



ALTERNATIVE A: PROPOSED RESOURCE MANAGEMENT PLAN

Impacts on Air Quality

The leasing and development of the Great Falls Coal Field could affect the air quality of the area. Dust from coal development would degrade the present air quality. Formation of acid precipitation due to the interaction of particulate matter with water vapor could also occur if a coal burning plant were built in the area.

Dust from oil and gas development activities, such as the construction of pumping stations and pipelines, could also have short-term impacts on air quality. In addition, the flaring off of gas at the well head would have some impact on air quality. Long-term impacts would occur if a refinery were built in the area.

Production of sour gas found along the Rocky Mountain Front would likely require development of one or more sweetening plants in order to remove contaminants such as hydrogen sulfide. Sour gas is particularly hazardous because of its toxicity; however, procedures are available to minimize impacts and risks.

In summary, this alternative could result in decreased air quality, primarily in the areas around the Great Falls Coal Field and Rocky Mountain Front. The significance of such impacts would be minor if appropriate mitigating measures are applied at the time of lease application and project development.

Impacts on Soil and Water Resources

By far the greatest impact to soils from timber harvesting, oil and gas exploration and development, mineral exploration and development, utility and transportation corridors, and coal leasing is the construction and use of roads. During the construction phase, the excavation of soil from its natural position alters the natural drainage of slopes and exposes soil to the elements. On steeper slopes, a cut at a critical point can trigger landslides. Roadside cut and fill slopes are bare erodible watersheds that increase sediment and drainage problems. Fills add weight to the underlying soil mass, and on steep hillsides they can also trigger landslides or slip failures. The added weight of fill material on faulty foundations can also result in slumps and settlements.

The construction and use of roads and trails will also cause compaction. Compaction of the soil by vehicles and heavy equipment severely limits root penetration, air and moisture infiltration, and vegetative growth. The amount of compaction will vary depending on the soil and its associated moisture content at the time of compaction. On most soils, compaction will decrease the infiltration rate, which in turn increases runoff. This accelerates erosion and creates rills and gullies.

Livestock use also causes soil compaction directly and indirectly. Trampling by livestock is a direct cause of compaction. Under the moist soil conditions normally encountered during spring runoff, even light trampling can effectively compact the soil.

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Compaction caused indirectly by livestock occurs when exposed soils on overgrazed ranges are subject to rainfall impact. The beating action exerted by rainfall on bare soils seals the soil surface. This causes reduced infiltration, resulting in increased runoff and erosion.

Wind and water erosion can be a problem on many soils in the Rocky Mountain Front area. The erosion problem will occur when the areas are further disturbed by road and drill pad construction. Such areas will be more susceptible to erosion because of the increased area of bare soil. Soils that now show symptoms of erosion will be seriously impacted by any soil-disturbing activities. Rehabilitation of these soils will be more difficult because of past losses of topsoil and nutrients.

Trampling displacement is a form of erosion similar to water erosion. Like water erosion, trampling displacement is more evident as slopes increase. This form of erosion occurs most readily when the soil is very wet or very dry.

When plant cover is greatly reduced, either by grazing or other factors, sheet, rill, gully, and wind erosion are usually apparent. This results in a further loss of vegetative productivity as well as offsite sedimentation damage.

To reduce erosion, grazing systems that incorporate rest are more effective than annual season-long use. If livestock grazing were eliminated or substantially decreased, plants would initially respond with increased vigor, resulting in increased ground cover. This would reduce bare ground and erosion potential.

In timber harvesting, the type of harvest practice and method of yarding has a great deal of influence on the amount of erosion that may occur. Clear-cutting, for example, can have the greatest detrimental impact on soils because of the substantial decrease in ground cover, which increases the potential for accelerated erosion. Clearcutting also increases the opportunity for landslides on noncohesive soils. Selective cutting, where a substantial number of trees are left, can have the least amount of impact on soils.

The method of yarding influences the amount of roads that must be built, as well as the number of skid trails and the amount of soil damage on each skid trail. The aerial yarding system has the least impact on soils, whereas yarding systems that drag logs over the soil have considerably higher detrimental consequences. Ruts are created and compacted, and channel runoff downslope. This increases the opportunity for rills and gullies. Motorcycle use also creates ruts that channel runoff and increase erosion.

Motorized vehicle impacts will be similar to those caused by motorcycle race events. However, the slopes would probably not be as steep. The susceptibility of the soils to move is a prime consideration for determining impacts.

Mine tailings could be another area of concern. These bare soils will naturally erode, thereby increasing sediment loads into any nearby creeks or intermittent drainages. Aside from the erosion aspect, toxic substances are occasionally brought to the surface and could make the soil around the tailings pile sterile. The more toxic tailings erode, the larger the area of possible sterilization. This impact would persist until the toxic materials were leached below root depth or until the area was rehabilitated.

Reserve and waste pits will be built near each oil and gas well to contain drilling muds and formation fluids. Such construction activities could affect slope stability in steeper areas. Additional slope failure and slumping could be induced by saturation from fluids or overloading by heavy equipment.

Oil spills, although not frequent, can occur on a site specific basis from time to time. Oil may seep into pits, berms, drainages, or low areas around wells. Permeable soils will be the most severely affected by oil seepage because they will allow the deepest oil penetration.

Fluids brought to the surface may be toxic to vegetation and act as soil sterilants. These toxic materials may persist for several years until they are broken down or leached from the soil profile. These sterilized areas will be conducive to accelerated erosion.

Those areas stipulated for no surface occupancy will have no impacts on soils from oil and gas development. Seasonal stipulations that would restrict development activities to periods when the soils are sufficiently dry or frozen and snow covered will reduce the detrimental effects of soil compaction.

Under this alternative, the BLM would try to prevent, rather than mitigate the degradation of water quality. By reviewing activities before they happen, and following applicable laws and regulations, the water resources would benefit from the adoption of this alternative.

Water resources could be impacted by sediment from the development and rehabilitation of roads, pipelines, drilling pads and reserve pits. ORV use could decrease ground cover and infiltration, which in turn increases sediment. Failure of a reserve pit, or a blowout, with a corresponding oil spill would constitute a worst case impact.

Underground mining of coal could disrupt the groundwater required in the area by dewatering

the area down to the depth of mining. At times, the coal seam will be an aquifer. If such an aquifer is disrupted by mining, both the quality and quantity of groundwater supplied to streams will be affected.

Changes in groundwater flow patterns and an altered water table can also result from mining (USDA, FS 1980c). Water quality can be adversely affected by water percolating through mine spoils or mineral surfaces. Impacts could occur during development of a mine site and service roads.

Chemicals used in the mining process could enter the groundwater if they are not properly handled. This is a special concern in the Scratchgravel Hills where cyanide is used to recover gold. The site lies in close proximity to houses that use wells for their water supply.

Impacts to water resources on allotments would be positive, since these areas would be developed for greater forage production and greater livestock distribution. Allotment management plans that are beneficial to riparian habitat would also benefit the water resource. Increased ground cover would improve general watershed condition in the long term. Overall there will be about a 2,000-acre decrease in unsatisfactory watershed condition.

Short-term impacts (5 to 10 years) on water resources from timber harvesting would be an increase in sediment and possibly an increase in water yield. These impacts would decrease as revegetation occurred. Long-term impacts would occur where roads were left in place after harvesting.

Any exposure of streams to sunlight as a result of clearcutting would mean an increase in the temperature of the water running through the exposed section. The removal of streambank vegetation also increases the chance of overland flow reaching the stream unimpeded. Leaving buffer strips shades the stream and also protects channel banks and streambeds during logging. See Appendix C for best management practices adopted by the BLM.

Transfer of land parcels from one owner to another would also mean a transfer of water rights to the new owner.

Outstanding Natural Area designations along the Rocky Mountain Front, and ACEC designation for the Sleeping Giant area, accompanied by no surface occupancy stipulations to protect natural values, will result in reduced surface disturbance and fewer impacts to soil and water resources. The effects of special designations are essentially identical to the effects of wilderness designation; however, special designations would presumably

provide less secure protection because they are administrative, not legislative.

Conclusion

In general, impacts to soil and water resources can be mitigated on a site-specific basis through the application of standard operating procedures and the general best management practices listed in Appendix C.

Road construction and use from oil, gas, and coal developments and timber harvesting probably constitutes the most significant impact of this alternative on soil and water resources. Erosion and the resulting sediment originating from the road network would be the most costly in terms of downstream, offsite costs. Onsite reductions of vegetative productivity would be significant if mitigating measures failed. There will be approximately a 2,000-acre decrease in unsatisfactory watershed conditions from the current situation based on changes in grazing allotment management. This decrease is probably insignificant.

Impacts on Energy and Minerals

This alternative allows occupancy in the RMF on 85,660 acres (72%) of the 118,250 acres administered by the BLM. Leases would be issued with no surface occupancy stipulations on 14,040 acres (12%). In addition, surface occupancy may be prohibited on steep slopes and adjacent to surface water through the application of the standard stipulations contained in the Butte District Oil and Gas EA. A rule of thumb is that oil and gas resources over one-half mile from a drill site probably cannot be drained without directional drilling. Directional drilling in structurally complex areas is unproven and we have assumed it is not feasible in our assessment of environmental impacts. Therefore, if no surface occupancy areas are over one-half mile wide, the area more than one-half mile from an occupancy site is not leased, since the feasibility of developing oil and gas from beneath it is poor. In some cases of extreme topography, this distance is reduced to one-quarter mile. Based on this rule of thumb, leases would be denied in the core of some no surface occupancy areas. This acreage amounts to 18,550 acres (16%).

Because of the high potential for natural gas in the Rocky Mountain Front, designation of the four outstanding natural areas (ONAs), accompanied by no surface occupancy stipulations to protect natural values, may have a serious impact on natural gas exploration and production. **These designations will result in approximately 10,000 acres having additional restrictions on oil and gas exploration and development.** ONA designation is an administrative action and as

such, is more flexible and less permanent than congressional designation as wilderness. Thus, in the event that natural gas potential becomes more important than the protection of various natural values, ONA designation is more easily altered to favor the exploration and production of natural gas. In addition, hardrock mining is not prohibited in ONAs, so there would be little impact on activities associated with it.

If tracts of federal surface are disposed of, potential problems with split estate ownership can be created. While these problems do not affect the availability of the land for mineral exploration, they may make exploration more complicated, more time consuming, and/or more expensive.

If travel restrictions are imposed in the Scratch-gravel Hills and Limestone Hills, mining claimants who are planning exploration operations might be required to file a plan of operations under 43 CFR 3809 instead of a notice (which is much less detailed). This is most significant in the Scratch-gravel Hills because of their higher mineral potential.

This alternative would have virtually no adverse impacts on the availability of federal coal for exploration and development. Through the application of the coal unsuitability criteria (see Appendix H) approximately **1,780** acres would not be available for the location of surface facilities. This acreage would have an insignificant impact on recovery of the coal resource.

Conclusion

Mitigating measures have been incorporated into the proposed action, which also incorporates measures developed in the Butte District Oil and Gas Environmental Assessment. The production and use of coal, oil, gas, and other minerals is an irreversible commitment of natural resources. To the extent that these resources are developed under this alternative, there will be an irreversible and irretrievable commitment of resources.

The short-term impacts of this alternative are limited. Much of the area is already leased for oil and gas, and coal, oil and gas, and other minerals will generally be available as demand dictates. The long-term impact may be the loss of potential production from areas in the Rocky Mountain Front that have high potential for natural gas. Coal, oil, gas, and locatable minerals would generally continue to be available as demand dictates, except for some areas on the Rocky Mountain Front.

Impacts on Lands

This alternative would result in a more active land tenure adjustment program than at present. Both sales and exchanges would increase in volume. It is unlikely that any acquisitions by purchase would occur due to budgeting constraints.

There are certain generic impacts created by disposal and acquisition actions regardless of the method used to carry out the transaction (see Tables 4-1 and 4-2). The main benefit of exchange is that it tends to balance the impacts of disposal with those of acquisition, and by regulatory requirement, should result in a net increase in the public values. Only the impacts of disposal are associated with sale.

There is no past example of a large scale attempt to dispose of isolated tracts of public land under the fair market value requirements of FLPMA. However, most of the isolated tracts in the disposal zone were left out of past patent applications because of such physical characteristics as steep slopes, rock outcrops, etc., that minimized their value for agricultural use. Now, most of these tracts are too isolated and inaccessible for commercial or residential use. As a result, it is unlikely that more than 50% of the land meeting disposal criteria could actually be sold or exchanged. There is also a high probability that there will be higher demand for disposable tracts located in the retention zones than for tracts in the disposal zones. This is because the tracts in the retention zone tend to be closer to towns and residential areas. Therefore, a large scale, rapid, land tenure adjustment program is unlikely. It is more likely that such a program will be a gradual long-term process.

Disposal of all suitable tracts within the resource area would be unlikely to cause any significant impact to public land resource values or to the local economics. The only potentially significant impacts would be to individual land users or owners of land adjacent to, or surrounding, disposal tracts. Property taxes and payments in lieu of taxes (PILT) would also be affected to some extent.

Emphasis on sale would reduce the potential for future land acquisitions by depleting the stock of land available for future exchanges. This could result in a less desirable final ownership pattern than relying primarily on exchange.

**TABLE 4-1
IMPACTS FROM DISPOSAL**

Positive	Negative
Potential for placing land in a higher use such as agricultural, commercial, or residential.	Potential loss of resource values, primarily wildlife and recreation.
One time payment to treasury.	Loss of future revenues from land use authorizations.
Decreased management costs for the BLM.	High cost of processing disposal.
Increase in local property tax revenues.	Increase in property taxes for person who purchases public land.
Could relieve current user of user fees.	Loss of future exchange potential as disposable tracts are depleted.
Can be used to solve existing unauthorized uses.	Loss of Payments in Lieu of Taxes
Can provide additional land for residential development in urban areas.	Potential economic strains on person who currently uses land but cannot afford to purchase it.
Opportunity for ranchers to block up their holdings.	Possible additional encumbrance and development costs for mining claim holders.
	Loss of future open space and parkland which could be conveyed under the R&PP Act in urban areas such as Helena.
	Potential for lowering property values in a large scale program.

**TABLE 4-2
IMPACTS FROM ACQUISITION**

Positive	Negative
Improves resource values of existing public land	Can displace existing authorized users if their use conflicts with management plans for the area.
Can provide improved public access to important resource values.	Removes land from the property tax base.
Improves manageability of existing public land by eliminating private inholdings with potential for conflicting uses.	Substantial costs in processing cases.
Creates more manageable land ownership patterns.	
Improved manageability can decrease administrative costs.	

Conclusion

To avoid unnecessary hardships on current land users or surrounding and adjacent land owners, modified competitive bidding procedures or even direct sale (noncompetitive) can be considered over open public competitive sale procedures.

Using exchange as the primary method of disposal, with sales only being used when necessary, will assure an optimum final land ownership pattern.

Sale often offers a simpler, quicker method of disposing of land, but decreases the long-term potential for a desirable land ownership pattern by depleting the stock of land available for future exchanges, while achieving only half of the desired results: the disposal of undesirable tracts.

Although any land tenure adjustment action could technically be reversed, for all practical purposes such actions should be considered as irreversible.

The only remaining potentially significant negative impact would be the possible economic hardships on current users and surrounding and adjacent owners.

Impacts on Recreation Resources

Some disruption of hunting may occur adjacent to areas of oil and gas activities, but in general the hunting opportunity would be protected by the wildlife stipulations.

Other recreation activities such as fishing, hiking, backpacking, picnicking, cross-country skiing, and snowmobiling may be impacted by a disruption of the natural scene. However, due to the type, location, and season of the wildlife stipulations, the impacts will be minimal.

The primary impact of grazing on recreation is in riparian zones. In some cases, grazing reduces the desirability of a site to such an extent that recreationists choose not to participate in an activity. However, in most cases, recreationists and livestock can coexist on the same site if use by either one is not too heavy. Generally, in nonriparian allotments, moderate changes in livestock use do not adversely affect recreation to any great degree.

Forestry activities have a tendency to shift the recreation opportunities in an area from primitive or semiprimitive types to those that occur in roaded natural settings. The greater the amount of forestry activity in an area, the greater the amount of displacement. Hunting pressure generally increases with increased road access, as do driving for pleasure, ORV use, woodgathering, and similar activities. Motorized trail riding and most nonmotorized activities are reduced or completely displaced.

Recreation opportunities would remain secure on land placed in the retention category. Recreation opportunities generally would be eliminated on lands that were disposed of, unless the disposition were to another federal agency, a state agency, or a city or county government. Land placed in the further study category would continue to be available for public recreation unless it was disposed of at a later date.

If mining takes place in the Scratchgravel Hills, nonmotorized forms of recreation such as horseback riding, hiking, picnicking, and other similar activities would be affected more than motorized recreation. Generally, the disruption of the land surface, the equipment and accompanying noise, and other similar facets of mining activity reduces the desirability and the opportunity for recreation. Motorcycle or other motorized use is not affected to the degree that other uses are. At times, ORV use can actually be enhanced by mining activities. For instance, many of the trails which motorcyclists use in the Scratchgravel Hills were originally roads used by miners and prospectors. It is likely that such uses will follow future mining in the area also.

The opportunity to participate in organized motorcycle activities would be eliminated in the Scratchgravel Hills and Limestone Hills under this alternative. This could result in shifting demand to other areas, but because the current demand is small, the overall impact will probably be insignificant. Participation in other types of recreation, particularly nonmotorized types, could increase in the Scratchgravel Hills and Limestone Hills because of the closure.



Opportunities for motorized recreation would be reduced somewhat by travel restrictions in the Limestone Hills and Scratchgravel Hills. If travel restrictions are imposed in other areas, this would reduce motorized recreation opportunities in those areas as well. If vehicle closures are instituted in any areas, motorized recreation opportunities would be eliminated. At the same time non-motorized recreation opportunities would probably be enhanced in the Limestone Hills and Scratchgravel Hills and any other areas where travel restrictions or closures might be instituted.

Special designations, accompanied by later site-specific management planning, which would define the scope and priorities for management of recreation resources, may result in more visitor services and more resource protection to enhance the existing recreation situation. It is doubtful that any negative effects will result to recreation as a result of special designations.

Conclusion

Impacts on recreation from timber harvesting can be mitigated to some extent by reducing the number of new or upgraded roads, limiting methods of harvest, limiting amount of harvesting in a general area, and other similar techniques. However, timber harvesting generally will create an irreversible commitment of resources regarding recreation use. Most recreation use patterns are changed by timber harvesting and seldom return to the previous situation. Generally, recreation will tend to move further towards the more developed forms of activity and the more primitive forms will be displaced or eliminated.

Limitations on the number and type of motorcycles, the time of year, or the size of the event could help alleviate conflicts between motorcycle race events and other recreational uses.

Overall, with the exception of reduced motorized recreational uses in specific areas, the recreation program will not be significantly altered from the present situation under this alternative.

Impacts on Visual Resources

Impacts to visual resources would continue to be mitigated on a case-by-case basis in accordance with BLM visual resource management policy. Conformance to the different degrees of modification allowed under various management classes would result in essentially no significant impairment of visual resources. The Sleeping Giant ACEC would be elevated to Management Class 2 until completion of a site-specific manage-

ment plan for the area. This would result in at least a temporary increase in protection for visual resources in this area.

Impacts on Cultural Resources

The impacts of management decisions on cultural resources will be minimal or nonexistent, if all pertinent laws, regulations, and current policies are followed. Continuing impacts to, and loss of, non-significant sites not eligible for the National Register of Historic Places will occur. Depending on the scale and timing of land ownership adjustments, impacts can be expected to occur to cultural resources. Residual impacts will occur to National Register eligible sites, even after mitigation measures, if such sites are transferred to nonfederal agencies or individuals unless appropriate covenants are applied. An irreversible and irretrievable commitment of resources will occur if a determination is made that other resource values outweigh the continued management of a cultural resource site (an adverse effect determination). Conversely, cultural resources of national significance can be brought under federal protection through land ownership adjustments, thereby bringing consolidated areas of prehistoric and historic use under cultural resource management.

Impacts on Wilderness Resources

Nondesignation of the three study areas (11,218 acres) along the Rocky Mountain Front would not result in any additional adverse impacts to the wilderness values from oil and gas activity. This is because the preferred recommendation to designate these former WSAs as Outstanding Natural Areas would provide almost equally restrictive short-term protection. Long-term protection would not be as secure since an ONA designation is not as permanent as wilderness designation.

All these areas possess a high potential for oil and gas, and as a result, are entirely leased. These leases, regardless of the alternative, are not subject to nonimpairment stipulations, because the Interim Management Policy and Guidelines no longer apply for these former WSAs. Impacts associated with exploration and development activities would be subject to other resource stipulations, and consequently adverse impacts on wilderness values could be mitigated to some extent. Nondesignation of the two remaining WSAs will make their wilderness values susceptible to both short and long-term degradation from oil and gas exploration and development activities. These areas would no longer be protected by non-impairment stipulations.

Livestock management would have little impact on the wilderness values within four of the five areas. The ungrazed Yellowstone River Island would be unaffected, while designation of the three Rocky Mountain Front units as Outstanding Natural Areas would prevent significant range impacts from occurring.

Although no new grazing improvements are anticipated for the fifth unit, Black Sage, some natural impairment could occur due to fewer restrictions governing the use of motorized vehicles for grazing management purposes.

Nondesignation of the five study areas (17,197 acres) would have some long-term, adverse impacts on wilderness values. Black Sage and the Yellowstone River Island would be susceptible to degradation, since these areas would be open to development. Blind Horse Creek, Chute Mountain, and Deep Creek/Battle Creek however, will be managed as Outstanding Natural Areas, thereby ensuring protection of their outstanding natural values. The diversity of the NWPS would not be enhanced since 2,062 acres of the under-represented Foothills Prairie ecotype would not be added to the system.

Forest management would not adversely affect wilderness values on four of the study areas, since the timber would be withdrawn. Approximately 300 acres of low quality woodland timber within the Black Sage unit would be available for low priority harvest. Small localized sales of forest products would negatively influence the naturalness and solitude of the area.

Four of the study areas would be unaffected by motorcycle use events because they would be closed to such events. Black Sage, however, would be open to these events, and if they were allowed, they would have significant impacts. The noise and surface disturbance associated with this activity would noticeably degrade the area's opportunities for solitude and primitive recreation, as well as its natural values.

The Yellowstone River Island is unaffected by motorized vehicle access since motorized travel within the unit is not feasible. Blind Horse Creek, Chute Mountain, and Deep Creek/Battle Creek would be closed to the general public, but special allowances would be made for use by ranchers. The limited access would not have significant impacts on the wilderness values. Black Sage, however, would not be closed to the public. As a result, the area would be subject to temporary visual and audible impacts, as well as the more lasting natural disturbances. Due to the area's fragile terrain and lack of physiographic barriers, off-road use is a major potential impact on the wilderness values in Black Sage.

The three units on the Rocky Mountain Front would be essentially closed to utility and transportation corridor selection as a result of Outstanding Natural Area designation. Although Black Sage and the island would be available for corridor review, the likelihood of selection would be remote due to their locations. If such a project was constructed, wilderness values would be forgone.

The effects of designating the Blind Horse Creek, Chute Mountain, and Deep Creek/Battle Creek areas as Outstanding Natural Areas would be similar to the effects of wilderness designation, in that the protection of natural values would be emphasized. Hardrock mining would be permitted, but is not expected to be significant. Special designations are considered less permanent than wilderness designation; thus, the degree of protection provided to natural values is less than that provided under wilderness designation.

Impacts on Timber Resources

Under this alternative, **9,503** acres of the 58,099 acres of the suitable commercial forestland (CFL) would be set aside from the harvestable base because of multiple use restrictions (see Table 2-7). Of the **9,503** acres of CFL that would be set aside, **8,035** acres would be set aside for wildlife reasons and 1,468 acres would be set aside for recreation reasons.

Of the **48,956** acres in the available base, **37,888** acres would have some silvicultural restrictions based on the TPCC inventory. The remaining **10,708** acres would have no restrictions.

Managing **48,956** acres of commercial forestland in the harvestable base for the production of forest products would result in a potential sustainable allowable cut of approximately **23.95** mmbf/decade.

Under this alternative, 2,650 acres of woodland would be unavailable for the harvest of forest products. Managing the remaining 16,290 acres of woodland would make additional forested acreage available for limited harvest of sawtimber, fuelwood, and minor forest products.

Harvest practices including clearcutting, shelterwood, and selective cutting would influence vegetative cover on approximately **800** acres per year. This would impact wildlife and grazing. The impact would be in the form of increased or decreased forage and cover.

Other significant impacts of forest management are related to access caused by road construction. These impacts may be positive or negative, depending on the need to make specific public land

available for increased public use, and on the need to protect wildlife or other resource values from increased human disturbance.

Forest development practices such as thinning, planting, and the use of herbicides would improve stocking and growth potential of forest stands and decrease pest and disease problems in these stands.

Grazing will influence forest management primarily by endangering the establishment of regeneration. This influence can be partially mitigated through control of season of use and livestock distribution.

Although the Scratchgravel Hills are set aside (1,468 acres) for recreation purposes, the majority of the commercial forestland has relatively low productivity. This amounts to a loss of approximately 50 mbf/yr. from the potential allowable cut.

Loss of timber production in response to wildlife needs involves **8,035** acres of the commercial forest land base. This amounts to an average reduction in yield of **436** mbf/yr.

Acreage set aside for fragile sites and reforestation problems amount to 4,982 acres or 8% of the base productivity.

Impacts on Range Resources

Under this alternative, a short-term reduction of 3,009 AUMs is proposed for nineteen allotments and a short-term increase of 805 AUMs is proposed for seven allotments. These changes would result in a net decrease of 2,204 AUMs or 7% of the current authorized use.

These short-term reductions or increases are needed to achieve the management objectives developed for each allotment in the I category (see Appendix E). Appendix N displays the recommended change in AUMs for each allotment in the I category. This appendix also indicates allotments where management changes other than changing the total number of AUMs are needed to achieve the management objectives.

In the long term, there would be 1,916 AUMs available for livestock use in addition to the 31,501 AUMs of current authorized use. Because the short term proposes a net downward adjustment, this long-term increase actually represents a net upward adjustment of 4,120 AUMs when compared to the short term. This projection of additional livestock forage is dependent upon implementation of grazing systems, installation of range improvements, and performance of land treatments to increase forage production or con-

vert potentially suitable sites to suitable. Table 4-3 summarizes the short and long-term changes proposed in current authorized use. Table 2-5 summarizes the kinds and quantities of improvements and treatments planned under this alternative.

TABLE 4-3
CHANGES IN GRAZING PREFERENCE:
ALTERNATIVE A

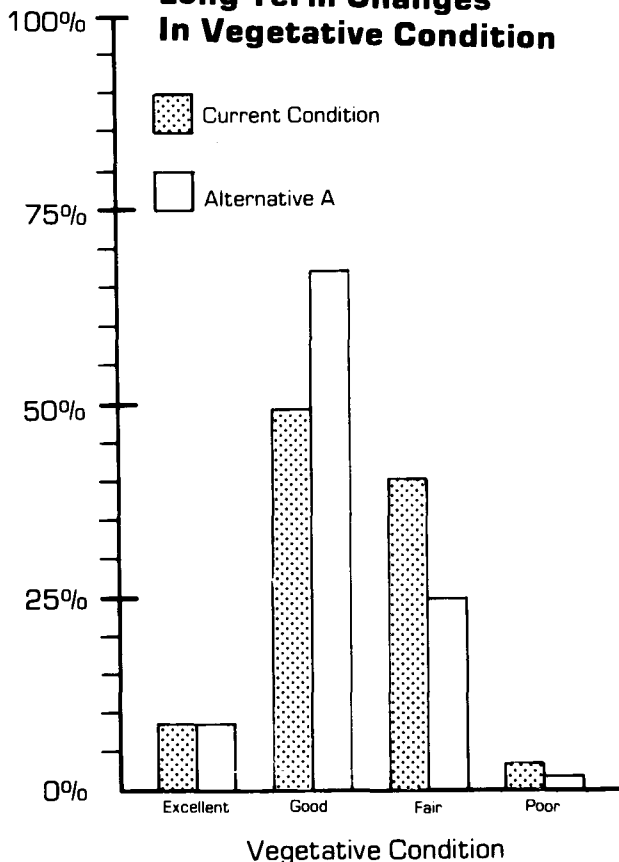
	Total AUMs	Net Change in Use	
		AUMs	%
Current Authorized Use	31,501	—	—
Short-Term Adjustment	29,297	-2,204	-7.0
Long-Term Adjustment	33,417	+1,916	+6.1

The impacts on each livestock operator would vary according to how grazing use in the allotment fits into the yearlong ranch operation. Seventeen of the nineteen reductions proposed would be more than 15% of current authorized use. These seventeen reductions would normally be phased in over a five year period, thus permitting the operator to locate alternative pasture or to reduce herd size. All seven of the allotments proposed for increases could be subject to the same five year phase-in, depending on the level of monitoring required to establish the final adjustment.

The only significant short-term change in vegetation that would occur under this alternative is a probable increase in the vigor of preferred forage plants where AUM reductions would result in less forage utilization.

Figure 4-1 illustrates the expected changes in vegetative condition in the long term. The major long-term effect on native vegetation will be an improvement in the kinds and amounts of vegetation produced on sites that are now in poor or fair condition. That is, some poor condition sites would be converted to fair condition and some fair condition sites would be converted to good condition. These projections are based on the potential of the vegetative community that presently occupies a site to improve in response to changes in grazing management. The assumption is made that the vegetative condition for sites in Category M and C allotments would not change. The 2,860 acres proposed for reseeding or burning (see Table 2-5) were not included in computing long-term vegetative condition for Alternative A, since they would become unclassified acres once the native vegetation was disturbed.

FIGURE 4-1
Alternative A
Long Term Changes
In Vegetative Condition



The range improvements that are summarized in Table 2-5, would be needed to implement management objectives and therefore would have a desirable impact on vegetation. Because many of these improvements would lead to improved distribution of livestock and/or production of better kinds and quantities of livestock forage, they should have a beneficial effect on livestock production.

Control of noxious and poisonous plants, which is proposed for 467 acres, would have a locally beneficial impact on livestock grazing by reducing death and sickness in domestic animals. While some additional livestock forage may be produced as a result of timber harvesting, additional livestock use would be granted on a year to year basis and would not have a long-term impact on the total number of AUMs allocated to livestock.

Seeding and interseeding of native and introduced plants is proposed for 2,560 acres under this alternative. For the most part, the sites proposed to receive this type of treatment have very low

natural potential to improve from their present poor or fair condition, because of unfavorable soil or climatic conditions. Three hundred acres are proposed for controlled burns to decrease the amount of sagebrush, juniper, and other woody plants that currently reduce the production of herbaceous vegetation.

Conclusion

The short-term impacts on livestock grazing are mitigated somewhat by the fact that during the 1980, 1981, and 1982 grazing seasons, the BLM has issued annual licenses for nonuse that amount to 1,999 AUMs. These licenses involved nine of the nineteen allotments proposed for downward adjustments under this alternative. The BLM has also issued licenses in each of the last three years for temporary nonrenewable use amounting to an additional 278 AUMs in two of the allotments that are proposed for upward adjustments.

The 1,999 AUMs of nonuse would be part of the short-term downward adjustment proposed in this alternative. Therefore the impacts would be somewhat mitigated since the net reduction from recent actual use would amount to 205 AUMs.

Appendix F describes the kinds of range improvements that are proposed. Careful placement of these improvements and proper design are effective tools in mitigating possible adverse impacts on vegetation and livestock.

The only irreversible commitments proposed that impact the vegetation involve the 2,560 acres proposed for reseeding. When the native vegetation on these acres is replaced by other plant species, it would be unlikely that a native community would again occupy the site (within 50-75 years or more).

Overall, the quality and quantity of vegetation produced on public land would improve. While a 7.0% downward adjustment in livestock AUMs is proposed for the short term, a long-term upward adjustment of 6.1% in AUMs is expected. Both structural and nonstructural range improvements and treatments are proposed at an estimated cost of \$449,331.

Through mitigation, some potentially adverse impacts can be avoided. There would be a monetary loss to livestock operators over the short term where AUM reductions are proposed, but overall, livestock production should improve over the long term.

Impacts on Wildlife and Fisheries

Aquatic Habitat

Aquatic habitat would be fully protected within the areas where oil and gas leases would be subject to no surface occupancy stipulations. Aquatic resources downstream from these areas would similarly be protected. Those portions of the Pine Butte and Antelope Butte swamps that contain federal mineral ownership would be fully protected from potential water contamination.

Aquatic habitat within the areas zoned for seasonal stipulations could be subject to minor water contamination and increased sediment caused by erosion from oil and gas activities. However, this is mostly mitigated through application of standard stipulations.

Both upward and downward adjustments to livestock usage will occur on the I allotments. With these livestock adjustments, seasonal changes, and limited fencing along streams, the overall change in the aquatic habitat will be positive. The satisfactory aquatic habitat will increase to 81.6 miles, while the unsatisfactory condition will decrease to 12.6 miles (see Table 4-4). The M and C allotments will increase slightly and provide more satisfactory aquatic habitat.

Development of management objectives for each allotment and the eventual implementation of these will bring about the necessary changes to improve the aquatic habitat. A reduction in livestock numbers and the implementation of grazing systems are the most important factors in the bringing about the improvement in aquatic habitat. While fencing to totally exclude livestock is considered by many to be the most effective way to improve aquatic habitat, it is the most expensive. The proposed action will use a minimal amount of fencing to achieve satisfactory aquatic habitat. If, in the future, monitoring identifies areas where the management objectives are not being met, then a management decision could be made to fence the aquatic habitat.

Short-term adverse impacts from increased commercial timber harvesting in the resource area would result in increased suspended and bed-load sediment yields. This would adversely impact aquatic habitat in those streams affected. Surface runoff is the primary vehicle for the transportation of sediment to streams from adjacent sources. Road construction and other soil disturbances are considered to be the primary sources of sediment. Increased road construction would result in the high priority forest management areas. Portions of the Silver Creek, Prickly Pear, and Little Prickly Pear Creek watersheds would be the most affected. The Prickly Pear creeks are

rated substantial fishery resources and Silver Creek is rated a moderate fishery resource (MDFW&P 1980b). Road construction and logging adjacent to streams can have the most adverse impacts on aquatic resources (Meehan et al. 1977). The application of standard operating procedures including proper road design, buffer zones adjacent to streams, and techniques that significantly reduce surface erosion would minimize the adverse impacts. In addition, major forest activity plans will be prepared on the high priority forest management areas, which will apply specific mitigating measures for the protection of the aquatic resource. Approximately **13%** of the commercial timber base has been set aside for wildlife protection purposes. A portion of this set aside area includes adequate buffer zones on all perennial tributaries in the resource area. The setting aside of the Scratchgravel Hills from the commercial timber base will have neither beneficial nor adverse impacts on aquatic habitat. **However, the setting aside of the Elkhorn area will result in beneficial impacts to aquatic habitat along the Upper Prickly Pear Creek, primarily because of the reduction in road construction and other soil disturbing activities in this area.**

Some isolated tracts with small reaches of aquatic habitat would be subject to disposal from public ownership. About 1.3 miles are in the disposal area, and 2.4 miles are in the further study category. All other aquatic habitat in the resource area would be zoned for retention.

Overall, the impact would be minimal. Public fishing access that is currently available would be maintained, and opportunities for monitoring or managing aquatic habitat would remain. Future acquisition to benefit habitat management and fishing access would be possible. No public land along major rivers is under consideration for disposal.

Riparian Habitat

The adverse impacts of livestock grazing upon riparian habitat has recently been acknowledged in various symposia (Cope 1979, USDA, FS 1978b, USDA, FS 1977b, Peek and Dalke 1982). However, more research is needed to determine what livestock management strategies are the most appropriate to maintain or improve riparian habitat (Platts 1978).

Experience with three AMPs and several non-AMP allotments in the resource area indicates that riparian management goals can be compatible with livestock grazing when grazing systems are designed to meet riparian needs. Similar findings have been reported by the BLM (USDI, BLM 1980) and Myers (1981). The techniques that can

TABLE 4-4
LONG-TERM WILDLIFE HABITAT CHANGES RESULTING FROM GRAZING ALLOTMENT AND RIPARIAN HABITAT
MANAGEMENT: ALTERNATIVE A¹

Type of Habitat	Current Condition		Alt. A		Type of Habitat	Current Condition		Alt. A	
	Acres	%	Acres	%		Acres	%	Acres	%
Elk-wt/sp					Antelope-wt/sp				
Satisfactory	51,759	77	60,267	90	Satisfactory	10,452	78	11,221	83
Unsatisfactory	14,926	23	6,418	10	Unsatisfactory	3,072	22	2,303	17
Elk-su/fa					Antelope-su/fa				
Satisfactory	19,896	77	22,561	88	Satisfactory	10,921	77	11,541	81
Unsatisfactory	5,922	23	3,257	12	Unsatisfactory	3,259	23	2,639	19
Elk-yearlong					Antelope-yearlong				
Satisfactory	6,678	75	7,685	87	Satisfactory	15,618	79	16,882	85
Unsatisfactory	2,142	25	1,135	13	Unsatisfactory	4,212	21	2,948	15
Mule deer-wt/sp					Waterfowl-sp/su/fa				
Satisfactory	82,147	75	95,035	86	Satisfactory	1,975	79	2,375	95
Unsatisfactory	27,763	25	14,875	14	Unsatisfactory	525	21	125	5
Mule deer-su/fa					Grizzly-yearlong				
Satisfactory	9,135	90	9,541	94	Satisfactory	12,882	60	19,357	90
Unsatisfactory	1,015	10	609	6	Unsatisfactory	8,588	40	2,113	10
Mule deer-yearlong									
Satisfactory	38,009	78	43,191	89					
Unsatisfactory	10,521	22	5,339	11					
Bighorn sheep-wt/sp									
Satisfactory	5,095	83	5,174	85		Miles	%	Miles	%
Unsatisfactory	1,035	17	920	15					
Bighorn sheep-su/fa					Fisheries-				
Satisfactory	9,317	92	9,494	94	Satisfactory	58.1	62	81.6	87
Unsatisfactory	783	8	606	6	Unsatisfactory	36.1	38	12.6	13
Bighorn sheep-yearlong ²					Long-term riparian habitat				
Satisfactory	12,160	100	12,160	100	cond. on I Allot. ³				
Unsatisfactory	0	0	0	0	Satisfactory	35.75	51	61.75	89
Moose-wt/sp					Unsatisfactory	33.95	49	7.95	11
Satisfactory	5,832	60	6,480	66	Long-term riparian habitat				
Unsatisfactory	3,888	40	3,240	34	cond. on M&C Allot. ³				
Moose-su/fa					Satisfactory	67.45	93	68.55	95
Satisfactory	5,012	88	5,138	89	Unsatisfactory	4.75	7	3.65	5
Unsatisfactory	748	12	622	11					

¹All terrestrial wildlife species information is shown in acres and percentages.

²This yearlong habitat is in the Devils Kitchen and portions of the Sleeping Giant areas that are predominantly inaccessible to domestic livestock.

³Condition of riparian habitat in 20 years with the highest ranking I allotments fully implemented.

be used to lessen the impacts of livestock grazing are discussed in the Management Guidance Common to all Alternatives section.

The seventy-seven allotments classified as I category have been ranked for implementation based on current range management policy (Appendix E). This was done by multidisciplinary review in order to emphasize those allotments where common resource problems exist for range, wildlife, and watershed activities, and where future investments would be most cost-effective. Through this review, twenty allotments were identified as highest (A) priority, thirty-nine were identified as moderate (B) priority, and thirteen were identified as low (C) priority. Five other allotments were identified for possible reclassification to either the maintenance or custodial management categories. It is realistic to assume that two AMPs per year for the next twenty years can be implemented. This means that forty AMPs, or all of the A priority and the first twenty B priority I allotments, will be implemented in the next twenty years.

Of the forty highest ranking I allotments, twenty-two contain approximately 30.0 miles, or 78%, of the total unsatisfactory riparian habitat in the resource area. The thirty-seven lower ranking I allotments contain approximately 3.95 miles, or 10% of the total unsatisfactory riparian habitat. The remaining 4.75 miles, or 12%, of unsatisfactory riparian habitat are in the maintenance and custodial category allotments. No change in management is expected for the M and C allotments with unsatisfactory riparian habitat.

Under alternative A, the preferred action, riparian habitat quality would improve from 51% satisfactory to **89%** satisfactory for all I allotments over the long term (see Table 4-4). This represents an increase from 35.75 miles to **61.75** miles of satisfactory riparian habitat. The 4.75 miles of unsatisfactory riparian habitat in the M and C allotments are not expected to improve **significantly** over the long term (Figure 4-2).

The improvement in riparian condition for the I allotments will be the result of such things as reduced stocking rates (1,178 AUMs on nineteen allotments with unsatisfactory riparian habitat), livestock grazing systems designed with riparian habitat improvement objectives, season-of-use changes, class-of-stock changes, and in some instances, fencing to exclude livestock grazing.

Short-term adverse impacts on riparian habitat would result from increased timber harvesting in the resource area. Road construction through riparian zones would be the primary source of disturbance. Application of standard operating procedures, including major forest activity planning, would minimize the adverse impacts.

Setting the Scratchgravel Hills aside from the timber program will have neither beneficial nor adverse impacts on riparian habitat. However, riparian habitat will be additionally protected through the setting aside of approximately **13%** of the commercial timber base in other areas for wildlife habitat protection purposes.

The application of standard stipulations and standard operating procedures on oil and gas leases would protect riparian habitat under this alternative.

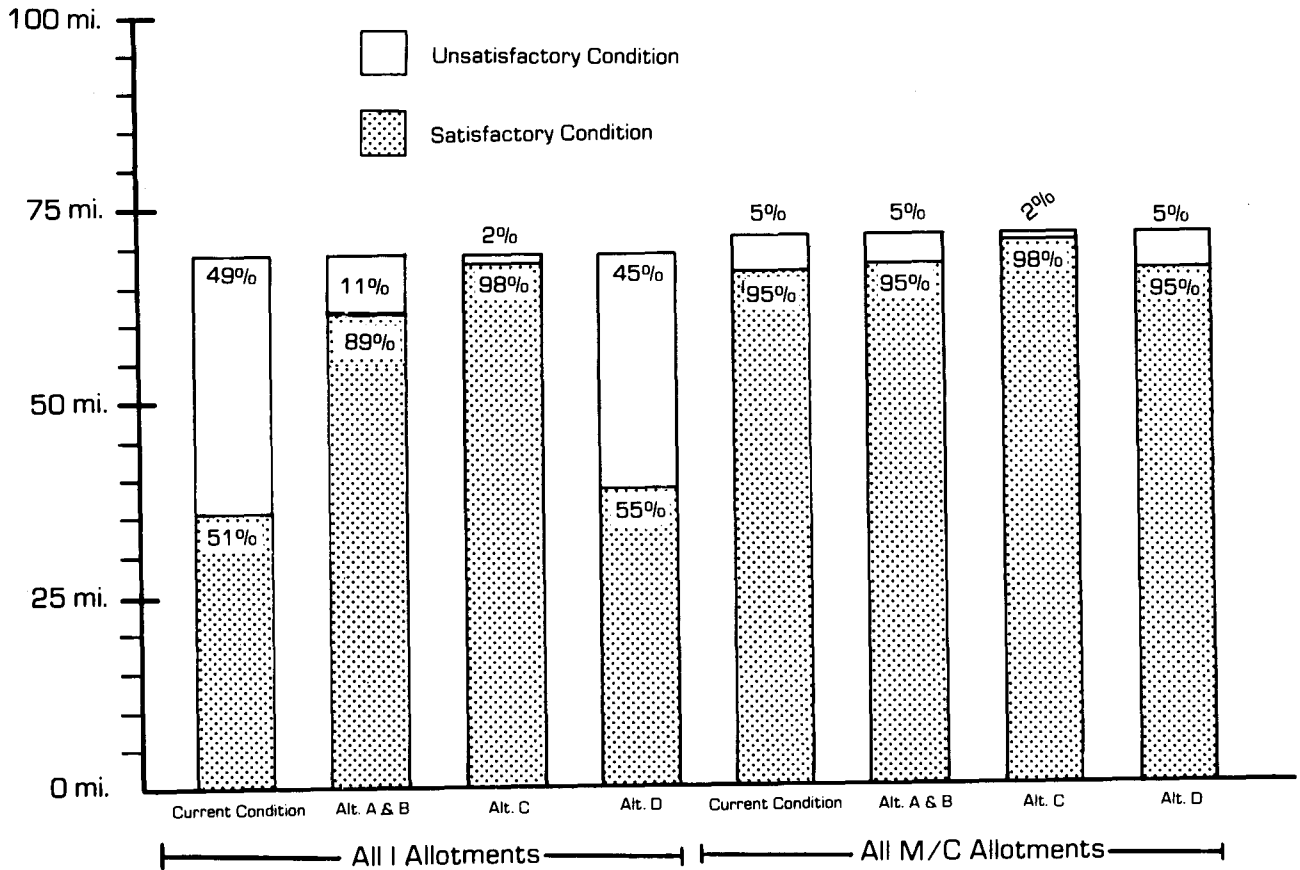
Not recommending the Yellowstone River Island as suitable for wilderness designation would have minimally adverse consequences. The Yellowstone River is a Class I, highest value fishery, at this location. Any potential modification of river banks or riverside vegetation would be adverse to this fishery. However, this island intrinsically contains protection from most land use activities, thus wilderness designation would add only minimal additional protection.

Riparian values will also be included in the decision to dispose of any particular tract of land. While these values will not necessarily limit the disposal of a tract, they will be one factor that is considered in determining whether the tract has sufficient public values to justify retention.

Terrestrial Wildlife Habitat

The Ear Mountain bighorn sheep, mule deer, and mountain goat winter/spring ranges would be fully protected from oil and gas exploration and development activities because of the areas zoned for no surface occupancy. Similarly, all federal minerals in the Ear Mountain Wildlife Management Area would be zoned for no surface occupancy. This wildlife management area is managed by the Montana Department of Fish, Wildlife, and Parks for big game and grizzly bear habitat. Approximately 80-100 bighorn sheep, 400-500 mule deer, and 10-20 mountain goats use this area throughout the year, and there is also a high density of grizzly bear usage in the area. Portions of the mule deer and elk winter/spring ranges in the Blackleaf Wildlife Management Area would be fully protected because of the no surface occupancy zone. This no surface occupancy zone will also protect a portion of the Blackleaf-Teton mule deer winter/spring

**FIGURE 4-2
Riparian Habitat Condition**



range, which contains approximately 400-500 animals (Kasworm 1981). The remaining big game winter/spring ranges along the front will be protected through no surface occupancy and seasonal stipulations. These seasonal stipulations would minimize disturbance from exploration and development activities during the winter/spring months (typically from December through April). However, the potential exists for increased habitat loss through construction, development of ancillary facilities, and increased human access on the seasonal ranges not zoned for no surface occupancy.

The impacts of harvesting an average of **800** acres of commercial timber annually would vary depending on the harvest method, season, duration of activity, and location of the cutting unit.

Potential adverse impacts include such things as: reduced fall hiding cover for big game, loss of habitat effectiveness due to increased vehicular access, loss of hiding cover immediately adjacent

to primary winter foraging areas for big game, reduced big game use of clearcut areas, reduced big game use of moist-sites (i.e. wet sedge meadows, riparian zones, etc.) by a reduction in the adjacent coniferous forest, loss of habitat types for wildlife species that require specific types (i.e. over mature, old growth stands), and disturbance of wildlife during seasonally important time periods (i.e. calving, nursery, and winter habitat).

Application of the Montana Cooperative Elk-Locking Study Guidelines (see Management Guidance Common to all Alternatives) and standard operating procedures would significantly lessen adverse impacts. **The setting aside of approximately 13% of the commercial timber base for wildlife habitat protection further minimizes these potential impacts, particularly in the Elkhorn area.** Potential adverse impacts are more likely to occur in the high priority forest management areas than low priority areas,

because of the intensity of harvest activities (i.e. roads, cutting units, etc.).

The Roger's Pass high priority area contains summer and fall grizzly bear habitat. Intense harvest activities could result in significant adverse impacts. The application of special mitigative measures for grizzly bear management that would be developed in response to specific proposals would reduce, but not eliminate, these impacts.

The Elkhorn set aside area contains key seasonal habitat for a variety of big game including deer, elk, and moose. Since future harvest in this area will be permitted only for the improvement of wildlife habitat, the impacts on wildlife would be beneficial. The identification of this unit as a set aside area and its removal from the regulated timber base is consistent with and complementary to the management direction for the adjacent Elkhorn Wildlife Management Area on the Helena and Deerlodge National Forests.

Setting aside the timber in the Scratchgravel Hills would have minor beneficial impacts to terrestrial wildlife habitat.

Restrictions on motorized vehicle access under this alternative would provide additional protection of seasonal wildlife habitats for the Scratchgravel Hills and Limestone Hills. Site-specific guidance would aid in the protection of seasonal wildlife habitats. In general, the impacts to wildlife from utility and transportation corridors would be minor, since most impacts to wildlife from powerline construction can be effectively mitigated. Collisions of migrating birds with towers or wires is an impact that sometimes cannot be effectively mitigated regardless of their location or placement.

Avoidance areas along major rivers would help protect bald eagle and waterfowl habitat. Avoidance areas in the Limestone Hills and Sleeping Giant areas would help protect and maintain big game habitats. Bald eagle and waterfowl habitat could be impacted in the three window areas.

Under this alternative, all of the waterfowl, bighorn sheep, mountain goat, and moose habitat would be in the retention zone, so there would be no impacts. Most of the elk and antelope habitat would also be in the retention zone. Isolated tracts in the disposal zone in Park, Meagher, Cascade, and Lewis and Clark counties may have limited upland game bird populations. In addition, about 3,600 acres of mule deer habitat in the resource area would be in the disposal zone. Because of the small amount of habitat involved, disposal of these tracts would have only minor impacts on mule deer and upland game birds.

Under this alternative, terrestrial wildlife habitat would be subject to the impacts of mineral exploration and development. The impacts to terrestrial wildlife habitat would depend on the extent and duration of the exploration and development. Seasonally important antelope habitat could be adversely affected. Other terrestrial habitat, including raptors and other nongame birds, would be similarly affected.

Significant beneficial impacts and no adverse impacts would result to all wildlife species and habitat in areas that are closed to motorcycle race events.

Negligible impacts to wildlife habitat would occur in the Montana City use area. The quality of summer mule deer habitat would be impacted in the Hilger Hills, Spokane Hills, and Marysville areas. Because none of these areas are crucial summer mule deer habitat, the summer impacts would be slight. Motorcycle activities conducted during any other season would cause significant disturbance impacts to mule deer, especially in the Spokane Hills and Marysville areas.

If motorcycle usage occurs only in the summer, there will be minor disturbance of elk, primarily in the Marysville area. There would be large impacts on habitat considered suitable for introduction or range expansion of wild turkeys (Merriam's turkey), particularly in the Hilger Hills and Spokane Hills.

Depending on the magnitude of motorcycle use, some habitat (vegetation) loss would occur from motorcycle usage in each area.

The effects on wildlife of leasing and mining coal will vary between species. Physical loss of habitats and disturbance resulting from increased human activities would be the major impacts. Some physical loss of habitats would be permanent, while some could eventually be restored through rehabilitation techniques.

Adequate baseline wildlife inventory data are lacking for this coal field. However, nesting sites and yearlong hunting areas for raptors; dancing grounds, brooding areas, and wintering areas for sharp-tailed grouse; pheasant habitat; yearlong antelope habitat; and winter ranges for antelope, mule deer, white-tailed deer, and elk would be the primary wildlife values impacted by coal development. Application of the unsuitability criteria to available inventory data resulted in the classification of 7% of the federal acres as requiring a no surface occupancy stipulation. This would help insure adequate protection of sharp-tailed grouse dancing grounds and antelope, mule deer, white-tailed deer, and elk crucial winter ranges. **Addi-**

tional sensitive wildlife use areas may be identified, and appropriate stipulations will be attached, prior to lease issuance.

The most significant effect of special designations on fish and wildlife habitat would be in the Rocky Mountain Front area, where approximately 10,000 additional acres would be made unavailable for surface occupancy. This would benefit all types of habitat, but especially grizzly bear, gray wolf, and big game habitat, which would be afforded total protection from onsite disturbance.

Grizzly Bear. Federal minerals in the proposed outstanding natural areas and the Antelope Butte Swamp, Ear Mountain-Pine Butte Swamp, and Beaver Meadows areas would be zoned for no surface occupancy. This would fully protect these three key seasonal habitats. Grizzly bear habitat on adjacent nonfederal land would continue to be subject to oil and gas exploration and development activities, increasing the need for protection of such habitat on federal land.

Zoning those areas listed above for no surface occupancy precludes the possibility of exploration and development activities taking place simultaneously in more than one of these areas. If that were to occur, it would likely jeopardize the RMF grizzly population (USDI, FWS 1980b). All remaining occupied grizzly bear habitat would be zoned for seasonal stipulations. These stipulations would typically preclude exploration and development activities from April through August. The impacts to grizzly bear habitat in these areas primarily would be increased road construction and direct habitat loss from any other construction required.

Important grizzly bear habitat such as aspen and other riparian communities on the Rocky Mountain Front would significantly benefit under this alternative. Management objectives for all livestock grazing allotments that contain grizzly bear habitat would be to improve or maintain key grizzly bear habitat. All allotments, except one, with key seasonal habitat are 1 allotments and as such will be first priority for AMP development. The following improvements or management opportunities will be employed in developing or modifying livestock grazing plans in allotments 6303, 6307, and 7613:

- defer turn-out until July 1 annually,
- rest or defer grazing until at least August 15 on at least 50% of the total grizzly bear habitat within an allotment,
- do not salt or build additional water developments within one-fourth mile of any identified riparian community types,

consider fencing large riparian community types as an alternative to grazing system implementation, and

graze aspen/riparian habitats for not more than one hot season (generally 7/1—9/1) out of every three years.

Season-long domestic livestock grazing has been shown to be detrimental to riparian community condition (Cooper 1977 and Cope 1979). Grizzly bear usage and diet dependency on moist sites has been documented by Schallenberger and Jonkel (1980) and Aune and Stivers (MDFW&P 1981).

Approximately 1,824 acres of seasonally important grizzly bear habitat would remain unleased to livestock grazing under this alternative.

Grizzly bear habitat would improve from the current 40% unsatisfactory to approximately 10% unsatisfactory (see Table 4-4) mainly from incorporating management objectives for grizzly bear habitat into livestock grazing plans and by instituting a moderate reduction in AUMs.

Gray Wolf. The no surface occupancy zones delineated for grizzly bear habitat and ONAs also contain crucial big game winter/spring ranges. These big game winter/spring ranges would be fully protected, which would significantly benefit wolf recovery habitat by protecting the prey base. All remaining seasonal big game ranges on the Rocky Mountain Front would be zoned for seasonal stipulations. These stipulations would minimize disturbance from exploration and development activities during the winter/spring months (typically from December through April). The main impacts to big game habitat in these areas would be increased road construction and direct habitat loss from any other construction required.

The majority of the big game seasonal habitat on public land in the Rocky Mountain Front, with the exception of bighorn sheep winter/spring habitat, is currently in satisfactory condition. A general improvement in forage availability and habitat conditions on bighorn sheep habitat would be expected through the proposed grazing systems and AUM reductions. All other big game seasonal range would be maintained or slightly improved. These factors would benefit wolf recovery habitat.

Peregrine Falcon and Bald Eagle. The application of special and standard stipulations and standard operating procedures will fully protect peregrine falcon and bald eagle habitat from impacts caused by oil and gas exploration and development.

Under this alternative, the Yellowstone River Island would not be recommended as suitable for wilderness designation. Any potential modification or loss of the mature cottonwoods on the island would be adverse to bald eagle and peregrine falcon seasonal usage. No nesting by these species is known to occur, however, rather concentrated winter usage by bald eagles can occur. The habitat for peregrine falcon and bald eagles on the RMF would be protected even without wilderness designation because of the ONA designations in those areas.

Under this alternative, tracts of public land known to be inhabited by threatened, endangered, or sensitive species, or listed by the FWS as critical habitat, would be retained. All known peregrine falcon nesting sites would also be retained. Areas outside of the retention zones that meet the criteria for future peregrine release sites would be evaluated on an individual basis. Most nesting areas for the bald eagle are along rivers, and as such, they have been identified for retention.

Mule Deer. Mule deer are the most numerous and widespread big game species in the resource area. Winter/spring habitat is much more abundant than any other seasonal type. Winter/spring habitat is currently 25% unsatisfactory. Under this alternative, unsatisfactory habitat would improve to 13.5% unsatisfactory (see Table 4-4).



This will primarily be a result of mule deer management objectives being incorporated into livestock management plans. Priority areas include northern Jefferson and Broadwater counties where a preponderance of bitterbrush subtype occurs. Livestock grazing management objectives for bitterbrush winter ranges will include, for example, limiting livestock utilization levels of bitterbrush, deferring livestock grazing on at least 50% of a winter range until after August 15, and on some allotments a reduction in livestock AUMs. Mule deer spring range conditions would improve somewhat through livestock grazing management and an overall 7% decrease in livestock AUMs. Improvement would be reflected in an increased abundance of early growing grasses and forbs that are critically important to deer during April and May.

Summer/fall habitat would improve moderately under this alternative from 10% unsatisfactory to 6% unsatisfactory (see Table 4-4). Riparian zones and moist north slopes would be the summer/fall habitat components most improved through the implementation of grazing systems. Of the 48,350 acres of yearlong mule deer habitat, approximately 22% is currently in unsatisfactory condition. This would significantly improve to 11% unsatisfactory under this alternative due to grazing system implementation (see Table 4-4), browse management objectives, and a decrease in livestock AUMs.

The extent of current losses of mule deer from fence entanglement are not completely known. The construction of 62.2 miles of additional fence would increase entanglement hazards, however, standard operating procedures (i.e. fence design, wire spacings, fence type, etc.) would largely mitigate this.

The Black Sage WSA contains mule deer winter/spring range identified as crucial by established resource area criteria. Approximately 300-400 mule deer migrate from Devils Fence and the Elkhorn Mountains to winter in this unit. This unit would not be given the total protection that wilderness designation would afford, and minor adverse impacts on mule deer habitat could result from future development activity. Mule deer habitat on the RMF would not receive protection through wilderness designation, but would be adequately protected by the designation of the three areas under study as ONAs.

Bighorn Sheep. Under this alternative, bighorn sheep winter/spring habitat conditions would marginally benefit. Condition ratings for crucial seasonal habitat would improve slightly from 17% unsatisfactory to 15% unsatisfactory (see Table 4-4). Some improvement in habitat conditions

would result through a reduction of 100 AUMs and implementation of livestock grazing systems. However, unsatisfactory habitat conditions would prevail on one winter/spring range on the Rocky Mountain Front.

Bighorn sheep summer/fall habitat is largely in satisfactory condition. Adequate areas remain ungrazed by livestock in the majority of the summer/fall use areas because topography is steep and water is limited. Habitat condition ratings would improve from the current 8% unsatisfactory to 6% unsatisfactory (see Table 4-4). Year-long habitat occurs principally in the Sleeping Giant and Devils Kitchen areas, and is characterized by extremely steep, rocky terrain. The majority of it is unleased to livestock grazing. Condition ratings are all satisfactory and will not change under any alternative. Due to limited conflicts with domestic livestock and abundant forage, these areas could easily support two to three times their present number of sheep.

Elk. Of the approximately 101,300 acres of elk habitat in the resource area, 66% is winter/spring habitat. Winter/spring habitat would improve from 23% unsatisfactory to 10% unsatisfactory under this alternative (see Table 4-4). This improvement would mostly be a result of elk management objectives being incorporated into livestock management plans and an overall 7% decrease in livestock AUMs. Improvement would be reflected by an increase in vigor, composition, and availability of bunchgrasses on winter/spring use areas. The dietary overlap between elk and cattle is significant on winter/spring ranges (Gordon 1968). This can lead to direct forage competition and reduced forage availability. A common problem in the resource area is livestock utilization levels of more than 50% on elk winter/spring ranges. The improvement in condition of winter/spring ranges will mostly be accomplished by implementing livestock utilization objectives, changing livestock distribution patterns, and making a direct forage allocation to elk on some allotments.

Elk calving occurs to some extent on all spring ranges. Two allotments containing calving habitat would be subject to sagebrush burning projects totaling approximately 300 acres. Calving habitat will be adversely affected on these allotments, although mitigative measures attached to the burning projects will lessen these impacts.

Elk summer/fall habitat would improve significantly from 23% unsatisfactory to approximately 12% unsatisfactory (see Table 4-4) through this alternative. The majority of this improvement would be the result of improved riparian zones and mesic habitats.

All of the 25,500 acres of summer/fall habitat in the resource area are within livestock grazing allotments identified for future AMP development. The majority of these are in the Bull-Dry Mountain, Elkhorn, and Marysville areas. Livestock grazing systems will benefit elk summer/fall habitat through deferment and rest of mesic areas. However, a social intolerance of cattle will continue to prevent elk from making substantial use of some mesic areas at the same time livestock are using the pasture. Substantial elk summer use can be accommodated only by providing extensive mesic habitats essentially free of livestock use each year.

Elk yearlong habitat would improve to 13% unsatisfactory from the present 25% unsatisfactory (see Table 4-4).

Pronghorn Antelope. Under this alternative, antelope winter/spring habitat would improve somewhat from that current 22% unsatisfactory to 17% unsatisfactory (see Table 4-4). The cover and forage afforded by species such as big sagebrush is a limiting factor in the Winston Flats, Black Sage, Boulder River, and Whitetail Creek areas, and no big sagebrush treatments are proposed under this alternative in those areas. The herbaceous component of winter/spring habitat would similarly benefit by the proposed grazing systems with incorporated rest and deferment treatments.



Summer/fall habitat would improve over the long term from the current 23% unsatisfactory to 10% unsatisfactory (see Table 4-4). Habitat identified as yearlong usage would improve from the current 21% unsatisfactory to 15% unsatisfactory (see Table 4-4).

The construction of 62.2 miles of new fence necessary to implement grazing systems would not result in barriers to antelope movement due to standard operating procedures. Alteration of the existing thirteen miles of barrier fence will improve antelope movements.

Antelope habitat in the Black Sage WSA would be only minimally affected. This unit does contain some high quality antelope spring, summer, and fall habitat and some stands of big sagebrush in an area that is rapidly losing big sagebrush stands to cereal grain cultivation. However, the impact of most land use activities in this area can be mitigated through standard operating procedures.

Moose. Riparian habitat quality strongly reflects moose habitat quality especially during the winter, and the extensive riparian surveys were used to evaluate moose habitat (see also the riparian habitat discussion in this chapter).



The summer/fall moose habitat is mostly mixed spruce-fir and mesic habitats in satisfactory condition. However, the majority of the moose habitat in the resource area is winter/spring habitat, and this alternative would have little overall beneficial impact on the quality of moose winter/spring habitat. Moose habitat quality would increase only from 40% unsatisfactory to 34% unsatisfactory (see Table 4-4). Four allotments out of twelve that contain substantial moose habitat would improve in condition, while the remaining eight would show little change in riparian habitat quality. Improved browse availability and plant vigor would occur on 4.2 miles of riparian habitat on four allotments because they are high priority I allotments, stocking rates are being reduced, and riparian habitat objectives are being incorporated into the allotment objectives. Moose winter/spring habitat quality on 15.4 miles of riparian habitat would show very little change in condition. Almost 50% of this habitat occurs on two allotments where livestock grazing management is not considered to be consistent with riparian habitat management.

Waterfowl. Under this alternative, the current 21% unsatisfactory habitat would significantly improve to 5% unsatisfactory (see Table 4-4) through improvement projects and livestock grazing systems that include waterfowl habitat objectives. Four allotments with the majority of the waterfowl habitat will be reduced by 247 AUMs and will be designed to provide residual nesting cover. Continuous seasonlong livestock grazing has been shown to reduce the quality of waterfowl nesting and brood-rearing habitat. Gjersing (1975) and Mundinger (1976) found increased waterfowl production when residual herbaceous cover was available for waterfowl the spring following grazing and if grazing was delayed until incubation was completed.

Conclusion

Mitigation measures in the form of management guidelines for oil and gas exploration and development have been developed for grizzly bear, elk, mountain goat, and mule deer through the Rocky Mountain Front Wildlife Monitoring/Evaluation Program.

No further mitigating measures are deemed necessary beyond the Guidance Common to all Alternatives and application of standard operating procedures. There would be some residual conflicts on seasonal wildlife habitat where sagebrush control projects are implemented.

In the short-term, wildlife forage and cover would decrease on sagebrush control projects. This alternative proposes only 300 acres to be treated, thus, the short-term impacts would be minimal. These minimal impacts would be further lessened over the long term as vegetation reestablishes.

Aquatic habitat would improve from 62% satisfactory to 87% satisfactory. Similarly, riparian habitat would improve from 72% satisfactory to 92% satisfactory (I allotments and M and C allotments combined).

The short-term 7% reduction in livestock AUMs, implementing livestock grazing systems with riparian/aquatic habitat improvement objectives on the forty highest ranking priority I allotments and utilizing standard operating procedures, would all provide beneficial impacts.

Terrestrial habitat would improve to varying degrees depending on the seasonal habitat in question (see Table 4-4).

Threatened or endangered species habitat would improve or be maintained in satisfactory condition through livestock grazing management that incorporates habitat improvement objectives, oil and gas leasing stipulations, special forestry man-

agement considerations, vehicle access restrictions, and habitat improvement projects. Of particular importance is grizzly bear habitat on the Rocky Mountain Front, which would improve from 60% satisfactory to 90% satisfactory over the long term.

Seasonal big game habitat would similarly improve by 10.8% overall. Beneficial impacts would result through a 7% short-term reduction in livestock AUMs, incorporating big game improvement objectives into implemented grazing plans, special stipulations applied to oil and gas exploration and development, habitat improvement project implementation, and standard operating procedures. Big game populations should increase somewhat as a result of improved habitat though numbers are very difficult to estimate.

Impacts on Social and Economic Conditions

All of the public land in the Rocky Mountain Front is currently leased for oil and gas exploration. The potential for gas discoveries in the area is high. In general, the more stipulations required in a lease, the greater the cost of locating a well. However, drilling in the Rocky Mountain Front area is expensive relative to drilling in other areas in any case. Of more concern to oil and gas companies is the area that is leased with no surface occupancy stipulations or where leasing is denied. In this alternative, 11% of the area is leased with no surface occupancy and 10% is a lease denial area. The relationship between the amount of acreage available to explore and the amount of oil or gas forgone is unknown. Appendix O shows the possible economic impacts associated with different levels of development.

This alternative would entail short-term changes in stocking rates for twenty-six of seventy-seven allotments in the resource area. Of these twenty-six, nineteen would be reduced an average of nearly 40% and seven would be increased.

The effects of these changes are of different magnitudes depending on ranch size and their dependency on BLM grazing permits. Ranch budgets were developed for various ranch sizes and maximum and minimum changes in AUMs were converted to cow numbers based on a seven month grazing season. The affect of changes made under Alternative A are shown in Tables 4-5 and 4-6. These findings may overstate the actual situation for some ranches since many of the AUMs being cut have not been used in recent grazing seasons. In addition, those ranches in the smaller size classes are likely to have other outside income

that is not considered in these ranch budgets. Outside income can come from outside employment, other businesses, or from other agricultural endeavors such as growing grain. Other costs of reductions in grazing permits include a reduction in ranch value equivalent to the value of the AUMs lost. While a grazing permit does not officially have a monetary value, studies have shown a value in the neighborhood of \$100 per AUM on the value of the base property is appropriate. Private grazing in Montana leases for approximately \$9 per AUM. Table 4-7 shows the number of permittees affected by changes under this alternative and the average dependency on BLM by size class. Under this alternative the reductions shown would be short-term impacts, and AUMs would be restored as range conditions improve. Exact changes by ranch size class cannot be shown at present, since the information on long-term range changes was derived from aggregate information of all allotments by range site.

The magnitude of some of the changes in AUMs could affect the economic viability of ranches, particularly in the lower size classes. At present, most agricultural operations are facing high production costs and low prices for their products. In reaction to a further reduction in income, individual ranches may be forced to find outside employment or to cease ranching altogether. This would mean a major change in the lifestyle of these people. Conversely, those allotments receiving increases on their BLM permits may be given enough breathing room to survive the present economic situation without having to further change their lifestyle.

The incomes shown in Tables 4-5 and 4-6 do not take into account family labor costs, depreciation, or interest on land and equipment. Therefore, actual usable income from these operations would be less than that shown in Tables 4-5 and 4-6. Ranch budgets used for this analysis are shown in Appendix P.

Under this alternative no areas would be recommended for wilderness designation. Therefore, there would be no changes in the current social and economic conditions of the area.

This alternative would make available for harvest **2.395** mmbf per year. This figure is based on the initial inventory of the timber resources in the Headwaters Resource Area. Assuming an average of eight jobs per million board feet of timber harvest, **nineteen** jobs would be created at this level of harvest. It should be pointed out that due to lack of inventory, manpower, and market conditions this volume of timber has not been regularly harvested in the past. The present condition of the forest products industry will probably mean that demand will not be sufficient to justify harvest at

TABLE 4-5
CHANGES IN INCOME FROM REDUCTIONS IN STOCKING RATES: ALTERNATIVE A

Ranch Size (cows)	Highest Reductions			Lowest Reductions			Present Income (dollars)
	Change in Stocking Rate (cows)	Income* (dollars)	% Change in Present Income	Change in Stocking Rate (cows)	Income* (dollars)	% Change in Present Income	
0-100	-25	-113.75	-103.2	-0	3,553.00	0	3,553.00
101-250	-26	13,699.75	-24.1	-5	17,206.19	-4.6	18,041.14
251-500	-47	31,207.50	-21.3	-4	38,941.91	-1.8	39,661.39
501-1,000	-36	98,612.69	-5.9	-14	102,386.37	-2.3	104,787.77
More than 1,000	-16	171,573.01	-1.6	-16	171,573.01	-1.6	174,313.01

*These figures are net income over variable costs and do not reflect fixed costs, depreciation and returns on land investment.

TABLE 4-6
CHANGES IN INCOME FROM INCREASES IN STOCKING RATES: ALTERNATIVE A

Ranch Size (cows)	Highest Increases			Lowest Increases			Present Income (dollars)
	Change in Stocking Rate (cows)	Income* (dollars)	% Change in Present Income	Change in Stocking Rate (cows)	Income* (dollars)	% Change in Present Income	
0-100	+44	7,959.60	+12.4	+14	4,955.10	+39.5	3,553.00
101-250	+17	20,707.93	+14.8	+17	20,707.93	+14.8	18,041.14
251-500	+17	42,157.67	+6.3	+8	40,836.11	+3.0	39,661.39
501-1,000	+17	107,334.03	+2.4	+17	107,334.03	+2.4	104,787.77
More than 1,000	+2	174,612.01	+0.17	+2	174,612.01	+0.17	174,313.01

*These figures are net income over variable costs and do not reflect fixed costs, depreciation and returns on land investment.

TABLE 4-7
IMPACTS ON PERMITTEES: ALTERNATIVE A

Size Class	Number of Permittees Receiving Increases	Average Dependence (%) ¹	Number of Permittees Receiving Decreases	Average Dependence (%) ¹
1	2	27.3	2	38.4
2	1	42.5	5	34.3
3	3	27.1	8	20.4
4	0	—	7	16.2
5	1	2.1	1	8.4

¹Dependency is defined as the percentage of a rancher's total AUMs that is supplied by public land.

4 — ENVIRONMENTAL CONSEQUENCES

this level in the near future. As the economy and the housing markets come out of recession, demand for timber will increase, making it more likely that timber would be harvested at the **2.395** mmbf level in the future.

The social and economic consequences of changes in the land ownership pattern vary with the type of adjustment (sale, exchange, or sale with preference), the length of time over which adjustments are made, and the magnitude of such adjustments. The relative magnitude of these effects are shown in Table 4-8.

Table 4-8 was constructed to show the relative magnitude of impacts given different levels of adjustment and the time frame over which those adjustments would be made. Additional analysis of impacts will be necessary when a specific land adjustment program is developed and specific tracts are identified.

If BLM tracts are sold, they would generally be sold at fair market value. Placing tracts for sale in this manner would put pressure on adjacent landowners to bid for the property in order to maintain their current use of these tracts. However, at present, many farmers and ranchers are not in good financial shape and their ability to borrow, in many cases, is already strained.

Both sale types would reduce the area that the BLM manages, and thereby reduce some of the BLM's management costs in the area.

Land exchanges would tend to block up BLM-administered lands. **Blocking up of lands can lead to significant savings in administrative costs and provide greater flexibility in managing a tract. This is particularly true where large tracts are involved.** The major impact on adjacent landowners would be the possible loss of current use privileges.

**TABLE 4-8
SOCIAL AND ECONOMIC EFFECTS OF LAND OWNERSHIP ADJUSTMENTS**

Type of Adjustment	Type of Impact	Size and Timing of Adjustment			
		Less than 5,000 acres ¹ over less than 5 years	Less than 5,000 acres ¹ over more than 5 years	More than 5,000 acres ¹ over less than 5 years	More than 5,000 acres ¹ over more than 5 years
Sale	Individual impacts on adjacent owners	High	Moderate	High	Moderate
	Reduction in area requiring BLM management	Low	Low	Moderate	Moderate
Sale with preference	Loss of opportunity to buy property at a lower rate by those that don't have preference	Low	Low	Moderate	Moderate
	Reduced financial impact on preference holder to purchase land	Low	Low	Moderate	Moderate
	Reduction in area requiring BLM management	Low	Low	Moderate	Moderate
Exchange	Possible loss of privileges by current permittees or fees charged for land use	High	Moderate	High	Moderate
	Blocking up of BLM managed land	Low	Low	Moderate	Moderate

¹Resource areawide

Changes in public ownership of land in a county would affect payments in lieu of taxes paid to the counties, which among other things, are based upon federal acreage in the county.

Under this alternative the possibility of development of a mine in any part of the Scratchgravel Hills would remain. At present, there is some gold mining activity in the hills. This activity has created some conflicts between the mining company and local residents, primarily because of increased truck traffic on area roads. Under this alternative the possibility exists that this type of conflict would increase with increased mining.

The primary demand for a motorcycle race area on BLM-administered land is in the Helena-Townsend area. This alternative would restrict the areas open to consideration. Both the Scratchgravel Hills and the Limestone Hills have had requests for motorcycle races in the past. Local opposition to races in these areas has been quite high. The private land near the Scratchgravel Hills has been subdivided and is becoming suburban in character. Thus, the scheduling of race events in the surrounding hills would cause greater social disruption and opposition than it has in the past.

The situation in the Limestone Hills is slightly different than that in the Scratchgravel Hills. In this area the National Guard has a training area where an extensive investment in facilities has been made. Possible conflicts with this use and local opposition to these events could cause conflicts.

The effect of eliminating the sites mentioned above is that other parts of BLM-administered land in the Helena area are more likely to be considered for motorcycle race events. This would mean that the noise and crowd control problems, as well as the increased local business activity, of such an event may occur in some other part of the Helena-Townsend area.

The social and economic consequences of restrictions on motorized vehicle use can be divided into two groups, those in areas where motor vehicle use now occurs and those areas where it does not occur. In areas where restrictions would be placed on vehicle use that presently occurs, some social and economic impacts would occur. Leasees of the public lands, such as ranchers and mineral interests, may see increased costs during part or all of the year, because of the need for nonmotorized access to the land. Some of this increased cost can be mitigated through scheduling of activities. The character of recreational use would change, adversely impacting those who use motor vehicles while benefitting those who prefer nonmotorized forms of recreation.

In those areas presently not used by motorized vehicles, the future opportunity to open an area to development activities such as timber harvest or to vehicle use would be limited. In order to fully assess the tradeoffs involved in a road closure or travel restriction, a more detailed analysis will be needed on a site-specific basis at the time such restrictions are proposed.

The establishment of avoidance areas and windows could cause a utility or transportation corridor to take a longer route, and thus increase the cost of construction. In addition, the combination of exclusion areas, avoidance areas, and windows could cause corridors to be routed closer to inhabited areas, which could increase the social impacts on local residents. The actual impact of designating exclusion areas, avoidance areas, and windows cannot be assessed further without specific details of a proposed corridor. The social and economic effects of avoidance areas and windows in the Rocky Mountain Front area are probably very small since the topography and the land use patterns do not lend themselves to routing a corridor on BLM-administered land.

Making federal coal available for further leasing consideration would not have an immediate economic impact on the area. Before a leasing decision could be made, further detailed studies of the area would be required. To date, the level of interest in the federal coal in this area has been low. The further study of the federal coal lands in this area will not take place until an application to lease is received. For illustrative purposes, Appendix Q shows possible economic impacts in Cascade County of coal development at a level that could supply Montana Power Company's proposed Salem Project. The other counties assessed in the E/D model for coal development showed either no changes or very minor changes in employment. The basic assumption for this model is the development of three underground mines southeast of Great Falls.

Social impacts that would occur, if coal were developed, would come from an influx of population. The impact of a population influx would be lessened if local labor could be used in the mines. The major impacts of a population increase would be on the supply of housing, the capacity of local schools, and the water and sewage systems of local communities. The proximity of Great Falls to this area would reduce some of these impacts, since there is some available capacity for growth in Great Falls. This analysis could be different if the construction of the Salem plant was taking place at the same time.

At the present time, it is difficult to assess how likely the development of federal coal would be in this area. There are several reasons for the difficulty. The coal has a high BTU content, which is attractive, but also a relatively high sulphur and ash content, which are not desirable for power plants. The coal is in small beds that would require underground mining. This method is more expensive than strip mining. It has not been demonstrated that coal from this area could compete economically with the lower BTU strip-mined coal from eastern Montana.

Under this alternative the areas of Blind Horse Creek, Chute Mountain, Deep Creek/Battle Creek, and Ear Mountain would be proposed for designation as Outstanding Natural Areas. The management of these areas would allow the use of vehicles under very limited circumstances. This type of restriction could increase the cost to the permittee to use the area to move livestock and maintain range improvements. The use of horses would increase the time required for these activities and could require an increase in the labor needed to maintain these areas. Some of these additional costs could be mitigated through careful scheduling of vehicle use and tasks. This would require much more planning on a rancher's part. Resistance to this type of scheduling could be very great.

Another impact of designation of these areas as ONAs would be to oil and gas exploration and development. Much of these areas would either be leased with no surface occupancy or, in the core of each area, leases would be denied. The lease denial area amounts to approximately 18,550 acres, or 16%, of the total public land area along the Rocky Mountain Front. Due to very limited drilling experience near or on the public land in the Rocky Mountain Front, it is not currently possible to estimate the number of barrels of oil or mcf of natural gas lost to the economy due to these restrictions. Even if this alternative were not selected, at least 10,950 acres would be closed to drilling for protection of resource values such as endangered species habitat.

Timber in these areas is classified as woodland. Under this alternative 1,750 acres of woodland would not be available for the harvest of forest products. At present, haul distances to prospective mills would limit harvest of this timber in any case.

Public interest on a national scale for resources on the Rocky Mountain Front is very high. This is primarily due to the high potential for oil and gas in the area, the presence of the threatened grizzly bear, the presence of the largest bighorn sheep herd in the lower forty-eight states, and the prox-

imity to the Bob Marshall Wilderness. Many groups and individuals who are interested in the management of the RMF would regard the Outstanding National Area designation as official recognition of the importance of the RMF.

This alternative also would propose for ACEC designation the Sleeping Giant area, from the Missouri River to Sheep Creek. As an ACEC, management of the area would include restrictions on vehicle use in the area and could mean restrictions on dispersed camping along the Missouri River. Other uses would include wildlife habitat management and livestock grazing. The main objective of management will be to prevent resource damage due to intensive use and protect wildlife from seasonal disturbance in specific parts of the area.

At present, this area is very popular for water based recreation on the Missouri River and Holter Lake. Designation and management of the area as an ACEC could increase the demand on the recreational resource. There are currently several businesses including two marinas, a bar, and a restaurant that would benefit from this increased recreation activity. Depending upon the amount of increased use, new businesses could appear in the area near Holter dam outside the ACEC area to service this increased visitor use.

Changes in current grazing and timber management are not expected over what would occur in the no action alternative.

Conclusion

The effects of designating motorcycle use areas could be mitigated to some extent by having BLM input into the scheduling and policing of events. This would tend to reduce opposition from adjacent landowners, but would by no means completely eliminate opposition.

Closing some areas to ORV use could be mitigated if other areas could be provided for this use. It would not, however, satisfy those who wish unlimited access to the public land. Education of ORV participants would also help reduce conflicts between adjacent landowners and ORV participants.

Many of the economic impacts discussed in the grazing management section would occur over the short term. As grazing conditions improve, some of the AUMs lost initially could be restored for livestock grazing.

Even if the mitigating measures proposed for land adjustments are followed, some adjacent landowners will be impacted. Many adjacent landowners will not be able financially to purchase public land even with extended payment plans.

Therefore they will run the risk of losing their grazing on the public land or would likely face substantially higher fees for that grazing.

The impact of land adjustments would primarily occur in the short term. Over the long run, most adjacent owners could adjust to the changing situation, provided they are able to make it through the short-term impact period.

Overall, Alternative A would lead to short-term income losses of up to \$8,400 per year by individual grazing permittees. In the long term, aggregate productivity under this alternative would increase. Those permittees receiving increases would see income additions of up to \$4,400 per year.

Timber harvest levels of **2.395** mmbf would provide **19** jobs throughout the resource area if the allowable cut is harvested. This compares to the present situation of 100 mbf and approximately one job.

In the short term, grazing permittees facing reductions would experience a loss in permit value and, for those losing active AUMs, a reduction in income.

Under this alternative, those who currently use motorized vehicles on public land in the resource area may experience a perceived loss of freedom as areas are closed to vehicle use.

ALTERNATIVE B: NO ACTION

See Chapter 4 of the Draft RMP/EIS.

ALTERNATIVE C: PROTECTION

See Chapter 4 of the Draft RMP/EIS.

ALTERNATIVE D: PRODUCTION

See Chapter 4 of the Draft RMP/EIS.