective habitat due to increased vehicle access; loss of thermal and security cover immediately adjacent to winter range foraging areas; reduced big game use of clearcuts and moist sites by alteration of adjacent timber stands; loss of specific vegetative successional stages (mature, old-growth) necessary to meet many species requirements; and disturbance of effective seasonal habitat during high energy demand periods such as fawning, calving, nesting, brood rearing, and winter. Short-term mitigating restrictions and actions will reduce the magnitude of site-specific impacts in most cases. There will be few or no immediate beneficial impacts.

The long-term adverse impacts could potentially be large considering 63,460 acres (72 percent) of CFL does not have stated MA wildlife goals, only protective stipulations for elk habitat components and possible road management restrictions. Over the life of the plan, harvest and new road construction will amount to about 24,320 acres treated and 192 miles of new road. Habitat alterations by timber activities such as clearcut, seed tree, etc. are expected to create about 8,269 acres (34 percent) of open forage. About 15,961 acres (66 percent) of timbered forage will be created through shelterwood harvest methods and commercial thinning. The consequence of this alteration in vegetative structure and composition will result in more acres in early successional stages, fewer acres in late successional stages, and a trend toward even-age management. The long-term response of wildlife to changes in vegetation and access will cause shifts in species and populations to match requirements for suitable habitat.

The balance of CFL in the mountain coniferous habitat, approximately 24,400 acres (27 percent), occurs primarily at lower elevations constituting big game winter range or special management areas where timber activities are guided by wildlife goals. Timber management actions and consequential adverse impacts to wildlife habitat will be moderate in the short term due to mitigating restrictions. Habitat quality would be maintained or slightly improved over the long term for certain species or species groups.

Timber management on the remainder of the forested land (about 42,140 acres) would be limited to rights-of-way, sanitation, or salvage necessary to meet wildlife or other resource goals. Therefore impacts to wildlife would be minimal.

Range management would occur in 118,460 acres, with the mountain coniferous habitat contributing substantially to the total. Intensive livestock management is prescribed for about 35,663 acres or about 30 percent of the total 118,460 acres and would have stated wildlife objectives. The balance of the acreage (82,797 acres) would not have stated wildlife objectives for grazing management.

The impacts on wildlife habitat by livestock grazing ranges from direct forage competition with big game species to nesting, brood rearing, and foraging conflicts with small game and nongame species. Additionally, there is evidence of social intolerance by some big game species for livestock. Within the forest habitat types, various successional stages occur as a result of timber management practices which create transitory range and access roads into formerly unlogged areas. The majority of the existing allotments include forested areas not currently accessible to livestock grazing; however, these areas provide suitable habitat for many wildlife species. Vegetative changes in these areas will produce additional accessible livestock forage that will ultimately cause wildlife habitat use conflicts within allotments. In many cases allotment boundaries and pastures are unfenced, but depend on natural barriers such as uncut timber or terrain to control livestock movement. As these areas are developed through logging and road building, livestock move into previously ungrazed areas (the cutting units themselves or parks and riparian zones). Mitigative measures such as fencing, leaving vegetative barriers, or blocking roads and trails to livestock movement may be successful in reducing livestock and wildlife conflicts in the short term. In the long term, the conflict will increase as more acres of previously uncut forest are harvested and grazed. The dispersment of livestock over a greater area of one or more allotments increases the chances of social intolerance by elk.

Through the implementation of 10 AMPs, 3,290 acres (45 percent) unsatisfactory big game winter range forage is expected to improve to satisfactory condition. However, 4,069 acres of unsatisfactory winter range forage outside of AMP areas will remain in unsatisfactory condition. Present satisfactory winter range forage (23,592 acres) on all allotments is expected to continue in satisfactory condition. The exclusion of grazing from 27,200 acres will enhance wildlife habitat primarily in elk summer and fall range.

Mineral exploration and development in the mountain coniferous habitat ranges from the mining of gold, phosphate, and barite to the removal of sand and gravel. The short-term impacts of mining cause disturbance or displacement of wildlife on small acreages with some loss of habitat. Duration of

extraction is highly variable for each site, ranging from intermittent work each year for a few years to continuous work for many years.

The short-term impacts from oil, gas, and phosphate development are essentially negligible during the exploration phase through standard and special stipulations. However, the stipulations will not fully mitigate the long-term impacts throughout the duration of development and production. Based on a past low interest in oil and gas activity and only one phosphate mine, the outlook for widespread habitat loss is slight.

Mountain Grassland Habitat

The resource area contains about 9,500 acres (7 percent) of mountain grassland habitat. Timber management has a direct influence on the value of these mountain grasslands for wildlife habitat. Silviculture prescriptions in the edge between forest and grassland will play an important role in determining habitat quality of the grasslands. Harvest and thinning activities adjacent to the grasslands will have short-term impacts through displacement or disturbance of wildlife. Mitigation through the application of management area guidelines will serve to reduce adverse results in the short term for most grasslands. Long-term impacts from vegetative alteration on adjacent forest land should be successfully mitigated for grasslands lying within areas where wildlife habitat management will be emphasized. Those sites within areas emphasizing timber management would have few mitigative restrictions.

The majority of acres in the mountain grassland habitat will be affected by range management practices and occur as both summer and winter big game ranges. Those allotments under intensive management (AMPs) either contain or will be revised to include stated wildlife goals achieved through livestock distribution and time of use. In the short term, substantial improvement of unsatisfactory grassland winter ranges is expected following full implementation of intensive grazing management. In the long term, all unsatisfactory winter range under intensive livestock management would be raised to satisfactory forage condition. Those acres of grassland in allotments outside of intensive grazing management are expected to remain in the same forage condition for the short and long term. (See acreage figures presented under the range management discussion for mountain coniferous habitat in this alternative.)

Mineral exploration and development impacts in the mountain grassland habitat are similar to those discussed under mountain coniferous habitat.

Riparian and Wetland Habitat

The resource area contains about 6,100 acres (4 percent) of riparian and wetland habitat. Timber management activities under this alternative would essentially be excluded on 760 acres, be restricted by wildlife goals for old-growth timber corridors and nongame habitat diversity on 640 acres, and be guided by practices to achieve water quality stand-

ards in other areas of forest development. A substantial number of acres occur in special management areas potentially unavailable for timber management. Short-term impacts are partially mitigated through management area guidelines and SOP. Long-term impacts from site disturbance will be negligible with the exception of old-growth loss.

Range management affects about 80 percent of riparian and wetland habitat. Through full implementation of intensive grazing management, 2,038 acres of unsatisfactory riparian is expected to improve to satisfactory condition. This amounts to 49 percent improvement. About 2,166 acres outside of intensive management allotments would remain in unsatisfactory condition. Short-term impacts will show gradual improvement in the riparian condition attributed to grazing. Over the long term, intensive management acres would be in satisfactory condition, but unsatisfactory acres outside of AMPs would continue as unsatisfactory riparian. Satisfactory riparian (637 acres) in all existing allotments would continue in satisfactory condition for both the short and long term.

Mineral exploration and development impacts in riparian areas are the least mitigatable for the placer operations. Sand and gravel permits will not be allowed in riparian areas. Oil, gas, and phosphate development will be designed for riparian protection. Impacts discussed under the mountain coniferous habitat are similar for mining claims, however the importance is exponential because the riparian zone provides a higher diversity of habitat for a larger number of species. Currently there are about 98 acres of riparian in mineral development areas.

Aquatic Habitat

The resource area has about 67 miles of streams and rivers producing fish. Timber management activities associated with this habitat are most critical because of the need to build roads. The application of riparian management area guidelines and Standard Operating Procedures avoid or reduce adverse impacts on the aquatic habitat. Short-term impacts will be encountered for stream crossings. However long-term impacts are negligible except for periodic maintenance or replacement.

The range management program affects 48 percent (29 miles) of aquatic habitat. Currently there are 15 miles (52 percent) in optimum aquatic condition, 6 miles (21 percent) in suboptimum condition, and 8 miles (27 percent) unsurveyed in all allotments. Through intensive grazing management, 3 miles (50 percent) of suboptimum habitat would be expected to improve through increased bank stability and cover. Short-term response will be a slight increase in fish production, with long-term results of stabilizing more optimum habitat.

Within aquatic habitat, the impacts of mineral exploration and development are greatest for development of mining claims. When mining development takes place in the aquatic system, there is the potential for complete change (destruction) of the site for fish as

well as degrading downstream habitat. Such impacts are total removal of bank and adjacent vegetation; redistribution of bank and streambed materials to spoil piles, settling ponds, and downstream deposition; total loss of macroinvertebrate populations; loss of spawning habitat; increase in water temperature; and higher risk of contamination from petroleum products, toxicants, and heavy metals. Both short-term and long-term impacts are subject to mitigation through current laws and regulations; however, the impacts are expected to remain significant for localized areas. Other energy and mineral exploration and development are subject to mitigative stipulations to protect sites in both the short and long term.

Threatened and Endangered Species Habitat

There is continuous monitoring for threatened and endangered species occurrence and use, with recommendations for appropriate mitigative stipulations. There will be no significant impacts on threatened or endangered species habitat under the alternative.

Conclusion

Under Alternative A, there would be few or no short-term benefits from timber management, and potential long-term adverse impacts would occur on big game summer ranges and nongame habitat in mountain coniferous habitat because wildlife habitat management would not be emphasized. At lower elevations timber management impacts on big game winter range would be moderated in the short term and a trend toward maintenance or slight improvement in the long term. Range management impacts on habitat at upper and lower elevations are partially mitigated in both the long and short term through stated AMP wildlife goals on 30 percent of the allotment area (35,663 acres of public lands). Conflict between livestock and wildlife would continue on 70 percent of the grazing allotments in both the short and long term, particularly in areas of newly created transitory range. Of the total unsatisfactory big game winter range forage, 3,290 acres (45 percent) would be expected to improve to satisfactory condition. The development of mining claims will cause significant impacts on wildlife habitat in both the short and long term. However, relatively few acres are currently disturbed by mining development. Other energy and mineral leases have stipulations to mitigate impacts on wildlife habitat. With the current activity level, short and long-term impacts are negligible for phosphate, oil, and gas activities.

Timber management will have some short-term impacts on the mountain grassland habitats but few long-term impacts. Intensive livestock management will show long-term forage improvement on AMP acres but little or no improvement outside of AMP allotments (about 55 percent of total unsatisfactory big game winter range forage). Mineral impacts will be about the same as described for mountain coniferous.

Riparian and wetland habitats will experience partially mitigated short-term impacts, and there will be negligible long-term impacts with the exception of old-growth loss in timber management areas without wildlife goals. Through intensive range management 2,038 acres (49 percent) of unsatisfactory riparian is expected to improve to satisfactory condition in the long term. The remainder of unsatisfactory and satisfactory riparian will continue in current condition. Mineral activity impacts on wildlife habitat are most significant where there is development of mining claims in both the short and long term compared to other energy and mineral development. However, at the completion of mining activity rehabilitation of the site is required. Other energy and mineral development is either not permitted or the leases require mitigative measures to protect wildlife habitat.

Impacts to aquatic habitat from timber management actions are primarily associated with road location and stream crossing designs. Short-term impacts will occur, but long-term impacts will be negligible with proper location and design. Livestock grazing through intensive management allotments is expected to improve 50 percent of the current suboptimum habitat to optimum condition over the long term. Impacts of mineral activities are similar to those discussed under riparian habitat.

Under this alternative, there would be no land adjustment. The consequences of this action would preclude increased wildlife habitat management opportunities through exchange or purchase.

There will be no significant impacts on threatened or endangered species habitat under this alternative.

Impacts on Social and Economic Conditions

Under this alternative current management direction would continue, therefore, the effect on current social and economic conditions would continue. There would be 6,370 mbf of timber harvest per year. This would yield approximately 57 jobs. These jobs are relatively well paid compared to other area jobs. In addition, since there are many mills and processing plants in the Missoula area, more of the benefits of timber harvest income remain in the area. The availability of BLM-managed timber helps add continuity to the timber harvest in the area, with the majority of the cut coming from Forest Service and private timberlands. At an average 1981 income of \$19,984 per job, employment income of these jobs equals \$1,139,088 in direct income to the economy. At an average stumpage value of \$46.80 per thousand board feet, the timber harvested is valued at \$298,166 per year. Indirect income from this harvest would amount to an additional \$894,498 from the labor sector in the region. The social impact of this timber harvest level involves the continued stability of harvest levels to help insure a continued level of employment in the wood products industry. This stability of harvest, however, is not a major determinant in preserving a given level of employment. At the

present time the health of the housing market regionally and nationally has a far greater effect upon employment stability than a stable supply of harvestable timber.

The range management program if continued at the present rate would see an increased availability of forage for livestock on 25 of 84 allotments. Projected improvements in grazing lands and increases in AUMs would result in a less than one percent increase in income to ranchers in each size class (see Appendix R). Therefore, there would be no significant effect on the present ranching community if the current policies are followed.

Presently, the Garnet Resource Area is open for mineral entry on all but 1,800 acres. Under this alternative this situation would continue. The primary commodities which are now being mined are phosphate, barite, and gold. Employment at the existing mines is expected to remain steady for the foreseeable future. If the price of gold remains at present levels or increases, a few more placer gold operations may locate on public lands. The availability of public lands for mineral development represents an opportunity to develop resources; therefore, BLM has little control over whether or not a mineral resource is developed. Significant social impacts of mineral development would only occur if development is much more extensive than that which is currently taking place.

The potential for significant oil and gas discoveries in the area is presently unknown. Seismic testing and exploration are currently going on in the area. These activities provide a few jobs for the local economy. The extent of other employment in the oil and gas industry in the area will depend upon discovery of any deposits and the extent of such deposits.

The present lands program classifies all land in the resource area for retention in federal ownership. This would create no social or economic changes over the current status quo as long as the Payment in Lieu of Taxes (PILT) program is funded. If the lands in Missoula, Powell, and Granite counties are funded at the same rate as in fiscal year 1983, the payment would total approximately \$19,619. This payment represented a 94.23 percent proration of the total entitlement of \$20,820. The total PILT payment for the three counties for all federal lands in FY 83 amounted to \$349,651. In general, the income to the counties from PILT payments is greater than the property taxes they would receive if the lands were private lands. (This may not be true for productive timberland sites.)

The economic consequences of both the recreation and wildlife programs are tied to the human use of these resources. The management of BLM lands provides opportunities for recreation such as hunting, fishing, camping, snowmobiling, cross-country skiing, and visiting historic sites such as Garnet Ghost Town.

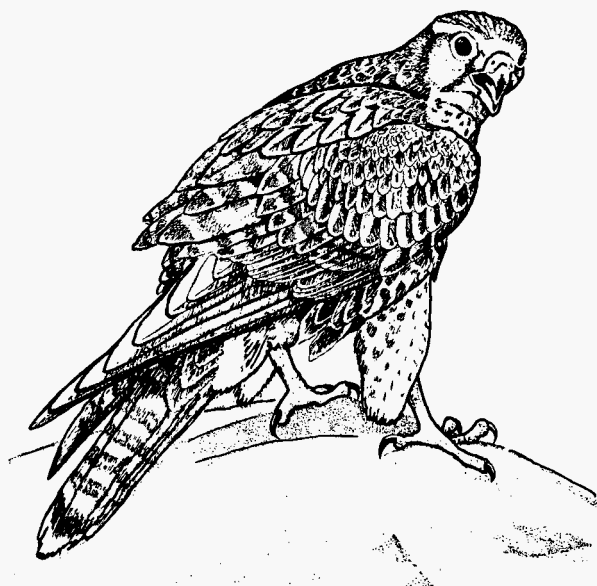
Public lands provide habitat for many species of wildlife. The primary big game species are elk and deer. These species provide approximately 30,000 hunter days of recreation per year. These hunter days accounted for \$799,500 in expenditures on the part of the hunters with an additional \$573,241 in additional indirect benefits to the regional economy. Factors other than habitat which may affect herd size are beyond the control of the BLM. To the extent that these other factors remain constant, public lands will continue to help provide at least 30,000 hunter recreation days per year. Some waterfowl and upland bird hunting is also provided.

Other recreation in the area involves camping, boating access, hiking, and off-road vehicle use. This coupled with 12,000 visitor days at Garnet Ghost Town is another substantial economic benefit. This would likely increase over time as Garnet Ghost Town becomes more well known and as the population in the area grows. This alternative would continue to provide recreation opportunities for primarily local residents for the foreseeable future.

Under this alternative, no wilderness is designated and therefore there would be no significant impact on the social and economic condition. This alternative will have no social or economic effects caused by air quality, soil and water, visual resources, and cultural resources. This applies across all alternatives.

Conclusion

This alternative would maintain the current situation as far as social and economic conditions are concerned. Small increases in ranch income in the long term would not be significant.



ALTERNATIVE B

Impacts on Air Quality

Impacts on air quality will be the same as described in Alternative A but slightly greater in extent as related to increased timber management activities (12.9 vs 9.6 miles of road constructed per year; 8,560 mbf vs 6,370 mbf harvested per year). Land available for oil and gas leasing is 13,837 acres greater than for Alternative A with 1,460 acres withdrawn from mineral entry as compared to 1,800 acres in Alternative A. As in Alternative A these intermittent impacts are considered to be insignificant.

Conclusion

Alternative B would adversely impact air quality in localized areas during the time of project construction or slash burning. However, these impacts would not be significant to overall air quality.

Impacts on Soil and Water Resources

Under this alternative, 205,586 acres are available for oil and gas leasing. A total of 205,426 acres would be leased with standard stipulations while 160 acres would be leased but closed to surface occupancy. Oil, gas, and mineral leasing has the potential to have a greater impact upon soil and water resources under this alternative than Alternative A. The general impacts from oil, gas, and minerals activities would be the same as Alternative A and are not expected to be significant except in riparian areas.

Alternative B has 145,660 acres available for grazing with 9,211 AUM's. There will be 95,532 acres under AMP's compared to 35,663 acres for Alternative A. This alternative will have 11,939 acres in excellent vegetative condition, 32,812 acres in good condition, 3,857 acres in fair condition, and 39 acres in poor condition. Alternative A will have 7,739 acres in fair condition and 1,223 acres in poor vegetative condition. A significant improvement in vegetative condition is expected under this alternative. Since watershed condition is directly comparable to vegetative condition, watershed condition would also improve under this alternative.

Forest management activities will produce a 37 percent increase in timber management activities for Alternative B as compared to Alternative A. With appropriate timber sale and road layout, substantial increases in impacts are not anticipated but will approximate those expected to occur in Alternative A, and should not be significant.

Allotment Management Plans, Standard Operating Procedures, Management Directives, and Regulations will be applied in this alternative, as in Alternative A, to maintain or enhance site productivity, water quality, and stream channel stability.

Conclusion

Expanded application of AMPs, even with a 55 percent increase in AUMs, will significantly improve vegetative condition and, therefore, also watershed condition. AMP implementation will result in reduced soil compaction and streambank sloughing, and increased ground cover thereby reducing soil erosion, improving vegetative productivity, and having a beneficial effect upon water quality.

Substantial increases in timber production and minerals activities under this alternative have the potential to increase sediment production from road construction and use. The application of mitigative measures will reduce these additional impacts to an acceptable level.

Impacts On Energy and Minerals

Oil and Gas

Under this alternative fewer restrictions would be placed on the exploration and development of energy resources. Surface occupancy with standard stipulations would be permitted on 99 percent (205,426 acres) of the land available for oil and gas leasing. Leases issued with standard stipulations are the least confining to the lessee, while providing protection for other important resources. The only special stipulations implemented under this alternative involve 160 acres of no surface occupancy, which are primarily cultural and historical sites scattered throughout the resource area (Garnet, Coloma, Blackfoot City, etc.).

Dropping the four Wilderness Study Areas from wilderness consideration, would permit less restrictive exploration to occur. If tracts of federal surface are disposed of through land exchange or sale, potential problems with split estate ownership can be created. While these problems do not effect the availability of the land for energy exploration, they may make exploration more complicated, more time consuming, and more expensive. The major reason for this is the loss of surface control which might constrain access. However the potential is generally low and the impacts should be insignificant.

Other Leasables

Under this alternative, any new leases will be issued with standard stipulations only. Negative impacts may occur if lands were exchanged with the United States reserving minerals thus splitting the surface estate and mineral interests. This could disrupt and delay future mineral development on approximately 1,200 acres identified in the open category adjacent to or within known phosphate leasing areas.

Locatables

Mineral location is available on a total of 203,850 acres in the resource area and 23 percent (46,386 acres) are classified as having high potential for locatable minerals. Under this alternative active mining operations would still be required to submit either a notice (five acres or less disturbance per year) or a plan of operations (five acres or more disturbance

per year) under the 3809 Regulations. These obligate the miner to reclaim any disturbed sites.

Dropping the four wilderness study areas from wilderness consideration would permit less restrictive exploration to occur and allow exploration to continue.

Disposal of any lands, where the United States reserves minerals and splits the surface and mineral estate, can create an adverse impact to mineral access or development. While this does not affect the availability of the land for mineral exploration and development, it can make exploration more complicated, more time consuming, and more expensive.

Revoking the R&PP and C&MU classifications (500 acres) would increase the opportunity and incentive to explore for locatable minerals. Less than one percent (1,460 acres) would remain withdrawn or be withdrawn from mineral entry; these sites, located mainly along rivers and at cultural sites, are segregated against locatable mineral location. This is a localized impact to the minerals resource, especially in areas (less than one-half percent) of high potential. The effect is a loss of opportunity and incentive to prospect for locatables, as no claims may be located to protect the right to a discovery.

Salables

Generally, most public lands are available for the disposal of salable mineral materials. Those lands which would be unavailable for salable disposal include areas of withdrawals, classifications, and valid unpatented mining claims. Since the classifications (C&MU and R&PP) are to be revoked under this alternative, 500 additional acres would be opened for the disposal of salable minerals, creating a positive impact.

Through this alternative, if tracts of federal surface are disposed of by a land exchange or sale, problems of split estate ownership can be created. While these problems do not affect the availability of the land for mineral development, it can make exploration more complicated, more time consuming, and more expensive.

This alternative does not designate any wilderness areas, thus allowing issuance of mineral material permits and creating a positive impact.

Conclusions

This alternative would increase the area open to mineral exploration and impose fewer restrictions on exploration and development. This would be accomplished through the revocation of 500 acres of BLM classifications (R&PP and C&MU) and the nondesignation of the four WSAs (27,737 acres). Operations would be regulated by the 3809 Regulations.

The disposal of lands with split surface and mineral estate, could create an adverse impact to minerals. Although the exchange or sale may not affect the availability of land for exploration and development, it can make exploration more complicated, more time consuming, and more expensive. This would be mitigated if minerals were exchanged along with the surface estate, where possible.

Impacts On Lands

Land Ownership

Under Alternatives B, C, D, and E, 126,872 acres will be designated in retention zones where BLM intends primarily to retain or enhance the existing public land holdings. Public land in most of these zones amounts to sizeable acreages, and most are in reasonably consolidated holdings or contain values appropriate for public ownership. Individual tracts in retention zones may be exchanged when significant management efficiency or greater public values would be acquired. Under some circumstances a tract may be sold to serve an important public purpose. Public land acreage within these zones is not expected to decline but may increase because land acquired in exchanges will be concentrated in these zones.

The remainder of the public lands, 18,788 acres, will be open to consideration for retention, exchange, transfer, or sale. In general these lands are smaller tracts, widely scattered, and without legal or physical access. The preferred action for any lands which fit the disposal criteria will be to exchange them for lands within a retention zone. Sale may offer a simpler, quicker method of disposing of isolated tracts with negligible public values, but it decreases the long-term potential for a desirable land ownership pattern by depleting the stock of land available for future exchanges. Exchange will balance the impacts of disposal with those of acquisition and should result in a net increase in public values.

Over the next 20 years, approximately 25 percent (4,697 acres) of the open lands will leave public ownership, 95 percent of this by exchange. Several factors enter into this estimate. The required procedures and occasional obstacles involve substantial time and expense. Many of the scattered tracts were left out of patent applications because of difficult topography and lack of agricultural value. Most of these tracts are too isolated and inaccessible for commercial or residential use. Numerous tracts are encumbered by prior rights such as mining claims. Field examination of specific tracts may reveal values, such as threatened or endangered wildlife species, which would dictate retention in public ownership.

However, even this moderate land tenure adjustment program will result in an improved ownership pattern, reduced management difficulties, and an overall increase in public values.

Access

Under this alternative and all the remaining alternatives, public access is proposed to 21 tracts affecting 9,500 acres. Administrative access is proposed to 62 tracts affecting 8,150 acres. All the additional access proposals coincide with land retention zones; this will expand opportunities for public use and further aid in management of the public lands.

Withdrawals and Classifications

Impacts will be the same as Alternative A.

Major Utility Corridors

Identified avoidance areas would decrease markedly under this alternative, to 160 acres, representing historic and cultural sites. Essentially the entire resource area would be available for further analysis and possible routing.



Conclusion

Alternative B provides for consolidation of public lands and acquisition of important resource values through a land adjustment program. An increase in access would provide for greater public use and improved manageability.

Impacts on Recreation Resources

Impacts to recreation would be similar to Alternative A, except an additional 24,080 acres of CFL would be subjected to timber management activities. SRMA lands along the Clark Fork and Blackfoot rivers are largely noncommercial forest land, so they would not be impacted.

Dispersed recreation would be more heavily impacted, especially potential hiking and riding trails and undeveloped recreation sites. With less emphasis on wildlife habitat and without roadless backcountry reserves, opportunities for hunting in an unroaded area would be significantly reduced. Other roadless backcountry activities would also be reduced or eliminated. Specific impacts are discussed under Alternative A.

Negative impacts to visual quality, positive impacts to motorized vehicle use, and possible increased hunter access would expand with increased timber management activities. Impacts would increase at an accelerated rate during the 20-year period resulting from cumulative timber harvesting on 33,200 acres and 258 miles of new road construction. The impact of new roads can be partially offset by mitigating measures such as road closures.

Impacts of grazing management would be similar to those discussed under Alternative A, except that increased livestock grazing could cause greater impacts and conflicts. Expanded impacts would occur in riparian areas, recreation sites, and roadless backcountry. Hunting opportunity could be reduced both in terms of availability and numbers of game animals. The quality of hunting experiences could also decrease as conflicts between livestock and big game animals increase.

Negative impacts from oil and gas leasing would be significantly greater than in Alternative A in that special stipulations on surface occupancy would not be imposed. This would open all riparian areas, recreation sites, WSAs, special management areas, and other recreation lands to leasing and possible development. Oil and gas activities without special stipulations would reduce the opportunities and the quality of recreation experiences on most lands with special recreation values. The impacts of mineral exploration and development would be similar to Alternative A.

All lands in the resource area would be available to motorized recreation use. Seasonal closures and other restrictions outlined under Alternative A would be continued.

Since all lands in the resource area, except cultural sites, would be available for utility and transportation corridors, the impacts on recreation could be significant. The development of roads and utility lines could disturb high value recreation sites in riparian, roadless, and special management recreation areas. In this alternative, these sites are available for consideration for corridor development.

Lands designated for consideration for ownership adjustment do not contain high recreation values. However, some help to provide a scenic backdrop for the Clark Fork and Blackfoot rivers. Dispersed recreation, mostly hunting, motorized vehicle use, and associated activities that occur on these lands would generally translocate to other lands under an exchange proposal. However, these values could be lost under sale actions.

No lands would be set aside as wilderness or special management areas. Roadless backcountry recreation opportunities would therefore be replaced by activities not directly associated with a roadless experience over the long term.

Conclusion

Recreation resources and opportunities would be significantly altered by Alternative B. High value recreation areas including dispersed recreation areas could be adversely impacted by development pressures. Significant impacts on and conflicts to hiking and riding trails, the quality and quantity of hunting and camping, and similar recreation activities could arise from timber management, grazing management, oil and gas leasing, mineral development, and utility and transportation corridors. In addition roadless backcountry recreation opportunities would decrease and be replaced by other forms of recreation.

Impacts on Visual Resource Management

Almost all of the CFL would be available for timber management. This would include riparian zones, special management areas, visual corridors, and other areas of visual sensitivity.

Maximizing timber production would require roads and cutting units in foreground and middleground viewing areas along the Clark Fork River, Blackfoot. Significant negative impacts. Similarly, intensifying timber harvest in other VRM Class III areas would create additional negative impacts.

The impacts of timber harvest and associated road construction activities including cumulative impacts in seldom seen VRM Class IV areas would be similar to that discussed under Alternative A.

Negative impacts on visual resources from grazing management would be greater than described under Alternative A. More miles of fences and pipelines, more cattleguards and spring developments would have greater impacts on scenic quality. A larger number of these projects would be located in visually sensitive areas, thereby creating additional visual impacts. However, these impacts would be insignificant.

Negative impacts from oil and gas leasing and possible development would be substantially greater than described under Alternative A. All lands except cultural sites would be leased without special stipulations. This could open riparian lands, visual corridors, special management areas, recreation sites, and other visually sensitive lands to leasing and development. Visual impacts of mineral exploration and development would be the same as those described under Alternative A.

Motorized vehicle use would be limited to open roads and trails so impacts would be insignificant as described under Alternative A.

All lands, except for 160 acres of cultural sites, would be available for utility and transportation corridors. This would create a significant adverse impact on visually sensitive areas such as riparian areas, recreation areas, visual corridors, and special management areas. In designated seldom seen, VRM Class IV areas, the impacts would not be significant.

Under Alternative B, there is potential for minor adverse visual impact. A portion of the 18,788 acres open for consideration to land adjustment could be disposed of through sale or exchange. Approximately 1,600 acres of these lands are within the visually sensitive areas seen from I-90, MT-200, and the Rock Creek corridor. Disposal of lands in these corridors would subject them to development that would not be constrained by VRM guidelines. However these tracts are isolated, surrounded by vast acreages in private ownership, and small (average 100 acres each). In effect, the visual quality of these lands could be reduced if not retained in public ownership but would likely remain in character with adjacent land. Impacts to other lands in the resource area would not be significant (see discussion in Alternative A).

No lands would receive wilderness designation under this alternative. The special management lands of Alternative A would become VRM Class IV in this alternative. These lands are seldom seen so impacts to visual quality are not significant.

Conclusions

Visual impacts would be significant under Alternative B, particularly in areas of high visual sensitivity. Riparian zones, recreation sites, special management areas, and visual corridors would be the most seriously impacted because most constraints on development activities would be removed. Timber harvesting, road construction, grazing management, oil and gas leasing and development, and utility and transportation corridor development would all significantly reduce visual quality in existing sensitive areas resulting in reductions of VRM classes.

Visual impacts in VRM Class IV seldom seen areas would be similar to those outlined under Alternative A. Impacts in sensitive areas would be long term, extending well beyond the life of this plan.

Impacts on Cultural Resources

Impacts on cultural resources are the same as listed for Alternative A.

Impacts on Wilderness Resources

The impacts from mineral entry and oil and gas development, motorized vehicle use, and utility ROWs would significantly reduce the wilderness characteristics. All lands would be available for timber cutting, and acreage actually harvested in WSAs would be about 3,737 acres during the life of the plan. Extensive harvesting operations would totally degrade wilderness values in the harvest area in both the short and long terms, at least until new trees hide

stumps and downed material. In the short term, the visual and audible impact of cutting operations and haul roads would disrupt wilderness values. In the long term, the cut stumps, haul roads, slash, and other signs of harvest activity would detract from the natural appearance of the area and from its solitude opportunities.

All lands in the former WSAs would become available for livestock grazing. Livestock management would use fewer mitigative measures to protect wilderness values. In addition, increased impairment through less restrictive use of motorized vehicles for project construction and maintenance and livestock supervision could occur.

Wilderness characteristics would be adversely affected by nondesignation because natural and solitude values would not be preserved by protective stipulations and because the extent and pace of development would likely be significant and rapid. There would be no special management commitments made to enhance wildlife, watershed, dispersed recreation, and, secondarily, wilderness values.

All 27,737 acres would be available for consideration for utility and transportation corridor development. Demand for corridors in these areas is not anticipated to be high during the life of the plan. Impacts from possible development are the same as those outlined in Alternative A.

Conclusion

Without wilderness protection, 27,737 acres would be available for extensive resource development. Wilderness values could be irreversibly impaired by timber harvest; livestock grazing project construction and maintenance; hard rock mining; oil and gas development; utility ROW operations; and, in some areas, motorized vehicle activity.

Impacts on Forest Resources

About 1,660 acres could be harvested at a rate of 8,560 mbf/year from an available CFL base of 112,000 (99.5 percent of the total CFL). This is a 35 percent increase in acres treated, a 33 percent increase in annual volume harvested, and a 27 percent increase in CFL available for timber management as compared to the base program in Alternative A. These are significant because they are nearly the highest level of sustained volume attainable and greatest number of CFL acres available. Approximately 12.9 miles of road would be constructed annually or 35 percent more mileage than Alternative A. This results in 78 acres being removed from the land base annually for roads (34 percent greater than Alternative A). This is an acceptable impact in order to manage the forest resource.

No acres would receive management restrictions imposed by other resources and only 0.4 percent of the CFL would be unavailable for timber management as compared to 22 percent in Alternative A. Nearly all areas of existing and potential insect and disease infestations could be treated and thus improve the long-term forest productivity. Logging costs would be

less than in Alternative A, and there would be no entry delays or scheduling problems caused by restrictions imposed by other resource programs. The proposed land adjustment program would benefit the forestry program by reducing the scattered ownership and lessening the possibility of delayed entries to accommodate watershed concerns. There will be a 36 percent increase in acres of CFL being grazed as compared to Alternative A, but this does not present a significant impact because of mitigating measures. This would be the most costly alternative to implement.

Conclusion

This alternative represents nearly the best opportunity to manage the timber resources. There are few management restrictions, withdrawals of CFL, or impacts associated with other resources. Construction of logging roads removes about 78 acres annually from production but is an acceptable impact. This alternative would be more costly to implement than Alternative A.

Impacts on Range Resources

Under this alternative, AUMs available for livestock grazing would be 9,211 AUMs over the short term. In the long term, AUMs available for livestock grazing would increase by 2,451 AUMs, a 27 percent increase. These additional AUMs will be a result of a greater number of allotments under intensive grazing management, improved vegetative conditions, and timber harvesting.

Under this alternative, there will be an increase in AUM production on 44 of the 84 total allotments. The greatest increase in AUM production can be expected on allotments under intensive grazing management that also have a substantial acreage of uncut timber that could be harvested. Table 4-5 summarizes the projected changes in AUM production in the short and long term under this alternative and between the long term under this alternative and Alternative A.

Over the long term, range improvement cost will total approximately \$829,000. Table 4-6 summarizes the improvements. Maintenance on these new improvements plus existing improvements will add another \$548,660 over the long term.

Vegetative conditions are projected to improve to good condition from fair condition on 11,699 acres and from poor to fair condition on 1,297 acres in the long term under this alternative. Significant improvement in vegetative condition can be expected on the 14 proposed new AMPs. Conditions on the existing 10 AMPs are already in satisfactory condition and under intensive management would be expected to remain satisfactory through the long term. Figure 4-2 illustrates the projected change in vegetative condition over the long term.

TABLE 4-5
PROJECTED CHANGES IN AUM
PRODUCTION FOR ALTERNATIVE B

	AUMs	Change	Percent Change
Short term	9,211	3,281	55
Long term	11,662	4,681	67
Alternative A short term	5,930	0	0
Alternative A long term	6,981	0	0

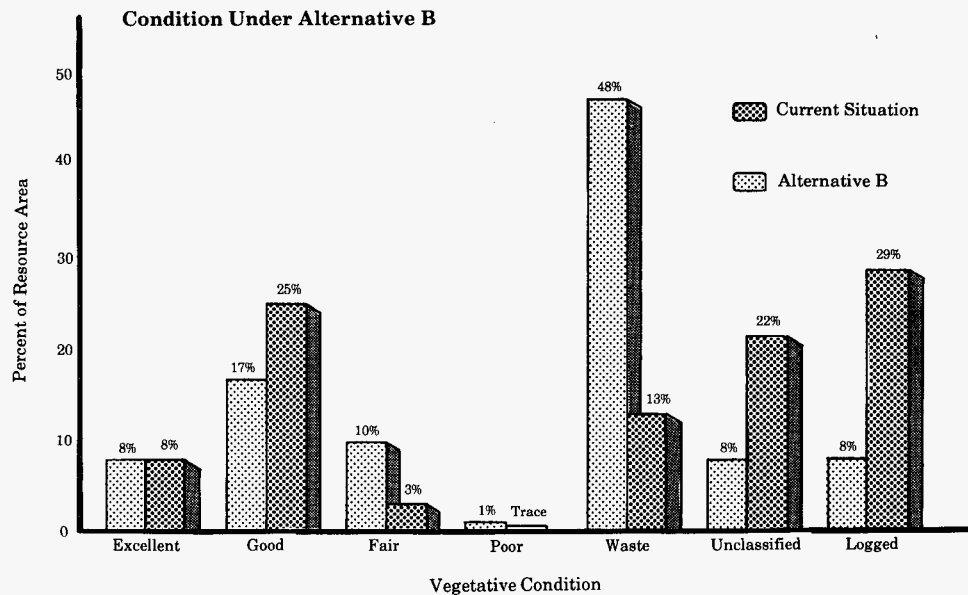
TABLE 4-6
RANGE IMPROVEMENTS AND COST
DATA FOR ALTERNATIVE B

Improvement/ Treatment	Unit	Quantity	Cost*
Weed Control	Acres	500	8,500
Fences	Miles	104	520,000
Cattleguard	Each	32	80,000
Springs	Each	69	172,500
Pipeline	Miles	4	48,000

*Cost data over 20-year period includes materials and labor.

Figure 4-2

Predicted Changes In Vegetative



Under this alternative there will be no areas which are administratively excluded from livestock grazing. There is an estimated 19,382 acres that will remain unusable due to dense timber or steep slopes. These areas are scattered throughout the resource area.

Weed control work will be done on approximately 500 acres over the long term. This work will be both roadside control as described in Alternative A as well as the control of spot infestations in problem areas.

Conclusion

The major long-term consequence of this alternative would be a significant increase in vegetative condition and AUM production for livestock consumption. Transitory range created by timber harvest will provide the bulk of the forage and the use of this forage will be on a year to year basis.

Modest improvement in vegetative condition is expected in the long term. About 60 percent of lands available for livestock grazing should be in good and excellent condition as compared to 33 percent presently.

Range improvement construction and maintenance costs over the long term are projected to be \$1,377,660 or an average annual cost of \$68,883.

Impacts on Wildlife and Fisheries

This alternative would propose managing 32,500 acres of nonforest and noncommercial forest (22 percent of the total land base) with stated wildlife habitat goals in the MA guidelines. The remaining acreage (113,160 acres) would be managed with wildlife considerations through application of Standard Operating Procedures and mitigative or restrictive recommendations.

Mountain Coniferous Habitat

The resource area contains about 130,000 acres (89 percent) of mountain coniferous habitat. Timber management on 112,000 acres of CFL occurs on both big game summer and winter ranges at the rate of 1,660 acres treated and 12.9 miles of new roads constructed annually. This is an increase compared to Alternative A. The short-term impacts of this action will disturb most species and displace some species. Potential impacts include reduced fall security cover for big game; loss of effective habitat due to increased vehicle access; loss of thermal and security cover immediately adjacent to winter range foraging areas; reduced big game use of clearcuts and moist sites by alteration of adjacent timber stands; loss of specific vegetative successional stages (mature, old-growth) necessary to meet many species requirements; and disturbance of effective seasonal habitat during high energy demand periods such as fawning, calving, nesting, brood rearing, and winter. Short-term mitigating restrictions and actions will reduce the magnitude of site-specific impacts in most cases. There will be few or no immediate beneficial impacts.

The long-term adverse impacts could potentially be great considering 112,000 acres (100 percent) of CFL does not have stated MA wildlife goals, only protective stipulations for elk habitat components and possible road management restrictions. This is an increase compared to Alternative A. Over the life of the plan, harvest and new road construction will amount to about 33,200 acres treated and 258 miles of new road. This is an increase compared to Alternative A. Habitat alterations by timber activities such as clearcut, seed tree, etc. are expected to create about 11,288 acres (34 percent) of open forage. About 21,912 acres (66 percent) of timbered forage will be created through shelterwood harvest methods and commercial thinning. This is a 36 percent increase compared to Alternative A. The consequences of this alteration in vegetative structure and composition will result in more acres in early successional stages, fewer acres in late successional stages, and a trend toward even-age management. The long-term response of wildlife to changes in vegetation and access will cause shifts in species and populations to match requirements for suitable habitat. This is an increase compared to Alternative A.

There are no acres of CFL with stated MA wildlife goals. This is a decrease compared to Alternative A.

Timber management outside CFL for the remainder of the resource area (about 18,000 acres) in this habitat would be limited to rights-of-way, sanitation, or salvage timber activities that are necessary to meet wildlife or other resource goals. Therefore impacts to wildlife would be minimal.

Range management would occur on 145,660 acres, with the mountain coniferous habitat contributing substantially to that total. Intensive livestock management is prescribed for about 95,532 acres or about 66 percent of the 145,660 acres, and would have stated wildlife objectives. This is an increase compared to Alternative A. The balance of the acreage (50,128 acres) would not have stated wildlife objectives for grazing management. This is a decrease compared to Alternative A.

The impacts on wildlife habitat by livestock grazing ranges from direct forage competition with big game species to nesting, brood rearing, and foraging conflicts with small game and nongame species. Additionally, there is evidence of social intolerance by some big game species for livestock. Within the forest habitat types, various successional stages occur as a result of timber management practices which create transitory range and access roads into formerly logged areas. The majority of the existing allotments include forested areas not currently accessible to livestock grazing; however, these areas provide suitable habitat for many wildlife species. Vegetative changes in these areas will produce additional accessible livestock forage that can ultimately cause wildlife habitat use conflicts within allotments. In many cases allotment boundaries and pastures are unfenced, but depend on natural barriers such as uncut timber or terrain to control livestock movement. As these areas are developed through logging

and road building, livestock move into previously ungrazed areas (the cutting units themselves or parks and riparian zones). Mitigative measures such as fencing, leaving vegetative barriers, or blocking roads and trails to livestock movement may be successful in reducing livestock and wildlife conflicts in the short term. In the long term, the conflict will increase as more acres of previously uncut forest are harvested and grazed. The dispersement of livestock over a greater area of one or more allotments increases the chances of social intolerance by elk. This is an increase compared to Alternative A.

Through the implementation of intensive grazing management (24 AMPs), 5,450 acres (74 percent) of unsatisfactory big game winter range forage is expected to improve to satisfactory condition. This is an increase compared to Alternative A. However, 1,909 acres of unsatisfactory winter range forage outside of AMP areas will remain in unsatisfactory condition. This is a decrease compared to Alternative A. Present satisfactory winter range forage (23,592 acres) on all allotments is expected to continue in satisfactory condition. This is the same compared to Alternative A. There is no land excluded from grazing to benefit wildlife habitat in this alternative.

Mineral exploration and development in the mountain coniferous habitat ranges from the mining of gold, phosphate, and barite to the removal of sand and gravel. The short-term impacts of mining cause disturbance or displacement of wildlife on small acreages with some loss of habitat. Duration of extraction is highly variable for each site, ranging from intermittent work each year for a few years to continuous work for many years. Due to current laws and regulations governing mining claims, there is limited opportunity for effective mitigation to reduce or prevent habitat loss either onsite or along access to the site.

The short-term impacts from phosphate, oil, and gas development are the same as Alternative A.

Mountain Grassland Habitat

The resource area contains about 9,500 acres (7 percent) of mountain grassland habitat. Timber management has a direct influence on the value of these mountain grasslands for wildlife habitat. Silviculture prescriptions in the edge between forest and grassland will play an important role in determining habitat quality of the grasslands. Harvest and thinning activities adjacent to the grasslands will have short-term impacts through displacement or disturbance of wildlife. Mitigation through the application of management area guidelines will serve to reduce adverse results in the short term for most grasslands. Long-term impacts from vegetative alteration on adjacent forest land would have few mitigative restrictions. This is an increase compared to Alternative A.

All of the acres in the mountain grassland habitat will be affected by range management practices and occur as both summer and winter big game ranges. Those allotments under intensive management

(AMPs) either contain or will have stated wildlife goals achieved through livestock distribution and time of use. In the short term, substantial improvement of unsatisfactory grassland winter ranges is expected following full implementation of intensive grazing management. In the long term, all unsatisfactory winter range under intensive livestock management would be raised to satisfactory forage condition. Those acres of grassland in allotments outside of AMPs are expected to remain in the same forage condition for the short and long term. There are corresponding increases and decreases of unsatisfactory winter range forage compared to Alternative A. (See acreage figures presented under the range management discussion for mountain coniferous habitat in this alternative.)

Mineral exploration and development impacts in the mountain grassland habitat are similar to those discussed under mountain coniferous habitat.

Riparian and Wetland Habitat

The resource area contains about 6,100 acres (4 percent) of riparian and wetland habitat. Timber management activities under this alternative would not be constrained by stated wildlife habitat goals for this habitat. Activity would be guided by Standard Operating Procedures in the short term. Long-term impacts in the absence of stated wildlife goals will create substantial habitat loss, particularly old-growth trees. This is an increase compared to Alternative A.

Range management affects 100 percent of riparian and wetland habitat. Through full implementation of intensive grazing management, 3,585 acres of unsatisfactory riparian is expected to improve to satisfactory condition. This amounts to 85 percent improvement. About 619 acres outside of AMPs would remain in unsatisfactory condition. Short-term impacts will show gradual improvement in the riparian attributed to grazing. Over the long term, intensive management acres would be in satisfactory condition. Unsatisfactory acres outside of AMPs would continue as unsatisfactory riparian. This is a decrease compared to Alternative A. Satisfactory riparian (637 acres) in all existing allotments would continue in satisfactory condition for both the short and long term. This is the same compared to Alternative A.

Mineral exploration and development impacts in the riparian areas are the least mitigatable for the placer operations. Oil, gas, and phosphate development will have stipulations applied that are designed to protect riparian habitat. Impacts discussed under the mountain coniferous habitat are similar for mining claims. However, the importance is exponential because the riparian zone provides a higher diversity of habitat for a larger number of species. Currently there are about 98 acres of riparian in mineral development areas. This is the same as Alternative A.

Aquatic Habitat

The resource area has about 67 miles of streams and rivers producing fish. Timber management activities associated with this habitat are critical because of the need to build roads. The management area guidelines and Standard Operating Procedures avoid or reduce adverse impacts on the aquatic habitat. Short-term impacts will be encountered for stream crossings. However, long-term impacts may be potentially substantial without stated wildlife habitat goals in the adjacent riparian habitat zone under this alternative. This is an increase compared to Alternative A.

The range management program affects 62 percent (38 miles) of aquatic habitat under this alternative. There are 22 miles (58 percent) in optimum aquatic condition, 8 miles (21 percent) in suboptimum condition, and 8 miles (21 percent) unsurveyed in existing and additional allotments. Through intensive grazing management, 8 miles (100 percent) of suboptimum habitat would be expected to improve through increased bank stability and cover. Short-term response will be a slight increase in fish production, with long-term results of stabilizing more optimum habitat. This is an increase compared to Alternative A.

Within aquatic habitat, the impacts of mineral exploration and development are greatest for development of mining claims. When mining development takes place in the aquatic system, there is the potential for complete change (destruction) of the site for fish as well as degrading downstream habitat. Such impacts are total removal of bank and streambed materials to spoil piles, settling ponds, and downstream deposition, total loss of macroinvertebrate populations, loss of spawning habitat, increase in water temperature, and higher risk of contamination from petroleum products, toxicants, and heavy metals. Both short and long term impacts are subject to very limited mitigation through current laws and regulations. The impacts are expected to remain significant for localized areas. Other energy and mineral exploration and development are subject to mitigative stipulations to protect sites in both the short and long term. This is the same compared to Alternative A.

Threatened and Endangered Species Habitat

There is continuous monitoring for threatened and endangered species occurrence and use, with recommendations for appropriate mitigative stipulations. There will be no significant impacts on threatened or endangered species habitat under this alternative. This is the same as compared to Alternative A.

Conclusion

Under Alternative B, there would be few or no short-term benefits from timber management, and potential long-term adverse impacts would occur on big game summer ranges and nongame habitat in mountain coniferous habitat because wildlife habitat management would not be emphasized. This is an increase compared to Alternative A. At lower elevations timber management impacts on big game winter range are potentially great in both the short and

long term. This is an increase compared to Alternative A. Range management impacts on habitat at upper and lower elevations are partially mitigated in both the long and short term through stated AMP wildlife goals on 66 percent of the allotment area (95,532 acres of public land). This is an increase compared to Alternative A. Conflicts between livestock and wildlife would continue on 34 percent of the grazing allotments in both the short and long term, particularly in areas of newly created transitory range. This is a decrease compared to Alternative A. Of the total unsatisfactory big game winter range forage 5,450 acres (74 percent) would be expected to improve to satisfactory condition. The development of mining claims will cause significant impacts on wildlife habitat in both the long and short term. However, relatively few acres are currently disturbed by mining development. This is the same compared to Alternative A. Other energy and mineral leases have stipulations to mitigate impacts to wildlife habitat. With the current activity level, short and long-term impacts are negligible for phosphate, oil, and gas activities. This is the same compared to Alternative A.

Timber management will have some short-term impacts on the mountain grassland habitats. This is an increase compared to Alternative A. Intensive livestock management will show long-term forage improvement in AMP acres. This is an increase compared to Alternative A. There will be little or no improvement outside of AMP allotments or about 26 percent of total unsatisfactory big game winter range forage. This is a decrease compared to Alternative A. Mineral impacts will be about the same as described for mountain coniferous. This is the same compared to Alternative A.

Riparian and wetland habitats will experience considerable impacts in both the short and long term. This is an increase compared to Alternative A. Through intensive range management 3,585 acres (85 percent) of unsatisfactory riparian is expected to improve to satisfactory condition in the long term. This is an increase compared to Alternative A. The remainder of unsatisfactory and satisfactory riparian will continue in current condition. This is a decrease in unsatisfactory riparian attributed to grazing compared to Alternative A. Energy and mineral impacts on wildlife habitat are the same as Alternative A.

Impacts to aquatic habitat timber management actions are primarily associated with road location and stream crossings. Short-term impacts will occur, but long-term impacts will be greater in the absence of stated wildlife goals in the adjacent riparian zone. This is an increase compared to Alternative A. Livestock grazing through intensive management allotments is expected to improve 100 percent of the current suboptimum habitat to optimum condition over the long term. This is an increase compared to Alternative A. Impacts of mineral activities are similar to those discussed under riparian habitat.

Under this alternative 18,788 acres could be considered for land base adjustment through sale or exchange. An estimated 235 acres may be sold. This could cause minor adverse wildlife habitat impacts if the lands were converted to other uses not compatible with wildlife. The exchange program offers the potential to bring private or state lands having equal or greater wildlife values into public ownership. Wildlife concerns including threatened and endangered species would receive consideration at the beginning of any lands transaction discussions. Wildlife habitat values will be evaluated in the environmental assessment that accompanies an exchange proposal. This is an increase compared to Alternative A.

There will be no significant impacts on threatened or endangered species habitat.

Impacts on Social and Economic Conditions

Under this alternative commodity production will be emphasized. The annual harvest will be 8,560 mbf. This harvest level would create 77 forest related jobs. This is an increase of 20 jobs over the current situation. At an average 1981 income of \$19,984 per job, direct employment income equals \$1,538,768 per year. At an average stumpage value of \$46.80 per thousand board feet, the timber harvested is valued at \$400,608 per year. An indirect income to the economy of \$1,201,824 from the employment income is also available to the regional economy. As under Alternative A, this timber would add to the stability of employment in the timber industry in the area. The health of the housing market has a greater impact upon current stability than the availability of a given amount of BLM timber offered for sale.

The range management program would increase availability for forage for livestock on 41 of 84 allotments. The average increase by size class (see Appendix R) ranges from 55 percent for the Class 2 operations to over 25 percent for the Class 1 operations. This would change the income of these average ranches by, from less than 1 percent to a high of 2.3 percent for the Class 1 operations. Some individual operations which would have substantially greater than average increases in AUMs would receive greater income increases. This analysis assumes that the rancher can use increased AUMs during the summer and early fall. In some cases, the rancher's operation would preclude the full use of these increases due to lack of forage availability during other seasons. It also assumes that the rancher has the financial resources to take advantage of increased AUMs. Table 4-7 lists the number of ranches by size class that will be affected in the short and long term.

There would be a greater opportunity for mineral, oil, and gas development. In addition, in those areas open for oil and gas leasing, there will be more acres available under standard stipulations and fewer acres under seasonal and special stipulations prohibiting surface occupancy. While these actions may

**TABLE 4-7
NUMBER OF RANCHES IN EACH SIZE CLASS AFFECTED BY THE GRAZING PROGRAM IN ALTERNATIVE B**

Size Class	Ranches Affected in the Short Term	Ranches Affected in the Long Term
1	7	7
2	8	7
3	11	12
4	15	15



make it easier and cheaper to develop resources, it does not mean that these resources will be developed or that employment and income levels will change.

If gold prices remain constant or increase there may be some increase in placer mining activity over the life of the plan. Jobs in oil and gas exploration may also be available in the short term. Long-term prospects are dependent upon whether and how much oil and gas is found.

About 18,788 acres are identified for consideration for sale or exchange. It is assumed that 25 percent of the acreage will be exchanged or sold or a total of 4,697 acres. Of this 4,697 acres it is assumed that 4,462 will be exchanged and 235 will be sold. It is further assumed that the 4,462 acres would be exchanged within the three county area (Missoula, Powell, and Granite). The action could affect the amount of money an individual county receives from PILT. Granite and Powell counties presently receive \$.10 per acre in PILT for eligible federal lands in their counties. Missoula County presently receives \$.75 per acre less payments made from other federal programs in the previous year. In 1983, PILT payments to the counties at a 94.23 percent prorated level were \$67,219 for Powell County, \$66,818 for Granite County, and \$215,614 for Missoula County. In addition, the final payment is dependent upon the amount of money appropriated by Congress in any given year for PILT. Also, the counties would collect property tax from those acres which go into private ownership. If all of the exchanges are carried out, 26 allotments could be cut from BLM grazing permits. While the total number of AUMs may not change, the users of these allotments could be adversely affected while others would benefit since BLM grazing permits are inexpensive relative to other forage opportunities.

Most of the lands are available for development including road construction. This would increase the opportunity for those interested in roaded or motorized forms of recreation. The supply of these opportunities are such that use of these areas for recreation at present would not increase greatly.

This alternative would reduce the acreage on which wildlife habitat management is emphasized. This, over a period of time could either stop the growth of big game herds or lead to a reduction in big game numbers. No estimate of such changes has been made, however, if the quality of the hunting should decrease, demand will likely shift to other areas.

The overall quality of habitat for many species will remain the same or in some cases may deteriorate. This could reduce the populations of some species, thus reducing the opportunity for utilizing the consumptive and nonconsumptive uses of wildlife.

Under this alternative those areas which are presently roadless would not be protected. Therefore, the opportunities for roadless recreation on BLM lands in the Garnet Resource Area would be reduced. Under present management which would continue under each alternative, walk-in hunting areas would increase and other recreation opportunities would be maintained.

Conclusion

This alternative would provide the greatest increase in possible jobs and income in the forest industry and increased income in the ranching industry. There would be the possibility of 77 forest related jobs under this alternative or 20 more than the present situation. Ranch income increases are not regionally significant, but would be significant to those individuals receiving the larger increases. This alternative would also affect the amount of PILT payments made to counties due to lands which are proposed to be sold or exchanged. A total of less than \$3,500 for the three counties is involved. The operators on 26 grazing allotments could face a reduction in income from the loss of BLM grazing while others could see an increase in income from the gain of BLM grazing privileges.

ALTERNATIVE C

Impacts on Air Quality

Impacts on air quality will be of the same kind but slightly less than for Alternative A. Annually timber production and road construction will be 5,960 mbf (1,120 acres) and 9.0 miles respectively for Alternative C in comparison to 6,370 mbf (1,216 acres) and 9.6 miles of new road for Alternative A. Land area available for oil and gas leasing is identical for Alternatives A and C, with 29,600 acres withdrawn from mineral entry for Alternative C as compared to 1,460 acres for Alternative A. Intermittent impacts caused by air pollution associated with these activities are not significant.

Conclusion

Impacts on air quality will be slightly less than for Alternative A and will be of short duration and substantially insignificant.

Impacts on Soil and Water Resources

Land area available for oil and gas leasing is less than for Alternative A. Area withdrawn from mineral entry is 29,600 acres compared to 1,460 acres for Alternative A. Impacts resulting from these activities are similar to those occurring in Alternative A but should be reduced to a significant degree because of land area withdrawn from mineral entry.

Alternative C has 107,530 acres available for grazing with 3,595 AUM's. There will be 85,026 acres under AMP's as compared to 35,663 acres and 5,935 AUM's for Alternative A. This alternative will have 23,899 acres in excellent vegetative condition, 19,804 acres in good condition, 4,923 acres in fair condition, and 21 acres in poor condition. Alternative A will have 7,739 acres in fair condition and 1,223 acres in poor vegetative condition. Improvements in vegetative condition will be significant. Since watershed condition is directly comparable to vegetative condition, watershed condition would also improve under this alternative.

Forest management activities will produce 8 percent less timber in Alternative C as compared to Alternative A, and impacts are not expected to be significant as long as appropriate timber sale and road layout are utilized.

AMPs, Standard Operating Procedures, Management Directives, and Regulations will be applied in this alternative, as in Alternative A, to maintain or enhance site productivity, water quality, and stream channel stability.

Conclusion

Increased use of AMPs in conjunction with a 40 percent reduction in total AUMs will cause a significant improvement in vegetative condition and, therefore, also watershed condition. AMP implementation will result in reduced soil compaction and streambank

sloughing, and increased ground cover thereby reducing soil erosion, improving vegetative productivity, and having a beneficial effect upon water quality.

The reduction in timber production and minerals activities under this alternative will slightly reduce potential increases in sediment production from road construction and use.

Impacts on Energy and Minerals

Oil and Gas

Under this alternative more acres would have restrictions placed on the exploration and development of energy resources than under Alternative A. Surface occupancy on oil and gas leases would be allowed on 175,289 acres (85 percent) of the surface and mineral estate administered by the BLM in the resource area. Fifty-three percent (109,239 acres) of occupancy would be permitted with standard stipulations, while 33 percent (66,050 acres) of occupancy would be permitted with seasonal restrictions. Leases on 2,560 acres would prohibit surface occupancy. Thirteen percent (27,737 acres) would be closed to leasing in the wilderness areas.

Areas with special stipulations total 68,610 acres and include both seasonal restrictions and stipulations prohibiting surface occupancy. Seasonal restrictions are located in existing and potential road closure areas. If additional road closures are imposed, exploration and development activities could be restricted; although, even in areas of moderate potential this impact should not prove to be significant.

Stipulations prohibiting surface occupancy would be applied primarily to an ACEC, cultural and historical sites, and special management areas scattered throughout the resource area. These stipulations have a negative impact to development because of cost feasibility; but they should not prove to be significant, as these are scattered tracts and have moderate to low potential. The ACEC will have positive impacts on geological education. The area is designated because of its use by local universities.

Under this alternative, all four areas (27,737 acres) being studied for wilderness would be recommended as suitable for wilderness designation. After December 31, 1983 all wilderness areas were closed to new mineral leasing. If not leased previous to designation, oil and gas reserves will not be leased, resulting in an undetermined economic loss. Two of the WSAs are rated as being moderate potential and two are rated as having low potential (see Table 4-8). This could be a significant negative impact, as it eliminates any possibility of developing the mineral resource that may be there.

If tracts of federal surface are disposed of through land exchange or sale (18,788 acres are considered for possible adjustment), potential problems with split estate ownership can be created. While these problems do not affect the availability of the land for energy exploration, they may make exploration more

TABLE 4-8
ALTERNATIVE C: WILDERNESS STUDY AREA'S
ENERGY AND MINERAL POTENTIAL

Energy & Minerals	Potential & Known Reserve Rating	Acres Outside Wilderness	Acres in Quigg West	Acres in Wales Cr.	Acres in Hoodoo	Acres in Gallagher Cr.
Oil & Gas	High	0	0	0	0	0
	Medium	117,910	0	11,580	0	4,257
	Low	0	520	0	11,380	0
Metallic Minerals (gold, silver, copper, lead, zinc, etc.)	High	46,386	0	0	0	0
	Medium	71,424	520	11,580	0	4,257
	Low	0	0	0	11,380	0
Industrial Minerals (phosphate, limestone, barite, etc.)	High	7,300	0	0	0	0
	Medium	105,510	520	11,580	0	4,257
	Low	0	0	0	11,380	0
Geothermal	High	5,000	0	0	0	0
	Medium	112,310	0	11,580	11,380	4,257
	Low	520	0	0	0	0
Construction Materials (stone, sand, gravel)	High	3,400	0	0	0	0
	Medium	114,410	520	11,580	11,380	4,257
	Low	0	0	0	0	0

complicated, more time consuming, and more expensive. The major reason for this is the loss of surface control which might constrain access.

Other Leasables

The designation of the wilderness areas will have no effect on phosphate areas, as the evaluated lands lie outside the wilderness boundaries.

Disposal of lands may negatively impact this resource if the disposal action reserves minerals and splits the surface estate and mineral interests. This could disrupt and delay future mineral development. Also, an additional road closure in Warm Springs Creek could seasonally impact phosphate exploration.

Locatables

Mineral location would be available on 176,093 acres. Twenty-three percent (46,386 acres) are considered to have high potential for locatable minerals. Active mining operations would require either a notice (five acres of disturbance or less per year) or a plan of operations (five acres of disturbance or more per year) under the 3809 Regulations. These obligate the miner to reclaim any disturbed sites.

Designation of the four Wilderness Study Areas to wilderness areas would have a detrimental effect on opportunities for locatable minerals. After December 31, 1983, any designated wilderness areas or wilderness study areas were closed to location of new mining claims. This equals 27,737 acres in this resource area. Wales Creek WSA is the only one of four Wilderness Study Areas that contains unpatented (40) mining claims. Development work, extraction, and pat-

enting would be allowed to continue on valid mining claims located on or before December 31, 1983. Any mining activity in a wilderness area will require an approved plan of operations under the 3802 Regulations. The potential for metallic minerals ranges from low in Hoodoo WSA to medium in Quigg West 202 WSA, Gallagher 202 WSA, and part of Wales Creek WSA to high in the southern portion of Wales Creek WSA. Even though most of the 27,737 acres are moderate and low potential, designation as wilderness would mean the long-term loss of this potential. In the area of high rating, this potential, also, would be lost, subject to valid existing rights of the claimants.

Designation of a 20-acre ACEC in Rattler Gulch, would coincide with a withdrawal of the area from locatable minerals. Because of its size, it should not have a significant impact.

Under this alternative reversing the R&PP and C&MU classifications (500 acres) would increase the opportunity and incentive to explore for locatable minerals. Although, less than one percent (1,460 acres) would remain or be withdrawn from mineral entry, these sites, located mainly along rivers and at cultural sites, are segregated against locatable mineral location. This is an impact to the mineral resources, especially in areas of high potential (less than one-half percent). The effect is a loss of opportunity and incentive to prospect for locatables, as no claims may be located to protect the right to a discovery.

Road closures, existing and potential, impose an impact on mining claimants as they may be required to file a plan of operations under the 3809 Regulations, rather than a notice. This could be significant

in areas of high potential, as it would be more time consuming and costly to fulfill the plan of operations requirements.

Also, disposal of certain tracts of public lands, which may split the surface and mineral estate, can create an adverse impact to mineral access or development. While this does not affect the availability of the land for mineral exploration and development, it can make exploration more complicated, time consuming, and expensive.

Salables

Generally all lands not included in withdrawals, classifications, valid unpatented mining claims, riparian protection areas, and wilderness areas are available for the disposal of salable mineral materials. Since the classifications (R&PP and C&MU) are to be dropped under this alternative, 500 additional acres would be opened for the disposal of salable minerals, creating a positive impact. In this alternative, permits would not be issued for the removal of mineral materials in the wilderness area. This could be an adverse impact as all four wilderness areas contain moderate potential for these materials but demand is low. Designation of the 20-acre ACEC would preclude salable disposal, although this would probably be of no consequence as it is so small. Also, through this alternative, if tracts of federal surface are disposed of by a land exchange or sale, problems of split estate ownership can be created. While these problems do not affect the availability of the land for mineral development, it can make exploration more complicated, more time consuming, and more expensive.

Conclusion

This alternative, mainly because of the wilderness designations, is restrictive to energy and mineral development. Essentially in the long term, the four Wilderness Study Areas (19 percent of the public lands) would be closed to exploration and development of locatable and leasable minerals, eliminating the possibility to develop the mineral resource, except where there are valid existing claims and leases. However the majority of these lands have low to moderate potential. Designation of a 20-acre ACEC would withdraw it from mineral entry, although this would not prove to be significant.

Any additional closures of existing roads would restrict certain mineral exploration and development activities. This would be true of both locatable and leasable minerals, as more restrictions would be added in the form of special seasonal stipulations, and a plan of operations would be required under the 3809 Regulations. This could be significant in areas of high potential only and as a whole would be minor.

The disposal of lands with split surface and mineral estate could create an adverse impact to minerals. Although, the exchange or sale may not affect the availability of land for exploration and development, it can make it more time consuming, more complicated, and more expensive. Most land adjustments will occur in areas of low potential.

A favorable impact would occur by dropping the 500 acres of BLM classifications (R&PP and C&MU), which would increase the area open to mineral exploration regulated by the 3809 Regulations.

Creating an ACEC, to protect a unique geologic area, would have positive impacts for educational use while having minimal adverse impacts to other energy and mineral resources.

Impacts On Lands

Land Ownership

Impacts on land ownership program are the same as Alternative B.

Access

Impacts on access to public lands are the same as Alternative B.

Withdrawals and Classifications

Impacts on withdrawals and classifications are the same as Alternative A.

Major Utility Corridors

Under Alternative C, 19 percent of the resource area would be unavailable for utility corridors, primarily to protect wilderness designations and ACECs. Another 8 percent would be identified for avoidance. The remaining 73 percent would be available for further analysis.

Conclusion

Impacts to the lands program would be the same as under Alternative B. In addition possible utility corridor routes would be limited to 73 percent of the public land. The wilderness designations and avoidance areas are in areas that could pose significant obstacles for efficient utility siting.

Impacts on Recreation Resources

Impacts to recreation would be similar to Alternative A, except that recreation sites and opportunities would receive increased protection. Less acreage would be impacted by timber harvesting and roading and more land would be placed in protective classifications such as riparian zones, wilderness, and special management areas. Benefits would accrue to roadless backcountry and dispersed recreation opportunities, particularly high quality backcountry hunting. Cumulative impacts would not be as great as Alternative A because less acreage would be harvested and roaded over the 20-year life of the plan.

Impacts from livestock grazing would be fewer than described under Alternative A.

The impacts of oil and gas leasing are similar to Alternative A, except that 29,000 additional acres would have seasonal restrictions, 17,000 acres less would be subjected to stipulations prohibiting surface occupancy, and 13,900 acres more would not be leased. The impacts of mineral exploration and development are similar to Alternative A, except that

areas recommended for wilderness would not be available for mineral development and exploration other than on existing claims.

The impacts of motorized vehicle use are similar to Alternative A, except that 1,600 acres less would be available for motorized recreation use.

In addition to restrictions described under Alternative A, the 27,737 acres recommended for wilderness would be excluded from utility and transportation corridor development. The impacts of land ownership adjustment are the same as Alternative B.

Under Alternative C, 27,737 acres would be recommended for wilderness designation and another 2,400 acres would have special management status. Unroaded backcountry recreation values, along with other dispersed recreation uses, would be maximized. High quality backcountry hunting opportunities in particular would benefit.

Conclusion

All recreation activities, except motorized use and road hunting, would benefit from Alternative C. Benefits would especially accrue to unroaded backcountry and dispersed recreation activities, particularly roadless backcountry hunting which would be maximized under this alternative. Also cumulative impacts from timber management activities and road building would not be as great.

Impacts on Visual Resource Management

Visual impacts of forest management would be similar to those described under Alternative A. Less volume would be harvested under Alternative C than Alternative A and more acres would be allocated to visually sensitive classifications.

Generally, Alternative C would create fewer impacts due to livestock grazing than Alternative A because less land would be available to grazing and target forage allocations are less. Also no springs or pipelines would be developed. Miles of fencing and number of cattleguards would increase substantially to protect nongrazing lands resulting in increased localized visual impacts.

Impacts of oil and gas leasing would be the same as Alternative A. Under Alternative C, an additional 27,757 acres would be withdrawn from mineral entry thereby lessening potential visual impacts. These withdrawals would occur in seldom seen, Class IV areas so benefits derived from these withdrawals would be limited.

Impacts of motorized vehicle use would be similar to Alternative A.

Benefits would accrue to visual resources in that 27,737 acres in the wilderness study areas would not be available for utility and transportation corridor developments. These lands would remain in VRM Class I. Additional lands in riparian areas, recreation and cultural sites, and visual corridors would be

avoided under Alternative C. Impacts of land ownership adjustment would be the same as under Alternative B.

Benefits would accrue to visual resources because 27,737 acres are recommended for wilderness designation. These lands would remain in VRM Class I.

Conclusions

Alternative C would best retain visual quality in the resource area. As compared to Alternative A benefits would accrue from less timber harvesting and road construction, less grazing, more land withdrawn from mineral entry and utility corridors, and more lands recommended for protective classification such as wilderness designation.

Impacts on Cultural Resources

Impacts on cultural resources are the same as listed for Alternative A.

Impacts on Wilderness Resources

Wilderness designation of all four areas (27,737 acres) would best insure the protection of wilderness values. Although existing valid mineral claims could be developed under the terms of the 1964 Wilderness Act, oil and gas exploration activities on existing claims would be strictly regulated to avoid impact on the wilderness character of the land. No new leases or claims are permitted after December 31, 1983.

The WSAs would not be open to timber management, livestock grazing, or utility ROWs so none of the impacts associated with these activities would occur. All wilderness areas would generally be closed to motorized vehicles except for emergency situations as outlined in the Wilderness Act.

Designation of all four areas (27,737 acres) as wilderness would insure the maintenance of wilderness values by preventing commercial development and by enabling the natural ecological processes to continue unimpeded. Wilderness protection would benefit the scenic and wildlife features of the four areas.

Conclusion

A total of 27,737 acres of wilderness would be added to the National Wilderness Preservation System and as a result, the protection of the four WSAs solitude and natural features would be best ensured over both the short and long term.

Impacts on Forest Resources

Selection of this alternative would result in the greatest impacts to the forestry resource. There would be an 8 percent reduction in the number of acres treated annually and a 6 percent reduction in the annual harvest as compared to Alternative A. The amount of CFL base remains similar to Alternative A, and there would be a 6 percent reduction in the acreage encumbered by roads.

The most significant impacts are the allocation of 126 percent more acres (49,430 acres) to schemes emphasizing management of other resources and thus resulting in a 20 percent reduction in volume harvested from those acres. Forest management would not be practiced on 22 percent of the CFL or an amount similar to that in Alternative A. As compared to the harvest without any restrictions or withdrawals, this represents 29 percent less volume harvested annually. The resulting impacts have been described in Alternative A but the degree of those impacts are greater in this alternative. The impacts and acreages of livestock grazing are similar to those described in Alternative A. There should be little or no cost difference from Alternative A in implementing this alternative.

Conclusion

Selection of this alternative would result in the greatest impacts of any alternative on the forestry resource. Fifty-six percent of the available CFL would be encumbered with a 20 percent volume reduction and 22 percent of the CFL would be unavailable for harvest. The 5,960 mbf annual harvest is a significant reduction from the possible (optimum) level of harvest. Management restrictions require smaller cutting units and adjusted scheduling of sales which hinder optimum timber management.

Impacts on Range Resources

Under this alternative the total AUMs available for livestock grazing would be 3,595 AUMs, which is 65 percent of the AUMs in Alternative A.

In the long term, the AUMs available for livestock grazing is projected to be 4,232 AUMs which is an increase of 637 AUMs (18 percent). AUMs available for livestock grazing in the long term is 61 percent of that in Alternative A.

These reductions are caused mainly by a management goal to protect riparian habitat. Due to the nature of the topography (steep mountains and narrow valleys 200 feet wide and 5 miles long), livestock typically concentrate in the valley bottoms and seldom graze more than 300 to 400 feet up the side slopes. Also these same valleys are the main routes of travel for livestock to the higher summer ranges. Valley bottoms and associated riparian areas become overused and are frequently in poor condition. Based on proper stocking rates recommended by the SCS, there are only two ways to protect the valley bottoms and riparian areas: either fence them out of the allotment or stock the entire allotment to the recommended proper level for vegetative conditions found in the valley bottoms and riparian areas. In this resource area, 95 percent of the poor and fair condition range is found in the valley bottom areas. Fencing is not usually cost effective. Therefore the recommended procedure would be to reduce the stocking levels.

In the short term, there will be a decrease in AUMs available for livestock grazing on 34 of the 84 allotments as compared to Alternative A. No allotments

would see an increase in AUM production in the short term. Twenty-three allotments will increase in AUMs available for livestock grazing over the long term.

Over the long term, range construction costs will total approximately \$465,000. Table 4-9 lists the improvements and their cost. Maintenance costs on existing projects and the new projects will add another \$448,080 over the long term. Table 4-10 summarizes expected new range improvements.

TABLE 4-9
PROJECTED CHANGES IN
AUM PRODUCTION FOR
ALTERNATIVES C AND D

	AUM	Change	Percent
Short Term	3,595	2,335	39
Long Term	4,232	2,749	39
Alternative A			
Short Term	5,930	0	0
Long Term	6,981	0	0

TABLE 4-10
RANGE IMPROVEMENTS AND COST
DATA FOR ALTERNATIVES C AND D

Improvement/ Treatment	Unit	Quantity	Cost*
Weed Control	Acres	0	0
Fence	Miles	82	410,000
Cattleguard	Each	22	55,000
Spring	Each	0	0
Pipeline	Miles	0	0

*Cost data over 20-year period includes materials and labor

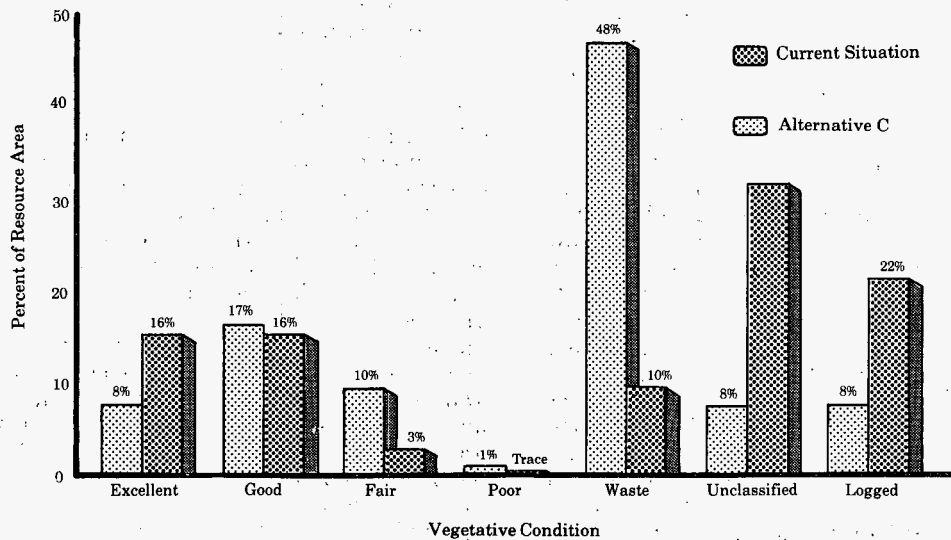
Vegetative conditions are expected to improve significantly on the 28 allotments proposed for AMPs and remain in the same vegetative condition class or nearly so on the remaining 56 allotments. Figure 4-3 illustrates the projected changes in vegetative condition over the long term under this alternative. This illustration is a comparison of only the lands potentially available for grazing use and does not include approximately 38,000 acres excluded from grazing under this alternative.

There would be no weed control by chemical methods under this alternative. The spread of noxious weeds in drainages and along roads would be expected to increase, reducing forage production by 67 percent and doubling soil erosion when knapweed invades rangeland (French, Lacey 1983).

Figure 4-3

Predicted Changes In Vegetative

Condition Under Alternative C/D



Land adjustments will have minimal negative impact on the range resource.

Conclusion

The major impact of this alternative would be the significant reduction in the AUMs available for livestock consumption in both the short and long term as compared to Alternative A. A reduction of 2,335 AUMs in the short term of this alternative as compared to Alternative A and a long-term reduction of 2,749 AUMs compared with Alternative A.

Modest improvements in vegetative condition are expected in the long term. About 52 percent of lands available for livestock grazing should be in good and excellent condition as compared to 33 percent presently.

No chemical weed control work will be initiated on public land. Range improvements would be limited to building control fences and cattleguards at a total estimated construction and maintenance cost over the long term of \$913,080 or an average annual cost of \$45,654.

Except for phasing in most of the AUM reductions over a five-year period, little can be done to mitigate the adverse impacts of these reductions on the livestock operators.

Impacts on Wildlife and Fisheries

This alternative would propose managing 102,237 acres (70 percent of the total land base) with stated wildlife habitat goals in the MA guidelines. The remaining acreage (43,423 acres) would be managed with wildlife considerations through application of Standard Operating Procedures and mitigative or restrictive recommendations.

Mountain Coniferous Habitat

The resource area contains about 130,000 acres (89 percent) of mountain coniferous habitat. Timber management on 87,930 acres of CFL occurs primarily on big game summer range at the rate of 1,120 acres treated and 9.0 miles of new road constructed annually. This is a decrease compared to Alternative A. The short-term impacts of this action will disturb most species and displace some species. Potential

impacts include reduced fall security cover for big game; loss of effective habitat due to increased vehicle access; loss of thermal and security cover immediately adjacent to winter range foraging areas; reduced big game use of clearcuts and moist sites by alteration of adjacent timber stands; loss of specific vegetative successional stages (mature, old-growth) necessary to meet many species requirements; and disturbance of effective seasonal habitat during high energy demand periods such as fawning, calving, nesting, brood rearing, and winter. Short-term mitigative restrictions and actions will reduce the magnitude of site-specific impacts in most cases. There will be few or no immediate beneficial impacts.

The long-term adverse impacts would potentially be small considering that 32,000 acres (36 percent) of CFL does not have stated management area wildlife goals, only protective stipulations for elk habitat components and possible road management restrictions. This is a decrease compared to Alternative A. Over the life of the plan, harvest and new road construction will amount to about 22,400 acres treated and 180 miles of new road. This is a decrease compared to Alternative A. Habitat alteration by timber activities such as clearcut, seed tree, etc. is expected to create about 7,616 acres (34 percent) of open forage. About 14,784 acres (66 percent) timbered forage will be created through shelterwood harvest methods and commercial thinning. This is a decrease compared to Alternative A. The consequences of this alteration in vegetative structure and composition will result in more acres in early successional stages, fewer acres in late successional stages, and a trend toward even-aged management. The long-term response of wildlife to changes in vegetation and access will cause shifts in species and population to match requirements for suitable habitat. This is a decrease compared to Alternative A.

The balance of the CFL in the mountain coniferous habitat, approximately 55,920 acres (64 percent) occurs at both upper and lower elevations constituting either big game summer or winter range, or special management areas where timber activities are guided by wildlife goals. Timber management actions and consequential adverse impacts to wildlife habitat will be moderate in the short term due to mitigative restrictions. Habitat quality would be maintained or improved over the long term for certain species or species groups.

Timber management outside of CFL for the remainder of the resource area (about 42,080 acres) in this habitat would be limited to rights-of-way, sanitation, or salvage timber activities that are necessary to meet wildlife or other resource goals. This is the same compared to Alternative A.

Range management under this alternative would occur on 107,530 acres, with the mountain coniferous habitat contributing substantially to the total. Intensive livestock management is prescribed for about 85,026 acres, about 78 percent of the total 107,530 acres, and would have stated wildlife objectives. This is an increase compared to Alternative A. The bal-

ance of the acreage (22,504 acres) would not have stated wildlife objectives for grazing management. This is a decrease compared to Alternative A.

The impacts on wildlife habitat by livestock grazing in this habitat ranges from direct forage competition with big game species to nesting, brood rearing, and foraging conflicts with small game and nongame species. Additionally, there is evidence of social intolerance by some big game species for livestock. Within the forest habitat types, various successional stages occur as a result of timber management practices which create transitory range and access roads into formerly unlogged areas. The majority of the existing allotments include forested areas not currently accessible to livestock grazing; however, these areas provide suitable habitat for many wildlife species. Vegetative changes in these areas will produce additional accessible livestock forage that will ultimately cause wildlife habitat use conflicts within allotments. In many cases allotment boundaries and pastures are unfenced, but depend on natural barriers such as uncut timber or terrain to control livestock movement. As these areas are developed through logging and road building, livestock move into previously ungrazed areas (the cutting units themselves or parks and riparian zones). Mitigative measures such as fencing, leaving vegetative barriers, or blocking roads and trails to livestock movement may be successful in reducing livestock and wildlife conflicts in the short term. In the long term, the conflict will increase as more acres of previously uncut forest are harvested and the areas grazed. The dispersment of livestock over a greater area of one or more allotments increases the chances of social intolerance by elk. This is a decrease compared to Alternative A.

Through the implementation of 28 AMPs, 5,929 acres (81 percent) of unsatisfactory big game winter range forage is expected to improve to satisfactory condition. This is an increase compared to Alternative A. However, 1,430 acres of unsatisfactory winter range forage outside of AMP areas will remain in unsatisfactory condition. This is a decrease compared to Alternative A. Present satisfactory winter range forage (23,592 acres) on all allotments is expected to continue in satisfactory condition. This is the same compared to Alternative A. The exclusion of grazing from 38,130 acres will enhance wildlife habitat, primarily in elk summer and fall range.

The impacts of the energy and mineral program are the same as Alternative A.

Mountain Grassland Habitat

The impacts of the forest management program are the same as Alternative A.

The majority of acres in the mountain grassland habitat will be affected by range management practices and occur on both summer and winter big game ranges. Those allotments under AMPs either contain or will have stated wildlife goals achieved through livestock distribution and time of use. In the short term, substantial improvement of unsatisfactory grassland winter ranges is expected to follow full

implementation of AMPs. In the long term, all unsatisfactory winter range under AMPs would be raised to satisfactory forage condition. Those acres of grassland in allotments outside of AMP areas are expected to remain in the same forage condition for the short and long term. There are corresponding increases and decreases of unsatisfactory winter range forage compared to Alternative A. (See acreage figures presented under the range management discussion for mountain coniferous habitat in this alternative.)

Mineral exploration and development impacts in the mountain grassland habitat are similar to those discussed under mountain coniferous habitat.

Riparian and Wetland Habitat

The resource area contains about 6,100 acres (4 percent) of riparian and wetland habitat. Timber management activities under this alternative would essentially be excluded on 1,000 acres, be restricted by wildlife goals for old-growth timber corridors and nongame habitat diversity on 3,300 acres, and be guided by practices to achieve water quality standards in other areas of forest development. A substantial number of acres occur in special management areas which are potentially unavailable for timber management. Short-term impacts are partially mitigated through management area guidelines and SOP. Long-term impacts from site disturbance will be negligible with the exception of old-growth loss. This is a decrease compared to Alternative A.

Range management affects about 80 percent of riparian and wetland habitat. Through full implementation of intensive grazing management, 3,603 acres of unsatisfactory riparian is expected to improve to satisfactory condition. This amounts to 86 percent improvement. About 601 acres outside of AMP allotments would remain in unsatisfactory condition. Short-term impacts would show gradual improvement in the riparian condition attributed to grazing. Over the long term, AMP acres would be in satisfactory condition. Unsatisfactory acres outside of AMPs would continue as unsatisfactory riparian. This is a decrease compared to Alternative A. Satisfactory riparian (637 acres) in all existing allotments would continue in satisfactory condition for both the short and long term. This is the same compared to Alternative A.

Impacts of mineral exploration and development in the riparian areas are the same compared to Alternative A.

Aquatic Habitat

The resource area has about 67 miles of streams and rivers producing fish. Impacts of timber management activities associated with this habitat are the same as Alternative A.

The range management program affects 48 percent (29 miles) of aquatic habitat under this alternative. Currently there are 15 miles (52 percent) in optimum aquatic condition, 6 miles (21 percent) in suboptimum condition, and 8 miles (27 percent) unsurveyed in all allotments. Through AMPs, 6 miles (100 percent) of

suboptimum habitat would be improved through increased bank stability and cover. Short-term response would be an increase in fish production, with long-term results of stabilizing more optimum habitat. This is an increase compared to Alternative A.

Within aquatic habitat, mineral exploration and development impacts are the same as Alternative A.

Threatened and Endangered Species Habitat

Impacts on threatened and endangered species for this alternative are the same as discussed under Alternative B.

Conclusion

Under Alternative C, there would be few or no short-term benefits from timber management, but low potential long-term impacts on big game summer ranges and nongame habitat. This is a decrease compared to Alternative A. At lower elevations timber management impacts on big game winter range would be low in the short term and tend toward improvement in the long term. This is an increase compared to Alternative A. Range management impacts on habitat at upper and lower elevations are mostly mitigated in both the long and short term through stated AMP wildlife goals on 78 percent of the allotment area. This is an increase compared to Alternative A. Conflicts between livestock and wildlife would continue on 22 percent of the grazing allotments in both the short and long term, particularly in areas of newly created transitory range. This is a decrease compared to Alternative A. Of the total unsatisfactory big game winter range forage, 5,929 acres (81 percent) would be expected to improve to satisfactory condition. The development of mining claims will cause significant impacts on wildlife habitat in both the short and long term. However, relatively few acres are currently disturbed by mining development. This is the same compared to Alternative A. Other energy and mineral leases have stipulations to mitigate impacts on wildlife habitat. At the current activity level, short and long-term impacts are negligible for phosphate, oil, and gas activities. This is the same compared to Alternative A.

Timber management will have some short-term impacts on the mountain grassland habitat but few long-term impacts. This is a decrease compared to Alternative A. Intensive livestock management will show long-term forage improvement on AMP acres. This is an increase compared to Alternative A. There will be little or no improvement outside of AMP allotments or about 19 percent of total unsatisfactory big game winter range forage. This is a decrease compared to Alternative A. Mineral impacts will be about the same as described for mountain coniferous. This is the same compared to Alternative A.

Riparian and wetland habitats will experience few unmitigated short-term impacts, and there will be negligible long-term impacts with the exception of some old-growth loss in timber management areas. This is a decrease compared to Alternative A. Through AMPs, 3,603 acres (86 percent) of unsatis-

factory riparian is expected to improve to satisfactory condition in the long term. This is an increase compared to Alternative A. The remainder of unsatisfactory and satisfactory riparian will continue in current condition. This is a decrease in unsatisfactory riparian attributed to grazing compared to Alternative A. Mineral impacts on wildlife habitat are most significant where there is mining claim development in both the short and long term compared to other energy and mineral development. This is the same as compared to Alternative A. However, at the completion of mining activities rehabilitation of the site is required. Other energy and mineral development is not permitted. This is the same as Alternative A.

Impacts to aquatic habitat from timber management actions are primarily associated with road location and stream crossing design. Short-term impacts will occur, but long-term impacts will be negligible with proper location and design. This is the same compared to Alternative A. Livestock grazing through intensive management allotments is expected to improve 100 percent of the current suboptimum habitat to optimum condition over the long term. This is an increase compared to Alternative A. Impacts of mineral activities are similar to those discussed under the riparian habitat.

Under this alternative, 18,788 acres could be considered for land base adjustment through sale or exchange. An estimated 235 acres may be sold. This could cause minor adverse wildlife habitat impacts if the lands were converted to other uses not compatible with wildlife. The exchange program offers the potential to bring private or state lands having equal or greater wildlife values into public ownership. Wildlife concerns including threatened or endangered species would receive consideration at the beginning of any lands transaction discussions. Wildlife habitat values will be evaluated in the environmental assessment that accompanies an exchange proposal. This is an increase compared to Alternative A.

There will be no significant impacts on threatened or endangered species habitat.

Impacts of Social and Economic Conditions

The annual timber harvest under this alternative would be 5,960 mbf per year. This production would account for 53 jobs in the area. The income from these jobs and this harvest level would remain in the local area. At an average 1981 income of \$19,984 per job, employment income from these jobs equals \$1,059,152 in direct income to the regional economy. At an average stumpage value of \$46.80 per thousand board feet, the timber harvested is valued at \$278,928 per year. Indirect income to businesses in the area from the labor sector would amount to an additional \$836,784. Therefore, this alternative would lead to three fewer jobs in the timber industry over the present situation. The health of the housing market would have a much greater short-term effect on the employment levels in the timber industry than availability of public timber for harvest.

Under this alternative 32 of 84 grazing allotments would receive reductions in their grazing units. Average reductions by size class (see Appendix R) range from 3.9 percent for Class 1 to 26.3 percent for Class 4. The average change in AUMs would create an income reduction from just over 1 percent to under 1 percent. Individual reductions could be higher, creating a greater than 1 percent reduction in ranch income. Table 4-11 lists the number of ranches affected in each size class. These reductions on an individual basis may be significant. About 12 ranchers could see significant adverse effects to ranch income under this alternative. Another effect of changes in grazing permits could be a change in a ranch's value and therefore a change in the amounts a rancher can borrow. This could be significant for ranchers who have a high dependency upon BLM grazing. In general, most ranchers will not be affected by these changes. This alternative would have the greatest likelihood of having significant adverse income and permit value impacts on some individual ranchers. Those who would be affected have a high dependency on BLM grazing and a large reduction in grazing use.

TABLE 4-11
NUMBER OF RANCHES IN EACH SIZE CLASS AFFECTED BY THE GRAZING PROGRAM IN ALTERNATIVE C

Size Class	Ranches Affected in the Short Term	Ranches Affected in the Long Term
1	7	7
2	8	7
3	11	12
4	15	15

This alternative would increase the area withdrawn from mineral entry and increase the area where oil and gas leases require special stipulations or prohibit surface occupancy. The number of acres withdrawn from mineral entry increases from 1,460 in Alternative A to 29,217 under this alternative. Some of this acreage would be along streams which could reduce opportunities for the development of additional placer mines in these areas.

The increase of acreage where leases require special stipulations or prohibit surface occupancy would not prohibit exploration and development but would tend to increase costs. In addition, seasonal restrictions could lead to problems in scheduling exploration and development activities. This could lengthen the time of exploration and development should deposits be discovered.

While the above restrictions will have an effect on oil and gas and mineral development in specific areas, they are not major components in determining the extent of development. The price of these commodities and the relative availability and grade of local deposits will have a far greater effect on the development of these resources in the area.

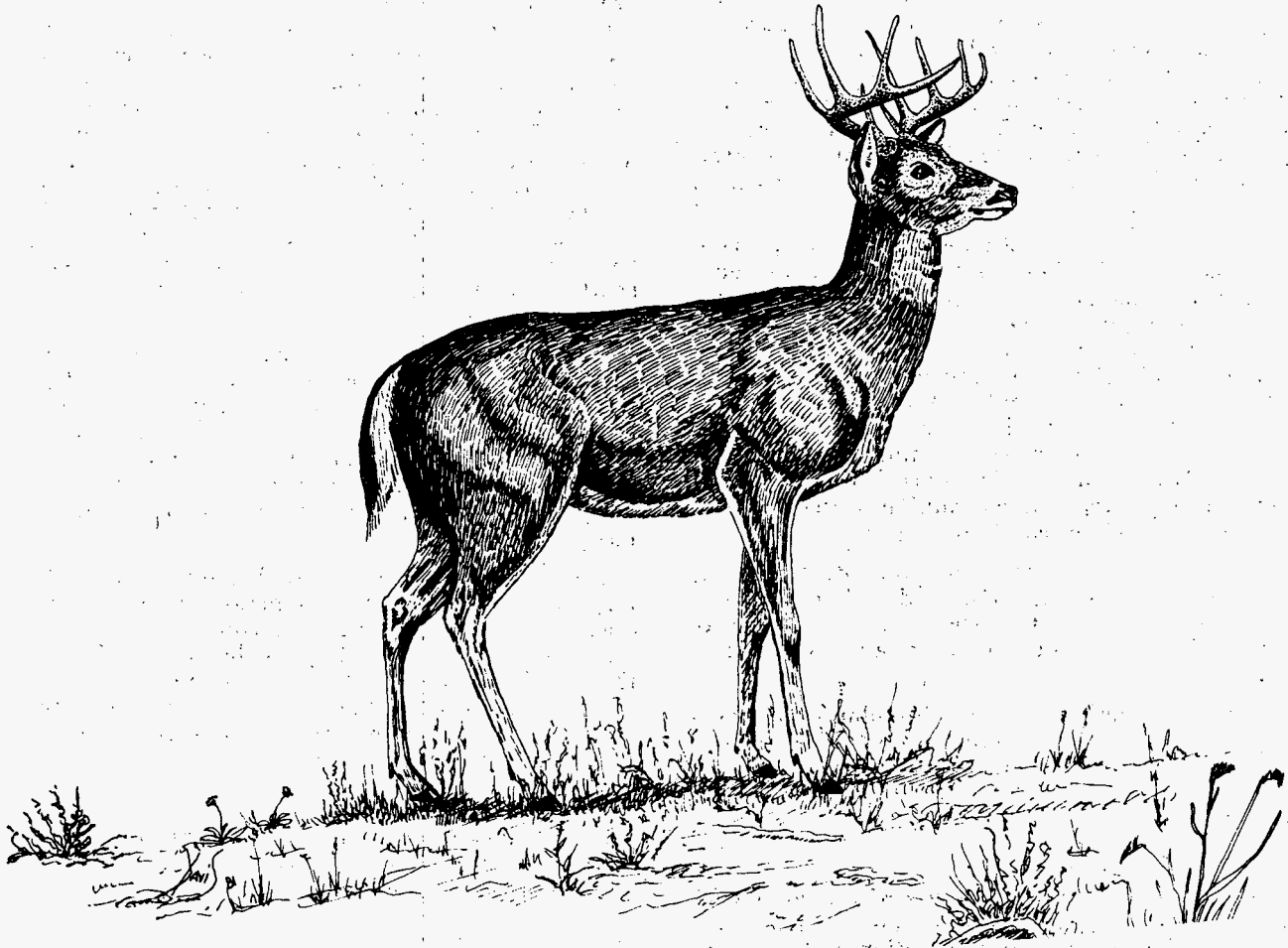
This alternative would provide the greatest opportunity for roadless recreation. More acres would be closed to motorized vehicles which would reduce the opportunity for this type of use.

The acres where management emphasizes wildlife habitat would also increase. This would improve or maintain the habitat and could lead to an increase in numbers for some species in some areas. Should numbers increase, the number of permits could increase or the hunter success on a species could increase. If more hunters are attracted to the area, more money will flow into the local economy from hunting and fishing.

This alternative would recommend for wilderness all areas which are currently wilderness study areas. This would provide an increased opportunity for primitive recreation in the area. The designation of the areas would likely increase visitorship to the area. The stock of wilderness near Missoula is presently large, but these study areas are generally closer to the Missoula area. Much of the reduced timber harvest under this alternative stems from designation of these areas as wilderness with most of the rest due to the wildlife program.

Conclusion

This alternative could cause a reduction of three forest related jobs and a small reduction in ranch income. Some gains could be seen in jobs and income related to recreation and wildlife.



ALTERNATIVE D

Impacts on Air Quality

Impacts on air quality will be of the same kind but slightly greater than for Alternative A. Annually, timber production will be 6,780 mbf from 1,313 acres and 10.2 miles of road construction for Alternative D as compared to 6,370 mbf from 1,216 acres and 9.6 miles of new road for Alternative A. Land area available for oil and gas leasing is 513 acres less than for Alternative A while land withdrawn from mineral entry is 14,370 acres greater. As in Alternative A, intermittent impacts caused by air pollution associated with these activities are not significant.

Conclusion

Impacts on air quality may be slightly greater than for Alternative A and will be of short duration and substantially insignificant.

Impacts on Soil and Water Resources

Land area available for oil and gas leasing is 14,350 acres less than in Alternative A. Area withdrawn from mineral entry is 15,830 acres as compared to 1,460 acres for Alternative A. Impacts resulting from these activities are similar to those occurring in Alternative A except that there is a slightly reduced opportunity for impacts from oil and gas leasing and reduced chance for impacts related to minerals entry. Impacts are not expected to differ significantly from Alternative A.

Alternative D has 107,530 acres available for grazing with 3,595 AUM's. There will be 85,026 acres under AMP control as compared to 35,663 acres for Alternative A. This alternative will have 23,899 acres in excellent vegetative condition, 19,804 acres in good condition, 4,923 acres in fair condition, and 21 acres in poor condition. Alternative A will have 7,739 acres in fair condition and 1,223 acres in poor vegetative condition. Improvements in vegetative condition will be significant. Since watershed condition is directly comparable to vegetative condition, watershed condition will also improve significantly.

Forest management activities will produce an 8 percent increase in timber compared to Alternative A. Impacts are not expected to be significant as long as appropriate timber sale and road layout procedures are used.

AMPs, Standard Operating Procedures, Management Directives, and Regulations will be applied in this alternative, as in Alternative A, to maintain or enhance site productivity, water quality, and stream channel stability.

Conclusion

Additional AMPs in conjunction with a 40 percent reduction in total AUMs will cause a significant improvement in vegetative condition and therefore also watershed condition. AMP implementation will

reduce soil compaction, streambank sloughing, and increase ground cover thereby reducing soil erosion, improve vegetative productivity, and have a beneficial effect upon water quality.

Increased land acres available for oil and gas leasing and the small increase in timber management activities may increase the potential for increases in sediment production related to road construction but impacts are not expected to be significant.

Impacts on Energy and Minerals

Oil and Gas

Under this alternative surface occupancy on oil and gas leases is allowed on 190,636 acres. Occupancy would be permitted with standard stipulations on 112,086 acres (55 percent), while 38 percent (78,550 acres) would have seasonal restrictions. Leases on 600 acres would prohibit surface occupancy. Seven percent (14,350 acres) would be closed to leasing in the wilderness areas.

Areas with special stipulations total 79,150 acres and include both seasonal restrictions and stipulations prohibiting surface occupancy. Seasonal restrictions are located in existing and potential road closure areas. If additional closures of existing roads are imposed, exploration and development activities could be restricted, although even in areas of moderate potential this should not prove to be a significant impact. Stipulations prohibiting surface occupancy are applied primarily to an ACEC, cultural and historical sites, and special management areas scattered throughout the resource area. Although directional drilling is a negative impact because of cost feasibility, it should not prove to be significant as these are scattered tracts of about 40 acres and have moderate to low potential.

Under this alternative, portions of all four WSAs (14,350 acres) would be recommended as suitable for wilderness designation. Even though two of the WSAs are rated as being moderate potential and two are rated as having low-potential (see Table 4-8) this could be a significant negative impact, as it eliminates any possibility of developing the mineral resource that may be there.

If tracts of federal surface are disposed of through land exchange or sale (18,788 acres may be considered for possible adjustment), potential problems with split estate ownership can be created. While these problems do not affect the availability of land for energy exploration, the loss of surface control may make exploration more complicated, more time consuming, and more expensive.

Other Leasables

The designation of the partial wilderness areas will have no effect on phosphate areas since the evaluated lands lie outside the wilderness boundaries.

Disposal of approximately 1,200 acres, where the United States reserves minerals and splits the surface estate and mineral interests, could disrupt and delay future mineral development. Also, an additional road closure in Warm Springs Creek could temporarily impact phosphate exploration because of seasonal disruption.

Locatables

Mineral location would be available on 189,480 acres under this alternative. Twenty-three percent (46,386 acres) are considered to have high potential for locatable minerals. Active mining operations would require either a notice (five acres of disturbance or less per year) or a plan of operations (five acres of disturbance or more per year) under the 3809 Regulations. These obligate the miner to reclaim any disturbed sites.

Designation of a portion of the four wilderness study areas to wilderness areas would have a detrimental effect on opportunities for locatable minerals. Any designated wilderness areas, after December 31, 1983, were closed to mineral entry. This equals 14,350 acres under this alternative. Wales Creek WSA is the only one of four wilderness study areas that contains unpatented mining claims (40) but the area containing the claims has been eliminated from wilderness review under this alternative. Development work, extraction, and patenting would be allowed to continue on valid claims located on or before December 31, 1983. Any mining activity in a wilderness area will require an approved plan of operations under the 3802 Regulations. The potential for locatables ranges from low in Hoodoo WSA to medium in Quigg 202 WSA, Gallagher 202 WSA, and part of Wales Creek WSA. Even though all of the 14,350 acres are moderate to low in potential, designation as wilderness would mean the long-term loss of this potential.

Designation of a 20-acre ACEC in Rattler Gulch would coincide with a withdrawal of the area from locatable minerals. Because of its size, it should not have a significant impact.

Under this alternative, revoking the R&PP and C&MU classifications (500 acres) would increase the opportunity and incentive to explore for locatable minerals. Although less than one percent (1,460 acres) would remain or be withdrawn from mineral entry, these sites, located mainly along rivers and at cultural sites, are segregated against locatable mineral location. This is a localized impact to the mineral resources especially in areas of high potential (less than one-half percent). The effect is a loss of opportunity and incentive to prospect for locatables, as no claims may be located to protect the right to a discovery.

Road closures, existing and potential, impose an impact on mining claimants as they may be required to file a plan of operations under the 3809 Regulations, rather than a notice. This could be significant in areas of high potential, as it would be more time consuming and costly to fulfill the plan of operations requirements. However the majority of the road closures avoid areas of high mineral potential.

Also, disposal of certain tracts of public lands, which may split the surface and mineral estate, can create an adverse impact to mineral access or development. While this does not affect the availability of the land for mineral exploration and development, it can make exploration more complicated, time consuming, and expensive.

Salables

Generally, all lands not included in withdrawals, classifications, valid unpatented mining claims, riparian protection areas, and wilderness areas are available for the disposal of salable mineral materials. Since, the classifications (R&PP and C&MU) are to be dropped under this alternative, 500 additional acres would be opened for the disposal of salable minerals, creating a positive impact. In this alternative, permits would not be issued for the removal of mineral materials in the wilderness areas. This is offset by low or no demand. Designation of the 20-acre ACEC would preclude salable disposal, although this would probably be of no consequence as it is so small.

If tracts of federal surface are disposed of by a land exchange or sale, problems of split estate ownership can be created. While these problems do not affect the availability of the land for mineral development, it can make exploration more complicated, time consuming, and expensive.

Conclusion

This alternative, mainly because of the partial wilderness designations, is fairly restrictive to energy and mineral development. Essentially, in the long term, the portions of the wilderness study areas that are designated (7 percent of mineral estate) would be closed to exploration and development of locatable and leasable minerals. This would eliminate the possibility to develop the mineral resource.

Designation of a 20-acre ACEC would withdraw it from mineral entry, although this would not prove to be significant.

Any additional road closures would restrict certain mineral exploration and development activities. This would be true of both locatable and leasable minerals, as more restrictions would be added in the form of special seasonal stipulations and a plan of operations that would be required by the 3809 Regulations. This could be significant in areas of high potential only and as a whole would be minor.

The disposal of lands with split surface and mineral estate, could create an adverse impact to minerals. Although, the exchange or sale may not affect the availability of land for exploration and development, it can make it more time consuming, more complicated, and more expensive.

A favorable impact would be dropping the 500 acres of BLM classifications (R&PP and C&MU), which would increase the area open to mineral exploration regulated by the 3809 Regulations.

Creating an ACEC, to protect a unique geologic area, would have positive impacts for educational use while leaving little or no adverse impacts to other energy and mineral resources.

Impacts On Lands

Land Ownership

Impacts on the land ownership program are the same as Alternative B.

Access

Impacts on access are the same as Alternative B.

Withdrawals and Classifications

Impacts on withdrawals and classifications are the same as Alternative A.

Major Utility Corridors

Under this alternative, wilderness designation would be reduced and 9 percent of the resource area would be unavailable for utility corridors. Eight percent would be identified for avoidance, and 82 percent would be available for further analysis.

Conclusion

Impacts to the lands program would be the same as under Alternative B, with 82 percent of the resource area available for utility corridor analysis.

Impacts on Recreation Resources

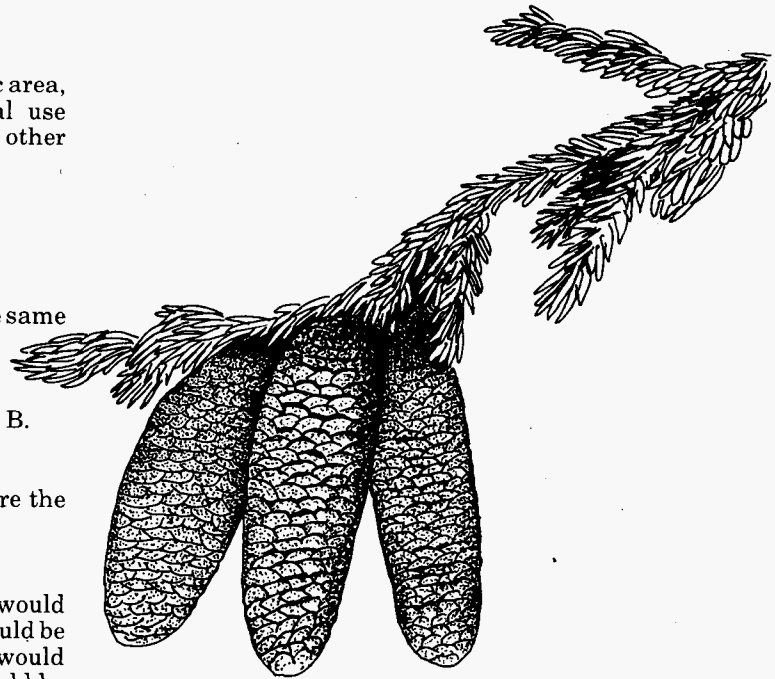
Impacts on recreation would be similar to those described under Alternatives A and C, except that less land would be allocated to wilderness and special management areas. Under Alternative D, 15,300 acres would be reallocated to forest management with special considerations for wildlife. Significant impacts would be the loss of 13,387 acres of wilderness and roadless backcountry recreation opportunities. The greatest loss would be to those activities common to unroaded backcountry areas such as backpacking, camping, hiking, horseback riding, backcountry hunting, and associated activities.

The impacts of grazing management are the same as Alternative C.

The impacts of oil and gas leasing are similar to Alternative A, except that 13,387 acres in WSAs would be available for leasing. Impacts of mineral exploration and development would be similar to Alternatives A and C, except that only 15,830 acres would be withdrawn from mineral entry. These lands include historical and cultural sites, and lands recommended for wilderness and special designations (ACEC).

The impacts of motorized vehicle use are similar to Alternative A, except that an additional 13,600 acres would be available for motorized recreation use subject to seasonal closures and other restrictions.

The impacts of utilities and transportation corridors are similar to Alternatives A and C, except that



13,387 acres of WSA lands would be available for corridor consideration. The impacts of land ownership adjustment are the same as Alternative B.

The impacts of wilderness and special management areas are similar to Alternative C, except that only 14,350 acres would be recommended for wilderness and 440 acres would be recommended for special management.

Conclusion

Similar to Alternative C, except that 13,387 acres of WSA lands would be developed for timber management and other consumptive uses. Under this alternative about half of the WSA lands could be impacted by other resource development activities. Consequently, the loss of unroaded backcountry recreation opportunities would be moderately significant but accompanied by an increase in motorized vehicle recreation.

Impacts on Visual Resource Management

Impacts of timber management would be similar to those described under Alternatives A and C except that less land would be allocated to wilderness and special management. Changes in the visual landscape and VRM classes from Class I to Class IV would occur on 13,387 acres.

Impacts of grazing management are the same as Alternative C.

Impacts of oil and gas leasing would be similar to Alternative A except that 13,387 acres in wilderness study areas would be available for leasing. Impacts of mineral exploration and development would be similar to Alternatives A and C except that 15,830 acres would be withdrawn from mineral entry.

Impacts of motorized vehicle use would be the same as Alternative A except an additional 13,600 acres would be available for motorized recreational use.

Impacts of utilities and transportation corridors would be the same as Alternatives A and C except that 13,387 acres of wilderness study area lands would be available for corridor consideration. Impacts of land ownership adjustment would be the same as Alternative B.

Impacts of wilderness and special designations would be similar to Alternative C except that only 14,350 acres would be recommended for wilderness designation.

Conclusion

Overall, Alternative D is similar to Alternative C except that 13,387 acres of wilderness study area lands would be developed for timber management and other consumptive activities. This would result in less land being held in a VRM Class I, visual retention classification.

Impacts on Cultural Resources

Impacts on cultural resources are the same as listed for Alternative A.

Impacts on Wilderness Resources

In this alternative, 14,350 acres would be recommended suitable for wilderness designation. With this alternative, the impacts of oil and gas exploration, mineral entry, timber harvest, livestock grazing, utility ROWs, and motorized vehicle use would be the same as Alternative C as far as significance and degree, but would be a factor on 14,350 acres of recommended wilderness and 440 acres of specially managed lands. The remaining 13,387 acres in the former WSA would be released for development and the impacts on the wilderness characteristics of these lands would resemble those described in Alternative B.

Conclusion

A total of 14,350 acres of wilderness would be added to the National Wilderness Preservation System and would be managed to preserve wilderness characteristics. An additional 440 acres would be administratively flagged for special management to protect wildlife, watershed, and dispersed recreation with the result that impacts on wilderness values from developments on these lands would be minimized, although protection would be less secure than with Congressional wilderness designation. The remaining 13,387 acres from the former WSAs would be subject to the whole range of mitigated impacts from developmental activity.

Impacts on Forest Resources

Under this alternative, there would be an 8 percent increase in the number of acres treated annually (1,313 acres) and a 6 percent increase in the annual harvest (6,780 mbf) as compared to Alternative A. The CFL available is 15 percent greater (101,130 acres) than Alternative A and the acreage needed for roads increases by 4 percent (60.6 acres). Although more CFL acres are available for timber management primarily because of a 54 percent reduction (11,330 acres) in the CFL encumbered in set aside acres, there are 183 percent more acres (61,880 acres) with restricted management. As compared to the harvest without any restrictions or withdrawals, this represents 21 percent less volume harvested annually. Overall, there is a similar degree of impacts as those described in Alternative A. For example there would be more acres requiring smaller cutting units and delayed entries but there would be fewer acres unavailable for timber management. The cost of implementation would be greater than Alternative A.

Conclusion

Overall the degree of impacts of this alternative are similar to those in Alternative A. There are fewer acres unavailable for timber management but more acres have restricted management prescriptions. The result is a significant reduction in the possible level of timber harvest but somewhat more than the current situation.

Impacts on Range Resources

Alternative D will be treated the same and have essentially the same impacts on the range resource as Alternative C.

Impacts on Wildlife and Fisheries

This alternative would propose managing 101,490 acres (70 percent) with stated wildlife habitat goals in the MA guidelines. The remaining acreage (44,170) would be managed with wildlife considerations through application of Standard Operating Procedures and mitigative or restrictive recommendations.

Mountain Coniferous Habitat

Impacts of timber management on wildlife habitat are similar to impacts discussed under mountain coniferous in Alternative C.

Impacts of range management on wildlife habitat are the same as the impacts discussed under mountain coniferous in Alternative C.

Mineral exploration and development impacts on wildlife habitat are the same as the impacts discussed under mountain coniferous in Alternative C.

Mountain Grassland Habitat

The resource area contains about 9,500 acres (7 percent) of this habitat. Timber management impacts on wildlife habitat are similar to impacts discussed under mountain grassland in Alternative A.

Range management impacts on wildlife habitat are the same as the impacts discussed under mountain grassland in Alternative C.

Mineral exploration and development impacts on wildlife habitat are the same as the impacts discussed under mountain grassland in Alternative C.

Riparian and Wetland Habitat

The resource area contains about 6,100 acres (4 percent) of this habitat. Timber management impacts on wildlife habitat are similar to impacts discussed under riparian and wetland in Alternative C.

Range management impacts on wildlife habitat here are the same as the impacts discussed under riparian and wetland in Alternative C.

Mineral exploration and development impacts on wildlife habitat here are the same as the impacts discussed under riparian and wetland in Alternative C.

Aquatic Habitat

The resource area has about 67 miles of streams and rivers on public lands producing fish. Timber management impacts on wildlife habitat here are similar to impacts discussed under aquatic in Alternative C.

Range management impacts on wildlife habitat are the same as the impacts discussed under aquatic in Alternative C.

Mineral exploration and development impacts on wildlife habitat are the same as discussed under aquatic in Alternative C.

Conclusion

The summary of wildlife habitat impacts under this alternative are similar or the same as found in the conclusion of Alternative C.

Impacts on Social and Economic Conditions

About 6,780 mbf of timber would be harvested under this alternative per year. This would supply timber to provide 62 jobs. At an average salary of \$19,984 in 1981, these jobs would add \$1,239,008 to the regional economy. At an average stumpage value of \$46.80 per thousand board feet, the timber is valued at \$317,304. Indirect income from this harvest would amount to an additional \$951,912 from the labor sector to the local economy. Other impacts are similar to those discussed under Alternative A.

Under this alternative 29 of 84 grazing allotments would face short-term reductions in grazing use. This alternative would have substantially the same effect on ranchers as Alternative C. Table 4-12 lists the number of ranches affected in each size class (see Appendix R).

This alternative would have impacts similar to those discussed under Alternative C. The acreage with special stipulations for oil and gas exploration and development would be greater than under Altern-

TABLE 4-12
NUMBER OF RANCHES IN EACH SIZE CLASS AFFECTED BY THE GRAZING PROGRAM IN ALTERNATIVE D

Size Class	Ranches Affected in the Short Term	Ranches Affected in the Long Term
1	5	5
2	4	6
3	11	12
4	12	14

ative C. However, since exploration has just started in the area as a whole, the impact of these stipulations cannot be quantified. These restrictions would tend to slow exploration and development and increase costs.

The area withdrawn from mineral entry would be reduced from 29,217 acres in Alternative C to 15,830 under this alternative. Therefore, the impact on the opportunity to explore and develop mineral resources would be reduced.

The impacts of this alternative on the social and economic aspects of the wildlife program would be the same as Alternative C.

The opportunity for roadless area recreation would be reduced under this alternative while motorized recreation use would increase. The effect on the economy as a whole would, however, be insignificant.

Under this alternative, slightly over half of the wilderness study area acreage would be recommended for wilderness designation. Those areas designated would still provide wilderness recreation as discussed under Alternative C. The addition to the supply of wilderness would be smaller which if demand for use is great enough could cause increased use of those which are designated.

Designation of these areas would have some effect on the amount of timber available for harvest. This, however, would not significantly affect the yearly harvest of timber or the jobs this timber provides.

Conclusion

This alternative would provide a level of timber harvest which would lead to 62 forest related jobs. Other social and economic effects would be similar to those discussed under Alternative C.

ALTERNATIVE E

Impacts on Air Quality

Impacts on air quality will be of the same kind but slightly greater than for Alternative A. Annually, timber production and road construction will be 7,030 mbf from 1,352 acres, and 10.5 miles of road construction for Alternative E. Land area available for oil and gas leasing will be 9,237 acres greater than for Alternative A while land withdrawn from mineral entry is 540 acres greater. As in Alternative A these intermittent impacts caused by air pollution associated with these activities are normally not significant.

Conclusion

Impacts on air quality, which may be slightly greater than for Alternative A, are expected to be of short duration and substantially insignificant.

Impacts on Soil and Water Resources

Land area available for oil and gas leasing is 9,237 acres greater, and area withdrawn from mineral entry is 540 acres greater than for Alternative A. Impacts resulting from these activities are similar to those occurring in Alternative A except that there is a greater opportunity for impacts from oil and gas leasing and a slightly reduced chance for impacts related to minerals entry. Impacts from both sources are not expected to differ significantly from Alternative A.

Alternative E has 111,890 acres available for grazing with 6,245 AUM's. There will be 81,294 acres under AMP's as compared to 35,663 acres for Alternative A. This alternative will have 11,939 acres in excellent vegetative condition, 35,186 acres in good condition, 1,522 acres in fair condition, and 0 acres in poor condition. Alternative A will have 7,739 acres in fair condition and 1,223 acres in poor vegetative condition. Improvement in vegetative condition will be significant. Since watershed condition is directly comparable to vegetative condition, watershed condition would also improve under this alternative.

Forest management activities will produce an 11 percent increase in timber for Alternative E as compared to Alternative A. Impacts are not expected to be significant as long as appropriate timber sale and road layout procedures are used.

Allotment Management Plans, Standard Operating Procedures, Management Directives, and Regulations will be applied in this alternative, as in Alternative A, to maintain or enhance site productivity, water quality, and stream channel stability.

Conclusion

Increased use of AMPs, although accompanied by a 5 percent increase in total AUMs, will cause a significant improvement in vegetative condition and, therefore, also watershed condition. AMP implementation will result in reduced soil compaction, streambank

sloughing, and increased ground cover thereby reducing soil erosion, improve vegetative productivity, and have a beneficial effect upon water quality.

Increased land area available for oil and gas leasing and the moderate increase in timber management activities may increase the potential for sediment production related to road construction. These increases are not expected to be significant.

Impacts on Energy and Minerals

Oil and Gas

This alternative allows surface occupancy of oil and gas leases issued on 96 percent (196,886 acres) of the public lands. Fifty-five percent (112,810 acres) of occupancy would be permitted with standard stipulations, while 41 percent (84,076 acres) of occupancy would be permitted with seasonal restrictions. Leases on 8,180 acres would prohibit surface occupancy. Less than 1 percent (520 acres) of the GRA would be closed to leasing in Quigg West 202 WSA.

Areas with special stipulations total 92,256 acres and include both seasonal restrictions and stipulations prohibiting surface occupancy. Seasonal restrictions are located in existing and potential road closure areas and important big game habitat. If additional road closures are imposed, exploration and development activities could be restricted; although, even in areas of moderate potential, this should not prove to be a significant impact.

Stipulations prohibiting surface occupancy would be applied primarily to an ACEC, cultural and historical sites, and special management areas primarily Wales and Cottonwood Meadows.

Under this alternative, only one area being studied for wilderness, Quigg West 520 acres, would be recommended as suitable for wilderness designation. Any oil and gas reserves that are unleased previous to designation, would not be available, resulting in an undetermined economic loss. Quigg West 202 WSA carries a rating potential of low, but even so, this could be a negative impact as it eliminates any possibility of developing the energy resource that may be there.

If tracts of federal surface are disposed of through land exchange or sale, potential problems with split estate ownership can be created. While these problems do not affect the availability of land for energy exploration, they may make exploration more complicated, more time consuming, and more expensive. The major reason for this is loss of surface control which might constrain access.

Other Leasables

The designation of Quigg West 202 WSA will have no effect on phosphate areas as the evaluated lands lie outside the wilderness boundaries.

Disposal of lands may negatively impact this resource if the disposal action reserves minerals and splits the surface estate and mineral interests. This

could disrupt and delay future mineral development. Also, an additional road closure in Warm Springs Creek could seasonally impact phosphate exploration and development.

Locatables

Mineral location would be available on 203,310 acres under this alternative. Twenty-three percent (46,386 acres) are considered to have high potential for locatable minerals. Active mining operations would require either a notice (five acres of disturbance or less per year) or a plan of operations (five acres of disturbance or more per year) under the 3809 Regulations. These obligate the miner to reclaim any disturbed sites.

Wilderness designation of Quigg West 202 WSA would have a detrimental effect on opportunities for locatable minerals. After December 31, 1983, any designated wilderness areas or wilderness study areas were closed to location of new mining claims. This equals 520 acres in the resource area under this alternative. The potential for locatables is medium in this WSA, and designation of Quigg West as wilderness would mean the long-term loss of potential on less than one-half percent of the mineral estate.

Designation of a 20-acre ACEC in Rattler Gulch would coincide with a withdrawal of the area from locatable minerals. Because of its size, the withdrawal should not have a significant impact.

Under this alternative, revoking the R&PP and C&MU classifications (500 acres) would increase the opportunity and incentive to explore for locatable minerals. Although less than 1 percent (2,000 acres) would remain or be withdrawn from mineral entry, these sites, located mainly along rivers and at cultural sites, are segregated against locatable mineral location. This is an impact to the mineral resources, especially in areas of high potential (less than one-half percent). The effect is a loss of opportunity and incentive to prospect for locatables, as no claims may be located to protect the right to a discovery.

Road closures, existing and potential, impose an impact on mining claimants as they may be required to file a plan of operations under the 3809 Regulations, rather than a notice. This could be significant in areas of high potential, as it would be more time consuming and costly to fulfill the plan of operations requirements, but most closures avoid high potential areas.

Also, disposal of certain tracts, which may split the surface and mineral estate, can create an adverse impact to mineral access or development. While this does not affect the availability of the land for mineral exploration and development, it can make exploration more time consuming and expensive.

Salables

Generally all lands not included in withdrawals, classifications, valid unpatented mining claims, riparian protection areas, and wilderness areas are available for the disposal of salable mineral materials. Since the classifications (R&PP and C&MU)

are to be dropped under this alternative, 500 additional acres would be opened for the disposal of salable minerals, creating a positive impact. In this alternative permits would not be issued for removal of mineral materials on 520 acres designated as wilderness. Designation of the 20-acre ACEC would preclude salable disposal, although this would probably be of no consequence since it is a small acreage and potential for minerals other than limestone is low.

Also, through this alternative, if tracts of federal surface are disposed of by a land exchange or sale, problems of split estate ownership can be created. While these problems do not affect the availability of the land for mineral development, it can make exploration more complicated, time consuming, and expensive.

Conclusion

This alternative has the potential to be somewhat restrictive to energy and mineral development. Essentially, in the long term, the Quigg West WSA would be closed to exploration and development of locatable and leasable minerals. This would eliminate the possibility to develop the mineral resource on less than one percent of the mineral estate.

Designation of a 20-acre ACEC would withdraw it from mineral entry, although this would not prove to be significant. However, the protection of this site would have positive impacts for educational use.

Any additional road closures could restrict certain mineral exploration and development activities. This would be true of both locatable and leasable minerals. This would be locally significant in areas of high potential only and as a whole would be minor.

The disposal of lands with split surface and mineral estate could create an adverse impact to minerals. Although the exchange or sale may not affect the availability of land for exploration and development, it can make it more time consuming, complicated, and expensive.

A favorable impact would be dropping the 500 acres of BLM classifications (R&PP and C&MU), which would increase the area open to mineral exploration regulated by 3809 Regulations.

Impacts On Lands

Land Ownership

A total of 126,872 acres will be designated in retention zones where BLM intends primarily to retain or enhance the existing public land holdings. Public land in most of these zones amounts to sizeable acreages, and most are in reasonably consolidated holdings or contain values appropriate for public ownership. Individual tracts in retention zones may be exchanged when significant management efficiency or greater public values would be acquired. Under some circumstances, a tract may be sold to serve an important public purpose. Public land acreage within these zones is not expected to decline, but may increase because land acquired in exchanges will be concentrated in these zones.

The remainder of the public lands, 18,788 acres, will be open to consideration on individual merits for retention, exchange, transfer, or sale. In general these lands are smaller tracts, widely scattered, and without legal or physical access. The preferred action for any lands which fit the disposal criteria will be to exchange them for lands within a retention zone. Sale may offer a simpler, quicker method of disposing of isolated tracts with negligible public values, but it decreases the long-term potential for a desirable land ownership pattern by depleting the stock of land available for future exchanges. Exchange will balance the impacts of disposal with those of acquisition and by regulatory requirement should result in a net increase in public values.

Over the next 20 years, approximately 25 percent (4,697 acres) of the open lands will leave public ownership, 95 percent of this by exchange. Several factors enter into this estimate. The required procedures and occasional obstacles involve substantial time and expense. Many of the scattered tracts were left out of patent applications because of difficult topography and lack of agricultural value. Most of these tracts are too isolated and inaccessible for commercial or residential use. Numerous tracts are encumbered by prior rights such as mining claims. Field examination of specific tracts may reveal values, such as threatened or endangered wildlife, which would dictate retention in public ownership.

However, even this moderate land tenure adjustment program will result in an improved ownership pattern, reduced management difficulties, and an overall increase in public values.

Access

Public access is proposed to 21 tracts affecting 9,500 acres. Administrative access is proposed to 62 tracts affecting 8,150 acres. All the additional access proposals coincide with land retention zones; this will expand opportunities for public use and further aid in management of the public lands.

Withdrawals and Classifications

Withdrawals on the resource area have been secured by other federal agencies for powersites, power projects, and administrative sites. These total less than 1,600 acres. They will be reviewed under the current BLM withdrawal review process.

In 1973 over 200,000 acres in the resource area were under classification (de facto withdrawal) by BLM. In 1982 these classifications were reviewed and reduced to 500 acres. Under all alternatives classification would be removed from the remaining 500 acres. This would increase the public land base available for land adjustment or multiple use.

Major Utility Corridors

Only 540 acres would be unavailable for utility corridors, to protect a 520-acre wilderness recommendation and a 20-acre ACEC recommendation. Twelve percent of the resource area would be identified for avoidance, and 88 percent available for further analysis.

Conclusion

This alternative provides for consolidation of public land and acquisition of important resource values through a land adjustment program. An increase in access would provide for greater public use and improved manageability. Eighty-eight percent of the resource area would be available for utility corridor analysis.

Impacts on Recreation Resources

The short-term, long-term, and cumulative impacts to recreation would be similar to Alternative A, except more lands would be allocated to timber management activities and road construction. As indicated under Alternative A, impacts would occur to dispersed recreation activities throughout the resource area. Opportunities for hiking, riding, and high quality backcountry hunting would be reduced while opportunities for motorized vehicle use would increase.

There would be a significant decrease in opportunities for roadless backcountry recreation. Nearly 20,000 acres that would have been special management lands under Alternative A would be available for timber management activities and road construction with emphasis on wildlife habitat management.

Impacts of grazing management would be the same as Alternative B.

Impacts of oil and gas leasing would be similar to Alternative A, except less acreage would be subjected to stipulations prohibiting surface occupancy, more lands would be leased with special stipulations, and less lands would be closed to leasing. Impacts of mineral exploration and development would be similar to Alternative A, except that an additional 540 acres would be withdrawn from mineral entry.

Impacts of motorized vehicle use would be similar to Alternative A, except that approximately 20,000 acres, primarily in the WSAs would be available for motorized vehicle use. Seasonal closures and other restrictions outlined under Alternative A would be applicable.

Impacts of utility and transportation corridors would be similar to Alternative A, except that corridor development would be excluded on 540 acres and would avoid another 17,620 acres. Impacts of the land adjustment program would be the same as for Alternative B.

Under this alternative 520 acres would be recommended for wilderness designation and another 8,140 acres would be special management areas. Benefit would accrue to roadless backcountry recreation opportunities on these lands.

Wilderness type experiences would be forgone on 19,617 acres which would be opened for timber management, road construction, mineral development, and vehicle use.

Conclusion

Short-term, long-term, and cumulative impacts would be similar to those described under Alternative A. Additional impacts would result from higher levels of timber harvesting and road construction. More land would also be available for oil and gas leasing, motorized vehicle use, and utility corridor development. These added developmental impacts would have higher adverse effects on dispersed recreation opportunities, backcountry hunting, and similar activities.

Benefits would accrue to motorized vehicle use in that open roads on an additional 20,000 acres would be available for use.

Conversely, 19,617 acres of WSA lands could be impacted by other resource development, thereby significantly reducing the amount of unroaded backcountry recreation opportunities.

Impacts on Visual Resource Management

Short-term, long-term, and cumulative impacts to visual resources from timber management and road construction would be similar to Alternative A except that more acreage would be allocated to timber harvesting and road construction.

Lands added along main highways would allow greater protection for visual corridors. Lands along the Bear Creek county road were removed from the visual corridor because the viewer's sight is attracted to the disturbed private land and the public land could be developed (harvested) without significant visual impact.

Dropping wilderness study area lands from consideration as wilderness or special management areas would allow a change in visual quality. Rather than retention of visual quality in VRM Class I, the rating would be changed to VRM Class IV and allow developmental activities. These impacts could occur on 19,617 acres in Yourname, Gallagher, and Cottonwood Creek drainages. However, these areas are seldom seen so impacts would not be significant for visual quality.

Visual impacts of livestock management would be similar to those outlined under Alternatives A and B. Impacts from range improvements would affect more acreage than Alternative A but less than Alternative B.

Impacts of oil and gas leasing would not be significant. Less acreage is closed or limited by stipulations prohibiting surface occupancy than is specified under Alternative A. However, much more land (84,100 acres) would be leased with special stipulations thereby mitigating most of the significant adverse impacts on visual resources. Impacts of mineral exploration and development would be the same as Alternative A.

Impacts of motorized vehicle use would be similar to Alternative A except that 20,000 acres of additional land would be available for multiple use management. Motorized vehicle use would be restricted to open roads and trails.

Impacts of utility and transportation corridors would be similar to Alternative A except that corridor development would be precluded on 540 acres and would avoid 17,620 acres. Impacts of land ownership adjustment would be the same as Alternative B.

Impacts of wilderness and special management areas would be similar to Alternative A except that benefits derived from the retention of scenic values would apply to 8,660 acres rather than 28,500 acres.

Conclusions

Short-term, long-term, and cumulative impacts would be similar to Alternative A. Additional impacts would accrue because of higher levels of timber management and grazing management. More lands would also be available for oil and gas leasing, off-road vehicle use, utility corridor development, and land ownership adjustment. Less lands would be set aside for visual retention in wilderness and special management areas. Visual corridors along the Blackfoot River, Clark Fork River, Flint Creek, and Rock Creek have been identified. Additional impacts beyond those described under Alternative A would not be significant.

Impacts on Cultural Resources

Implementation of the provisions of the National Historic Preservation Act and 36 CFR 800 will jointly serve to eliminate impacts to significant cultural resource properties. While residual effects due to vandalism, wildfire, and trespass actions can be expected to occur, no change in such residual effects can be contemplated. Interpretive and nonimpairment prescribed management of significant cultural resource properties operates as a beneficial effect in limiting the potential for such residual effects. Increased activity in various management areas will serve to increase the number of identified cultural properties since new properties are located at a projected rate of one property per 360 acres of inventory directed by specific project needs. A proportion of these cultural resource properties will be added to the managed list and acreage allocations can be expected to increase.

The environmental consequences to cultural resources under this alternative is beneficial. With implementation of BLM regulations, policies, and prescribed management of significant cultural resource properties such properties will be protected against adverse impacts and be enhanced for public enjoyment and education.

Impacts on Wilderness Resources

Quigg West 202 WSA, consisting of 520 acres, would be recommended as suitable for wilderness as a result of this alternative as long as the adjacent 68,050-acre

Forest Service Quigg RARE II area is also recommended for designation. In addition, 7,600 acres would be special management areas and development would be minimal.

With this alternative, the impacts of oil and gas exploration, mineral entry, timber harvest, livestock grazing, utility ROWs, and motorized vehicle use would be the same as Alternative C except on 520 acres of recommended wilderness and 8,120 acres committed to special management. The remaining 19,617 acres in the former WSAs would be open to development which could result in impacts similar to those described in Alternative D.

Conclusion

A total of 520 acres of wilderness would be recommended for addition to the National Wilderness Preservation System provided that the Forest Service Quigg RARE II area is designated wilderness. Wilderness values on the lands would be preserved and maintained. Wilderness characteristics on the 7,600 acres subject to special management would be substantially protected but such control over human activities would be less secure than if the area were designated wilderness. The remaining 19,617 acres from the former WSAs would be subject to the whole range of mitigated impacts from developmental activity with emphasis on wildlife habitat management.

Impacts on Forest Resources

The level of impacts are similar to those in Alternatives A and B. There is an 11 percent increase in the number of acres treated annually (1,352 acres) and a 9 percent increase in the annual harvest (7,030 mbf) as compared to Alternative A. The CFL available for forest management is 19 percent greater (105,020 acres) and the acreage necessary for roads increases by 9 percent (63.6 acres) as compared to Alternative A. There are 69 percent fewer acres withdrawn (7,440 acres) or 6 percent of the CFL and there are 197 percent more acres (64,720 acres) with restrictive management or 62 percent of the available CFL. When compared to the level of harvest without any restrictions or withdrawals, this equates to 17.5 percent less volume harvested annually. All other types of impacts are similar to those described in Alternatives B, C, and D.

Conclusion

Selection of this alternative represents the second greatest opportunity for forest management of the five alternatives. The application of management restrictions continues to result in significant impacts to timber management but nonetheless the impacts are less than in Alternative A.

Impacts on Range Resources

In the short term, the total AUMs available for livestock grazing is projected to be 6,245 AUMs, a 5 percent increase in allocation over Alternative A.

In the long term, AUMs available for livestock grazing are projected to be 8,013 AUMs, a 28 percent increase over the short term and a 15 percent increase over Alternative A (see Table 4-13). Long-term AUM target figures are a combined estimate of additional forage made available because of range improvements, timber harvest, and improvement of vegetative conditions on allotments already under intensive grazing management.

**TABLE 4-13
PROJECTED CHANGES IN AUM
PRODUCTION FOR ALTERNATIVE E**

	AUM	Change	Percent
Short Term	6,245	315	5
Long Term	8,013	1,032	14
Alternative A			
Short Term	5,930	0	0
Long Term	6,981	0	0

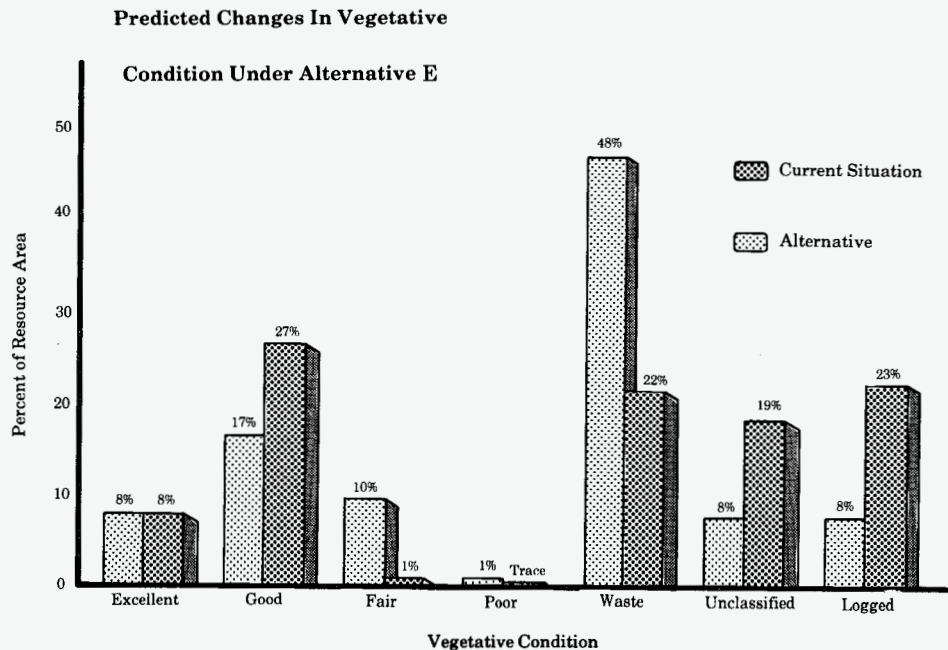
The long-term range improvement costs will total approximately \$585,600. Maintenance costs on new construction over the long term will run about \$160,610 and maintenance on existing projects will add another \$299,300 and weed control another \$6,800 for a grand total of \$1,052,310 for construction and maintenance for the range program over the long term. Table 4-14 summarizes the proposed range improvements.

**TABLE 4-14
RANGE IMPROVEMENTS AND COST DATA
FOR ALTERNATIVE E**

Improvement/ Treatment	Unit	Quantity	Cost*
Weed Control	Acres	300	\$ 5,100
Fence	Miles	75	375,000
Cattleguard	Each	25	62,500
Spring	Each	38	95,000
Pipeline	Miles	4	48,000

*Cost data over 20-year period includes materials and labor

Figure 4-4



All allotments were analyzed on their own merits to determine if any improvement in resource conditions are necessary. Those allotments that were determined not to need improvement will remain in the same vegetative condition class as Alternative A. Thirty-seven allotments are expected to improve in vegetative condition, 17 of these allotments are in the C category while 20 allotments are in the M and I category.

Improvement made on the M and I category allotments will be a combination of the effects of range improvements and transitory range created by timber harvesting. It is projected that in each of the 37 allotments expected to improve, the vegetative condition class will move up one condition class in the poor and good classes only. Figure 4-4 illustrates the expected changes in vegetative condition over the long term under this alternative. This illustration is a comparison of only lands potentially available for grazing and does not include approximately 33,000 acres excluded from grazing under this alternative.

Weed control efforts will cover approximately 300 acres over the next 20 years. Approximately 200 acres of this amount will be concentrated along roadsides

on public lands in an effort to control the advance of weeds into areas that have been logged. It is felt that if weeds can be controlled along roads before they get into areas cutover in timber harvest programs the weed control effort will be less expensive and more effective. Approximately 100 acres in spot infestations in off-road areas will be treated over the next 20 years. The effort may be by either chemical or biological means depending on the weed being treated. Primary target weeds will be knapweed, musk thistle, and leafy spurge.

Land adjustments will have a minimal effect upon livestock grazing as most of these tracts have very low grazing capacity due to dense timber stands.

Conclusion

The major impact of this alternative on the range resource would be the gradual increase in livestock carrying capacity of 28 percent over the next 20 years. It is expected that more than 90 percent of the range available for livestock grazing (excluding logged areas) will be in good or better condition over the long term.

Weed control efforts will be initiated on some 300 acres, primarily along roadsides using chemical treatments unless new biological methods prove satisfactory to control the spread of knapweed, musk thistle, and leafy spurge. Range improvement construction and maintenance will cost \$1,052,310 over the long term or an average annual cost of \$52,615.

All increases in AUM allocations over 15 percent of the present level will be phased in over a five-year period, after adequate monitoring to ensure proper stocking levels. Forage created through timber harvesting will be allocated on a temporary five-year basis and not be renewed until adequate monitoring studies confirm a proper stocking level for that logged site.

Modest improvement in vegetative condition is expected in the long term. About 51 percent of lands available for livestock grazing should be in good and excellent condition as compared to 33 percent presently.

Impacts on Wildlife and Fisheries

This alternative would propose managing 99,710 acres (69 percent) with stated wildlife habitat goals in the MA guidelines. The remaining acreage (45,950 acres) would be managed with wildlife considerations through application of Standard Operating Procedures and mitigative or restrictive recommendations.

Mountain Coniferous Habitat

The resource area contains about 130,000 acres (89 percent) of this habitat. Timber management on 105,020 acres of CFL occurs primarily on big game summer range at the rate of 1,352 acres treated and 10.5 miles of new road constructed annually. This is an increase compared to Alternative A. The short-term impacts of this action will disturb most species and displace some species. Potential impacts include reduced fall security cover for big game; loss of effective habitat due to increased vehicle access; loss of thermal and security cover immediately adjacent to winter range foraging areas; reduced big game use of clearcuts and moist sites by alteration of adjacent timber stands; loss of specific vegetative, successional stages (mature, old-growth) necessary to meet many species requirements; and disturbance of effective seasonal habitat during high energy demand periods such as fawning, calving, nesting, brood rearing, and winter. Short-term mitigating restrictions and actions will reduce the magnitude of site specific impacts in most cases. There will be few or no immediate beneficial impacts.

The long-term adverse impacts would potentially be small considering that 36,900 acres (35 percent) of CFL do not have stated management area wildlife goals, only protective stipulations for elk habitat components and possible road management restrictions. This is a decrease compared to Alternative A. Over the life of the plan, harvest and new road construction will amount to about 27,040 acres treated

and 210 miles of new road. This is an increase compared to Alternative A. Habitat alterations by timber activities such as clearcut, seed tree, etc. are expected to create about 9,194 acres (34 percent) of open forage. About 17,846 acres (66 percent) of timbered forage will be created through shelterwood harvest methods and commercial thinning. This is an increase compared to Alternative A. The consequence of this alteration in vegetative structure and composition will result in more acres in early successional stages, fewer acres in late successional stages, and a trend toward even-age management. The long-term response of wildlife to changes in vegetation and access will cause shifts in species and populations to match requirements for suitable habitat. This is an increase compared to Alternative A.

The balance of the CFL in the mountain coniferous habitat, approximately 68,120 acres (65 percent) occurs at both upper and lower elevations consisting of either big game summer or winter range or of special management areas where timber activities are guided by wildlife goals. Timber management actions and consequential adverse impacts to wildlife habitat will be moderated in the short term due to mitigating restrictions. Habitat quality would be maintained or improved over the long term for certain species or species groups. This is an increase compared to Alternative A.

Timber management in the remainder of the forested land (about 24,980 acres) would be limited to rights-of-way, sanitation, or salvage necessary to meet wildlife or other resource goals. This is a decrease compared to Alternative A.

Range management under this alternative would occur on 111,890 acres total, with the mountain coniferous habitat contributing substantially to the total. Intensive livestock management is prescribed for about 81,294 acres or about 73 percent of the total 111,890 acres and would have stated wildlife objectives. This is an increase compared to Alternative A. The remaining acres (30,596 acres) would not have stated wildlife objectives for grazing management. This is a decrease compared to Alternative A.

The impacts on wildlife habitat by livestock grazing in this habitat ranges from direct forage competition with big game species to nesting, brood rearing, and foraging conflicts with small game and nongame species. Additionally, there is evidence of social intolerance by some big game species for livestock. Within the forest habitat types, various successional stages occur as a result of timber management practices which create transitory range and roads into formerly unlogged areas. The majority of the existing allotments include forested areas not currently accessible to livestock grazing; however, these areas provide suitable habitat for many wildlife species. Vegetative changes in these areas will produce additional accessible livestock forage that will ultimately cause wildlife habitat use conflicts within allotments. In many cases allotment boundaries and pastures are unfenced, but depend on natural barriers such as uncut timber or terrain to control livestock movement. As these areas are developed through logging

and road building, livestock move into previously ungrazed areas (the cutting units themselves or parks and riparian zones). Mitigative measures such as fencing, leaving vegetative barriers, or blocking roads and trails to livestock movement may be successful in reducing livestock and wildlife conflicts in the short term. In the long term, the conflict will increase as more acres of previously uncut timber are harvested and the areas grazed. The dispersement of livestock over a greater area of one or more allotments increases the chances of social intolerance by elk. This is an increase compared to Alternative A.

Through the implementation of 20 AMPs, 5,370 acres (73 percent) of unsatisfactory big game winter range forage is expected to improve to satisfactory condition. This is an increase compared to Alternative A. However, 1,989 acres of unsatisfactory winter range forage outside of AMP areas will remain in unsatisfactory condition. This is a decrease compared to Alternative A. Present satisfactory winter range forage (23,592 acres) on all allotments is expected to continue in satisfactory condition. This is the same compared to Alternative A. The exclusion of grazing from 33,770 acres will enhance wildlife habitat primarily in elk summer and fall range.

Mineral exploration and development in the mountain coniferous habitat ranges from the mining of gold, phosphate, and barite to the removal of sand and gravel. The short-term impacts of mining cause disturbance or displacement of wildlife on small acreages and some loss of habitat. Duration of extraction is highly variable for each operation, ranging from intermittent work each year for a few years to continuous work for many years.

The short-term impacts from phosphate, oil, and gas development are essentially negligible during the exploration phase through standard and special stipulations. However, the stipulations will not fully mitigate the long-term impacts throughout the duration of development and production. Based on a past low interest in oil and gas activity and only one phosphate mine, the outlook for widespread habitat loss is slight. This is the same as compared to Alternative A.

Mountain Grassland Habitat

The resource area contains about 9,500 acres (7 percent) of mountain grassland habitat. Timber management has a direct influence on the value of these mountain grasslands for wildlife habitat. Silviculture prescriptions in the edge between forest and grassland will play an important role in determining habitat quality of the grasslands. Harvest and thinning activities adjacent to the grasslands will have short-term impacts through displacement or disturbance of wildlife. Mitigation through the application of management area guidelines will serve to reduce adverse results in the short term for most grasslands. Long-term impacts from vegetative alteration on adjacent forest land should be successfully mitigated for grasslands lying within areas emphasizing wildlife habitat management. Those grasslands within areas emphasizing timber management would have few mitigative restrictions. This is a decrease compared to Alternative A.

The majority of acres in the mountain grassland habitat will be affected by range management practices and occur as both summer and winter big game ranges. Those allotments under AMPs either contain or will have stated wildlife goals achieved through livestock distribution and time of use. In the short term, substantial improvement of unsatisfactory grassland winter ranges is expected following full implementation of AMPs. In the long term, all unsatisfactory winter range under AMPs would be raised to satisfactory forage condition. Those acres of grassland in allotments outside of AMPs are expected to remain in the same forage condition for the short and long term. There are corresponding increases and decreases of unsatisfactory winter range forage compared to Alternative A. (See acreage figures presented under the range management discussion for mountain coniferous in this alternative.)

Mineral exploration and development impacts on wildlife habitat in the mountain grassland habitat are similar to those discussed under mountain coniferous habitat.

Riparian and Wetland Habitat

The resource area contains about 6,100 acres (4 percent) of riparian and wetland habitat. Timber management activities under this alternative would essentially be excluded on 1,000 acres, be restricted by wildlife goals for old-growth timber corridors and nongame habitat diversity on 2,500 acres, and be guided by practices to achieve water quality standards in other areas of forest development. A portion of the total acres occurs in special management areas potentially unavailable for timber management. Short-term impacts are partially mitigated through management area guidelines and SOP. Long-term impacts from site disturbance will be negligible with the exception of some old-growth loss. This is a decrease compared to Alternative A.

Range management affects about 80 percent of riparian and wetland habitat. Through full implementation of AMPs, 3,094 acres of unsatisfactory riparian is expected to improve to satisfactory condition. This amounts to 74 percent improvement. About 1,110 acres outside of AMP allotments would remain in unsatisfactory condition. Short-term impacts will show gradual improvement in the riparian condition attributed to grazing. Over the long term, AMP acres would be in satisfactory condition. Unsatisfactory acres outside of AMPs would continue as unsatisfactory riparian. This is a decrease compared to Alternative A. Satisfactory riparian (637 acres) in all existing allotments would continue in satisfactory condition for both the short and long term. This is the same compared to Alternative A.

Mineral exploration and development impacts in riparian areas are the least mitigatable for the placer operations. Sand and gravel permits will not be allowed in riparian areas. Phosphate, oil, and gas development will be designed for riparian protection. Impacts discussed under the mountain coniferous habitat are similar for mining claims, however the importance is exponential because the riparian zone

provides a high diversity of habitat for a large number of species. Currently there are about 98 acres of riparian in mineral development areas. This is the same compared to Alternative A.

Aquatic Habitat

The resource area has about 67 miles of streams and rivers producing fish. Timber management activities associated with this habitat are most critical because of the need to build roads. The application of riparian management area guidelines and SOP avoid or reduce adverse impacts on the aquatic habitat. Short-term impacts will be encountered for stream crossings. However, long-term impacts are negligible except for periodic maintenance or replacement. This is the same as compared to Alternative A.

The range management program affects 48 percent (29 miles) of aquatic habitat under this alternative. Impacts on fisheries habitat here are the same as discussed for range management under aquatic habitat in Alternative C.

Mineral exploration and development impacts on fisheries habitat here are the same as discussed in the aquatic habitat section of Alternative C.

Threatened and Endangered Species Habitat

Threatened and endangered species impacts for this alternative are the same as discussed for Alternative B.

Conclusion

Under Alternative E there are few or no short-term benefits from timber management, but some potential long-term impacts on big game summer range (about 36,900 acres) because wildlife habitat management is not emphasized. This is a decrease compared to Alternative A. At lower elevations timber management impacts on big game winter range would be moderated in the short term and tend toward satisfactory maintenance or improvement in the long term. This is an increase compared to Alternative A. Range management impacts on habitat at upper and lower elevations are mostly mitigated in both the long and short term through stated AMP wildlife goals on 73 percent of the allotment area. This is an increase compared to Alternative A. Conflict between livestock and wildlife would continue on 26 percent of the grazing allotments in both the short and long term, particularly in areas of newly created transitory range. This is a decrease compared to Alternative A. Of the total unsatisfactory big game winter range forage, 5,370 acres (73 percent) would be expected to improve to satisfactory condition. The development of mining claims will cause significant impacts on limited acres of wildlife habitat in both the short and long term. However, relatively few acres are currently disturbed by mining development. This is the same compared to Alternative A. Other energy and mineral leases have stipulations to mitigate impacts on wildlife habitat. At the current activity level, short and long-term impacts are negligible for phosphate, oil, and gas activities. This is the same compared to Alternative A.

Timber management will have some short-term impacts on the mountain grassland habitats but few long-term impacts. This is a decrease compared to Alternative A. Intensive livestock management will show long-term forage improvement on AMP acres. This is an increase compared to Alternative A. There will be little or no improvement outside of AMP allotments (about 27 percent of total unsatisfactory big game winter range forage). This is a decrease compared to Alternative A. Mineral impacts on wildlife habitat will be about the same as described for mountain coniferous in this conclusion section. This is the same compared to Alternative A.

Riparian and wetland habitats will experience few unmitigated short-term impacts, and there will be negligible long-term impacts with the exception of some old-growth loss in timber management areas without wildlife goals. This is a decrease compared to Alternative A. Through AMPs, 3,094 acres (74 percent) of unsatisfactory riparian is expected to improve to satisfactory condition in the long term. This is an increase compared to Alternative A. The remainder of unsatisfactory and satisfactory riparian will continue in current condition. This is a decrease in unsatisfactory riparian attributed to grazing compared to Alternative A. Mineral impacts on wildlife habitat are most significant where there is development of mining claims in both the short and long term compared to other energy and mineral development. However, at the completion of mining activities rehabilitation of the site is required. Other energy and mineral development is not permitted. This is the same compared to Alternative A.

Impacts to aquatic habitat are the same as presented in the conclusion section of Alternative C.

Land base adjustment under this alternative is the same as discussed for the conclusion of Alternative B.

Impacts on Social and Economic Conditions

Under this alternative just over 7,030 mbf would be harvested per year. This level of harvest provides employment for 63 workers. At a 1981 average wage of \$19,984 this level of employment will add \$1,258,992 to the local economy. At an average stumpage value of \$46.80 per thousand board feet the timber is valued at \$329,004. The indirect income to the local economy from the wages earned adds an additional \$987,012. Other impacts are as discussed under Alternative A.

Under this alternative, twelve allotments would receive increased grazing and two would receive reduced grazing use in the short term. On the average, changes range from less than 1 percent in Class 4 to an increase of 38 percent in Class 2. These changes result in a less than 1 percent increase in income on each size class (see Appendix R). Some individuals could receive a large income increase from a larger than average AUM increase. Most however will be very close to the average. Table 4-15 lists the number of ranches in each size class that will be affected by this alternative.

TABLE 4-15
NUMBER OF RANCHES IN EACH SIZE CLASS AFFECTED BY THE GRAZING PROGRAM IN ALTERNATIVE E

Size Class	Ranchers Affected in the Short Term	Ranchers Affected in the Long Term
1	1	4
2	4	5
3	4	9
4	5	10

This alternative would increase the number of acres of land available for oil and gas leasing. Most of these acres are available for leasing with seasonal restrictions. These restrictions would create some difficulty in scheduling activities and in some cases could increase drilling costs. These costs however, would be an insignificant portion of the cost of exploratory drilling. The relative cost of the commodity on a world wide basis has a much greater effect on exploration decisions than specific exploration costs.

The withdrawal of public land from mineral entry would increase slightly under this alternative. This should have an insignificant effect on the opportunity to locate claims on public land.

The area available for roadless recreation would decrease. This change would tend to cause those who use BLM lands for roadless recreation to use nearby Forest Service lands. The supply of roadless areas is probably sufficient to handle current demands.

This alternative would increase the number of acres where wildlife habitat management will be emphasized. To the extent that these improvements increase animal numbers, the opportunities for the consumptive and nonconsumptive use of these animals would increase. The level of hunting available is determined by harvest levels and licensing which is the responsibility of the Montana Department of Fish, Wildlife, and Parks. The wildlife habitat and possibly the population would improve under this alternative.

Under this alternative 520 acres adjacent to a Forest Service roadless area would be recommended for wilderness designation. This designation would not have a significant affect on local social and economic conditions. The release of the other wilderness study areas for other uses could reduce the area available for use for primitive recreation purposes. This would likely be a loss of opportunity rather than a loss to the economy since there are a number of substitute areas within a short drive.

Conclusion

This alternative provides a timber harvest which could create 63 jobs or 6 more than at present. There would also be a small increase in some rancher income from increases in BLM grazing.

Cumulative Impacts

The total spectrum of multiple use management has both direct and indirect impacts on wildlife habitat. The wildlife section analyzed the separate impacts of the actions of each resource program. However, when these programs affect the same land area, their impacts cumulatively have greater significance for wildlife habitat. Table 4-16 compares the percentage of public land which will be managed to achieve wildlife habitat goals. These goals are listed in the Management Area Prescriptions (see Appendix A) and also in activity plans.

TABLE 4-16
PERCENT OF PUBLIC LAND MANAGED TO ACHIEVE WILDLIFE HABITAT GOALS

	Alternatives				
	A	B	C	D	E
Percent of P.L. with wildlife habitat goals	51	22	70	70	69
Percent of CFL with wildlife habitat goals	28	0	66	66	65
Percent of CFL with riparian habitat with wildlife habitat goals	23	0	71	71	57
Percent of P.L. grazed by livestock that has wildlife habitat goals	30	66	78	78	74

The cumulative adverse impacts to wildlife habitat due to grazing, timber management, and mineral activities are expected to be moderate under Alternative A. Under Alternative B, the cumulative impacts are expected to be moderate. Intensive grazing management will bring substantial improvement to wildlife habitat. Under Alternatives C and D, the cumulative impacts are expected to be low. Under Alternative E, the cumulative impacts are expected to be low to moderate.

Unavoidable Adverse Impacts Wilderness

The impacts to the wilderness resource in Alternatives B, D, and E represent to varying degrees unavoidable adverse impacts. If the areas presently under consideration for wilderness are returned to multiple use management by Congress, the areas would be available for timber harvest, livestock grazing, wildlife habitat and watershed improvement projects, energy and mineral development, utility and transportation corridor development, and recreational improvements. All these activities would impact the WSA's naturalness and solitude. These management activities would leave their imprint on the areas and make them unsuitable for future consideration for wilderness status.

Visual

The management plan presented in Alternative B would allow a deterioration in visual resources in sensitive areas (riparian zones, recreation sites, special management areas, and visual corridors).

Relationship Between Short-term Use and Long-term Productivity

The minerals program as regulated by the 3809 Regulations would allow mining operations to impact the productivity of the area for other resources. These impacts would be greatest for watershed, soils, wildlife and fisheries habitat, and visual resources. Mining operations in the Garnet Resource Area peaked about the turn of the century. However, the impacts of this activity on watershed, soils, etc. are still evident after ninety years.

Active mining operations in the resource area currently occupy only about 40 acres. The impacts on the local area are significant but the total acreage is insignificant over the entire resource area.

Irreversible and Irretrievable Commitment of Resources

Wilderness

The imprint of management activities, such as logging and rights-of-way, associated with multiple use management of backcountry areas would render these areas unsuitable for future consideration for wilderness status. If the areas presently under wilderness study totalling 27,737 acres are not designated as wilderness, the opportunity for wilderness recreation in the area would also be forgone. This represents an irretrievable commitment of wilderness resources for the foreseeable future.

Minerals

The extraction of energy and mineral resources represents an irreversible and irretrievable commitment to use a nonrenewable resource. The process lessens the supply of basic mineral materials to meet future needs.

The creation of wilderness would represent an irretrievable commitment of energy and mineral resources under the present wilderness laws. The Congress would determine if the commitment would remain irreversible into the future.

Forestry

Wilderness designation would represent an irretrievable commitment of timber resources under the present wilderness laws.

Recreation

Intensive timber management will create and sustain a herbaceous understory on sites not currently supporting a herbaceous layer. Native habitat will take on a cultivated character through resource development. This will alter the rugged, natural setting that visitors tend to associate with a recreational experience in western Montana.