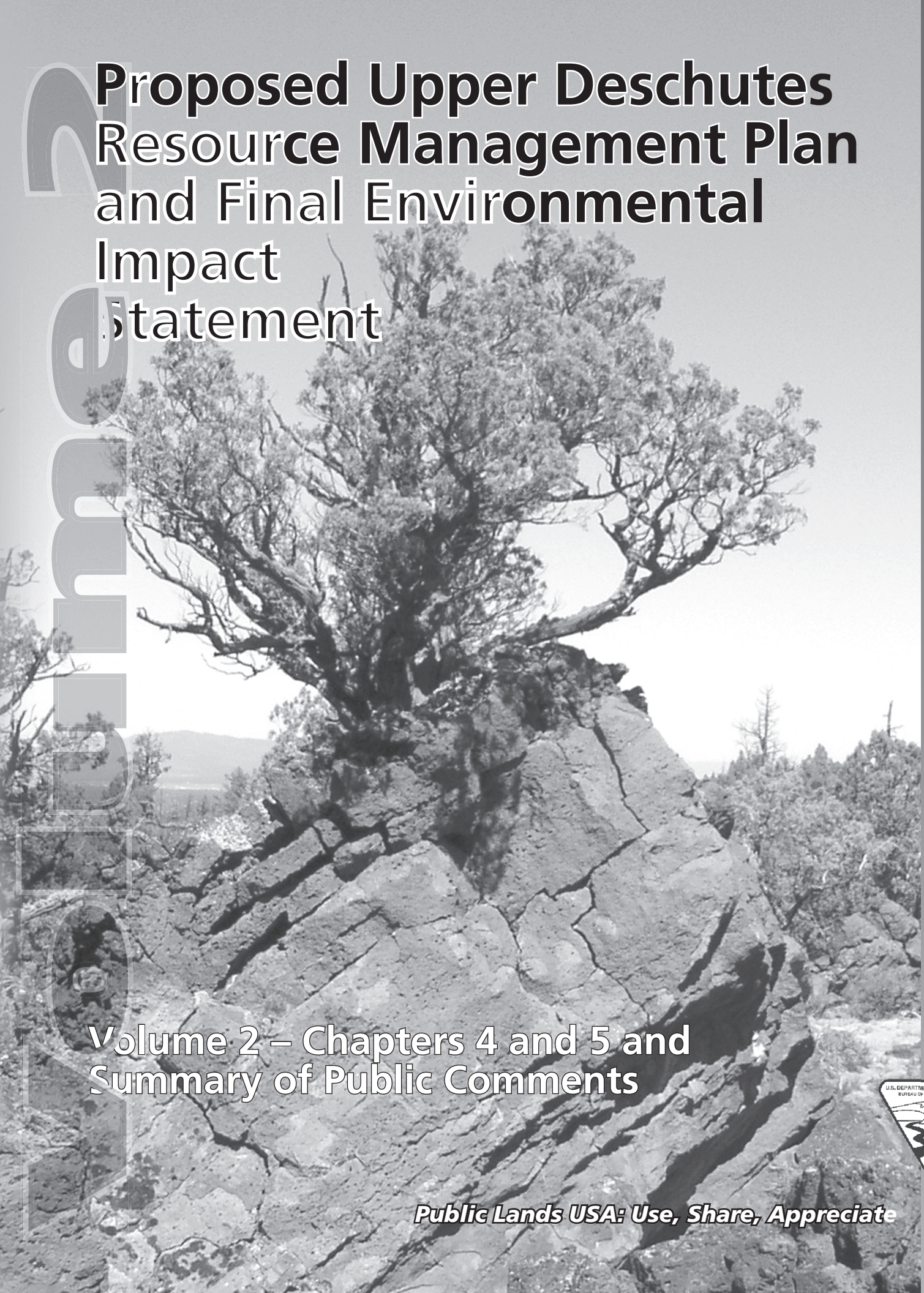
Volume 2

Proposed Upper Deschutes Resource Management Plan and Final Environmental Impact Statement



Volume 2 – Chapters 4 and 5 and Summary of Public Comments

Public Lands USA: Use, Share, Appreciate

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

Volume 2

Volume 2 – Proposed Upper Deschutes Resource Management Plan and Final Environmental Impact Statement

Chapters 4 and 5 and Summary of Public Comments

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Chapter 4
Environmental Consequences

Introduction

This chapter describes the environmental consequences of implementing the seven alternatives described in Chapter 2. The chapter is organized according to the issue categories identified in Chapter 1, describing the effects of each of the alternatives within each issue category. Under each issue category is a summary and comparison of the important effects of each alternative, a description of the general relationships that characterize the nature of effects that can be expected from the proposed decisions and subsequent implementation of reasonably foreseeable future actions; and a more detailed description and comparison of the key differences in effects between alternatives.

Relationship of Decisions to Environmental Consequences

The Upper Deschutes Resource Management Plan is a land use plan that guides future management actions for the next 10 – 20 years. All decisions made by the RMP would be in accordance with national policy and direction, and would be in force until a revised or amended land use plan changes those decisions. All RMP decisions anticipate continuation of all valid existing rights. Currently authorized permits would be brought into compliance with new requirements as soon as is reasonably practicable following the Record of Decision, and in accordance with legal authorities that guide those permits. The RMP is expected to guide land use activities for the next 10-20 years.

Decisions made within this plan are primarily land use decisions as described by the BLM Land Use Planning Handbook (USDI BLM, 2002). These are decisions about allocations and allowable uses or conditions under which future activities will be conducted, rather than site-specific decisions that authorize an activity. Land use decisions as provided for here generally do not make irreversible or irretrievable commitments of resources, and will require subsequent analysis as required under the National Environmental Policy Act before they are implemented. Where additional analysis or review is anticipated, those probable actions that are anticipated to occur have been generally addressed in this analysis as indirect effects because they are reasonably foreseeable future actions that are likely to be taken to implement this plan.

Direct, Indirect, and Cumulative Effects

The Council on Environmental Quality directs federal agencies to examine three types of effects of their decisions: direct, indirect, and cumulative. Direct effects occur at the same time and place as the federal action or decision; indirect effects are caused by the decision, but take place at a later time or are farther removed in distance, but are still reasonably foreseeable; and cumulative effects are the combination of direct and indirect effects of the decisions made here, combined with other continued trends or anticipated effects that are outside of the scope of the RMP decisions, but may affect the resources discussed here. For instance, projected population growth rates within the planning area are not affected by the decisions made in this plan, but are likely to continue to affect the resources analyzed here.

Land use decisions generally fall into the “adoption of formal plans” category as described by CEQ regulations. These kinds of decisions have limited direct effects on the natural and physical environment because they do not make irreversible and irretrievable commitments of resources, but rather make decisions about the availability of lands for certain uses or the conditions under which future uses may or may not occur. Consequently, most of the environmental effects discussed in this chapter are based on indirect or reasonably foreseeable future actions that are a likely outcome of implementing the land use plan. Mitigation measures that would avoid, minimize, rectify, reduce, or compensate for adverse environmental effects of implementing the alternatives are included in the allocations, allowable uses, objectives, and guidelines

for each of the alternatives. These are described in detail in Appendix A of the Draft EIS for Alternatives 1-6 and in the Proposed Resource Management Plan for Alternative 7, the Preferred Alternative. Acreage figures and other numbers used in this analysis are approximate projections for comparison and analytic purposes only. They do not reflect exact measurements or precise calculations.

All of alternatives anticipate long-term future actions needed to implement management direction that will require funding and personnel. For many program areas past funding has been insufficient to meet demands, and future funding levels are uncertain, but are not likely to show substantial increases. For the purposes of this analysis, we have assumed that existing resources and personnel would be redistributed to respond to new priorities set by this plan, although the amount of work accomplished annually to meet plan direction would continue to be dependent upon annual budgets and overall BLM priorities. Full plan implementation assumes increased cooperation with other agencies, supplemental funding and resources supplied through grants, and an active volunteer program.

Critical Elements of the Human Environment

The BLM requires consideration of certain elements that are identified as critical elements of the human environment. These include effects to air and water quality (ground and surface), energy resources, cultural resources, hazardous and solid waste, invasive and non-native species, floodplains, wetlands and riparian zones, prime and unique farmlands and threatened and endangered species. Critical elements also include effects to special designations such as suitable or designated Wild and Scenic Rivers, Areas of Critical Environmental Concern (ACEC), National Natural Landmarks or National Landscape Conservation Areas, Wilderness and Instant Study Areas, significant caves (in accordance with the Federal Cave Resources Protection Act); and effects on native American religious concerns, the Environmental Justice Act, and the national energy policy.

The planning area does not include any designated Wilderness areas. Prime or unique farmlands exist within the area (see Chapter 3), but are not affected by the decisions made in this plan. Other critical elements are discussed in this chapter under each of the appropriate issue categories.

Environmental Consequences by Issue Category

Ecosystem Health and Diversity

The goal for this issue is to restore and support healthy ecosystems in conjunction with expected human population levels and uses, vegetation and wildlife habitat needs, riparian conservation strategies, watershed restoration methods, and economic reliance of the population on public lands. Land uses and activities would emphasize ecosystem sustainability and health throughout the planning area. In addition, the agency recognizes fire's role in the ecosystem and establishes risk classes that provide guidance for fire suppression and fuels treatments, particularly in the Wildland Urban Interface areas. Ecosystems would be managed to re-introduce an approximation of natural disturbance cycles through the use of prescribed fire, mechanical, and other methods.

Vegetation

Summary

Alternative 1 (the current situation), would have the greatest potential effects on vegetation because of the amount of areas open to cross-country motorized travel. Approximately 38 percent (154,000 acres) of the planning area would be open to cross country travel under this alternative.

Common to Alternatives 2-7, no areas would be "open" to motorized travel, although some areas would include play areas within areas designated as "limited to designated roads and trails." Areas where motorized travel would be allowed would ultimately be limited to a future designated road and trail system. As a result, future motorized recreation and travel effects on vegetation would be reduced to the area determined by the width and length of existing or new roads or trails when compared with Alternative 1. This would minimize the effect on plant communities, compared to having an open designation. The potential for spread of noxious weeds or other undesirable invasive plant species by motorized travel (and travel by any means) would continue, although at a lower level than it would under an open designation. Of the action alternatives, the alternative with the least effects on vegetation from motorized uses would be Alternative 7 because it closes the greatest amount (23 percent) of the area to motorized travel (91,000 acres). The action alternative with the most effect to vegetation would be Alternative 2 because it closes only 5 percent (20,370 acres) of the planning area to motorized travel.

Alternatives 3, 6 and 7 would have the greatest ecological benefit since they would prioritize for treatment the greatest amount of acreage with anticipated restoration and fuels reduction treatments (230,250 acres). Alternatives 2, 4 and 5 would have less ecological benefit since they anticipate treating about 168,310 acres. Alternative 1 would have the least ecological benefit because it anticipated treating only about 71,000 acres, and did not emphasize restoration of hydrologic function as do the action alternatives.

The "historic" vegetation management strategy implemented under Alternatives 3, 6, and 7 would strive to restore ecosystems and reduce the potential for uncharacteristic wildland fire faster and over a broader area than other alternatives. Treatments using this strategy would seek to return ecosystems to their historic condition and distribution for major vegetative types. While the exact vegetative condition and distribution would never again exactly match the past, this "historic" baseline would be used as a guideline for formulating project plans and prescriptions. Historic condition and distribution is chosen as a management strategy based on the assumption that ecosystems were in

equilibrium and functioning as they were intended based on evolution and adaptations that occurred under the influence of natural disturbances and geologic, climatic, and ecological processes. Therefore, ecosystems restored using this strategy would be more resistant to disturbances such as fire, drought, insects, disease, erosion, and wind. It could reasonably be expected that ecosystems cared for in this way would be healthier and more productive in the long-term from all perspectives, including social, economic, and ecological.

In the wildland/urban interface (WUI) and other areas with developed recreation, right-of-way (ROW) facilities, or other high human activity, it is recognized that restoration to historic conditions may not be appropriate, given other social concerns. In these areas, vegetation management would be consistent and compatible with facility maintenance, fuels reduction, safety, and other objectives specified for particular human uses.

Alternative 7 would adopt the broad-area old-growth juniper conservation strategy. This strategy recognizes old-growth values across the entire range of mapped old-growth (see DEIS Map 4) western juniper woodlands. Although other potentially disturbing uses are not banned outright, authorizations will be weighed against ecological values on a case-by-case basis before decisions are made that would further alter old-growth characteristics.

Vegetation restoration treatments are displayed by alternative on DEIS Maps 5 and 6 and in Table 4-1, Vegetation Restoration Alternatives Summary and Table 4-2, Anticipated Vegetation Treatments by Vegetative Type. Acreages in these tables are the maximum potential treatments by treatment priority and by vegetation type by alternative in the planning area within the next 15 years. The total prescribed fire, mechanical, and other treatment acres represent the net potential treatment acres within projects located in priority treatment areas. These totals exclude the overlap between priority treatment areas.

Table 4-1 Vegetative Restoration Alternatives Summary

Vegetation Priority Restoration Areas	
Alternatives 2 - 7	
Wildland Urban Interface (WUI)	83,727
Verified High Priority Restoration (Upper Crooked River Sub-basin)	40,746
Aquatic Stronghold Restoration	29,772
Canyon Treatments	5,833
Priority Old-Growth Juniper Restoration	12,317
Ponderosa Pine	5,766
Peck's Milkvetch Treatment Area	323

Table 4-2 Anticipated Vegetation Treatments by Vegetative Type (acres/year)

Anticipated vegetation treatments by vegetative type (acres/year)		
Alternatives 2, 4, and 5	**Years 1-5**	**Years 6-15**
Shrub-Steppe (includes young juniper)	1,464	6,605
Old-growth juniper	2,106	821
Lodgepole Pine	7,849	2,605
Ponderosa Pine	1,131	375
Riparian/wetland/meadow	100	100
Total Mechanical	**11,385**	**5,253**
Total Prescribed Fire	**1,265**	**5,253**
Total Treatment	**12,650**	**10,506**
Alternatives 3, 6, and 7	**Years 1-5**	**Years 6-15**
Shrub-Steppe (includes young juniper)	4,074	8,642
Old-growth Juniper	2,196	3,628
Lodgepole Pine	7,849	2,605
Ponderosa Pine	1,131	375
Riparian/wetland/meadow	100	100
Total Mechanical	**11,512**	**6,140**
Total Prescribed Fire	**3,838**	**9,210**
Total Treatment	**15,350**	**15,350**

General Relationships

Plant Communities

Plant communities are naturally dynamic. While naturally-induced change is inevitable, human influences also have effects on vegetation. The extent of these effects depends on the specific type, scale, location, timing and duration of management activities or land uses. Active vegetation management activities such as cutting, burning, planting, seeding, fertilizing, and livestock grazing have intended effects on vegetation. Other management activities and land uses including, but not limited to, recreation, mining, and land ownership transfers often have unintended effects on vegetation. Humans have also interrupted or exacerbated natural disturbance processes such as fire, insects, and disease.

Because of complex ecosystem interactions, management activities and land uses that affect vegetation would also have on-site and off-site effects on many other biological and physical components of the environment. For example, cutting juniper trees would change the composition and structure of shrub-steppe communities, which, in turn, results in changes in the composition and distribution of certain wildlife species and changes in downstream water quality. Vegetation treatments would impact many other resources such as soils, visual quality, air, and fish. Due to these interrelationships between different resources, short-term, long-term and cumulative effects of vegetation management are also discussed in other sections of this chapter. Differences in effects between the alternatives, in most cases, are directly proportional to the number of acres

anticipated to be treated during the planning cycle, or amount of area with motorized roads and trails allowed in each alternative. Where there are differences in treatment strategy between the alternatives, differing effects produced by those strategies are described with individual alternatives.

Treatment priorities and acreages are based on ecosystem and fuels management objectives and assume budget is not a major limiting factor. The maximum annual number of acres of treatment implemented under even the least aggressive treatment alternatives may not be sustainable given a number of potential social, budgetary, and procedural constraints. Because of the high fire danger in populated portions of the planning area, and funding priorities within the National Fire Plan, Healthy Forest Initiative, and other national and state-wide priorities, vegetation treatment emphasis in years 1-5 of plan implementation would be primarily within WUI areas. In years 6-15, treatment emphasis would shift to maintenance treatments in the WUI and to ecosystem-based treatments in other priority areas within the planning area.

Shrub-Steppe Communities (including young juniper)

Most of the published literature concerning juniper ecology generally supports an inverse relationship between overstory juniper canopy cover and understory plant cover. Closed juniper stands may virtually exclude all herbaceous vegetation (Tausch and Tueller, 1998). However, effects on the understory of juniper dominated sites vary across a wide variety of sites. Increases in western juniper density appear to have the greatest effect on plant community composition and structure on sites with shallow soils or south facing slopes. On these drier sites, canopy cover of fully developed juniper woodlands frequently ranges from 20 to 30 percent with less than five percent cover of shrubs, grasses, and forbs, and nearly 70 percent bare ground (Miller and Wigand, 1994). Dramatic declines in understory vegetation and diversity are observed when canopy cover reaches 30-35 percent, especially when there is a hardpan 12 to 24 inches below the surface (Borman, 1995). Most of the literature attributes the low understory cover on these sites to competition with juniper for limited water and nutrients. Plant species richness and seed reserves also decline as juniper dominance increases on a site (Koniak and Everett, 1982). Overall productivity of a site may be decreased when bare ground allows overland flow of water and erosion to carry away topsoil nutrients.

The most common treatments implemented in the shrub-steppe and young juniper community types would be prescribed burning and cutting juniper and shrubs by chainsaw or other mechanical means. Because mechanical treatments are more expensive, and because ecological effects are generally less desirable than those produced by fire, mechanical treatments would usually occur when prescribed fire is too risky, where fuel conditions would not allow effective use of fire, or where there is an economically viable product to harvest. On some sites, pre-burn cutting may be required to modify fuels in preparation for a more effective prescribed burn.

On sites with deeper soils and greater available soil moisture, understory vegetation seems to be better able to co-exist with fully developed juniper stands. Examples of these soil types (pumice zone) and plant associations occur in the area roughly bounded by the triangle of Bend, Sisters, and Prineville. This is the center of the area where western juniper attains its maximum development in terms of density and extent of old and large trees. In the pumice zone, as site condition decreases from late seral to early seral, late seral perennial bunchgrasses decrease while early seral species such as squirreltail and western wheatgrass increase. Rock gilia and green rabbitbrush also increase with a decline in condition. Poor condition sites are dominated by introduced annual grasses, annual forbs and rabbitbrush. Both cutting and burning on these sites appear to result in an increase in undesirable shrubs and exotic annuals.

Old-Growth Juniper Woodlands

Mechanical treatments would be used to maintain and restore old juniper woodlands. Treatments in old-growth stands would be less intense than those in the shrub-steppe or young juniper community types. Cutting juniper would be primarily limited to younger trees (generally less than 150 years old) occupying the interspace areas between the larger, older trees. Understory vegetative response would be more subdued due to the less intensive treatments, the deeper soils and type of plant communities involved. Thinning juniper would be expected to increase the health and longevity of the remaining trees. Mechanical treatments would mimic natural processes that historically maintained these juniper woodlands in their late-seral condition.

Many old-growth woodland sites are close to urban centers and are occupied by exotic annuals and noxious weeds. These sites are often within the pumice zone and respond differently to disturbance than other soil types. Cutting juniper trees in these areas is often followed by a decline in Idaho fescue, which occurs beneath the tree canopy on these sites, and is replaced by green rabbitbrush, cheatgrass, and introduced annual mustards (Miller et al., 2000). Priority sites selected for restoration would be evaluated for occurrence of noxious weeds and exotic annuals and potential for spread. Weed management and restoration of understory native vegetation would be integral to management of old-growth woodlands.

Each alternative designates various combinations and sizes of Areas of Critical Environmental Concern (see DEIS Map 7, Special Management Areas, and old-growth juniper range on DEIS Map 4, Vegetation). All proposed and existing ACECs contain some amount of old-growth juniper woodlands. Alternatives that would designate ACECs and other Special Management Areas would be better able to provide protection for old-growth juniper woodlands located within these areas. Old-growth woodland values (and other natural/cultural ACEC values) within ACECs would have a higher priority for protection within ACECs than they would outside ACECs. Alternatives 3 and 4 designate ACECs (Juniper Woodland ACEC and Alfalfa Market Road ACEC) specifically intended to protect old-growth woodlands. Alternative 7 offers the broad-area old-growth juniper conservation approach. Rather than protection emphasis just in the ACECs, old-growth juniper values would be given added weight in land use authorizations across the entire range of old-growth in the planning area (see Land Use Criteria under Old-Growth Juniper Woodlands Guidelines in the Proposed RMP). In addition, alternatives that propose restricted road access and less motorized activity would reduce effects of illegal activities and ground-disturbance in old-growth juniper woodlands. New VRM Classifications in the action alternatives would also favor retention of old-growth trees and improved vegetative condition.

Lodgepole and Ponderosa Pine Forest

The majority of vegetative treatments in lodgepole and ponderosa pine forest types in the planning area would be mechanical treatments within the Wildland Urban Interface. Because these forest types may contain an economically viable product, equipment designed for timber harvest and subsequent slash treatment would be used. Heavy fuels (tree boles) would generally be removed rather than left on site to minimize visual impacts and fire hazards. Site productivity would be maintained by leaving fine fuels (tree tops and branches) scattered on-site for organic matter and soil nutrient input.

Fire

Periodic natural fire cycles have been a major factor in shaping the composition, structure and distribution of all plant communities within the planning area. Today, in an effort to protect human life and property, most fire starts are suppressed. Most researchers agree that reintroduction of fire into ecosystems is essential to help maintain bio-diversity

and ecological integrity of fire adapted systems. Prescribed fire includes pile burning, broadcast burning, jackpot burning, underburning, and prescribed natural fire. A prescription is written that specifies the parameters within which the burning would occur. Some of these parameters are fuel moisture, wind velocity and direction, relative humidity, and expected weather conditions. Prescribed burning is done for: reduction of natural and activity fuels, restoring proper ecological and hydrologic function, site preparation for planting or seeding, and controlling certain noxious weeds.

Agee (1993) estimates that fire burned in juniper communities approximately every 15-25 years. Today juniper may need to be cut prior to burning in areas that are deficient in fine fuels. Cutting alone may not be practical for juniper control due to the high numbers of seedlings and small saplings, and prescribed burning may be required. Fire intensity would have to be high enough to kill the standing juniper seedlings and small trees; however, localized high fire intensities may cause mortality in the perennial grasses such as Idaho fescue and bluebunch wheatgrass (Bunting, 1984). Indirect mortality from fire on juniper may also occur from weakening the tree and causing it to become susceptible to insect attack and drought stress. Biological crust cover may be reduced by fire but studies indicate that it can recover within twenty years in xeric communities and within 8 years in mesic communities (Quinsey, 1984). Maintenance burning in shrub-steppe at regular intervals of 20-30 years may be required to maintain a bitterbrush/grass or big sagebrush/grass community in a mosaic arrangement across the landscape. The required two growing seasons of rest from livestock grazing would allow better establishment of new plants following burning.

Agee (1993) estimates that fire burned in ponderosa pine communities approximately every 5-12 years. Pre-burn thinning and removal of small trees would be required in many ponderosa pine stands due to decades of fire exclusion and the current high tree density and ladder fuel arrangement. Whereas, wildland fire occurring in these stand conditions would tend to be large, severe, and stand-replacing events, prescribed fire would thin additional seedlings, saplings, and intermediate sized trees through direct mortality. Growth of residual trees would accelerate within a few years with a reduction in competition. Understory grass and forb density and diversity would be greatly enhanced following light underburning. Idaho fescue, bottlebrush squirreltail, and antelope bitterbrush on many sites would respond well within 2-3 years after fire.

Because of the high fire danger in portions of the planning area, the proximity of homes and urban centers, and funding priorities within the National Fire Plan, vegetation treatment priorities in the first five years of implementation would be within WUI areas.

General effects of prescribed fire on vegetation include:

- Immediate reductions in the total amount of vegetation, followed by rapid re-growth increases in density and vigor of vegetation, especially grasses and forbs. Species composition and proportions may change in the long term. Recolonization begins with a high proportion of herbaceous species. Later, over a period of years, woody species (shrubs and trees) emerge as increasingly dominant through the process of succession.
- Reduction of some fire intolerant species and increases of some fire-tolerant or fire-dependant species. Shade intolerant species replace shade tolerant species in the short-term.
- Changes in nutritional and physical characteristics of the soil and corresponding effects on plant growth due to a potential nutrient "flush," particularly phosphorus and potassium. Long-term net losses of nutrients and organic matter may occur with fire.
- Reduction in the potential for intense wildfire. Prescribed burning reduces surface and ladder fuels in a controlled fashion. Wildland fire in unmanaged or fire excluded areas may have severe and long-term effects on vegetation and soils.
- Potential for introduction or spread of noxious weeds and other invasive early seral or non-native species. Examples would be knapweed, cheatgrass, mustards, thistles,

and rabbitbrush. Site evaluations and application of precautionary measures such as avoidance, proper timing, weed control, native seeding, etc. would minimize this risk.

- Changes in livestock and wildlife use patterns and distribution that would affect vegetation. Succulent plant palatability increases after burning. More open habitats attract pocket gophers, which increases effects on soils and plants.

Carbon Cycle

Carbon moves continually between solid and gaseous states. Global plant ecosystems fix carbon into a solid form from an atmospheric gaseous state during metabolism and growth, and release carbon back into the atmosphere as carbon dioxide during decomposition. This conversion of carbon into a solid form is known as carbon "sequestration."

Vegetation sequesters (stores) carbon in a stable solid form as plant biomass (ie. stems, branches, leaves, and roots). When vegetation dies and decomposes the carbon is released, thus perpetuating the carbon cycle. Decomposition can be either through slow microbial action or rapid through combustion (fire). The amount of carbon stored at a site in the form of plant biomass reflects the long-term balance between carbon uptake and release.

Cutting trees (or mortality by any means) ceases metabolic CO2 uptake and begins the relatively lengthy decomposition process and release of CO2 back into the atmosphere. In xeric ecosystems such as those occurring in the planning area, the vegetation decomposition process occurs over a period of a few to several decades or longer depending on the size and species of material, temperature, contact with moisture and other variables. Burning vegetation, either through wildland fire, prescribed fire, or generation of energy, greatly accelerates the process of carbon decomposition. The chemical process of combustion combines biomass carbon with atmospheric oxygen to immediately release CO2 into the atmosphere.

An imbalance in the carbon cycle, that is, more CO2 being produced than is being consumed and sequestered, is thought to be contributing to the global warming trend. At least two possible ways exist to limit the amount of carbon entering the atmosphere. One way is to limit CO2 emissions generated from burning fossil fuels. The second way is to sequester more carbon through vegetative growth or to bury carbon in stable forms in geologic structures. In the western United States, in the context of vegetation management, there is a dilemma in balancing the need to contribute to long-term CO2 reduction and the need to reduce fuels and fire risk and manage for healthy vegetation and wildlife populations by cutting/thinning trees.

Within the planning area, the loss of carbon sequestration by cutting/thinning conifers and shrubs is offset to some degree by the increased growth of remaining/replacement understory grasses, forbs, shrubs, and leave trees. The precise degree to which this shift in biomass allocation occurs is unknown and difficult to measure. However, as long as site growing potential is maintained or maximized with the treatment, the long-term difference in carbon sequestration is likely not significant between a treated site and a non-treated site. This is due to the fact that healthy vegetation on a site tends to achieve equilibrium over time by growing and regenerating so as to fully utilize available site resources. The ingredients for growth (sunlight, water, nutrients, air, and space) are extracted from the site and manifested in total vegetation biomass. On an untreated site as compared to a treated site, the long-term difference in plant biomass is more reflected in the composition and structure of the vegetation rather than in the net total biomass on the particular site.

Insect and Disease

Management of forest insects and disease would occur primarily through silvicultural cutting and prescribed burning treatments, which alter vegetative condition. Thinning and patch cutting can improve stand health by removing infected trees. Thinning can also leave the healthiest trees, which are more resistant to attack. Insects and disease can rarely be eradicated from the forest because most of these organisms evolved with the plant community and are an integral part of the ecosystem. Treatments for insects and disease would be prescribed to control outbreaks and reduce infections to endemic levels. Endemic populations of these organisms would normally cause some mortality in individual and small groups of trees. The insects and diseases of most consequence within the planning area are: dwarf mistletoe, western gall rust, root diseases and bark beetles.

Dwarf Mistletoe: In stands where the occurrence of dwarf mistletoe is low, thinning and salvage can directly remove a high percentage of this parasite by removing infected trees. Thinning can also indirectly decrease the spread of dwarf mistletoe by increasing growth rates, which enables trees to grow faster than mistletoe can spread. While infection rate could increase through improper use of thinning, this situation can be avoided by prescribing an even-aged treatment for the most severely infected stands. Large patch cuts would be the most effective means of controlling severe dwarf mistletoe infections.

Western Gall Rust and Root Diseases: Thinning and salvage treatments reduce these diseases by removing infected host trees. Thinning, however, results in some damage to the roots, stem, and branches of residual trees, and may allow infection from airborne spores. Specialized equipment, designated skid trails and strict adherence to contract specifications would limit this damage.

Bark Beetles: Thinning for density management would provide the greatest benefit in managing bark beetle population levels. The mountain pine beetle favors large, contiguous, dense stands of low vigor trees with a minimum tree diameter of 6 inches. Thinning would alter stand conditions by removing the weak and low vigor trees and increasing the vigor of the remaining stand. Patch cutting would break up large stands and introduce horizontal diversity, which would reduce the conditions conducive to a large-scale beetle epidemic.

Special Status Plants

It is the policy of the BLM to protect and enhance special status species and their habitats. The Endangered Species Act mandates that the BLM ensures actions it authorizes or carries out are consistent with the needs of special status species and do not contribute to the need to list any of these species as Threatened or Endangered. In addition, according to the basic provisions of FLPMA and the Interior Columbia Basin Strategy, the BLM is also committed to promoting biodiversity and assuring the survival of rare or sensitive plants through active management and habitat restoration. Therefore, all alternatives would strive to protect and enhance special status species habitat.

The greatest threat to special status plants is loss of habitat. Development on private land, land exchanges, high motorized recreation use levels, livestock grazing, fire exclusion, exotic species, and other uses and activities have all contributed to a loss of habitat in the last 150 years. All alternatives would consider the presence of special status species habitat before decisions are made on whether or not to allow certain activities or uses. If a use or activity is authorized in habitat or potential habitat, protection and mitigation measures would be applied. All alternatives would also consider the occurrence of special status plant species in land ownership transfer and land exchange decisions. Acquisition of special status species habitat would be a priority in decisions on which parcels to bring into public ownership.

Alternatives that would designate ACECs and other Special Management Areas would be better able to provide protection for special status species inhabiting these areas. For example, an additional burden of justification would be required to allow a new or expanded right-of-way or new mineral development within an ACEC as compared to outside of an ACEC.

Cross-country OHV traffic, trampling by livestock, and application of mechanical treatments or fire could damage or destroy individual plants or groups of plants, at least in the short-term. Designated routes will generally avoid known populations, although some existing travelways may have damaged populations. Known plant populations would generally be protected from ground disturbing effects. However, some limited mechanical treatment or prescribed burning may be prescribed within some special status plant populations or potential habitats when overall restoration is a primary objective.

Some special status plants are tolerant, or even dependent, on a natural fire regime for regeneration and population stability. For example, pumice grapefern appears to favor open sandy areas with a minimal duff layer compared to heavily wooded areas with abundant shade and organic matter. This condition is perpetuated with a regular fire return interval. On the other hand, green tinged paintbrush is extremely sensitive to fire, and burning would be detrimental. The green tinged paintbrush has a symbiotic relationship with sagebrush and bitterbrush. Fire would cause long- and short-term effects to the paintbrush by killing the plant directly and by reducing the density of associated shrub cover. However, most native plants, including a majority of special status species, have evolved with fire and are quite adept at recovering following natural or simulated natural fire regimes. Therefore, a vegetation management strategy that would promote habitat diversity and transition toward historic native vegetative condition and structure would likely benefit special status species as well.

Short-term loss of some plants from the treatment would likely occur but the net effect to the population would be beneficial because of expected improvement in the condition of the species habitat in the long-term.

Livestock Grazing

Livestock grazing can affect soil, vegetation, and ecological processes. Effects on soil depend upon the intensity, duration, timing, and frequency of the grazing event, and the type of soil. Effects include compaction (which can decrease water infiltration and increase erosion) and some local displacement which can increase erosion from wind and water. Livestock grazing can incorporate organic material and seeds into the soil, increasing nutrient cycling and germination of both native and non-native plants. Livestock, wildlife, rodents, insects, or fire can cause defoliation. This, in turn can have two consequences; reduced leaf area and thus reduced photosynthesis, and increased photosynthesis if defoliation removes dead leaves that were shading new growth. When managers selectively apply disturbances, they can indirectly affect ecosystem diversity at the plant community and landscape levels. By carefully managing the timing, intensity, duration and frequency of defoliation treatments, we can promote increased frequency of one plant form over another. For example, if our goal is to increase browse for deer, we might graze in spring/summer when livestock concentrate on perennial grasses and forbs, allowing shrubs and trees a competitive advantage. If our goal is to reduce fire danger near residential areas where BLM treatment methods are limited, grazing can be used to reduce shrub cover, grass cover, or both, again depending on intensity, duration, timing, and frequency of the grazing event. Grazing can also be used to selectively remove undesirable species such as cheatgrass and various knapweeds. Improperly managed grazing can allow undesirable species a competitive advantage over desirable species. Existing policy directs the BLM to properly manage grazing and work toward multiple use goals; the FEIS/PRMP re-iterates but does not re-create this policy.

Grazing practices would be guided by "Standards for Rangeland Health and Guidelines for Grazing Management," which were incorporated into the B/LP RMP in 1997. Individual grazing allotments would be evaluated for several Standards & Guidelines ecosystem and watershed health criteria. If grazing is not meeting these criteria, then livestock management such as AUMs, season of use, and grazing intensity would be adjusted. The effects of grazing vary widely depending on when and how it is managed, much more so than whether or not it occurs at all. The alternatives do not propose to change stocking levels or grazing systems; therefore there is little variation in effects among the various alternatives. One effect that does change from grazed to ungrazed areas is the potential for soil compaction, and the effects of this on infiltration are discussed in the Hydrology section.

Mechanical Treatments

Equipment designed to move logs and process wood products would be used on commercial forestland and woodlands where operationally and economically feasible. In general, use of this type of equipment in juniper woodlands has been very minor. Difficulties in handling and processing juniper and its inherent low value for traditional wood products have limited its commercial harvest. However, if markets, product development, or harvesting and processing technologies improve, use of this type of equipment in the juniper woodlands could increase substantially. The need to pile or remove material off-site for fuels reduction in the WUIs may also require increased use of this equipment.

Mechanized equipment, regardless of the specific activity where it is used, would all produce similar short-term effects on vegetation. The degree and extent of these effects, however, would vary based on type of equipment and resource objectives.

Due to the intensive salvage and even-aged timber management that has already occurred in the La Pine block over the last 20 years, additional even-aged management would be minor in the next 15 years. Even-age treatments (patch cuts) would be used sparingly compared to the amount of proposed thinning in all action alternatives and is intended to be phased in over a longer period of time to maintain diversity for fuels management, wildlife habitat, insect and disease management, and visual quality.

Effects to vegetation from mechanized operations would include damage and reduction by direct contact with equipment. Logging, in particular, can damage residual vegetation in a broader area. Logging equipment used for falling and skidding operations can crush understory vegetation, break branches and tops and damage stems of residual trees. These effects would be moderated by specifying low-impact equipment, logging over snow, closely monitoring operations, and by seasonal restrictions.

Heavy equipment used in thinning would cause some soil compaction and displacement with corresponding effects on plant survival and growth. Compaction and displacement could be minimized by designating skid trails, specifying low-impact equipment, logging over snow and/or frozen ground, suspending operations during periods of high soil moisture content, and closely monitoring operations. Compaction could also be reversed on some sites by scarifying skid trails, temporary roads and landings. Compaction also diminishes gradually over time through natural processes such as freeze and thaw action, root penetration and other biotic activity. For some early successional plant species, soil disturbance during mechanized harvest activities would have the effect of preparing a receptive seed bed by exposing mineral soil and reducing plant competition. For these species, disturbance aids in seed germination and survival.

Removal of trees, shrubs, logs and organic matter would reduce shade and protective cover, altering the physical and micro-climatic characteristics of the site that affects plant habitat. Wildlife and micro-biota (plant and animal) composition would also change,

which would further affect plant communities. The response of the understory plant community to juniper cutting varies across a variety of sites and treatment techniques. Selected areas for juniper cutting within the planning area would be expected to show an increase in perennial forbs and grasses. If perennials are sparse or if annual weeds were abundant before treatment, juniper reduction and associated ground disturbance may open the site to increased dominance by annual grasses and forbs (Evans and Young, 1985). Without subsequent prescribed burning, shrub cover also generally increases after mechanical removal of trees. Shrubs can act as "nurse plants," facilitating re-establishment of juniper in the shade of the shrub.

Some mechanized projects are designed to produce long-term positive ecological effects. Mechanical vegetation treatments are implemented to achieve three main objectives: 1) restoration of plant communities, habitats, and watersheds; 2) reduction of natural fuels for protection of life and property; and 3) harvest of wood products. Depending on the specific treatment, equipment used, site conditions, and plant community involved, these activities have the potential to improve long-term condition, composition, and structure of vegetation. Most of the long-term vegetation changes occur with a response to a reduction of plant competition for a limited supply of sunlight, water, nutrients, and physical space. Specific vegetative response for each major community is described below.

Site Rehabilitation

Methods of rehabilitation of damaged sites would include manual, chemical, and biological techniques. Manual and biological effects on vegetation will not be discussed because they are relatively minor in terms of acreage treated compared to treatments using motorized/mechanical methods. Chemical effects are already fully described in the Prineville District Integrated Weed Management Environmental Assessment (OR-053-3- 062). Site rehabilitation and management of noxious weeds is commonly needed where ground disturbance such as mining, logging, road, powerline, and pipeline construction (ROWs), trespass/illegal activities, OHV cross-country travel, and user-created roads/ trails has occurred. Natural events such as wildland fire, soil erosion, and windthrow would also be considered for rehabilitation. Rehabilitation of disturbed sites and management of noxious weeds restores overall ecosystem and watershed health with spin-off benefits to all other resources including soils, water quality, vegetation, wildlife, and visual quality.

Site rehabilitation and noxious weed management is often needed where a ground disturbance has occurred. Rehabilitation of disturbed sites and management of noxious weeds restores overall ecosystem and watershed health with spin-off benefits to all other resources including soils, water quality, vegetation, wildlife, and visual quality.

Rehabilitation treatments and management of noxious weeds would not vary between any of the alternatives.

Prescribed fire and livestock grazing can be effective tools for control of noxious weeds. Fire would be used on specific sites and under situations where certain noxious weeds and other vegetation would respond to prescribed fire according to overall restoration objectives.

Chemical herbicides could be applied on certain species of noxious weeds when other methods of control proved ineffective or prohibitively expensive. Herbicides would generally be applied in localized areas and on a relatively small acreage in any alternative. Specific treatment areas and acreages vary over time and are identified during priority setting for annual noxious weed control programs. Noxious weed treatments would generally be confined to transportation corridors such as roads, canals and utility lines. Typical application methods include manual backpack sprayers, and

trucks/OHVs equipped with tanks and boom or hand wands. Other possible needs for chemical use within the planning area could include: release of planted seedlings from brush and grass competition, use of pesticides for control of insects and disease on local areas of importance, fertilizers for rehabilitation of mining and other severely disturbed sites, and repellents for protecting planted seedlings from wildlife and livestock. Refer to Prineville District Integrated Weed Management Environmental Assessment (OR-053-3-062) for a complete analysis of the effects of herbicide application.

Off-site and non-target effects of chemicals would be minimized through very selective and limited use and strict compliance with District guidelines concerning handling and use of chemicals, label precautions, mitigation, stipulations, terms and conditions specified in EA #OR-053-3-062. Due to the wide variety of plant associations, ecological site conditions, and social factors, some rehabilitation treatments in some areas may be experimental and small in scope in order to assess their effects and gain site-specific knowledge of response.

General effects of chemical treatments on vegetation would include:
- Helps control growth and spread of noxious weeds and other undesirable species.
- Improves growth, survival, and condition of desirable species.
- May kill or displace some non-targeted plants and animals.

Off-site and non-target effects of chemicals would be minimized through very selective and limited use and strict compliance with District guidelines concerning handling and use of chemicals, label precautions, mitigation, stipulations, and terms and conditions specified in EA #OR-053-3-062. Due to a wide variety of plant associations, ecological site conditions, and social factors, rehabilitation treatments in some areas may be experimental and small in scope in order to assess their effects and gain site-specific knowledge of response. This knowledge would then be applied to future similar treatments on a larger scale.

Transportation/Rights-of-way and Motorized Recreation

Motorized access has the potential for detrimental effects to native vegetation by temporarily or permanently eliminating it, disturbing or compacting of the soil within which it grows, and as a vector for noxious weeds or competing annual vegetation to be established. The extent to which this potential exists is related to the amount of area and conditions under which motorized use is permitted. Motorized travel and transportation are provided through regional and local systems, including trails specifically designed for off-highway vehicles. Comparing the travel management and recreation emphasis categories can help to compare the relative potential effects of the alternatives. The scale of potential impacts to vegetation is related to the amount of open, limited, and closed areas, respectively; with open having the greatest potential for impacts to vegetation from motorized use, and closed having the least. It should be noted that not all closed areas have no motorized use within them. BLM-administered lands frequently are within a patchwork ownership or are transected by state or county roads.

Non-motorized Recreation

Effects on vegetation from non-motorized activities such as hiking, mountain biking, horseback riding, carriage driving, hunting, and dispersed camping, though estimated to be relatively low in comparison to the effects from motorized use, do contribute to the overall effects of human activities across the planning area. User-created, non-motorized recreational trails and/or concentrated uses over a large area can damage vegetation and cause effects similar to those described for motorized activities. These effects are currently occurring in some areas, including Smith Rock, Redmond Caves, Cline Buttes, Horse Ridge, the Deschutes River corridor and other popular recreation sites and areas close to urban centers. Some non-motorized uses like “extreme mountain

biking" and non-motorized racing events are gaining in popularity and have potential to affect vegetation because they tend to concentrate use or occur in sensitive areas such as canyons and near rivers. Most of the effects of non-motorized activities would be reduced by developing various levels of trail systems for different motorized and non-motorized activities.

Analysis of the Alternatives

The description of effects on vegetation in this section will focus on five major categories of potential activities that could affect vegetation as a result of the allocations, allowable uses, objectives and guidelines outlined for each alternative. As identified before, effects to vegetation of implementing the alternatives, are generally indirect, and are based on anticipated treatments subject to subsequent analysis. These are: mechanized operations, motorized recreation/travel, non-motorized recreation, prescribed fire and site rehabilitation, including management of noxious weeds. Effects will be followed by a discussion of cumulative effects of all of these activities on vegetation.

Effects of Alternative 1

Mechanized Operations

Alternative 1 would be the least successful alternative in enhancing habitat for special status plant species because there would be fewer acres restored and more potential ground disturbing activities allowed when compared with Alternatives 2-7.

Approximately 50,000 acres of young juniper would be cut within the Upper Deschutes Planning Area. Approximately 30 percent of this amount has already been accomplished with prescribed burning and/or mechanized treatments in the last 15 years.

The B/LP RMP does not specifically address the health and maintenance of old-growth juniper values and does not identify any treatments specifically designed to restore or enhance these woodlands. Under Alternative 1, permitted harvest of old-growth juniper would be allowed to resume. Even relatively low levels of permitted or illegal harvest far exceed the capacity for replacement growth, and considering that many of the harvested trees are in the 500 to 1,000 year old range these would not be replaced in the near future. As important components of these old woodlands are removed or altered, the structure and functioning of this ecosystem changes. Large, old trees with their cavities, nesting and perching platforms, thermal cover, and other habitat characteristics are important for a variety of wildlife species. In general, removal of large and old trees reduces overall habitat diversity.

Vehicles associated with harvest or removal traveling off-road to gain access may cause soil displacement, compaction, and introduction or spread of exotic annuals. Soil disturbance and removal of old trees would generally result in a transition from late seral toward early seral condition. Some perennial bunchgrasses (e.g. Idaho fescue) and sagebrush would be replaced by exotic annual weeds such as cheatgrass and mustards. Rabbitbrush increases with disturbance and juniper seedlings would eventually move in to occupy space vacated by removal of older trees. Biological crusts would be damaged and micro-site conditions changed to prevent recolonization.

Forest Treatments

In the La Pine area, the primary emphasis in the B/L RMP was to salvage beetle-killed timber, reduce extreme fire hazard, and regenerate commercial forest. These objectives are still valid and have been achieved to varying degrees. Approximately 58 MMBF of timber has been harvested since 1989 with salvage and "seed tree" silvicultural prescriptions as the primary treatment methods. This prescription removes a majority

of the overstory of dead and diseased trees and leaves approximately 8-12 of the "best" available green trees per acre as seed trees to regenerate a new stand. "Best" is described as the healthiest surviving green trees of good form (straight, absence of injury/defects) and the least incidence of disease. Since western gall rust and dwarf mistletoe diseases were so prevalent in the overstory, those trees that survived the insect epidemic often had disease but often were still left since they were the only live trees available. As a consequence, forest structure in harvested/treated areas has been changed from predominantly older, dead, and dying lodgepole pine to a few widely spaced larger green trees (seed trees) with a current understory of sparse to very dense lodgepole pine seedlings and saplings, and a few scattered residual pole-sized thickets. The younger trees (seedling/saplings) are showing signs of disease infection from the already-infected overstory trees. These types of treatments, although efficient for timber salvage and current fire hazard reduction, are having consequences for succeeding forest structure and condition, long-term wildland fire protection, wildlife habitat, and visual quality (see Visuals and Wildlife sections in this chapter for additional detail on effects of Alternative 1).

Motorized Recreation/Travel

Alternative 1 would allow motorized cross-country travel in 38 percent of the planning area. Repeated use of cross-country paths has resulted in the creation of hundreds of miles of unauthorized roads/trails in the planning area and a corresponding loss of vegetation in these areas. These trends would be expected to continue with expected trends in population growth and sales and popularity of off-highway vehicles.

Non-Motorized Travel

Alternative 1 generally does not specify any substantial restrictions, designated trails or other facilities specifically targeted for non-motorized activities. Special recreation permits are occasionally issued for organized events which provide guidelines for designated routes and other site protection measures. Non-motorized cross-country travel is generally allowed in the vast majority of the planning area. However, since non-motorized recreation and travel is generally low impacting (compared to motorized travel) this type of use would have relatively few effects on vegetation. These uses tend to be widespread and disbursed. A few exceptions would be unregulated or concentrated equestrian use, mountain bike use, some popular climbing routes, and camping areas. Competitive events can be more impacting when speed is a factor. New, unauthorized user-created trails and other high use areas would contribute similar physical and ecological effects to vegetation as those described under motorized recreation/travel, although to a lesser degree. Some effort in recent years under the B/L RMP has been devoted to signing, constructed trails, fencing and other measures to mitigate effects of non-motorized travel as well as motorized travel.

Effects Common to Alternatives 2 – 7

Mechanized Operations

A full range of silvicultural systems would be available for forest and watershed restoration and fuels treatments under Alternatives 2-7. Additional site specific analysis would be required prior to application of any of the prescriptions to specific areas.

Forest Treatments

In addition to thinning, mechanized treatments would be used in the La Pine area to produce stand openings ranging in size from 1.4 to 10 acres. Silviculturally, openings of 1.4 to 3 acres are more properly termed "group selection." The extent of the effects would, in some cases, be proportional to the size, number, and total acreage of this type

of treatment. The predominant mechanical treatment within lodgepole and ponderosa pine forests would be thinning (cutting and/or removing only a portion of the stand). Due to the fuels reduction and restoration emphasis in the Upper Deschutes Planning Area during this planning cycle, a majority of the thinning would be in the smaller diameter size classes.

Small patch cuts or "even-aged management" removes all or nearly the entire forest tree component with the goal of regenerating a new stand. Seed trees and habitat trees would be designated for reserve in the larger openings and would not be cut. Seed trees may or may not be removed later after satisfactory regeneration has become established, depending on habitat values and presence of disease. Currently, patch cuts are not needed for diversity. This silvicultural prescription would only begin to be implemented toward the end of the planning period (and beyond) and amount to a total of less than 1,000 acres over 15 years across the entire La Pine area.

Regeneration harvests, if used, result in alterations in plant community composition and structure. Removal of trees and ground disturbance from regeneration harvest and the associated microclimatic site changes causes the plant community to revert back to an earlier successional stage. When overstory trees are removed, competition is greatly reduced for sunlight, nutrients, water and growing space. These resources are then available to the understory vegetation and the next generation of trees. Early seral stage species would colonize and increase, while species preferring shade or later seral species would decrease. In some areas, increases in noxious or non-native plant species may occur. Shrubs would also increase in relative abundance and vigor. With a sequence of patch cuts over a long period of time, the forest would achieve a mosaic of stands with varying ages, canopy levels, and successional stages. The stand structure of the residual older stands in-between patch cuts would be more complex with variable tree densities, multiple canopy levels, uneven-age classes, and abundant snags and downed logs.

Thinning removes surplus trees (surplus according to whatever treatment objectives are applied) that compete for space, sunlight, water and nutrients. These newly available resources are then reallocated to the fewer remaining trees in the stand. Thinning would generally target the smaller suppressed trees and trees infected with insects or disease. A few trees with severe disease or other "defects" that provide good perching or nesting habitat would be left for wildlife. Trees remaining in the stand would generally be those with the greatest vigor and least amount of disease. Improved stand health would increase long-term resistance to insect and disease attack.

Leave trees left in patch cuts or fire salvage treatments would include the healthiest available ponderosa pine, regardless of size or age. In such treatment areas, ponderosa pine would gradually increase in stand composition, extent, and vigor.

Stand structure would be changed by reducing tree density and increasing the average diameter. Vertical structural diversity may be reduced in some stands when thinning from below by removing some of the lower canopy layer. However, diversity across the landscape would be increased by applying a series of intermediate thinnings, which over time, would promote the growth of large trees.

Thinning for restoration of late and old structure ponderosa pine would be a primary purpose of forest mechanical treatments in ponderosa pine. Smaller trees would be thinned out around the larger trees to maintain or increase the stand diversity provided by this relatively scarce large tree component. Intensive radius thinning (usually at least 30 feet from the bole) around large and old legacy trees would provide a high level of protection from insects, disease and fire. Mechanical treatments for juniper and shrub reduction using other types of equipment such as brush-busters, mowers, and feller-bunchers would generally be limited to areas with slopes of zero to 30 percent or within

the Wildland Urban Interface. Effects and response of residual vegetation to treatments with heavy equipment would be similar to chainsaw use with the following differences:

- Track and wheel-based equipment has greater ground disturbance. See Soil effects described in this chapter.
- Reduction of vegetation, especially using a brush-buster or mower, is greater for all types of vegetation within the path of the machine. However, mowing and other brush and tree reduction treatments in portions of the WUIs would reduce layering (ladder fuels) and convert vegetation to an earlier seral stage. In order to maintain a long-term effective fuel break within WUIs, a primary objective for WUI treatments would be to keep the understory within the first 500 to 1,000 feet adjacent to homes and major roads in perennial grasses, forbs, and low shrub.

Pre-commercial thinning would be done in areas of dense seedlings and saplings greater than two feet in height. Some commercial removal would be done where marketable material occurs in thinning of trees, mostly in the 4 to 12 inch DBH size class. Additional larger trees would be removed, generally where they pose a hazard to life or property; where they occur within an approved development, such as a new right-of-way; or where they are competing with other desirable species such as ponderosa pine or riparian hardwoods.

Restoration of old forest structure in ponderosa pine would be accomplished incrementally over a period of decades. As competing lodgepole pine, juniper, and smaller ponderosa pine are thinned out, the remaining ponderosa pine would respond with accelerated growth. Large diameter trees would be the first component of old forest structure to be restored. Large snags, downed logs, tree bole decay, and other more complex physical attributes and processes of an old forest would take much longer to develop. Each treatment entry would be designed to incrementally work toward restoration of ponderosa pine ecosystems more representative of those occurring historically.

Salvage treatments cut and/or remove dead, dying, diseased, damaged, or deteriorating trees, as well as those susceptible to attack by insects and pathogens. Salvage can reduce the rate of spread of forest pests and recover some economic value. This type of harvest can decrease stand diversity by removing dead standing and down woody material and defective trees, which provide habitat for some wildlife species. This effect would be mitigated by retaining some dead, defective and dying trees to serve as snags, replacement snags, and downed log habitat for wildlife. Retaining some diseased and defective trees would result in a slight decline in current and potential future timber production. Conversely, thinning increases growth and yield for future potential forest products production.

When reforestation is prescribed either by planting or natural regeneration, ponderosa pine would be favored over other tree species on appropriate sites. Follow-up precommercial thinning would also remove competing lodgepole pine and juniper. Leave trees left in patch cuts or fire salvage treatments would include the healthiest available ponderosa pine, regardless of size or age. In such treatment areas, ponderosa pine would gradually increase in stand composition and vigor.

Motorized Recreation/Travel

Alternatives 2-7 would provide management direction for motorized vehicles to stay on designated roads and trails except when riding/driving in designated “play” areas or staging areas or for administrative access. Assuming motorized recreation and travel occurs on roads and trails and according to regulations, effects on vegetation would be confined to the actual mileage of the eventual designated road and trail system. Effects that occur within the width of the designated road or trail would be similar to those

described for mechanized operations in terms of immediate damage to vegetation and roots and compaction to soils. Alternatives 2-7 would provide management direction to designate a road and trail system that would avoid riparian areas, special status plants, or other sensitive vegetative habitats. In addition, Alternatives 2-7 would close and rehabilitate many existing non-designated roads and trails and return these areas to a productive condition. Assuming future cross-country travel can be better controlled; road and trail closures and rehabilitation would reduce the overall area of disturbance to vegetation.

The lack of a designated roads and trail system has resulted in high and/or increasing road and trail densities and a corresponding loss of vegetation in these areas. Some, but not all, of these effects can be reduced with an Open/Closed/Limited designation, redesigned road and trail networks, and rehabilitation measures.

Designating a reduced road system and associated physical and seasonal closures of some existing roads could also limit vegetation and fuels treatment operations. In any given area, most existing roads would normally be used for projects such as tree thinning, timber harvest, brush mowing, and firewood gathering. Alternatives 2-7 provide for reasonable administrative access for most contractors, but some additional contract costs for vegetation treatments may be realized where resource concerns may limit contractor motorized access because contracted crews may be required to walk or drive farther to gain access a project area. In some cases, existing closed roads may need to be re-opened to gain administrative access for projects, potentially adding cost and time to accomplish contract work. The more limited access and/or additional costs incurred would also apply to collection of some special forest and range products such as juniper boughs and personal-use firewood and post/pole cutting. The potential for additional monetary costs and time would be related to the amount acres proposed for closed and limited designations, but could not be meaningfully estimated at this scale. These and other access concerns would be addressed during analysis of specific transportation system designations.

Non-motorized travel

Alternatives 2-7 would all include general management direction designed to focus recreation activities that have the greatest potential for impacts to vegetation into a future designated trail system. This direction would be anticipated to eventually lead to an increased number of developed trails, and possible increases in uses under all alternatives, but reduced potential for more general, widespread impacts that could result from an increase in undesignated, user-created non-motorized trails.

Effects of Alternatives 2, 4, and 5

Mechanized Operations

Alternatives 2, 4, 5 would treat a total of approximately 73,370 acres of shrub-steppe habitat over the next 15 years or an average of 4,891 acres per year. Of that total approximately 65 percent would be treated mechanically. Treatment units outside the WUIs would be smaller and more focused on achieving specific resource objectives. Individual old juniper trees would be left scattered within units. Young juniper would be left to provide connectivity corridors between treatment units, screening from recreation areas and population centers, and cover patches for big-game hiding cover.

Alternatives 2, 4, and 5 would treat a total of 18,740 acres of old-growth juniper over the next 15 years or an average of 1,249 acres per year for WUI treatments and resource needs. Treatments would be by mechanical means for an estimated 90 percent of these acres in order to avoid killing or damaging old-growth trees. Prescribed fire would be used in approximately 10 percent of the old-growth range where there are large shrub-

steppe openings or on stand edges where it is impractical to construct fire breaks. Juniper trees may be harvested for wood products where economically feasible and where consistent with other resource needs during or following restoration treatments. Some old-growth trees may also be harvested during authorized land clearing projects such as new or expanded ROWs and before R&PP land transfers.

If special status plants are located, appropriate protection, mitigation, or avoidance measures would be made on a case-by-case basis. Small populations or individual plants could escape survey detection or future potential habitat could be compromised when an activity or use is authorized, but, generally, all four species of special status plants would be protected and habitats would be improved in these alternatives. Alternative 5 would more than double the size of the Peck's Milkvetch ACEC compared to the existing ACEC. In addition, the Tumalo Canal ACEC in Alternatives 2 and 5 and the Juniper Woodlands ACEC in Alternative 4 would provide an additional level of protection for an unknown acreage of the eastern fringe (east of Barr Road) of the currently identified habitat range of Peck's milkvetch.

These alternatives would thin a total of 74,700 acres of ponderosa and lodgepole pine over the next 15 years or an average of 4,980 acres per year, all within WUIs. Many areas would have more than one entry over this time frame to treat different stand components (i.e. precommercial thinning, understory and intermediate tree thinning, brush cutting). Up to 10 percent of the ponderosa pine (approximately 940 acres) could be treated with prescribed fire (with or without mechanical pre-treatment) where smoke and risk can be adequately managed. The remainder would be treated mechanically due to the proximity of homes near the forest vegetation type. In mixed ponderosa/lodgepole pine stands, thinning would be to a lower intensity so stand density would be higher in this alternative than in Alternatives 3, 6 and 7. Average tree diameter would be less and lodgepole pine would occupy an intermediate or co-dominant status with ponderosa pine in most stands. There would be a two or three layer canopy in most mixed stands except within the first band (closest to homes) of WUIs, where stands would be treated for a one layer canopy structure.

Effects of Alternatives 3, 6, and 7

Mechanized Operations

Alternatives 3, 6 and 7 would allow treatment of a total of approximately 106,790 acres of shrub-steppe habitat over the next 15 years or an average of 7,119 acres per year. Of that total, approximately 52 percent would be treated mechanically. Treatment units in these three alternatives would generally be larger, more intensive, and designed for landscape-scale restoration of major plant community types. An estimated 70-80 percent of the young juniper (less than 150 years old) within the planning area would be cut and/or burned in the next 15 years. Individual old juniper trees would be left scattered across the landscape with few cover patches of young juniper.

Approximately 47,260 acres of old-growth juniper would be treated over the next 15 years, or an average of 3,151 acres per year within WUI treatments and for broad area woodland restoration. Treatments would be by mechanical means for an estimated 90 percent of these acres in order to avoid killing or damaging old-growth trees. Prescribed fire would be used in approximately 10 percent of the old-growth range where there are large shrub-steppe openings or on stand edges where it is impractical to construct fire breaks. Juniper trees may be harvested for wood products where economically feasible and where consistent with other resource needs during or following restoration treatments. Some old-growth trees may also be harvested during authorized land clearing projects such as new or expanded ROWs and prior to land ownership transfers

during certain R&PP actions. In addition, designated areas east of SR 27 would be made available to harvest old-growth trees up to 18 inches DBH for furniture wood, lamps, and other specialty products.

If special status plants are located, appropriate protection, mitigation, or avoidance measures would be made on a case-by-case basis. Small populations or individual plants could escape survey detection or future potential habitat could be compromised when an activity or use is authorized, but generally, all four species of special status plants known to occur within the planning area would be protected and habitats would be improved in these alternatives. Alternative 6 would expand the existing Peck's Milkvetch ACEC by 11,144 acres. Alternative 7 would expand the existing Peck's Milkvetch ACEC by 10,154 acres. The Tumalo Canal ACEC in Alternatives 6 and 7 would provide an additional level of protection for an unknown acreage of the eastern fringe (east of Barr Road) of the currently identified habitat range of Peck's milkvetch.

Alternatives 3, 6 and 7 would thin approximately the same acreage of ponderosa and lodgepole pine as Alternatives 2, 4, and 5, except that treatments to restore ponderosa pine would be more aggressive. A higher percentage of competing lodgepole pine and juniper would be removed, sites would be thinned to a wider spacing to maintain and promote larger trees, and more stand edge would be treated to extend the range of ponderosa pine. Ponderosa pine leave trees would include the healthiest trees available, regardless of size or age, and larger lodgepole pine may be cut in favor of smaller ponderosa pine. Ponderosa pine would gradually increase in stand composition, extent, and vigor. The result, over time, would be more open stands with fewer ponderosa pine per acre but with a larger average diameter per tree. Treated mixed stands would transition more to pure ponderosa pine in the interior, with occasional lodgepole pine in the understory and mixed with ponderosa on the stand edges. More intensive thinning would provide a greater measure of protection from bark beetle outbreaks. Compared to Alternatives 2, 4, and 5, due to more intensive thinning, understory vegetation would be more diverse with a higher percentage of grasses and forbs. Bitterbrush (except in the WUI) and Idaho fescue would be more abundant and vigorous.

Alternatives 3, 6 and 7 would provide better protection against insects and disease by thinning more acres and thinning to a higher intensity than Alternatives 1, 2, 4, and 5.

Alternatives 3, 6, and 7 would promote habitat diversity and transition toward historic native vegetative condition and structure that would likely benefit special status plant species.

Effects of Alternative 7

Alternative 7 differs from Alternatives 3 and 6 by offering the broad-area old-growth juniper conservation strategy. Rather than protection emphasis just in the ACECs, old-growth juniper values would be given added weight in land use authorizations across the range of old-growth in the planning area (see Land Use Criteria under Old-Growth Juniper Woodlands Guidelines in the Proposed RMP). Generally, woodlands with trees greater than 150 years old and/or with old-growth characteristics (see glossary) would be afforded greater protection than woodlands with trees less than 150 years old. Other ecosystem characteristics would also be taken into account such as presence of special status species, quality of wildlife habitat, quality of understory vegetation, size of undisturbed blocks, and presence/absence of noxious weeds or exotic annuals. For example, a proposed road or utility ROW would be rerouted around key areas of quality old-growth habitat, even if it meant added cost and distance. Existing ROW corridors would be used whenever possible. This approach would establish a process for evaluating potentially impacting proposals, redesign or add mitigating measures, and limit additional effects on old-growth juniper communities. In addition, active restoration treatments would occur within selected old-growth woodlands with

restoration of old-growth components as a primary objective. Long-term ecological benefits of protection and active restoration across the range of old-growth juniper would result in improved health and diversity of old-growth plant communities, improved wildlife habitat values, enhanced non-motorized recreation experience, and create a more visually pleasing landscape. Some treatments would be specifically designed to highlight "specimen" trees – trees with specific aesthetic appeal, as well as to improve overall foreground native vegetative aesthetics.

Cumulative Effects

There are complex interrelationships between biotic and abiotic components of forest, woodland, and range plant communities. Natural and human-induced processes transcend ownership boundaries. Effects, existing and future, on the local level would contribute to existing and future effects on adjacent lands. Cumulative effects of vegetation changes would occur on other resources such as wildlife, fish, visual quality, and watersheds. Effects of new vegetative treatments would contribute to the effects of older vegetative treatments, both on BLM managed land and on adjacent private and other public ownerships. These effects would be mitigated somewhat by the separation in time and space between earlier treatments and the new treatments.

Extensive removal of juniper, even-aged forest management, and some of the more intensive WUI treatments would result in substantial and long-term changes to the ecosystem. In these areas, successive treatments would allow early seral grass and shrub communities to dominate or co-dominate. Multiple conifer thinnings over decades would accelerate growth rates and greatly affect the residual stand structure. Thinned forest stands would begin displaying old and late-successional stage characteristics earlier than unmanaged stands. Cumulative effects on wildlife habitat could be both beneficial and detrimental depending on the specific species involved. Generally, wildlife diversity and abundance would be expected to increase over time. Watershed, overall ecological function, and visual quality would also be expected to improve.

Large and old trees have been selectively cut throughout history within the planning area. Adjacent ownerships, through urban development or timber harvest, have also removed a high percentage of old-growth, particularly on private land. Under Alternative 1 harvest of old-growth would still be allowed with few restrictions. Illegal cutting of old-growth juniper continues in the planning area at the rate of an estimated few hundred trees per year. Large and old ponderosa pine are being stressed or killed from the effects of competing lodgepole pine and juniper.

A net export of biomass from some sites could occur with large-scale juniper cutting/harvest or broadcast burning and with successive pine thinning/harvest or underburning. These activities would cause a decrease in organic matter and nutrients, possibly resulting in a slight degradation of site quality over the long-term. Nitrogen losses would be greater with prescribed fire than with timber harvest. Research addressing the effects of multiple rotation timber harvest on site quality is lacking, so the extent of this effect is unknown. This effect could be offset, at least partially, by applying fertilizers in specific areas and specific situations (such as wildland fire or mining rehabilitation), limiting prescribed fire, or by leaving fine woody material (tops, branches, foliage) on-site during harvest for organic matter retention and nutrient cycling. Needles and fine branches contain a majority of the nutrients in a tree as compared to the bole wood. Whole trees or limbs and tops could be left on-site to produce the following benefits:

- Provides a source of nutrients for cycling back into the system over time as this material decomposes.
- Retains organic matter on-site, which provides habitat for soil invertebrates and

microbial activity and aids in the development of soil structure and texture that is beneficial to plant growth.
- Ameliorates microclimatic extremes of hot and cold for improved establishment and protection of plant seedlings.
- Provides direct physical protection of low profile plants and the soil surface to reduce erosion by wind and water.
- Discourages unauthorized motorized cross-country travel and associated effects on vegetation and soils.

Alternatives 3, 6 and 7 would be most effective in reducing or reversing cumulative effects due to the emphasis on restoration toward historic conditions and range of major vegetative community types. Sagebrush-steppe condition and structure (and habitat for associated wildlife species) would be best improved by treatments under these alternatives. Health, longevity, and range of old-growth juniper and ponderosa pine would also be best enhanced under these alternatives.

Soils

Summary

This section will describe the effects on soils caused by ground-based management activities and land uses occurring within the planning area. The majority of effects to soils can be attributed to the use of motorized vehicles and mechanized equipment. For the purposes of this discussion, activities that normally cause effects to soils will be broken out into the following categories: mechanized operations, site rehabilitation, prescribed fire, motorized recreation, and non-motorized activities.

Since all the alternatives allow some level of all activities and land uses discussed here, the difference in effects to soils between the alternatives depends on the amount of activities allowed. The number of controlled road access points for the public entering BLM administered public lands and the density and configuration of designated road and trail systems is a major determinant of the amount and extent of effects on soils. Other potentially soil-disturbing activities, such as mining, ROW development for utilities and roads, grazing, and range improvements do not vary substantially between the alternatives.

The amount and location of vegetation restoration and fuels treatments, especially mechanized treatments, also determines the amount and extent of short-term soil effects and long-term watershed benefits. A relative comparison of effects between alternatives can be made based on the amount of disturbed/treated area in proposed vegetative and fuels treatments and expected post-treatment vegetative response (see effects discussion under Vegetation and Hydrology).

Based on these criteria, Alternatives 3, 6, and 7 would have the least effect on soils in terms of disturbance and compaction from motorized recreation/travel since these alternatives close 19 percent, 20 percent, and 23 percent of the planning area to motorized vehicles respectively. By contrast, Alternatives 1, 2, 4, and 5 close 2 percent, 5 percent, 6 percent, and 12 percent respectively. The remainder of the planning area in Alternatives 2-7 is limited to motorized use on designated roads and trails year-round or seasonally. Alternative 1 limits motorized use to roads and trails on 42 percent of the area, leaving 38 percent as Open. The open designation does not have any limitations on motorized use. Therefore, Alternative 1 allows motor vehicles to legally travel “cross-country” over a large area, which would allow a much greater level of effects than any of the other alternatives.

Alternatives 3, 6, and 7 would propose the highest amount of vegetative and fuels treatments over a 15 year period at 230,250 acres compared with Alternative 1 at 71,000

acres, and Alternatives 2, 4, and 5 at 168,310 acres. These mechanized and prescribed fire treatments would have the highest potential to cause short-term effects on soils in Alternatives 3, 6, and 7 since they treat the most acres. On the other hand, these alternatives would also improve the long-term condition, diversity, structure, and density of ground cover vegetation. Therefore, the benefits of long-term vegetation restoration and fuels management on long-term watershed condition and function, and hence, soil stability, would indicate that Alternatives 3, 6, and 7 would have the greatest net positive effect on soils.

Refer to Chapter 2, Table 2-1, Comparison of Alternatives, for additional detailed information on recreation access, vegetation treatments, fuels reduction, and other management activities that would potentially affect soils.

General Relationships

Generally, soils that have more of a loamy surface horizon combined with steeper slopes are the soils more prone to erosion by water. Soils that contain a high level of sands, loamy coarse sands, and sandy loams mixed with pumice-ash in surface textures are especially prone to wind erosion. Effects described in this section apply to all soils in the planning area to varying degrees. The soil mapping units shown on DEIS Map S-46: Soils, and described in Chapter 2, Affected Environment, describe the specific soils that are more subject to accelerated rates of erosion due to water or wind.

Differing effects of land use plan alternatives on soils are difficult to estimate and quantify. Allocations of lands to different types of uses rarely results in direct impacts to soil resources, although alternative management direction can indicate the relative types and potential for impacts that may occur to soils over the planning cycle. Illegal activities such as dumping, illegal firewood cutting, "squatters," and other activities that involve operating a motor vehicle off designated roads and trails have been a serious problem in the past and will likely remain a long-term problem. Some management actions, particularly road closures and limited access points may help control some of these activities. In general, the potential for impacts to soils of the alternatives can be generally understood by describing the characteristic effects of the following categories of activities: mechanized operations, site rehabilitation, prescribed fire, motorized travel, non-motorized recreation, and livestock grazing.

These effects are described assuming the implementation of standard protection and mitigation measures associated with authorized activities, as well as those specifically outlined in the alternatives as new management direction. For example, mechanized operations would include provisions for season of operation, low-impact equipment, and restricted operations in riparian areas, steep slopes, and other sensitive areas (see Appendix F, Best Management Practices). Recreational effects would include proposed allocations and guidelines such as designated areas, designated trails, and season of use restrictions (see Recreation Alternative descriptions). The analysis also considers that Alternatives 2-7 contain management direction for roads and trails to be engineered and maintained to minimize effects on watersheds and soils. For specific comparisons of the potential for effects for each of the Alternatives, see the Vegetation and Hydrology section.

Mechanized Operations

Activities utilizing mechanized equipment include mining, road construction, logging, fuels treatments, restoration treatments, utility and other facilities development, prescribed burning, and other authorized as well as illegal activities. Equipment is usually wheel- or track-mounted in various configurations and with various specialized attachments or implements.

Mechanized equipment affects soils by displacing surface layers and compaction. Subsequent effects are the result of displacement, compaction, and damage to or removal of vegetation. Soil disturbance and displacement from motor vehicles and equipment accelerates both wind and water erosion. Vehicle speed and weight (ground pressure in pounds per square inch) is a factor in how much displacement occurs. Energy from motor vehicles is absorbed either through soil compaction or shear stress in the upper soil profile. As a general principle, for a given applied stress, compaction (compression) occurs before shearing. While less compaction occurs at greater vehicle speed, more speed generally produces greater surface disturbance. More disturbance increases soil losses through direct soil movement and wind erosion or "dust." Drier soil conditions result in more dust and greater wind losses, while more soil moisture results in more severe compaction.

Compaction is also increased with heavier equipment under full power, such as a skidder traveling uphill pulling a load of logs. Compaction diminishes infiltration capability. When water is not readily absorbed into the soil, runoff occurs and removes surface soils either through sheet erosion or rill and gully erosion. Compaction and displacement can also modify long-term surface runoff patterns. Further indirect and off-site effects of soil erosion occur with downstream sedimentation and changes in hydrologic function (see Environmental Consequences – Hydrology for further effects of soil erosion).

Motor vehicles and equipment operating off-road or off-trail damages vegetation by breaking, trampling, and crushing foliage and roots. Biological soil crusts (a mat of algae, moss, lichen, and fungi) are particularly fragile and vulnerable to mechanical damage. A single pass with a motor vehicle can destroy fully developed biological crusts on sandy soil. Repeated operations or travel in concentrated areas damages vegetation beyond its ability to recover, eventually resulting in the near total elimination of all protective vegetative cover and organic matter. This effect is especially pronounced on the drier, low productivity sites typical of Central Oregon.

Since the planning area is predominantly flat or moderately sloped, wind erosion, rather than water erosion, is a relatively substantial source of soil loss. Soil type and high levels of human use in the area exacerbate losses to wind. Repeated passes with motor vehicles on these soils, particularly during dry and windy conditions, result in generation of high amounts of airborne dust. Much of this material is blown off-site and is deposited elsewhere.

Moderate mechanical action to soils produces positive effects, such as mixing in organic matter and hastening decomposition and burying native seed for more successful germination. These effects may be intentionally applied through mechanical rehabilitation efforts or inadvertently as with moderate livestock grazing or mechanical harvest or fuels treatments.

Some preventative and rehabilitation measures would be applied to limit or partially reverse effects to soils and vegetation. Temporary roads, landings, staging areas, and other affected sites can be rehabilitated by mechanical treatments, such as re-contouring and ripping followed by seeding and mulching. Installation of waterbars on roads and trails would divert and disperse water runoff before rilling and gullying can occur. Seeding and fertilizing would accelerate the re-establishment of plant cover.

Some moderate mechanical action to soils produces positive effects, such as: mixing in organic matter and hastening decomposition and burying native seed for more successful germination. These actions may be intentionally applied through mechanical rehabilitation efforts or inadvertently as with moderate livestock grazing or mechanical harvest or fuels treatments.

With area and road/trail closures, natural processes of recovery from soil disturbance

would also occur gradually over time. Processes such as freeze and thaw action, wetting and drying, root penetration, root decomposition, burrowing by rodents and invertebrates, and other soil flora and fauna activity all combine to reduce compaction. Natural seeding and plant growth would eventually revegetate impacted sites. Plant growth and re-establishment is slow in Central Oregon, so full recovery through natural means could take decades.

Site Rehabilitation

Long-term changes in vegetative structure, composition, and condition diminish the ability of vegetation to hold the soil in place and protect it from the effects of wind and water. Changes in micro-site conditions also greatly affect the abundance, health, and diversity of soil micro-organisms, insects, and burrowing rodents. These organisms are very sensitive to changes in temperature, moisture, and nutrients. Soil organisms play an important role in soil development processes (i.e., nutrient cycling, aeration, water retention, and development of soil structure). Loss of living biota and organic litter impairs soil infiltration capability and water holding capacity.

Conversely, proposed treatments that maintain and restore vegetation, especially ground cover vegetation would have beneficial effects to soils and long-term watershed health. Roots hold soil in place and foliage dissipates and disperses raindrop impact and overland flow of water. Litter and other organic matter deposition protect the soil surface from erosive forces and improve soil structure, texture and fertility. Nutrients are bound in organic matter and are slowly released through decomposition over a long period of time. Nutrient cycling is more efficient and occurs in the portion of the soil profile that is more readily accessible to plants. Healthy and diverse vegetation also increases the abundance and diversity of soil micro- and macro-fauna, which, in turn, help in organic matter decomposition and soil aeration and soil development (see the discussion under Hydrology for larger-scale effects of vegetation treatments on watershed function, water quality, and soil conservation).

The effects of soil loss and compaction are also manifested in reduction of long-term site productivity. When the surface layers of soil are removed through displacement and erosion, nutrients and organic matter, which are concentrated in this zone, are lost. Loss of soil nutrients reduces density, vigor, and diversity of protective plant cover. Compaction and loss of surface cover reduces infiltration and storage of water needed for plant growth. Compaction can also limit growth and survival of plants by decreasing the amount of pore space and available oxygen in the soil and by physically impeding root penetration. Interference with plant physiological processes can have a significant effect on the rate of site recovery. The net result can be further changes in soil structure and long-term losses of soil fertility.

Prescribed Fire

Prescribed fire also has short- and long-term effects on soils. Immediate effects result from the loss of protective organic matter (i.e. live and dead vegetation), biological crusts, and changes in the physical and chemical characteristics of the soil surface. These effects vary according to the fire intensity and duration. High fire intensity or duration may cause some soils to become hydrophobic (water repellant), which impedes infiltration and increases surface runoff. Effects of fire are similar to mechanical effects with the exception of compaction. Volatilization of nutrients may have additional long-term consequences to site productivity. Germination, vigor, and spread of some noxious weed species and introduced annuals are more pronounced following fire. Fire applied in inappropriate locations can allow these undesirable plant species to increase and spread, allowing increased soil losses compared to when healthy native vegetation is present. One consequence of not treating fuels by prescribed fire or mechanical means, on the

other hand, could be large and high-intensity wildfires, which would have severe, long-term, and far-reaching soil and watershed effects (see Fire Management effects).

Motorized Recreation/Travel

Motorized recreation and travel includes the use of motorcycles, "quads," full-sized 4-wheel drive and passenger vehicles. Under Alternatives 2-7, recreational and passenger vehicles would be required to stay on designated roads and trails except when riding or driving in designated "play" areas or staging areas. Assuming motorized recreation and travel actually occurs on roads and trails and according to regulations, effects on soils in terms of area would be confined to the actual mileage of the road and trail system. Effects occurring within the width of the actual road or trail would be similar to those described for mechanized activities in terms of compaction and soil displacement. Alternatives 2-7 would require designation of a road and trail system that would be designed and located to avoid sensitive soils, steep pitches, riparian, and other areas or situations that could cause substantial erosion. Maintenance of the designated road and trail system would also manage surface run-off and minimize the potential for erosion. In addition, Alternatives 2-7 would require closure and rehabilitation of many existing hillclimbs and other non-designated roads and trails.

OHVs have some effects on soils that are slightly different than other mechanized/motorized travel. With OHVs, speed is often a factor. Spinning wheels, high speed turns, hard acceleration, hill climbing and travel during very wet or very dry soil conditions can cause additional disturbance. Repeated use of cross-country paths by motorized recreationists and travelers, particularly near population centers, has resulted in the creation of hundreds of miles of unauthorized roads/trails and a corresponding loss of vegetation in these areas. Some, but not all, of these effects can be reduced with open/closed/limited designations, redesigned road and trail networks, and rehabilitation measures (as described under "Mechanized Operations" above). Proposed directional signs and numbering of major roads/trails would also help recreationists and the general public navigate more efficiently.

Non-Motorized Activities

There would also be effects on soils from non-motorized activities such as hiking, mountain biking, horseback riding, carriage driving, hunting, and dispersed camping. Uncontrolled non-motorized use such as user-created recreational trails on steep slopes or concentrated use over a large area can lead to compaction, displacement, and erosion effects similar to those described for motorized activities. These effects are currently occurring in some areas such as Smith Rock, Redmond Caves, Cline Buttes, Horse Ridge, the Deschutes River corridor and other popular sites or areas close to urban centers. Some non-motorized uses like "extreme mountain biking" and non-motorized racing events are gaining in popularity. These uses have potential to affect soils because they tend to occur at a higher activity level or on steep slopes that are more prone to erosion. Most of the effects of non-motorized activities would be reduced with all action alternatives in this plan through various levels of trail system development for different motorized and non-motorized activities. In some areas, horses and mountain bikes would be required to stay on designated trails.

Livestock Grazing

Livestock grazing can affect soils through compaction by hoof traffic and through the removal of vegetation from grazing and concentrated use (such as near salt blocks, shade and watering areas). Grazing effects on soils vary according to AUMs (the number of animals grazed), intensity (number of animals per acre), duration (length of grazing period), and season. Other than some proposed allotment closures, these grazing variables would not specifically be modified by any of the alternatives for the planning

area. Grazing would be guided by "Standards for Rangeland Health and Guidelines for Grazing Management," which were incorporated into the B/LP RMP. Individual grazing allotments would be evaluated for several Standards and Guides ecosystem and watershed health criteria. If grazing is not meeting these criteria, then livestock management, such as AUMs, season of use, and grazing intensity, would be adjusted.

Analysis of Alternatives

Effects on soils within the planning area are integrally linked with the condition of the vegetation and the hydrologic function of the watersheds. Much of the discussion concerning the potential for impacts to soils is described in those sections. Refer to Table 2-1, Comparison of Alternatives, for quantitative comparisons between the alternatives in terms of acres of vegetative and fuels treatments and acres of open, closed, limited designations for motorized recreation and vehicle travel.

Above ground foliage intercepts precipitation and moderates the impact of water droplets on surface soils. This effect is particularly important during extreme storm events when there is potential for heavy soil losses, especially on steep slopes. Compaction exacerbates the runoff/erosion potential by decreasing water infiltration and storage. Below ground vegetative structure (roots) more directly holds soils in place during precipitation and other potentially erosive events. In the high desert region, wind is also a substantial source of soil erosion. Without a protective surface layer of vegetation, wind can attain high speeds at the soil surface and carry away large quantities of A horizon soil.

A properly functioning watershed is the manifestation of all ecosystem and physical components. Some of these components are healthy and diverse vegetation, well-placed and engineered roads and trails, and characteristic natural and well-managed disturbance events like fire and mechanical, biological, and chemical vegetative treatments. When these components are all integrated and functioning well, soil impacts would be well within "natural" and acceptable limits.

Alternatives 3, 6, and 7 would have the least effect on soils in terms of disturbance and compaction from motorized recreation/travel since these alternatives close 19 percent, 20 percent, and 23 percent of the planning area to motorized vehicles respectively. Alternatives 1, 2, 4, and 5 would have greater effects on soils since they would close 2 percent, 5 percent, 6 percent, and 12 percent respectively. The remainder of the planning area in Alternatives 2-7 is limited to motorized use on designated roads and trails year-round or seasonally. Alternative 1 limits motorized use to roads and trails on 42 percent of the area, leaving 38 percent as Open. The open designation does not have any limitations on motorized use. Therefore, Alternative 1 allows motor vehicles to legally travel "cross-country" over a large area, which would allow a much greater level of effects than any of the other alternatives.

Alternatives 3, 6, and 7 would proposed the highest amount of vegetative and fuels treatments over a 15 year period at 230,250 acres compared with Alternative 1 at 71,000 acres, and Alternatives 2, 4, and 5 at 168,310 acres. These mechanized and prescribed fire treatments would have the highest potential to cause short-term effects on soils in Alternatives 3, 6, and 7 since they treat the most acres. On the other hand, these alternatives would also improve the long-term condition, diversity, structure, and density of ground cover vegetation. Therefore, the benefits of vegetation restoration and fuels management on long-term watershed condition and function, and hence, soil stability, would indicate that Alternatives 3, 6, and 7 would have the greatest net positive effect on soils.

Cumulative Effects

Cumulative effects on soils would occur over time with the combined effects of all of the activities described above; both within the planning area and on all ownerships outside the planning area but within the same watershed. Ground-disturbing activities and fire occurring upslope could contribute to cumulative changes in hydrologic function, including erosion, stream sedimentation, and water quality occurring within and downstream of the planning area (see Hydrology for a more detailed discussion of cumulative effects of soil erosion). The net result to soils could be further compaction, physical losses of soil, changes in soil structure, and potential long-term losses of soil fertility as described above. With better managed public uses, rehabilitation, and natural recovery processes as described above, these cumulative effects would be moderated and stabilized over time.

Wildlife

Summary

This section describes the general effects of major land use allocations and anticipated activities on *species of focus* and *source habitats*. Species of focus discussed in this section are bald eagles, golden eagles, sage grouse, mule deer, Rocky Mountain elk, and pronghorn. Source habitats discussed are shrub-steppe, juniper woodland, ponderosa pine, and logdepole pine. The assessment of source habitats allows us to display effects on groups of wildlife species where effects would be similar, rather than repeating similar information for a large number of individual species. Proposed allocations and anticipated activities discussed in this section are wildlife emphasis area designations, transportation allocations, recreation activities/facilities, land ownership patterns, military training activities, vegetation management activities (including fuels treatments), special habitat features (e.g., riparian areas), and mineral developments. This section does not assess effects from management direction included in public health and safety and archaeological programs because they would have insignificant effects on wildlife resources. Specific effects of continuation of current grazing systems on wildlife resources is also not analyzed here because specific grazing systems were not within the scope of this FEIS/PRMP.

The analysis compares the potential effects to wildlife resources of the alternatives in three primary ways:

- Comparisons of the amount of public lands that would be allocated to one of three different wildlife emphasis levels (primary, secondary or general) and other related guidelines (See Chapter 2, Key Concepts for definitions of these three emphasis levels).
- Comparisons of the different land use allocations or allowable uses that would occur in source or species habitats.
- Comparisons of the changes in the classification of collector and local roads and the subsequent potential effects on wildlife.

The vegetation management direction in Alternatives 2, 4 and 5 would manage for habitats within their current distribution which would be favorable for deer and elk and wildlife associated with juniper woodland source habitats and would be unfavorable for sage grouse, pronghorn and golden eagles and wildlife dependant on shrub-steppe source habitats. Alternatives 3, 6 and 7 would manage for habitats toward their historic distribution which would be favorable for sage grouse, pronghorn and golden eagles and wildlife dependant on shrub-steppe source habitats and would not be as favorable for deer and elk and would be unfavorable for wildlife associated with juniper source habitats. Anticipated hazardous fuels management within the wild-land urban interface would generally be favorable for most species in all alternatives but could help

emphasize the vegetation management direction for managing habitats toward their historic distribution especially for shrub-steppe and ponderosa pine source habitats.

The travel management direction in all action alternatives would be an improvement over the current direction in the Brothers/La Pine RMP (Alternative 1) by limiting motorized travel to designated routes in all areas. However, all alternatives would have to begin by working with the existing road and trail network which currently has considerable negative influences on wildlife and their habitats.

Consistent with the requirements of the Endangered Species Act (1973), all alternatives would ensure that actions are consistent with the conservation needs of bald eagles and they would not jeopardize the continued existence of bald eagles. Alternative 1 would provide adequate measures to protect bald eagle habitat, but would not provide direct guidance to improve habitat conditions into the future. Alternatives 2 through 7 would incorporate existing and future potential relevant landscape features near Prineville Reservoir and Grizzly Mountain into a conservation strategy for bald eagles. Management techniques, such as altering or removing trees and shrubs, prescribed and managed wildland fire, livestock grazing, and planting may be used to maintain or improve habitat conditions for bald eagles. Alternatives 2-7 would minimize disturbance actions to reduce negative effects during seasonally sensitive periods (i.e. breeding, nesting, winter roosting, etc.). Actions that could cause a disturbance would generally be mitigated using either year round or seasonal restrictions, and/or distance buffers. The proposed management direction described in the Preferred Alternative (Alternative 7) of the Proposed Upper Deschutes Resource Management Plan may affect, but is not likely to adversely affect, and may beneficially affect bald eagle populations within the identified planning area because of management guidance to minimize disturbance during seasonally sensitive periods and general guidance to avoid sensitive sites; emphasis on maintaining suitable habitat and improving growing conditions for nesting and perch trees and favorable forest structure, future snag recruitment, and the identification of key features that would be incorporated into future conservation strategies.

Alternatives 1 and 2 would have unfavorable management direction for golden eagles, sage grouse, deer, elk and pronghorn and shrub-steppe and juniper woodland source habitats. Limited amounts of primary and secondary wildlife emphasis allocations, unfavorable travel management designations and lack of habitat restoration emphasis are often accountable for these alternatives providing unfavorable management direction. Alternative 1 provides unfavorable management direction for maintaining or improving ponderosa pine and lodgepole pine source habitats while Alternatives 2 through 7 would provide more favorable management direction. The vegetation emphasis, fuels treatments and travel management limitations are mostly responsible for improving the management direction in the action alternatives versus Alternative 1. Alternatives 3 - 7 would have an overall positive influence on suitable habitat conditions, because of changes in classifications of BLM-administered roadways and changes in off road vehicle management, although the vegetation management emphasis may not always be as favorable in Alternatives 4 and 5 as it is in 3, 6, and 7. Alternatives 3, 6 and 7 would provide the most favorable management direction for sage grouse while Alternatives 1 and 2 would provide the least favorable direction. Alternative 4 would provide some positive management direction in some areas, but overall would have a negative management emphasis for sage grouse.

Management direction throughout the alternatives tends to have trade-offs for mule deer that makes the outcome more variable than with most of the other species and source habitats analysis. For example, mule deer habitats could be maintained under Alternative 1 where for the rest of the species habitat condition would generally decline. Alternatives 4, 5, 6 and 7 alternate between either improving or maintaining suitable habitat conditions; or maintaining, decreasing, or increasing the amount of suitable

habitat. Overall Alternative 3 would provide the best management direction for mule deer habitats and Alternatives 6 and 7 would provide the next best direction for mule deer.

Rocky Mountain elk habitat conditions would likely decline under Alternatives 1, 2, 4 and 5 and improve under Alternatives 3, 6 and 7. Most often the amount of elk winter range allocated to a primary and secondary wildlife emphasis and the amount of favorable travel management designations are responsible for these alternatives managing for improved elk habitat conditions.

In general, Alternatives 1, 2, 4, 5 and 6 would not manage positively for pronghorn habitats. Alternatives 3 and 7 would provide improved management direction for pronghorn habitats. Even though the overall management direction in Alternatives 3 and 7 would be to improve pronghorn habitat conditions it would be difficult to accomplish it in the Bend/Redmond geographic area under any of the alternatives because of the growth of the adjacent urban and rural residential area and the accompanying habitat fragmentation from roads, utility rights-of-way and private lands and residences. Depending upon the future rate of habitat change of adjacent lands from open agricultural lands to more dense residential uses, conditions for pronghorn could be significantly affected.

Shrub-steppe source habitats would benefit from management direction in Alternatives 3, 6 and 7. Alternatives 2, 4 and 5 would include some anticipated actions that would improve shrub-steppe habitats. However, the overall direction would reduce the suitability and/or the amount of shrub-steppe habitats and would have the potential to ultimately limit the benefits of proposed vegetation restoration treatments. The high amounts of primary and secondary wildlife allocations and the vegetation management emphasis of managing habitats toward their historic condition and distribution are often accountable for these alternatives having favorable management direction. Alternative 1 would provide limited direction to aggressively restore sagebrush-steppe habitats across the planning area.

Although there is common management direction to emphasize improved hydrologic function in some high priority watersheds and aquatic strongholds, Alternatives 2, 4 and 5 would maintain the largest amounts of juniper woodlands because of the vegetation management emphasis of managing habitats within their current distribution. The condition of juniper woodland source habitats would improve most under management direction in Alternatives 3, 4 and 7. Alternatives 3 and 4 have specific restoration emphasis areas for old-growth juniper woodlands. Additionally Alternative 4 would have the vegetation management emphasis of managing habitats in the current distribution thereby retaining most juniper woodlands which is not in Alternatives 3 or 7. Alternatives 3 and 7 provide guidance that would maintain or improve the condition of old-growth juniper woodlands, and allocates the two highest amounts of habitat to be managed with a primary and secondary wildlife emphasis. Alternatives 1 and 6 would provide the least favorable management because of the relatively low amount of primary and secondary wildlife emphasis that would fall within juniper source habitats.

The management direction common to Alternatives 2 through 7 would promote the health of ponderosa pine and lodgepole pine source habitats and growth rate of individual trees promoting the rate at which young stands could reach a mature forest condition. Fuels treatments within the wildland urban interface would contribute to this condition but would emphasize the management of lodgepole toward a more open canopy condition than would naturally occur.

General Relationships

Existing and potential future conditions of wildlife source habitats and habitats for wildlife species of focus were evaluated using a variety of models and indices. These models were aimed primarily at examining the relationship between disturbance and the potential influence that disturbance would have on wildlife habitat. The indices developed from these models help to predict such factors as the effect of disturbance on the amount, quality and distribution of habitat across the planning area. In cases where habitat models were unavailable or did not overlap with the criteria available (vegetation condition data for habitat effectiveness), analysis of impacts was based on literature references, personal communications with experts, or modifications of existing models based on the professional judgment of BLM specialists.

Using these concepts, the following relationships for deer, elk, and sage grouse form the basis for much of this analysis.

In order to compare Alternative 1 with Alternatives 2-7, the areas where the B/LP RMP specifically directed management considerations for wildlife are considered to be equivalent to primary wildlife emphasis considered in Alternatives 2-7. Areas where decisions were made for a non-wildlife program, but result in considerable benefits for wildlife, would also be considered primary or secondary wildlife emphasis areas, depending upon the amount of incidental benefits anticipated. An important difference between the approach taken in the B/LP RMP and the approach taken in Alternatives 2-7, is that crucial winter range has been dropped in the FEIS/PRMP, and year-round and winter range pronghorn habitats are recognized (but not always managed as an emphasis). This is done because in most of the planning area, pronghorn have not been showing a significant seasonal use pattern to any certain geographic area, but are moving around in their habitats. However, in the Crooked River and Combs Flat areas, pronghorn tend to concentrate during the winter in specific areas, so these areas are identified as winter range. The FEIS/PRMP takes the approach to recognize all year-round habitats and some winter range areas.

The potential quality of habitat for species of focus and source habitats can be estimated by comparing the wildlife emphasis (which includes habitat effectiveness guidelines), travel management designations, and road classifications (collector and local roads). Road classifications would not result in any substantive future changes to conditions on the ground except by providing an estimate of which roads are not likely to be available for future closure to meet wildlife management needs, and which roads may be available for some type of closure.

In this analysis, the quality of habitat for deer, elk, and sage grouse[1] is primarily estimated based on the relative habitat effectiveness index, which is highly dependent upon road densities. A HE index of ≥70 percent habitat effectiveness anticipates a high level of use of an area by wildlife, ≥50 percent HE anticipates at least a moderate level of use, and less than 50 percent anticipates general species persistence in an area (concepts adapted from Christen *et al.*, 1993). These indices are included in management guidelines whose intent is to integrate more than just disturbance factors when achieving overall primary, secondary, or general wildlife management objectives. In many cases, because of the amount of major roadways that are outside of BLM authority to either relocate or modify uses, coupled with existing rights-of-way that may not be altered, future habitat effectiveness measures may rely strongly on habitat conditions outside of disturbance factors. The quality of bald or golden eagle habitat can be estimated based on the amount of foraging habitat that is or is not available for motorized use, or is only available under limited situations. All nesting habitats have activity restrictions as part of continued management direction for sensitive species.

[1] The effects of the proposed plan decisions for deer and elk are primarily assessed during winter (on winter habitats) and migration (on connectivity habitats) when human disturbances have the potential to be most detrimental.

Under alternatives that adopt the "historic" vegetation management theme (3, 6 and 7), in the North Millican geographic area, near complete juniper removal would be a typical wildlife management goal (excluding old-growth junipers). Alternative 7 would retain some junipers to assist in OHV trail design and maintenance. However, the amount and distribution of junipers retained would not degrade the quality of sage grouse habitat.

Allocations, allowable uses, objectives and guidelines identified for each alternative contain many anticipated standard design features such as buffers, and seasonal nesting restrictions that avoid, minimize, reduce, or eliminate potential wildlife effects. For example, in all alternatives, areas within ½ mile of bald eagle nests and roost sites/trees are considered primary wildlife emphasis areas; approximately 739 acres are identified as bald eagle nesting and roosting habitat.

Wildlife Emphasis

As described more fully in Chapter 2, all land in the planning area is designated as one of three wildlife emphasis areas, Primary, Secondary, or General. The differences in management under these designations relate primarily to the guidelines for the targeted motorized travel route density and season of use. Primary wildlife emphasis areas usually would anticipate fewer roads and more seasonal closures than general wildlife emphasis areas. Also, primary wildlife emphasis areas would have a higher priority for habitat restoration activities. The relative amount of land in each of the three wildlife emphases varies by alternative.

Primary wildlife emphasis means wildlife is one of the most important management considerations for an area. Areas allocated to primary wildlife emphasis are intended to benefit wildlife and retain high wildlife use. *Secondary wildlife emphasis* is where wildlife is one of several resource management programs of focus in an area. Areas allocated to a secondary wildlife emphasis are intended to support wildlife and maintain a moderate amount of wildlife use. *General wildlife emphasis* means wildlife typically receives a lower level of consideration than one or more other resource management programs. These areas, as a whole, would still contribute to species occurrence and distribution, but would typically not be the focus of intense management efforts for wildlife. Guidelines are usually tied to minimum legal requirements identified in the sections on "common" guidance (e.g., BLM Special Status Species Policy (6840); Standards for Rangeland Health, and the Threatened and Endangered Species Act).

Transportation

Bureau of Land Management resource management programs such as recreation, minerals, lands and forestry often effect the environment in similar ways, such as by removing habitats for site developments and road and trail construction and by causing disturbances in relation to motorized travel access. These general effects are described here and are not repeated under each alternative description. For instance, motorized access can have similar effects on wildlife and their habitats regardless of the purpose of the access. Activities that rely on some form of transportation, such as mineral developments, fuel treatments, utility developments and vegetation management, typically use roads for access and can have considerable effects on wildlife habitats by long-term elimination of vegetation in roads and rights-of-ways. Deer, elk, pronghorn, sage grouse and raptors are especially vulnerable to road effects. Other indirect effects are often a result of increased human use of areas that would not be as accessible without the presence/addition of a transportation system. Some wildlife species are also attracted to the presence of humans. For example, habitats fragmented by roads typically support higher densities of brown-headed cowbirds; ravens and crows often forage along roads, feeding on animals injured or killed by vehicles. Table 4-3 (copied from Gaines *et al.*, 2003) provides a classification scheme used to describe the effects of road and trail use on wildlife resources.

Table 4-3 Effects on Wildlife from Human Use Associated with Roads and Trails

Road and Trail-Associated Actions [a]	Disturbance Type[b]	Reaction Activity[c]	Expected Effects
Hunting and trapping	3	Harvest	Mortality from hunting or trapping as facilitated by road and trail access
Poaching	3	Harvest	Increased illegal take of animals as facilitated by trails and roads
Collisions	3	Harvest	Death or injury resulting from a motorized vehicle running over or hitting an animal
Negative human interactions	3	Harvest	Increased mortality of animals (euthanasia or shooting) owing to increased contact with humans, as facilitated by road and trail access
Movement or barrier or filter	2	Habitat modification & Disturbance	Interference with dispersal or other movements as posed by a road or trail itself or by human activities on or near a road or trail or road or trail network
Displacement or avoidance	1	Disturbance	Spatial shifts in populations or individual animals away from a road or trail or road or trail network in relation to human activities on or near a road or trail or road or trail network
Habitat loss and fragmentation	2	Habitat modification	Loss and resulting fragmentation of habitat owning to the establishment of road or trails, road or trail networks, and associated human activities
Edge effects	2	Habitat modification	Changes to habitat microclimates associated with the edge induced by roads and trails
Snag or downed log reduction	2	Habitat modification	Reduction in density of large snags and downed logs due to their removal near roads as facilitated by road access
Collection	2	Harvest	Collection of live animals for human use as pets (such as amphibians and reptiles) as facilitated by the physical characteristics of roads or trails or by road or trail access
Route for competitors and predators	2	Habitat modification	A physical, human-induced change in the environment that provides access for competitors or predators that would not have existed otherwise
Disturbance at a specific site	1	Disturbance	Displacement of individual animals from a specific location that is being used for reproduction and young rearing
Snow compaction	3	Habitat modification	Direct mortality associated with animals being crushed or suffocated as a result of snow compaction from snowmobile routes or groomed ski trails
Physiological response	1	Disturbance	Increase in heart rate or stress hormones when near a road or trail or network of roads or trails

[a] Based in part on Wisdom et al., 1999.
[b] Disturbance type 1 occurs when an animal sees, hears, smells or otherwise perceives the presence of a human but no contact is made and it may or may not alter its behavior. Disturbance type 2 is when habitat is changed in some way. Disturbance type 3 involves human actions in which there is direct and damaging contact with the animal (Liddle, 1997).
[c] Knight and Cole, 1995.

Roads associated with regional travel management systems can have greater impacts than local travel routes because they are frequently larger and provide service for higher numbers of vehicles. However, local transportation systems can also have impacts to wildlife and habitats. As realty developments increase in the urban interface, right-of-way applications for private landowners and developers would be expected to increase. These additional roads for realty developments and other purposes would add to the existing transportation system. Mitigations to decrease the impacts anticipated by road construction include road placement guidelines to avoid sensitive areas, seasonal construction limitations, and sensitive habitat barriers. Future mitigation could include reduced general undesignated access to areas, potentially improving habitat conditions. Blocking roads with gates and barricades, and designating roads as closed to public motor vehicle traffic would lessen the road effects on sage grouse, deer, elk and other wildlife by reducing harassment, disturbance and poaching. There could be an increase in the amount and distribution of noxious weeds, which in turn reduces the quality of wildlife habitats.

Habitat Effectiveness and Road Influence Indices

The existing road network on and adjacent to BLM administered lands in the planning area is extensive. As a result, there are various road-associated factors that can negatively affect habitats and populations of wildlife (see Table 4-3). Human access can also have significant direct effects on wildlife and their habitats through disturbance, habitat modification and harvest. This EIS uses two methods for assessing the road associated effects:

- Habitat effectiveness index (for deer, elk and sage grouse)
- Road influence index (for pronghorn, golden eagles, and source habitats)

The following two tables display the current habitat effectiveness and road influence indices associated with local, collector and arterial roads. The analysis of the current condition considers all roads as open and does not display the effects related to the use of seasonal closures (see the recreation analysis for a description of the habitats protected through seasonal closures). The analysis for the action alternatives compares the estimated habitat effectiveness or road influence index based only upon the potential changes in arterials and the re-classification of BLM collector roads to local roads. Which local roads would become part of the permanent designated system was not considered in the alternatives, and the reclassification of road categories does not substantively affect the overall existing indices. Therefore, the overall indices for these areas would not vary based on potential changes in classification, although the targeted future index would change by alternative based on the wildlife emphasis for that geographic area.

The number of motorized travel routes currently in the planning area is problematic to wildlife habitat conservation (see Table 4-5, Existing Road Influences for Pronghorn and Golden Eagle Habitats, Shrub-Steppe, Juniper Woodland and Ponderosa Pine Source Habitats). Although non-motorized recreational activities are less of a concern, their activities also contribute to disturbance and modification of wildlife habitats. When considering the effects of roads, all geographic areas have a low habitat effectiveness rating (for deer, elk and sage grouse), except for the Badlands. Similarly the results of the road influence index show a high level of road influence on wildlife habitats (pronghorn and source habitats) with the exception of the Badlands geographic area.

Several mitigation measures such as protection buffers, road placement guidelines, road and trail use guidelines and seasonal use restrictions are available to reduce these negative effects. Seasonal closures, for example, can effectively mitigate the disturbance effects in some geographic areas, although they do not completely protect habitats from modification, animal harvest effects and the spread of weeds. The alternatives address this concern to some degree by implementing a variety of closed and limited motorized travel allocations. All alternatives would begin managing with the current road and

Table 4-4 Existing Habitat Effectiveness for Deer and Elk Winter Range and Sage Grouse Habitats[1]

Geographic Area	Habitat Effectiveness Index (Percent)		
	Deer	Elk	Sage Grouse
Badlands[2]*	50	50	N/A
Cline Buttes	24	23	N/A
Horse Ridge	24	24	25
La Pine	N/A	20	N/A
Mayfield	21	20	N/A
Millican Plateau	24	26	34
North Millican*	25	26	24
Prineville	23	24	N/A
Prineville Reservoir*	27	31	20
Smith Rock	22	N/A	N/A
South Millican*	22	24	22
Northwest	30	30	N/A
Steamboat Rock	31	32	N/A
Tumalo*	21	21	N/A
Planning Area-wide	28	28	24

[1] HE considers mapped arterial, collector, and local roads (includes Millican OHV trail system)
[2] * Geographic areas with seasonal closures that were designed to provide benefits to sage grouse and deer, however, they also benefit elk and pronghorn.

Table 4-5 Existing Road Influences for Pronghorn and Golden Eagle Habitats, Shrub-Steppe, Juniper Woodland and Ponderosa Pine Source Habitats[1]

Geographic Area	Road Influence Index (Percent)				
	Pronghorn	Golden Eagle	Shrub-Steppe	Juniper	Ponderosa Pine
Badlands*[2]	42	N/A	11	4	N/A
Bend/Redmond	93	100	58	31	N/A
Cline Buttes	N/A	86	46	22	N/A
Horse Ridge	75	88	30	21	N/A
La Pine	N/A	N/A	N/A	N/A	50
Mayfield	86	N/A	35	25	N/A
Millican Plateau	89	85	46	23	N/A
North Millican	76	69	34	17	N/A
Prineville	96	90	44	23	20
Prineville Reservoir	71	74	32	13	7
Smith Rock	N/A	86	34	38	N/A
South Millican	90	100	47	30	N/A
Northwest	N/A	26	11	11	21
Steamboat Rock	N/A	69	20	36	N/A
Tumalo	N/A	91	50	40	55
Planning Area-wide	83	79	39	21	40

[1] Considering Arterial, Collector and Local Roads (Millican OHV system trails are included)
[2] * Geographic areas with seasonal closures that were designed to provide benefits to sage grouse and deer, however, they also benefit elk and pronghorn.

motorized trail network. Source habitats are influenced by motorized travel planning area-wide. The level of improved management of motorized travel for source habitats is dependent on and reflected in the discussions of the wildlife emphasis and travel management designations in each alternative.

Recreation

Although the primary effects associated with recreation are human disturbance in sensitive habitat areas, such as nest sites, winter ranges and hibernacula caves, recreation developments can also cause habitat loss or alteration. Open roads and trails for recreational and off-highway vehicle use would effect wildlife populations due to disturbance caused by increased access and vehicle/animal collisions resulting in death (See Table 4-3). The effects analysis for recreation compares the allocation of travel management designations with habitats for species of focus and with source habitats for groups of species. A comparison is also made with the wildlife emphasis allocation for each alternative as displayed in the Travel Management tables by alternative.[2]

Each travel management designation can have both positive and negative effects to wildlife depending on the type of use and the species considered. In general, the species of focus and the species covered by source habitats are negatively affected by increasing human presence in their habitats (see Table 4-3). This effect of increasing human disturbance is assessed by comparing the different types and level of motorized travel allowed in each alternative. For each alternative, the travel management designations are grouped into four categories to display the amount of source and individual species habitats affected by some level of motorized use. These four categories are as follows:

Percent of habitat allocated to motorized travel displays the percentage of a species of focus habitat and source habitat that would allow motorized travel routes to be located within. This is a grouping of the travel management allocations that would allow motorized travel. This grouping is considered to have negative effects because, regardless of the amount (large or small) of motorized travel routes that could occur, the presence of a motorized travel route would remove habitat, cause disturbances and provide increased opportunity for vehicle and animal collisions and other road associated negative impacts to occur that would not otherwise be present if it were not for the presence of the travel route.

Percent of habitat closed to year round motorized travel is a single travel management allocation (Closed Year Round) and displays the percentage of habitat that does not allow any motorized travel. In relation to motorized travel effects, this comparison shows the degree to which negative effects associated with motorized vehicles would be minimized. However, while the BLM may close an area to motorized travel, this category will only apply to BLM-administered roads, and in some circumstances some of these roads, such as collector roads, would still be open for use in areas closed year round to motorized travel. Also, some of the areas that may be designated closed year round to motorized travel may be small in size and have roads as their boundaries making them ultimately impacted by motorized travel routes even though the area would be designated "Closed."

[2] The descriptions of the effects that travel management designations have on wildlife will not always match acreages as displayed in the /TM tables. In order to summarize the types effects, travel management designations with similar effects were grouped together. For example, total acres of elk winter range that could have motorized trail use year-round was calculated adding the following travel management designations together: Open Year Round; Limited to Designated Roads and Trails Year Round; Limited to Existing Roads and Trails Year Round; Limited to Type of Vehicles; and Closed at Specific Snow Depth. The allocation "Closed at Specific Snow Depth" was not identified as a positive effect in this table because, in the last 5 years, this closure has not been triggered, thus making this area effectively open year round. This area would only be closed during significant snow accumulation which could not be predicted. Potential positive effects are anticipated when the areas include a primary or secondary wildlife emphasis.

Percent of habitat allocated to motorized trail use displays the percentage of a species' habitat or source habitat that would allow motorized trail use and includes areas that are open seasonally and year-round. Additionally, these areas also allow motorized travel on roads. As a result, this value generally displays the percentage of habitat that has compounded impacts related to motorized travel routes. This grouping does not display the beneficial effects from mitigation guidelines such as seasonal closures, because mitigation measures typically only lessen the impacts and don't eliminate them.

Percent of habitat allocated to year round motorized trail use is a grouping of the travel management allocations that would allow year round motorized trail use. Except for the Steamboat Rock geographic area, these areas allow both road and trail use year round and generally compound the impacts of motorized travel by having both roads and motorized trails allowed in the same area. However, in Alternative 7 while the North Millican geographic area would be technically allocated to roads and trails year round, trails would receive priority over roads to remain open while meeting wildlife objectives. By closing roads, the compounded effects of having roads and trails would be diminished. Additionally, a portion of North Millican could be closed seasonally, although the exact location of the areas or portions of the future trail system that would be closed is not known at this time.

Of these four general travel management categories, the categories that limit use either seasonally or year round within the habitats are considered to be beneficial to wildlife habitats, while the categories that include motorized roads and trails are considered to have a potential adverse effect on wildlife habitats. Each alternative includes an analysis of how individual travel management designations are integrated with wildlife emphasis objectives to mitigate effects in some areas. However, the analysis for source habitats (shrub-steppe, old-growth juniper, ponderosa pine and lodgepole pine) does not consider seasonal closures as a benefit. This is because the analysis of effects to source habitats focuses on the non-winter period when most species (species considered under the source habitat groups) are present and the seasonal closure periods do not coincide with these species needs. For example, seasonal wildlife occurrence increases during the spring, summer and fall months when neo-tropical migratory land-birds, small mammals (i.e. bats and ground squirrels), reptiles and amphibians use the project area for breeding and other life history needs. While species of focus such as sage grouse and pronghorn are present year round many other species activity is limited due to weather and the availability of food and water. Also, some of the negative effects, such as the loss of snags and down logs and spread of noxious weeds are not managed by the use of seasonal closures.

Land Ownership

Under all alternatives, the land tenure classifications would generally not directly affect species and habitats. However, the actual land exchanges, acquisitions and disposals when completed according to the allocations proposed in the alternatives would add or remove habitat from federal ownership for species that rely on or use that particular site. In all alternatives, efforts would be made to negotiate land exchanges, acquisitions and disposals to allow better and more efficient management of BLM-administered lands. Lands designated as Z – 1 would remain in BLM ownership. This includes numerous large, contiguous blocks of land or special habitat features that benefit wildlife. Lands designated as Z – 2 would be retained with an option to exchange. Most often, exchanges and acquisitions would benefit important wildlife resources and disposal would have minor impacts. These benefits could be in the form of higher quality habitat, more habitat available to a particular species, or the overall improvement effect of blocking up larger parcels of public land. However, while providing some benefit, these trades may not always benefit the same species that occupied the land traded away, or occur in the same general geographic area. For example, an exchange could occur where an isolated parcel of BLM that contains elk winter range located in La Pine is traded for lands adjacent

to BLM in John Day that may or may not contain elk winter range, but contain some other high value wildlife resource such as riparian habitats. The final land ownership designation, Z – 3 (disposal) represents lands that are likely to be lost and potentially not replaced. In addition to the categories above, some lands have been identified for community expansion. These lands could be transferred to local governments to accommodate public purposes and could also represent lands (habitats) likely to be lost and not replaced. The effect of land exchanges, acquisition and disposal on wildlife resources would be assessed in site-specific environmental assessments. In this analysis, the acres of each land tenure allocation and the potential indirect effect on species according to emphasis level will be displayed by alternative.

Military Training

The direct effects of military uses on wildlife resources focus on the allocation of lands to several different types of military training sites and activities. This allocation of lands for training purposes would generally not directly affect species and habitats, and actual effects to wildlife could occur at or after the time of training. Military use is expected to continue under the existing conditions of use, and activities in newly allocated areas would not occur until after additional site-specific analysis. These different activities can cause different effects on wildlife resources, but the degree of effect would depend on the type, intensity, duration and season of activity. Past military use has been relatively infrequent, about 19 days per year. Military field operations have been spread out across the approximately 30,000 acres located in the six different types of training areas. Activities have tended to occur between one and two weekends per month mostly occurring between January and May. These training areas have not, in the past, been located in any seasonally important habitat, such as deer or elk winter range or golden eagle foraging habitats.

Depending upon the alternative, military activities could result in habitat loss or alteration due to physical changes in the plant community and negative effects associated with human disturbance, although these effects would be expected to be minimized based on BLM and independent OMD environmental requirements and Standard Operating Procedures of the Military which include rehabilitation standards for areas used for training. Military training considered in Alternatives 6 and 7 would include expansion of training areas into seasonally sensitive habitats. These potential effects are described under the species and source habitats likely to be affected.

Short-term impacts to habitats from anticipated training activities could be the removal of live plants and reduced vigor caused by the crushing of forbs, grasses and shrubs. However, in all alternatives, the military would be responsible for rehabilitation activities and resource protection. As a result, mitigations for these areas include seeding with native seed after training activities to minimize the impacts. With continued use, the long-term effects could be a gradual change in the under-story plant community such as moving away from a late seral under-story plant community of perennial bunchgrasses (e.g. bluebunch wheatgrass and needle grass) and shrubs (e.g. sagebrush and bitterbrush) toward an early seral stage under-story plant community (e.g. squirrel-tail, cheatgrass and rabbit brush). Typically, military activities would not impact old-growth juniper trees or snags. The military is required, through their own regulations, to incorporate mitigations sufficient to comply with all standards for restoration.

There are three types of training activities that would continue or be expanded into new training areas. These are:

- Exercises with track and tread vehicles and people off road;
- Exercises with tread vehicles and people off road; and
- Exercises with only people off road and vehicles on roads.

In general, the potential impacts would be greatest in areas where track vehicles are

allowed off road because the heavier equipment would cause greater damage to the habitat than tread vehicles and people on foot. Tread vehicles off road would cause the next highest level of impacts, while foot traffic would have the least potential impacts. As described above, many of these impacts would be lessened with mitigations, such as distance buffers around sensitive wildlife habitat, site rehabilitation requirements and season/duration of use.

The amount of rest an area would get between military uses (in alternatives that include rotation areas) would also potentially mitigate some anticipated new impacts under the alternatives considered. This is a valuable mitigation because rotation of training activities to different areas allows for re-vegetation and better long-term protection of natural resources. In general, longer time between exercises allows plant communities to recover and seeded plants to grow and establish a healthy root system. This rest period is particularly important for late seral shrubs. In Alternative 7, management direction for completing baseline assessments would substitute for the proposed rotation schedule, providing comparable mitigation as would a specified rotation period.

Vegetation Management

Vegetation treatments typically affect wildlife by changing the suitability of the habitat for a particular species. Changes in plant species composition, structure and abundance can help maintain, improve, degrade or make habitats unsuitable for various wildlife species. Treatments can also change how one wildlife species uses the habitat.

This analysis compares the two proposed vegetation management emphases, "Current Distribution" and "Historic Range of Variability," by displaying the potential changes in the amounts of different habitat types that could be available if all areas were treated (or not) under each emphasis. While Alternative 7 modifies the "Historic Range of Variability" concept the differences between the two are minor and the analysis wouldn't be able to meaningfully measure the differences to compare with the other alternatives (Please refer to the vegetation analysis under Ecosystem Health). Therefore, this analysis assumes Alternative 7 would have the same effects as Alternatives 3 and 6.

Because there are only two vegetation management approaches proposed this analysis will provide a description for these two approaches by grouping Alternatives 2, 4 and 5 together in the "Current" concept and Alternatives 3, 6 and 7 together in the "Historic" concept. The analysis will display how these two management approaches would potentially affect the types of habitat that would be available for the species of focus and source habitats. There are two main types of habitats that could change under these approaches that we use for comparison and they are shrub-steppe and juniper woodland habitats.

In juniper woodlands and shrub-steppe habitats, managing habitats under the "historic" theme could increase the health and abundance of shrubs, grasses and forbs and increase their distribution (amount of area occupied, in acres), and would decrease the amount and distribution of young juniper. This theme would promote the restoration of shrub-steppe and ponderosa pine habitats. Managing habitats under the "current" theme could increase the health and abundance of shrubs, grasses and forbs, but not as much as the "historic" theme, and would not significantly increase their distribution. This theme would provide for a mixture of forage and hiding cover and would promote the conversion of shrub-steppe habitats to juniper woodlands. This theme could also maintain hiding cover (juniper) when managing for deer and elk.

Vegetation management affects wildlife primarily by modifying their habitat. Vegetation management practices could reduce the amount of cover, which is important during breeding seasons, hot temperatures or periods of inclement weather and hunting

seasons. Vegetation management also could have short-term affects of increasing forbs, grasses and shrubs that respond to disturbed soils and reduced canopy cover. Snags and downed logs, important to wildlife, are often impacted during logging operations and are vulnerable to firewood cutters after the harvest because of either new road access or increased visibility due to reduced vegetative cover.

Fuels Treatment in the Wildland Urban Interface

The actual allocation of the wildland urban interface zone would not affect wildlife habitat. Anticipated treatments, when implemented after site-specific analyses, would have guidelines to mitigate effects to wildlife such as seasonal restrictions, distance buffers from sensitive sites like nests or riparian habitat, or treatment method restrictions. The allocation of WUI areas would have an indirect effect on wildlife habitat when the anticipated treatments were actually conducted.

Fuel treatments would generally affect wildlife in three ways. Prescribed burning and mechanical cutting of vegetation and woody debris removes vegetation and woody structure and changes plant species structure and composition. This could result in the reduction of cover and forage habitat for some wildlife and increase the amount and vigor of herbaceous plants desired by some wildlife species. Fuels treatments can also be used to maintain or create desirable wildlife habitat conditions and reduce the risk of catastrophic wildfires. Fire suppression has resulted in seral changes in vegetative communities that create different habitat conditions. In some areas, fuels treatments could bring the conditions closer to resembling their "historic" condition and decrease the risk of catastrophic fires (i.e. ponderosa pine habitats). However, in other habitats (such as lodgepole pine), wildfires often create ideal conditions for some species (i.e. black-backed woodpeckers) and altering this condition would move away from the potential "historic" condition. As a result, species that have adapted to post-wildfire communities may be negatively impacted by WUI treatments.

In all alternatives, WUI treatments would have a potential future effect on the vegetation being removed, and a corresponding effect on the vegetation left in place, as well as an effect on the species associated with the vegetation. For example, younger juniper would likely be targeted for removal in shrub-steppe communities, which would remove competition from shrubs, forbs, grasses and other trees left on site. This change in vegetation would positively affect wildlife species associated with shrub-steppe habitat as the amount and quality of their habitat increased. By contrast, as described above, species that rely on juniper would experience a loss of habitat with juniper removal. Actual treatments and prescriptions would vary according to distance from homes and property boundaries, with the greatest amount of change occurring in the first treatment band around human communities. The size of the WUI treated varies with vegetation type. In timbered areas, treatments could occur within 1.5 miles of mapped communities, and for shrub-steppe habitat in rangeland/woodland areas, treatments could occur within ½ mile of communities. The vegetation in the first band nearest to private homes and property could be changed the most by removing enough ground vegetation and decreasing canopy cover to meet the goal of no crown fire and less than two foot flame lengths. These types of vegetation reductions would be expected to create habitat that favors more generalist species, edge species or species that traditionally occupy open dry pine sites. Vegetation in the first treatment band in shrub-steppe habitats would also be expected to change the most as fuel levels are reduced. In shrub-steppe communities younger juniper and a variety of shrubs (sagebrush, rabbitbrush, e.g.) may be removed where canopies exceed 50 percent or the overall shrub height is greater than two feet. Changes in this type of vegetation would also be expected to favor species that occupy open shrub-steppe habitats, as well as edge and generalist species.

Minerals

Mineral exploration and development could affect wildlife by removing habitats permanently or temporarily and by disturbance, but the degree of effect would depend on the type, intensity, duration, location, and season of activity. This analysis will not analyze the effects of locatable or leasable minerals because the potential for these resources to be developed is so low that the effects are assumed to be insignificant. The effects of mining on wildlife resources are directed at mineral material site developments because this is where meaningful effects could occur to wildlife resources.

The direct effects of the alternatives would be the availability of differing amounts of acres open for mining with no additional restrictions beyond the standard project design features (currently in place); the availability of acres open to mining but with additional restrictions (i.e. wildlife seasonal closures); and the availability of acres closed to mining. There are currently 29 mineral material sites on BLM-administered lands within the planning area. Each site occupies approximately 15-20 acres, depending on use, and represente up to 580 acres of ground disturbance. Of the 29 existing sites, approximately seven have not been occupied or show no signs of disturbance. Sites that are active have the potential to impact wildlife through noise generated from rock-crushing operations, truck travel, and blasting. Truck travel could occur on arterial, collector, and local roads. In general, the effects would include the continued intermittent use of up to twenty-nine existing mineral extraction sites on BLM-administered lands.

The indirect effects of actually developing a new site would only occur after additional analysis has been completed. Long-term effects could include the physical loss of habitat when the vegetation is removed for access roads to the mineral site and for the site of mineral extraction. Another indirect but short-term effect could be the degradation of habitat adjacent to roads due to human related disturbances that would occur on access roads and mineral extraction sites. Habitat degradation, in this situation, is the decreased use of adjacent habitat, by wildlife, because of human activities (i.e. driving roads, extracting minerals, etc.). Often mineral material sites become locations for other human activities, such as target shooting and OHV recreation, which, if they occur, would cause a long-term disturbance effect.

Table 4-6 Summary of the Effects of Mineral Material Sites on Wildlife Species and Source Habitats

	Alternative	# Sites in Alt 1			# Sites in Alt 2			# Sites in Alt 3			# Sites in Alt 4			# Sites in Alt 5			# Sites in Alt 6			# Sites in Alt 7		
Species/Source Habitats	Emphasis Level[1]	P	S	G	P	S	G	P	S	G	P	S	G	P	S	G	P	S	G	P	S	G
Deer	16 sites[2]	8	6	2	5	1	10	12	3	1	7	4	5	7	6	3	10	2	4	12	0	4
Elk	14 sites	2	5	7	3	0	11	7	2	5	3	1	10	4	1	9	4	1	9	5	2	7
Pronghorn	14 sites	7	3	4	2	2	10	11	1	2	5	4	5	4	8	2	8	2	4	10	1	3
Sage Grouse	6 sites	6	0	0	0	0	6	6	0	0	0	3	3	1	5	0	5	1	0	6	0	0
Golden Eagles	2 sites	1	1	0	1	0	1	2	0	0	1	1	0	2	0	0	2	0	0	2	0	0
Shrub-Steppe	9 sites	4	2	3	0	1	8	5	2	2	2	2	5	1	4	4	2	3	4	4	1	4
Juniper Woodlands	16 sites	4	1	11	5	1	10	9	1	6	5	1	10	6	3	7	7	1	8	7	2	7
Ponderosa Pine	1 site	0	1	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0
Lodgepole Pine	3 sites	0	2	1	2	1	0	2	1	0	2	1	0	2	1	0	2	1	0	2	1	0

[1] P=Primary; S = Secondary; G = General
[2] Each saleable mineral site is assumed to occupy approximately 20 acres. Therefore, the direct effect for the 16 sites in deer winter range would be the removal of 320 acres of suitable habitat. For example, the negative effects related to access roads (both habitat loss and disturbance) and disturbance effects at each mineral site would be additional.

Special Habitats, Components and Features

Examples of special habitats include riparian areas and meadows; components include snags and downed logs; and features include caves, cliffs, and rock outcrops. Any management activity that directly alters these habitats or the ecotone (habitat edge) adjacent to them has the potential for diminishing their suitability as wildlife habitat. Ground-disturbing activities such as recreational development, off-road vehicle use, mining, or vegetation management could alter vegetation in meadows and riparian areas. Recreational use and other disturbance could reduce the habitat value for caves, meadows and cliffs. Actions that alter ground water drainage patterns could alter or eliminate springs and seeps. Quarry development could directly affect talus areas, cliffs and caves. Road construction could adversely affect any special habitats either through directly altering habitat conditions or through increasing the potential for disturbance through additional human use. Removal of vegetation surrounding meadows, seeps, and talus areas could alter airflow and solar radiation resulting in adverse changes in temperature, humidity, and other micro-site conditions. However, maintaining trees, or other vegetation that are encroaching upon and degrading the natural function of a special habitat, component or feature (i.e., meadow, seeps and riparian habitats) could promote the conversion of one habitat type into a less desirable habitat.

Analysis of the Alternatives

Comparing the effects of numerous land use allocations and potential future activities on numerous species and source habitats is challenging. Several tables have been compiled to help to compare the effects of each alternative on the six species of focus and five source habitats. These tables compare, across the alternatives:

- Travel management summary - for each species of focus
- Travel Management Designations and Wildlife Emphasis - for each species of focus and source habitats
- Military Training Area Summary – for each species of focus and source habitats

These tables are presented in the section titled Effects of Alternatives 2-7 under each species of focus, source habitat, or program description the first time they are referenced. These tables are also referenced in the Alternative 1 analysis.

Effects of Alternative 1

Bald Eagle

Wildlife Emphasis – For Alternative 1, the Brothers La Pine RMP would treat all habitats within ½ mile of eagle nests and roost trees similar to those considered a primary wildlife emphasis area in Alternatives 2-7. Alternative 1 would continue the management of 121 acres of bald eagle nesting and adjacent foraging habitat with a primary wildlife emphasis for eagles, and the remaining acres with a general wildlife emphasis. This alternative provides the least amount of management emphasis for bald eagles.

Recreation – In Alternative 1, the area surrounding the Grizzly Mountain nest would be managed with a multi-use shared facilities emphasis. The site would have a travel management designation of open year round and limited to existing roads and trails year round. The Prineville Reservoir sites would be managed with a non-motorized exclusive emphasis on the north side, and a multi-use shared facilities designation on the south side. These areas would have a travel management designation of open year round and limited to existing roads and trails year round on the north side of the reservoir, and an open year round on the south side of the reservoir.

Land Ownership – In Alternative 1, the direct effect of the proposed lands tenure designations in Alternative 1 on all bald eagle habitats on BLM-administered lands would be the allocation of 453 acres of all bald eagle habitats as Z – 1 and 287 acres as Z – 2. Less than 1/3 of the acres identified for retention (121) would be managed with a primary wildlife emphasis for bald eagles, and all of the acres remaining, as well as those identified for exchange, would fall within a general bald eagle emphasis area.

Golden Eagle

Wildlife Emphasis – Alternative 1 would manage for the least amount of nesting, roosting, and foraging golden eagle habitat. Approximately 16,000 acres would be managed with a primary wildlife emphasis. By only managing the ½ mile area around the nest (instead of one mile), indirect effects may include the degradation of adjacent foraging habitat from human disturbance, or from lack of habitat restoration and maintenance efforts.

Recreation – Recreation use has the potential to impact golden eagles in various ways, including but not limited to direct harassment through noise or activity during critical breeding and nesting periods, indirect alterations to foraging habitat, and direct disturbance to golden eagles while feeding/foraging. Travel management designations in primary wildlife emphasis areas would be expected to either have a low to moderate amount of negative effects on wildlife or have some management guidelines that would mitigate negative effects to golden eagles. Travel management designations in general wildlife emphasis areas would be expected to maintain a low level of use by wildlife in some portions of a geographic area. Specific designations such as "Limited to Roads Only Year Round" and "Limited to Roads and Trails Seasonally" would be employed to mitigate the effects of motorized travel. These designations would be expected to minimize the negative effects of habitat fragmentation and disturbance on golden eagles.

As presented earlier, the effects of the alternative travel management designations that include golden eagle habitat are compared in Table 4-8, Summary of Travel Management Designations in Golden Eagle Habitat. The travel management designation that closes the most golden eagle habitat to motorized use year-round would have the most potential beneficial effects, while the travel management designation that has the highest percentage of habitats available for motorized use outside of a seasonal closure would have the most potential adverse effect to species based only on consideration of the travel management designation, and not considering the wildlife emphasis for the area. Please note that all active nest sites would be seasonally protected and the reference above to seasonal closures would be additional habitat (foraging) that could be protected during a portion of the nesting season. These seasonal closures were designed for deer, elk or sage grouse, but not eagles, therefore only a portion of the eagle nesting season would be covered by the seasonal closure dates.

Alternative 1 would identify the fewest travel management allocations that could have a positive effect on golden eagles (13,688 acres). In order to meet direction to protect golden eagle nesting and foraging habitats, this alternative would primarily use the travel management designations "Limited to Roads Only Year Round" and "Limited to Roads and Trails Seasonally" to mitigate the effects of motorized travel (Table 4-9 displays specific wildlife emphases for golden eagles by specific travel management allocation for all alternatives).

Land Ownership – In Alternative 1, approximately 29,143 acres of golden eagle habitat would be classified for retention (Z – 1); 9,093 acres would be classified as retention with the option to exchange (Z -2); and 2,014 acres would be classified for disposal (Z – 3). As a result, compared to the other alternatives, this alternative identifies the fewest number of acres of golden eagle nesting and foraging habitat for retention. In addition, of the 2,014 acres identified for disposal in this alternative, approximately 16 percent have been identified as lands to be managed with a primary wildlife emphasis for golden eagles.

Sage Grouse

Wildlife Emphasis – Sage grouse are a BLM designated Sensitive Species and the B/LP RMP stated that seasonal restrictions would be applied to important seasonal wildlife habitats, such as sage grouse, and expected that a habitat management plan would be developed (USDI Bureau of Land Management, 1989, page 97). This information, coupled with the BLM's Special Status Species Policy, would direct sage grouse breeding (lekking and nesting) and wintering habitats to be managed with the substantive equivalent of a primary wildlife emphasis as described in Alternatives 2-7. Most of the sage grouse habitat within the plan boundary is either nesting or wintering habitats, which represent important seasonal habitats. Therefore, in Alternative 1, all sage grouse habitats would be considered primary wildlife emphasis areas. This alternative would provide the best distribution of habitat possible. However, habitat restoration would be required to positively influence sage grouse habitat conditions and population numbers.

Transportation – The overall HE for sage grouse habitats in the planning area for Alternative 1 would be 48 percent in relation to arterial and collector routes. However, this doesn't consider seasonal closures for motorized travel in the North and South Millican geographic areas. The seasonal motorized travel restrictions vary by geographic area. In North Millican, the seasonal closure would protect wintering and breeding birds (birds attending leks), but nesting and brood-rearing habitat would not be protected. In South Millican the seasonal closure covers the wintering, breeding, nesting and most of the brood-rearing periods. Also, motorized travel is restricted to designated roads in the Horse Ridge geographic area, which also limits the effects from motorized vehicles. With these types of travel restrictions in place and the continued management direction for sage grouse, habitats should be well managed in relation to human disturbance effects.

Recreation – Alternative 1 would identify the third lowest amount of travel management allocations that could have a positive effect on sage grouse in their habitats (68 percent, 53,589 acres). Of the 53,589 acres that would be managed positively for sage grouse, this alternative uses travel management designation "Limited to Roads and Trails Seasonally" most to mitigate the effects of motorized travel to sage grouse in suitable habitat.

Land Ownership – Alternative 1 would classify approximately 80 percent of all sage grouse habitats (62708 acres) for retention (Z – 1), and 20 percent (15,385 acres) for retention with an option to exchange (Z – 2). Almost 100 percent of the lands identified for retention would be managed with a primary wildlife emphasis, and approximately 82 percent of the lands identified for exchange would be managed with a primary wildlife emphasis.

Mule Deer

Wildlife Emphasis – The B/LP RMP identified crucial winter range for deer and stated that seasonal restrictions would be applied to this habitat. Additional direction is given to mitigate impacts in crucial wildlife habitats, such as the mule deer migration corridor in La Pine. Also, BLM signed a Memorandum of Understanding with ODFW in 1990 to protect the deer migration corridors. Therefore, in Alternative 1, all habitats mapped as crucial winter range (45,783 acres) and mule deer migration corridors (33,588 acres) are considered primary wildlife emphasis areas for deer.

Other management decisions, either as a direct RMP allocation or through subsequent NEPA decisions, have occurred under the B/LP RMP that provide protection to additional areas currently recognized as winter range that were not identified as "crucial" in B/LP RMP. These areas include all of Badlands, Horse Ridge and Smith Rock geographic areas and parts of Prineville Reservoir (Eagle Rock area), Steamboat Rock (Wild and Scenic River and WSA), and Tumalo (northern block) geographic areas. These areas together include approximately 112,953 acres of winter range. Some of these areas overlap with the existing crucial deer winter ranges. In all, the direct effect of this

alternative would be the continued management of approximately 60 percent of all deer winter range on BLM-administered lands, with the equivalent of a Primary wildlife emphasis for deer considered in Alternatives 2-7. This alternative provides the third highest amount of BLM-administered lands with a primary wildlife emphasis; however, it would manage a low amount in the secondary level. Overall, this direction would provide a moderately high distribution of habitat that would have an emphasis for deer.

Approximately 35,800 acres in the Millican Plateau would be closed during high-snow depths to accommodate deer wintering needs during extreme high snowfalls. This is considered a secondary wildlife emphasis level management strategy. The deer migration corridor encompasses nearly all BLM-administered lands (40,643 ac.) in La Pine. However, only the high-use areas were recognized and identified as a management emphasis for deer under the B/LP RMP. These high use areas make up 83 percent (33,657 ac.) of all BLM – administered lands in La Pine and are considered to be managed as a primary wildlife emphasis. The direct effect of this alternative on deer migration habitat would be the management of 33,657 acres of BLM-administered lands to be managed with a primary wildlife emphasis for deer migration needs and 6,986 acres with a general emphasis for deer (See Table 2 – 9, Wildlife Emphasis Areas – Migration and Connectivity Corridors). This allocation of lands would result in a moderately high distribution of habitat across the migration corridor that would be managed with a primary wildlife emphasis for deer. These primary wildlife emphasis areas would be located in the major mule deer migration areas as identified in the B/LP RMP.

Transportation – In Alternative 1, roads classified as collectors or arterials would be anticipated to continue at a level resulting in an overall habitat effectiveness of about 56 percent across the planning area on BLM-administered lands (see Table 4-7 Roads

Table 4-7: Roads and Wildlife Habitat Effectiveness Index Summary Table: Alternatives 1&2 Comparison with Alternatives 3 thru 7

Geographic Area	Sage Grouse			Mule Deer			Rocky Mountain Elk			Pronghorn Antelope		
	Alts 1&2	Alts 3-7	Change Between Alts	Alts 1&2	Alts 3-7	Change Between Alts	Alts 1&2	Alts 3-7	Change Between Alts	Alts 1&2	Alts 3-7	Change Between Alts
Badlands	NA	NA	NA	80	82	+2	80	82	+02	3	2	+01
Bend/Redmond	NA	NA	NA	NA	NA	NA	NA	NA	NA	34	25	+09
Cline Buttes	NA	NA	NA	54	70	+16	62	67	+05	NA	NA	NA
Horse Ridge	43	67	+16	46	67	+21	34	57	+23	32	8	+24
La Pine	NA	NA	NA	46	46	NC	49	67	+18	NA	NA	NA
Mayfield	NA	NA	NA	44	77	+33	26	74	+48	35	21	+14
Millican Plateau	100	100	0	47	57	+10	54	66	+12	33	27	+06
North Millican	49	71	+22	48	69	+21	48	75	+27	31	17	+14
South Millican	45	55	+10	48	55	+07	47	51	+04	34	24	+10
Northwest	NA	NA	NA	55	69	+14	55	57	+02	NA	NA	NA
Prineville	NA	NA	NA	66	63	-03	43	43	0	11	11	0
Prineville Reservoir	NA	NA	NA	51	49	-02	52	55	+03	3	3	0
Steamboat Rock	NA	NA	NA	84	72	-12	73	73	0	NA	NA	NA
Smith Rock	NA	NA	NA	84	84	NC	NA	NA	NA	NA	NA	NA
Tumalo	NA	NA	NA	47	51	+04	47	51	+04	NA	NA	NA
Planning Area Average	48	67	+19	56	64	+11	57	69	+12	26	18	+08

and Wildlife Habitat Effectiveness Index Summary for a complete listing of the habitat effectiveness for each alternative and geographic area). Of the 14 geographic areas that contain deer winter range, three (Badlands, Smith Rock and Steamboat Rock) would retain over 70 percent HE and maintain a significant amount of management ability to manage local roads to achieve the equivalent of a primary wildlife emphasis level for deer. The B/LP RMP identified only a small amount of crucial winter range in the Badlands; however, all three geographic areas contain winter range. As mentioned earlier, under the wildlife emphasis section, these three areas have direction that would manage them with a primary wildlife emphasis for deer winter range values.

Four geographic areas (Cline Buttes, Northwest, Prineville and Prineville Reservoir) would anticipate roads classified as collectors to continue at levels expected to result in a HE between 50 percent and 70 percent, and maintaining some ability to manage local roads at a secondary wildlife emphasis level. However, two of these areas (Prineville and Prineville Reservoir) have a recreation travel access designation of open year-round to cross-country motorized travel and Cline Buttes is limited to existing roads and trails year-round. The B/LP RMP identified some crucial winter ranges in the Prineville and Prineville Reservoir geographic areas, but not in the Cline Buttes area. An existing seasonal closure in the Sanford Creek and travel restrictions in the Wild and Scenic River Corridor (which would be continuing management direction for all alternatives) already provides some of these winter ranges with an emphasis for deer. As mentioned under the wildlife emphasis section, the Prineville and Prineville Reservoir geographic areas would emphasize some deer winter range areas while Cline Buttes and Northwest would not.

The remaining geographic areas would anticipate roads classified as collectors to continue at levels expected to result in a HE below 50 percent HE, and resulting in a difficult situation to manage for a minimum of a secondary wildlife emphasis. Potentially, many local roads and some collector roads would need to be permanently or seasonally closed to achieve this ultimate result. As previously mentioned in the wildlife emphasis section, four of these areas (Horse Ridge, North Millican, South Millican and Tumalo) currently have travel restrictions that result in a primary wildlife emphasis for deer while the Millican Plateau would be managed for a secondary management emphasis. The Mayfield geographic area would not emphasize deer winter range; however, this area contains the least amount of winter range of all geographic areas that contain some winter range.

Recreation – Alternative 1 would identify the second lowest amount of travel management allocations that could have a positive effect on mule deer in winter range (44 percent, 116,528 acres). This alternative uses the travel management designation "Limited to Designated Roads Only Year Round" to mitigate the effects of motorized travel to mule deer in winter range (See Table 4-14 Wildlife Emphasis and Travel Management Designations in Deer Winter Range) for a breakdown of acres allocated by alternative, for each travel management designation by wildlife emphasis level.

Land Ownership – Alternative 1 would classify approximately 76 percent of all deer habitats for Retention, (200,152 acres) as Z – 1, 19 percent (50371 acres) would be designated Z – 2, and 5 percent (12856 acres) would be designated Z-3. Of the 12,856 acres identified for disposal, 25 percent have been identified to be managed with a primary wildlife emphasis for deer, and approximately 33 percent of the acres that could be exchanged has also been identified as primary wildlife emphasis areas for deer.

Rocky Mountain Elk

Wildlife Emphasis – There are no areas identified as a primary wildlife emphasis for elk in the B/LP RMP. However, other resource management programs indirectly benefit elk in this alternative. The Badlands, Horse Ridge, North Millican, Prineville Reservoir, South Millican, Steamboat Rock, and Tumalo geographic areas have elk winter range

and management practices equivilent to that of a primary wildlife emphasis. Therefore, Alternative 1 would be assumed to provide about 91,402 acres of elk winter range with a primary wildlife emphasis and 88,770 acres with a general emphasis for elk. This alternative provides the fourth highest amount of lands to be managed with a primary wildlife emphasis and provides the third highest amount of lands to be managed with a general emphasis for elk. This alternative provides a moderate distribution of winter range across the planning area that would be managed with a primary wildlife emphasis for elk.

Alternative 1 would not manage any connectivity habitat with a primary wildlife emphasis for elk, and would manage 7,068 acres of elk connectivity habitat with a secondary wildlife emphasis and 1,123 acres with a general wildlife emphasis (See Summary Table 2-9 Summary of Wildlife Migration and Connectivity). This allocation of lands would be expected to result in a high amount and distribution of habitat within the migration corridor (located in the Prineville Reservoir geographic area) that would be managed with a secondary wildlife emphasis for elk. A considerable amount of the management afforded elk is in relation to the Sanford Creek and Eagle Rock seasonal road closure areas.

Transportation – Alternative 1 would manage roads classified as collectors to continue at levels expected to result in an average habitat effectiveness of 57 percent across the planning area on BLM-administered lands. Refer to Table 4-4 for a complete listing of the habitat effectiveness for each geographic area. Of the 13 geographic areas that contain elk winter range, two (Badlands and Steamboat Rock) would retain over 70 percent HE and maintain a high amount of management ability to manage local roads and achieve a primary wildlife emphasis level for elk.

Four geographic areas (Cline Buttes, Millican Plateau, Northwest and Prineville Reservoir) would anticipate roads classified as collectors to continue at levels expected to result in an HE over 50 percent but less than 70 percent. Cline Buttes and the Northwest geographic areas, however, are open year-round to motorized travel and Cline Buttes is a popular area for OHV use. Currently there are some seasonal closures in the Prineville Reservoir (Sanford Creek and Eagle Rock areas) geographic area that provide higher habitat effectiveness during the winter.

The remaining seven geographic areas would anticipate roads classified as collectors and arterials to continue at levels expected to result in a HE of less than 50 percent. However, management decisions under B/ LP RMP has some year-round road closures in Horse Ridge, and seasonal road and trail closures in North and South Millican , which likely results in a primary wildlife emphasis. Of the remaining three geographic areas, La Pine contains a considerable amount of winter range (30,708), and Alternative 1 would manage arterial and collector roads to an HE of 34 percent.

Recreation – Of all alternatives, Alternative 1 would allocate the second lowest amount of travel management allocations that could have a positive effect on elk in winter range (37 percent, 67,467 acres). This alternative uses the "Roads Only Year Round" designation to limit motorized travel to a low density of designated roads (See Table 4-17 Wildlife Emphasis and Travel Management Designations in Elk Winter Range) for a breakdown of areas allocated by alternative for each travel management designation and emphasis level.

Land Ownership – The direct effect of the proposed land tenure designations in Alternative 1 on all elk habitats on BLM-administered lands would be the allocation of 57 percent of all elk habitats (102,387 acres) as Z – 1, 42 percent (76,320 acres) as Z – 2, and one percent (1,401 acres) as Z-3. Of the acres identified for retention, approximately 80 percent would be managed with a primary wildlife emphasis, and of the acres identified for exchange,

approximately 9 percent would be managed with a primary wildlife emphasis. Of the 1,401 acres identified for disposal, 16 percent would be managed with a primary wildlife emphasis.

Pronghorn

Wildlife Emphasis – Brothers/La Pine RMP identified crucial winter range for pronghorn and stated that seasonal restrictions would be applied to this type of habitat (page 97). Other management decisions, either as a direct RMP allocation or through subsequent NEPA decisions, have occurred under B/LP RMP that provides management emphasis favorable to pronghorn and equivalent to a primary wildlife emphasis. In Alternative 1, approximately 65,195 acres of pronghorn habitats, including all habitats mapped as crucial winter range and areas with other management direction favorable to pronghorn are considered primary wildlife emphasis areas. The location of these emphasis areas (Badlands, Horse Ridge, North Millican and South Millican geographic areas) is concentrated geographically, resulting in a poor distribution of habitats. By contrast, the Millican Plateau and Bend-Redmond geographic areas contain the two largest percentage of winter range (25 percent and 16 percent) but would be managed with a general wildlife emphasis.

Alternative 1 would also manage 2,287 acres of pronghorn connectivity corridors with a primary wildlife emphasis, 4,050 acres with a secondary wildlife emphasis and 16,285 acres with a general emphasis for pronghorn (see Chapter 2, Table 2-9, Alt 1 Summary of Migration and Connectivity Corridors). This alternative would provide the second lowest amount of connectivity habitat with a primary or secondary wildlife emphasis for pronghorn. Alternative 1 would provide a low distribution of habitat across all the connectivity corridors, which would be managed with a primary or secondary wildlife emphasis for pronghorn. The general emphasis that would be placed on the pronghorn connectivity corridors in the Mayfield and Millican Plateau geographic areas could limit pronghorn movements through these areas in the future.

Transportation – Alternative 1 would anticipate continued classification and use of arterial and collector roads at levels with expected effects on pronghorn year-round habitats that would result in an average road influence of 31 percent across the planning area on BLM-administered lands and results in a moderate level of human influence. Even though local roads are not yet factored in, having a moderate RII (road influence index) score indicates that there is some flexibility for management of local roads to emphasize pronghorn habitats at a secondary wildlife emphasis. Refer to Table 4-4 for a complete listing of the habitat effectiveness for each geographic area. Of the nine geographic areas that contain pronghorn habitats, three (Badlands, Prineville and Prineville Reservoir) would retain less than 30 percent level of human influence on pronghorn habitats, thus providing greater potential management flexibility to manage local roads to contribute toward management objectives of a primary wildlife emphasis level for pronghorn. However, these three geographic areas contain only 19 percent of the pronghorn habitat in the planning area that is located on BLM-administered lands.

Recreation – Compared to the other alternatives, Alternative 1 would identify the third lowest amount (51 percent, 85,428 acres) of travel management allocations that could have a positive effect on pronghorn in year round habitat. Nearly all of year round habitat would be allocated to motorized travel and only 20 acres would be closed year round. In order to mitigate the effects of motorized travel on pronghorn in year-round habitat, this alternative would primarily use the travel management designations "Limited to Roads and Trails Seasonally" and "Limited to Roads Only Year Round" (See Table 4-19 Summary of Travel Management Designations in Pronghorn Habitat).

Land Ownership – Alternative 1 would classify approximately 60 percent of all pronghorn habitats (101,117 acres) for rentention (Z – 1), 35 percent (58,999 acres) would be

designated for retention with option to exchange (Z – 2), and 2 percent (4,047 acres) would be classified for disposal Z-3. Approximately 2 percent (4,022 acres) would be identified for community expansion. Of the acres identified for retention, approximately 63,310 acres would be managed with a primary wildlife emphasis, and of the acres identified for exchange, approximately 8,165 acres would be managed with a primary wildlife emphasis.

Military Training – Alternative 1 would allocate 20,902 acres (13 percent of all pronghorn habitats) for military uses. For the 20,902 acres of pronghorn habitats that would be affected by military uses, none would be managed with a primary wildlife emphasis, 21 percent (4,348 acres) with a secondary wildlife emphasis and 79 percent (16,554 acres) with a general wildlife emphasis.

All of the 20,902 acres of pronghorn habitats that would be allocated for military activities would be designated for annual use and none would be used on a rotational basis. Of the 20,902 acres allocated for annual use, 19 percent (3,930 acres) would allow track vehicles, 39 percent (8,201 acres) would allow tread vehicles and 42 percent (8,771 acres) would allow only foot activity off of designated roads. Alternative 1 allocates the least amount of acreage to treaded motorized vehicle travel. For a complete breakdown of the total pronghorn habitats affected by annual use versus rotational use and their associated use type (i.e., track, tread or foot) see Table 4-21 Comparison of Military Training in Pronghorn Habitat.

Riparian Source Habitat

Transportation – The analysis of transportation (motorized travel) effects on riparian source habitat (and associated wildlife species) includes all mapped roads (arterial, collector and local roads) and motorized OHV trails in riparian areas. In some geographic areas this calculation underestimates the effects of motorized travel because not all roads and trails are mapped and therefore are not included in the analysis. Areas that would be open to cross-country travel and that would be seasonally closed have not been included in this analysis.

The effects of roads and trails on riparian source habitats from continuing B/LP direction would result in an average road influence of 20 percent across the planning area on BLM-administered riparian areas (0 – 63 percent range between geographic areas), and a corresponding low level of human influence (See Table 4-23 Riparian Source Habitat Road Influence Index). Of the ten geographic areas that contain riparian source habitats, all but two (Mayfield Pond and Millican Plateau) have less than a 30 percent level of road influence on riparian source habitats in Alternative 1. The Mayfield Pond geographic area contains less than one percent of the riparian source habitat on BLM-administered lands in the planning area and has the highest level of human influence (63 percent). The Millican Plateau geographic area contains approximately 27 percent of the riparian habitat and demonstrates a moderate level of human influence on the habitat, but this analysis includes the effects of State Highway 27, in addition to local and collector roads.

Alternative 1 would have the greatest amount of road and human influence on riparian source habitats of all the alternatives due to the amount of area with a year-round, open travel management designation.[3] For example, unlike management direction common to Alternatives 2 – 7, which would target 90 percent of riparian areas for open motorized travel routes of less than 1.5 mi/mi^2, Alternative 1 would only manage 38 percent of riparian habitat for low open motorized route densities.

[3] The categories and associated terms describe the level of human influence in relation to the road influence index. These are directly tied to the wildlife emphasis levels and are as follows: a low level of human influence equals a primary emphasis; a moderate level of human influence equals a secondary wildlife emphasis; and a high level of human influence equals a general wildlife emphasis.

Shrub-Steppe Source Habitat

Wildlife Emphasis – Alternative 1 would provide the third highest amount (64 percent, tied with Alternative 6) of lands to be managed with a primary wildlife emphasis and provide the second lowest amount (19 percent, tied with Alternative 5) of lands to be managed with a general emphasis for shrub-steppe habitat. When primary and secondary wildlife emphasis areas are combined this alternative would provide the third highest amount (81 percent, tied with Alternative 5) of lands allocated for the benefit of wildlife. Subsequently, this alternative would provide a moderately high distribution of shrub-steppe habitat across the planning area that would be managed with at least a secondary wildlife emphasis.

Land Ownership – Alternative 1 would allocate 67 percent of shrub-steppe source habitat as Z – 1, 31 percent (34,211 acres) as Z – 2, and 2 percent (1,989 acres) as Z – 3. Approximately 2 percent (477 acres) has been identified for community expansion. Of the 73,905 acres identified for retention, 81 percent (59,632 acres) would be managed with a primary wildlife emphasis; 34 percent of acres available for exchange (10,996 acres) would be managed with a primary wildlife emphasis; and 23 percent would be managed with a primary wildlife emphasis.

Military Training – The direct effect of all proposed military activities in Alternative 1 on shrub-steppe habitats would be the allocation of 2,271 acres for military uses. Of the acres of shrub-steppe habitats that would be affected by military uses, 39 percent (879 acres) would be managed with a secondary wildlife emphasis and 61 percent (1,392 acres) would be managed with a general wildlife emphasis.

Of the total 2,271 acres that would be allocated for military activities, all would be designated for annual use and none would be used on a rotational basis. The military would use track vehicles on 4 percent (80 acres), tire vehicles on 40 percent (906 acres), and foot activity off designated trails on 57 percent (1,285 acres). For a complete breakdown of the total shrub-steppe habitats affected by annual use versus rotational use and their associated use type (i.e. track, tire or foot) see Table 4-26 Comparison of Military Training in Shrub-Steppe Source Habitat.

Juniper Woodland Source Habitat

Wildlife Emphasis – Alternative 1 would provide the lowest amount (24 percent) of lands to be managed with a primary wildlife emphasis and provide the third highest amount (62 percent) of lands to be managed with a general wildlife emphasis for Juniper woodland habitats. When primary and secondary wildlife emphasis areas are combined this alternative would provide the fourth highest amount (38 percent) of lands that would be allocated with at least a secondary wildlife emphasis for wildlife. Subsequently, this alternative would provide a poor distribution of juniper woodlands across the planning area that would be managed with at least a secondary wildlife emphasis.

Recreation – Of all alternatives, Alternative 1 would allocate the second lowest amount (which is almost the same amount as Alternative 2) of travel management allocations that could have a positive effect on wildlife in old-growth juniper woodland source habitats (29 percent, 45,019 acres). Of the 45,019 acres that would be managed positively for juniper woodland source habitats, this alternative uses travel management designation "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to wildlife in old-growth juniper woodlands.

Land Ownership – Alternative 1 would allocate 45 percent (69817 acres) of juniper woodlands as Z – 1, 51 percent (81203 acres) as Z – 2, and 1 percent (1611 acres) as Z – 3. Approximately 3 percent (4513 acres) has been identified for community expansion. Of the acres identified for retention, 53 percent would be managed with a primary wildlife

emphasis, of the acres identified for exchange, 2 percent would be managed with a primary wildlife emphasis and of the acres identified for disposal, and approximately 4 percent would be managed with a primary wildlife emphasis.

Military Training – Alternative 1 would allocate the second highest amount of acres for annual military uses. This alternative allocates 27,383 acres (2 percent of all juniper habitats). Of the acres of juniper habitats that would be affected by military uses, 23,930 (11 percent) would be managed with a secondary wildlife emphasis and 3,454 acres (2 percent) would be managed with a general wildlife emphasis. All of the total 27,383 acres that would be allocated for military activities would be designated for annual use and none would be used on a rotational basis. The military would use track vehicles on 5,643 acres, tire vehicles on 10,815 acres, and foot activity off designated trails on 10,925 acres. Alternative 1 would provide the greatest amount of acreage available for track vehicles of all the alternatives. For a complete breakdown of the total juniper habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-29 Comparison of Military Training in Juniper Source Habitat.

Ponderosa Pine Source Habitat

Wildlife Emphasis – Alternative 1 would provide the lowest amount (14 percent) of lands to be managed with a primary wildlife emphasis and provide the highest amount (52 percent) of lands to be managed with a general wildlife emphasis for ponderosa pine woodland habitats. When primary and secondary wildlife emphasis areas are combined this alternative would continue to provide the lowest amount (48 percent) of lands that would be allocated with at least a secondary wildlife emphasis for wildlife. Subsequently, this alternative would provide a moderate distribution of ponderosa pine woodlands across the planning area that would be managed with at least a secondary wildlife emphasis.

Recreation – Of all alternatives, Alternative 1 would allocate the lowest amount of travel management allocations that could have a positive effect on wildlife in ponderosa pine source habitats (0 percent, 0 acres). The only thing this alternative would do toward managing travel management designations positively for wildlife is to close 610 acres seasonally to mitigate the effects of motorized travel on wildlife in ponderosa pine habitats.

Land Ownership – Alternative 1 would allocate 28 percent (2016 acres) of ponderosa pine source habitat as Z – 1, 59 percent (4272 acres) as Z – 2, and 14 percent (991 acres) as Z – 3. Less than one percent (9 acres) has been identified for community expansion. Of the acres identified for disposal, approximately 43 percent would be managed with a primary wildlife emphasis. All other ponderosa pine source habitat would be managed with a secondary or general wildlife emphasis.

Lodgepole Pine Source Habitat

Wildlife Emphasis – Alternative 1 would provide the lowest amount (1 percent) of lands to be managed with a primary wildlife emphasis and provide the third highest amount (18 percent) of lands to be managed with a general wildlife emphasis for lodgepole pine habitats. When primary and secondary wildlife emphasis areas are combined this alternative would provide the fourth highest amount (82 percent) of lands that would be allocated with at least a secondary wildlife emphasis for wildlife. This alternative would provide a moderately high distribution of lodgepole pine habitats across the planning area that would be managed with at least a secondary wildlife emphasis.

Recreation – Of all alternatives, Alternative 1 would allocate the lowest amount of travel management allocations that could have a positive effect on wildlife in lodgepole pine source habitats (one percent). Of the lodgepole pine habitat that would be managed

positively for wildlife, this alternative only uses travel management designation "Closed Year Round" to mitigate the effects of motorized travel to wildlife in lodgepole pine habitats.

Land Ownership – Alternative 1 would allocate 99 percent (28,860 acres) of lodgepole pine source habitat as Z – 2, and 1 percent (240 acres) as Z – 3. Less than one percent (37 acres) has been identified for community expansion. Of these lands, approximately 280 acres of lands identified for exchange would be managed with a primary wildlife emphasis.

Effects Common to Alternatives 2-7

Bald and Golden Eagles

Approximately 215 acres of existing bald eagle of nesting and roosting habitat around Prineville Reservoir, and 7,680 acres of existing golden eagle nesting, foraging and roosting habitat throughout the planning area, would be anticipated for WUI treatments in Alternatives 2-7. Within these acres, anticipated WUI treatments would likely benefit eagles through habitat protection, maintenance or improvement.

Fuel reduction programs, specifically the removal of juniper trees, could improve eagle nesting habitat by reducing competition with other trees for limited water, nutrients and space. Thinning juniper and reducing understory canopy density (brush removal) would also serve to protect existing and potential future nest trees by removing ladder fuels and decreasing the chance of loss due to a wildland fire event.

Golden eagle foraging habitat could also be improved by the removal of juniper and dense shrubs. In juniper occupied shrub-steppe sites, the direct effect of the proposed WUI treatments on all golden eagle habitats on BLM-administered lands would be the increase in shrub-steppe foraging habitat. These fuel reduction activities would serve to open up more habitats and improve foraging opportunities by providing greater access to prey. Indirectly, the reduction of a juniper overstory could lead to improved grass and forb densities, causing an increase in prey populations as they respond to an increase in food resources. While treatments would decrease the amount of juniper and brush height, these foraging areas could have increased potential for human disturbance and conflict due to the proximity to private land and residences.

Snag retention and recruitment guidelines would minimize negative effects on eagles by providing direction to retain hard snags and large live trees unless safety concerns and fire hazard management actions require their removal. Fuel reduction activities would be designed to protect standing dead snags; therefore, positively effecting existing and future perching/roosting trees.

Golden eagles are found in both open shrub-steppe and open woodlands habitats, but are more tied to the former. Golden eagles are large and having a wide wing-span need open country to hunt prey. Jackrabbits are a main prey of theirs and they also tend to prefer shrub-steppe habitats. For this analysis shrub-steppe habitats are considered suitable habitats for golden eagles and juniper woodlands are considered unsuitable habitats.

Sage Grouse

Approximately 480 acres of sage grouse habitat in the North Millican and Millican Plateau geographic areas would be anticipated for WUI treatments in Alternatives 2-7. In the short term, the effects of anticipated fuel reduction activities could have negative impacts on sage grouse populations by reducing or removing nesting and hiding cover, as well as reducing foraging opportunities (sagebrush/forbs). Reductions in sagebrush height and density could limit available wintering habitat and food supply. However, all treatments would be designed to minimize negative effects to sage grouse. In accordance

with Sage Grouse Guidelines, disturbance activities would be limited using seasonal restrictions or distance buffers to minimize disturbance during breeding and over-wintering periods. In the long term, sage grouse habitat could be improved by the re-growth of younger, more vigorous shrubs, grasses, and forbs that would provide cover and improved foraging quality. In shrub-steppe habitat currently occupied by juniper, fuel reduction activities could increase the overall amount of habitat available to grouse for nesting and foraging. Removal of overstory juniper would release understory shrubs, grasses and forbs, thus improving foraging and nesting opportunities, and would remove perches used by predators.

Deer, Elk and Pronghorn

Wildlife Emphasis – Common to Alternatives 2 – 7, the Northwest, Smith Rock, Steamboat Rock and Tumalo geographic areas provide considerable amounts of BLM-administered lands to be managed as a primary wildlife emphasis for deer and elk winter range. Northwest, Smith Rock and Tumalo are located in and would provide for three different ODFW recognized deer winter ranges. In addition, the northern portion of the La Pine geographic area would be managed with a primary wildlife emphasis for deer migration and elk winter range habitats.

Recreation – Alternatives 2-7 all propose a change in the recreation classifications for the planning area. Under Brothers/La Pine, the area was identified as an "extensive recreation management area," which is a general classification for areas with few concerns or conflicts. Most geographic areas within the planning area would be designated part of the High Desert Special Recreation Area, which would create opportunities for addressing resource concerns by creating identities and recreation management objectives for areas (See FEIS, Chapter 2/Recreation). In addition, the FEIS in all action alternatives would change the motorized travel management designations from "open" to "limited" across the planning area.

Vegetation Management – The effects of fuel reductions in the wildland urban interface zones would vary according to the size and distribution of the units, and the intensity of fuels management. Hazardous fuel reductions in the WUI zones around La Pine, and juniper woodland treatments in other geographic areas can reduce the amount of cover for deer and elk, while increasing the amount of available forage as grasses, forbs and shrubs respond to increasing sunlight. Juniper removal would not have a negative impact regarding loss of cover for pronghorn, and would improve their habitat by creating more open-grown woodlands and removing trees from shrub-steppe habitats. Removal of juniper from traditional shrub-steppe habitat can protect existing browse areas or restore old sites by releasing bitterbrush and other browse plants or shrub species.

Mule deer habitat and wildland urban interface areas overlap in all but the South Millican geographic area. WUI treatments would be anticipated for approximately 67,000 acres of deer habitat, with the majority of anticipated treatments occurring in the Cline Buttes, La Pine, Northwest, Prineville, Prineville Reservoir and Tumalo geographic areas. Treatments in the deer migration corridors would occur over 38,325 acres in the La Pine area, and an additional 28,600 acres of deer winter range have been identified for WUI treatments outside of the La Pine geographic area.

Elk winter range habitat and wildland urban interface areas overlap in nine geographic areas. WUI treatments have been identified for approximately 48,130 acres of elk winter range and connectivity corridor habitat, with the majority of anticipated treatments occurring in the Cline Buttes, La Pine, Northwest, Steamboat Rock and Tumalo geographic areas. Anticipated treatments in the connectivity corridors would occur over 53 acres in the Prineville Reservoir area, and an additional 48,130 acres of winter range would be anticipated for WUI treatments throughout other geographic areas.

In general, anticipated WUI treatments would be expected to have a positive effect on pronghorn. Pronghorn habitat and wildland urban interface areas overlap in seven geographic areas. Anticipated WUI treatments have been identified for approximately 9500 acres, with the majority of treatments occurring in the Millican Plateau, Prineville, and Prineville Reservoir geographic areas. Treatments in the migration corridors would occur in approximately 930 acres in the Mayfield and North Millican areas, and an additional 8600 acres have been identified for WUI treatments throughout other geographic areas.

Source Habitats

WUI treatments that could be conducted in shrub-steppe habitat have been identified for approximately 12,690 acres in the planning area. The majority of treatments to reduce hazardous fuels near private property would occur in the Bend/Redmond, Horse Ridge, La Pine, and Steamboat Rock geographic areas. Actual treatments and prescriptions would vary according to distance from homes and property boundaries. However, the removal of brush and young juniper from these sites would have a negative effect on wildlife species associated with younger juniper, as well as species that require shrubs for ground nesting and foraging cover. As described above, species that can occupy most habitats (generalists) or those that have adapted to transition zones between vegetation types (edge species), or those that rely on open shrub-steppe habitat would be favored by these treatments.

WUI treatments in juniper woodland habitats would also be expected to have a negative effect on wildlife species associated with younger juniper (less 150 years), while favoring species associated with old-growth juniper woodlands and shrub-steppe habitat. Treatments in this vegetation type would reduce the densities of younger juniper, while leaving a more open stand of old-growth juniper, or stands with little or no juniper. This treatment could decrease the amount of hiding cover created by shrubs and younger junipers. WUI treatments would occur on approximately 17,000 acres over eleven geographic acres. The majority of treatments would be planned for the Bend/Redmond, Cline Buttes, Mayfield Pond, Millican Plateau, and Steamboat Rock areas.

WUI treatments in lodgepole pine habitat could occur after site-specific analysis over 27,860 acres in the La Pine geographic area. Treatments in lodgepole pine would reduce canopy closure, and decrease overall understory density. These treatments would reduce hiding cover and favor species that have adapted to open lodgepole pine sites. Densities of snags and downed wood would be expected to be much lower in the first treatment band, and this would be expected to reduce habitat for species such as woodpeckers, flickers, and sapsuckers.

WUI treatments in ponderosa pine habitat could occur over 5,110 acres in the planning area. The majority of treatment would occur in the La Pine geographic area (2,746 acres); however, the ponderosa pine woodlands in the Northwest, Prineville and Prineville Reservoir geographic areas would also have WUI treatments. These treatments would favor species that traditionally occupied the open ponderosa pine habitats.

Effects of Alternatives 2-7

Listed below are descriptions of the anticipated effects of implementing the "action" alternatives on the six species of focus (bald and golden eagles, sage grouse, deer, elk, and pronghorn) and five source habitats (riparian, shrub-steppe, juniper woodlands, ponderosa and lodgepole pine forest). Estimation of effects are based on the allocations, allowable uses, and conditions of use outlined for each alternative related to wildlife emphasis, transportation and travel management designations, and vegetation management emphasis.

Bald Eagles

Wildlife Emphasis – In Alternative 2, over half of the acres identified as bald eagle habitat (472) would be managed with a secondary wildlife emphasis, and the remaining acres would be managed with a general wildlife emphasis. Alternative 2 is the only alternative that does not identify any bald eagle habitat to be managed with a primary wildlife emphasis. Alternative 3 would manage approximately 422 acres with a primary wildlife emphasis for bald eagles, and 359 acres with a secondary wildlife emphasis. Alternative 4 would manage the second lowest number of acres with a primary wildlife emphasis for bald eagles (197), and would manage the remaining acres with a general wildlife emphasis. The direct effect of Alternative 5 would be the management of 359 acres of bald eagle habitat with a primary wildlife emphasis for eagles, and the remaining acres with a secondary wildlife emphasis. Alternatives 6 and 7 would manage the most acres of identified bald eagle habitat (739 acres) with a primary wildlife emphasis for bald eagles, and would manage the remaining acres (41) with a secondary wildlife emphasis for bald eagles.

Recreation – In Alternative 2, the area surrounding the Grizzly Mountain nest would be managed with a roads only emphasis. The site would have a travel management designation of limited to designated roads only year round. The Prineville Reservoir sites would be managed with a multi-use shared facilities emphasis on the north side, and a non-motorized recreation emphasis on the south side. The sites would have a travel management designation of limited to designated roads and trails year-round on the north side, and limited to roads only on the south side.

In Alternative 3, the area surrounding the Grizzly Mountain nest would be managed with a roads only emphasis. The site would have a travel management designation of limited to designated roads only, year-round. The Prineville Reservoir sites would be managed with a non-motorized recreation emphasis on the north side, and a roads only emphasis on the south side. The sites would have a travel management designation of limited to designated roads and trails seasonally on the north side, and limited to designated roads only year round on the south side.

In Alternative 4, the area surrounding the Grizzly Mountain nest would be managed with a multi-use shared facilities emphasis. The site would have a travel management designation of limited to designated roads and trails year-round. The Prineville Reservoir sites would be managed with a multi-use shared facilities emphasis on the north side, and a non-motorized recreation emphasis on the south side. The sites would have travel management designations of limited to designated roads and trails year-round on the north side, and limited to designated roads year-round on the south side of the reservoir.

In Alternative 5, the area surrounding the Grizzly Mountain nest would be managed with a non-motorized recreation exclusive emphasis. The site would have a travel management designation of limited to designated roads only year round. The Prineville Reservoir sites would be managed with a non-motorized recreation emphasis and the sites would also have travel management designations of limited to designated roads only year round.

In Alternative 6, the area surrounding the Grizzly Mountain nest would be managed with a non-motorized recreation exclusive emphasis, and the site would have a travel management designation of closed year round. The Prineville Reservoir sites would be managed with a non-motorized recreation emphasis and the sites would have a travel management designation of limited to designated roads only seasonally on the north side, and limited to roads only year round.

In Alternative 7, the area surrounding the Grizzly Mountain nest would be managed with a non-motorized exclusive recreation emphasis, and would be managed with

a closed year round travel management designation. The Prineville Reservoir sites would be managed with a non-motorized recreation emphasis, and would have a travel management designation of limited to roads seasonally on the north, and limited to roads only year round on the south.

Land Ownership – While Alternatives 2, 3 and 5 classify the same number of acres for retention (Z – 1 (739)), the three alternatives apply different wildlife emphasis levels to these acres. In Alternative 2, none of these acres would be managed with a primary wildlife emphasis for bald eagles, while Alternative 3 would manage over half of the Z – 1 acres (422) with a primary wildlife emphasis and the rest with a secondary wildlife emphasis. Alternative 5 would manage over half of the Z – 1 acres (422) with a secondary wildlife emphasis and the remaining acres with a primary wildlife emphasis for bald eagles. Alternative 4 identifies 473 acres of bald eagle habitat as Z – 1, and 266 acres as Z – 2. Approximately 11 percent of the Z – 1 lands would be managed with a primary wildlife emphasis for bald eagles (155 acres), and the remaining acres would be managed with a general wildlife emphasis. Alternatives 6 and 7 would allocate 739 acres of bald eagle habitats as Z – 1, and they would be managed with a primary wildlife emphasis.

Vegetation Management – In Alternatives 2-7, vegetation objectives in bald eagle habitats within the planning area boundary would be expected to increase the health and dominance of ponderosa pine, as well as favor retention of large trees. Stands in bald eagle nesting and roosting habitat would be managed with an emphasis on resilience to fire, disease, and insects, and, where appropriate, treatments would favor ponderosa pine. Snag levels would be maintained at historic levels to maintain existing snags and provide recruitment opportunities for future snags. As a result, future vegetation treatments in bald eagle habitat would be expected to have an indirect benefit to bald eagle populations. By improving the overall ponderosa pine stand condition and improving stand resiliency to fire, insect and disease, bald eagle nesting and roosting habitat would be maintained and protected. Reductions in juniper would decrease competition for scarce resources, ultimately improving ponderosa pine stands.

Golden Eagles

The analysis for golden eagles is similar to the analysis for sage grouse, deer, elk and pronghorn, because seasonal closures would be expected to benefit golden eagles in their nesting and adjacent foraging habitats. Seasonal closures Alternatives 2-7 developed for protecting deer, elk, and sage grouse winter ranges would provide incidental benefits for a portion of the golden eagle nesting season, thereby providing some foraging opportunities with less human disturbance.

Wildlife Emphasis – Under the Brothers/La Pine RMP all habitats within ½ mile of eagle nests and roost trees are considered primary wildlife emphasis areas. However, in recent wildlife management strategies (e.g., Partners-In-Flight, 2000), foraging habitats for raptors located adjacent to their nest sites has been identified as a conservation concern and recommended for increased management emphasis. Therefore, for eagles, in Alternatives 2-7, all habitats within one mile of golden eagle nests are considered their adjacent foraging habitats and would be managed as directed by the geographic areas wildlife emphasis level. The management concepts would be consistent with the low, moderate and high influence levels identified in the road influence index. The more acres of golden eagle habitat that would be managed with a primary wildlife emphasis, the greater the amount of protection from disturbance not only to the actual nest site, but also to adjacent foraging habitat.

Alternative 2 would manage the least amount of golden eagle habitat with a primary wildlife emphasis (15,313 acres). However, an additional 2,658 acres of nesting and foraging habitat would be managed with a secondary wildlife emphasis, and 21,996 acres would be managed with a general wildlife emphasis. By contrast, Alternative 3

provides the largest amount of habitat to be managed with a primary wildlife emphasis (30,634 acres) for golden eagles and the least amount (7,551 acres) to be managed with a general wildlife emphasis. In addition, approximately 1,780 acres would be managed with a secondary wildlife emphasis. This alternative, which emphasizes restoring terrestrial source habitats, offers the greatest amount of direction to provide for golden eagle needs. Alternatives 4 and 6 fall in the middle of the other alternatives and provide approximately 23,650 acres and 26,580 acres respectively of habitat to be managed with a primary wildlife emphasis for golden eagles. Alternative 5, while providing only 19,798 acres of primary golden eagle habitat, provides the greatest amount of secondary wildlife emphasis acres (10,112). Alternatives 4, 5 and 6 provide 12,445 acres, 10,058 acres, and 12,340 acres respectively of golden eagle habitat that would be managed with a general wildlife emphasis. Through either primary or secondary wildlife emphasis areas, these alternatives provide modest amounts of direction to protect and restore golden eagle habitats.

The direct effect of Alternative 7 on golden eagles would be the allocation of the second largest amount (29,161 acres) of all adjacent foraging habitats for managing with a primary wildlife emphasis. In addition, 2,646 acres would be managed with a secondary wildlife emphasis, and 8,161 acres with a general emphasis for golden eagles. As with Alternative 3, this alternative emphasizes restoring terrestrial source habitats, and would provide direction to establish habitat of sufficient size and frequency to serve as a source habitat for golden eagles.

Recreation – Of all alternatives, Alternative 2 would identify the second lowest amount of travel management allocations that could have a positive effect on golden eagles (18,493 acres). This alternative would primarily use the travel management designations "Limited to Roads Only Year Round" and "Closed Year Round" to mitigate the effects of motorized travel to golden eagles in nesting and foraging habitat and meet the objective to minimize negative effects to this species.

Table 4-8 Summary of Travel Management Designations in Golden Eagle Habitat

Travel Management	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Percent habitats allocated to motorized travel	93%	82%	69%	80%	71%	68%	59%
Percent of habitats closed year round to motorized travel	7%	18%	31%	20%	29%	32%	41%
Percent of habitats allocated to motorized trail use	77%	62%	44%	37%	36%	39%	31%
Percent of habitats allocated to year round motorized trail use	66%	54%	33%	31%	25%	29%	30%

Table 4-9 Wildlife Emphasis and Travel Management Designations in Golden Eagle Habitat

	Wildlife Emphasis	Closed at Snow Depth	Ltd Road/ Trails Seasonally	Ltd Roads/ Trails Year Round	Open Year Round	Ltd Type of Vehicle	Closed Year Round	Ltd to Roads Only Seasonally	Ltd to Designated Roads Year Round
Alternative		**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**
Alt 1	Primary	0	4043	3505	942	0	1639	0	6410
	Secondary	476	0	2354	0	0	556	0	0
	General	0	468	9821	9463	0	571	0	0
Alt 2	Primary	0	3106	0	0	0	7439	0	5052
	Secondary	0	0	0	0	0	0	0	2657
	General	0	0	21757	0	0	0	0	239
Alt 3	Primary	0	4638	5046	0	0	12352	1298	7632
	Secondary	672	0	0	0	0	0	0	1061
	General	0	0	7195	0	317	0	0	38
Alt 4	Primary	0	372	75	0	0	7846	3148	12170
	Secondary	0	2016	0	0	0	296	0	1883
	General	0	0	12121	0	286	0	0	38
Alt 5	Primary	0	0	0	0	0	11691	3106	5288
	Secondary	0	4569	0	0	0	0	0	5540
	General	0	0	10019	0	0	0	0	38
Alt 6	Primary	0	3471	181	0	0	12721	2493	7998
	Secondary	0	0	0	0	0	43	0	1001
	General	0	513	10695	0	573	252	0	38
Alt 7	Primary	0	513	2929	0	0	16513	2408	7722
	Secondary		0	1615	0	0	43	0	987
	General	0	0	7084	0	317	0	0	38

Alternatives 3 and 4 fall in the middle of the alternatives regarding meeting the objective to minimize disturbance actions to reduce negative effects to this species. Alternative 3 would identify 27,019 acres and Alternative 4 would identify 27,768 acres that would have a positive effect on golden eagle nesting and foraging habitat. However, while Alternative 3 would use the travel management designations "Limited to Roads Only Year Round" and "Closed Year Round" most to mitigate the effects of motorized travel to golden eagles in foraging habitat, Alternative 4 would use the travel management designation "Limited to Roads Only Year Round." Of all alternatives, Alternatives 5 and 6 would identify the greatest amounts of travel management allocations that could have a positive effect on golden eagles (30,231 acres). These alternatives best meet the direction to minimize negative effects during seasonally sensitive periods. Alternative 5 would primarily use the travel management designations "Limited to Roads Only Year Round" and "Closed Year Round" to mitigate the effects of motorized travel to golden eagles in foraging habitat. Alternative 6 identifies 1,800 acres less than Alternative 5 of travel management allocations that could have a positive effect on golden eagles in foraging habitat (28,531 acres). This alternative would use the same travel management designations as Alternative 5 to mitigate the effects of motorized travel to golden eagles in foraging habitat. Alternative 7 would identify the third highest amount of travel management allocations that could have a positive effect on golden eagles in foraging habitat (28,223 acres). This alternative would use travel management designations "Closed Year Round" and "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to golden eagles in nesting and foraging habitats.

Land Ownership – Alternative 2 would classify approximately 37,653 acres of golden eagle habitat for retention (Z – 1); 1,499 acres classified for retention with an option to exchange (Z – 2), and 1,061 acres would be designated for disposal (Z-3). Less than one percent acres would be designated for community expansion. This alternative allocates the third highest amount of golden eagle nesting and foraging habitat for retention, while identifying only 3 percent of golden eagle habitat for disposal. None of the 1,061 acres identified for disposal, however, would be primary wildlife emphasis acres.

In Alternative 3, 36,855 acres of all golden eagle nesting and foraging habitats would be classified as Z – 1; 2,334 acres would be classified Z – 2; and 1,061acres would be classified Z-3. All of the acres identified for disposal would be managed with a secondary wildlife emphasis, and almost 1,500 of the acres identified for exchange would be managed with a primary wildlife emphasis. This alternative identifies the greatest number acres for retention that would be managed with a primary wildlife emphasis.

In Alternative 4, the direct effect of the proposed land tenure classifications within all golden eagle habitats would be 45,079 acres as Z – 1; 7328 acres as Z – 2, and 858 acres as Z-3. Compared to the other alternatives, this alternative would identify the greatest number of acres of golden eagle nesting and foraging habitat for retention. Although this alternative identifies the fewest number of acres of golden eagle habitat for disposal, all 858 acres have been identified to be managed with a primary wildlife emphasis.

The direct effect of the proposed land tenure designations in Alternative 5 on all golden eagle habitats would be the classification of 36,079 acres as Z – 1; 2,841 acres as Z – 2; and 1,330 acres as Z-3. This alternative allocates the second fewest acres of golden eagle nesting and foraging habitat for retention, although the amount is only slightly less than the preferred alternative. In addition, over half of the acres identified for disposal would be managed with a primary wildlife emphasis for golden eagles.

In Alternative 6, 38,597 acres of all golden eagle nesting and foraging habitats would be classified as Z – 1; 15 acres would be classified Z – 2; and 1596 acres would be classified Z-3. This alternative would retain the second highest number of acres of golden eagle habitat, while identifying the greatest amount of acres allocated for management with a primary wildlife emphasis for disposal.

In Alternative 7, 36,194 acres of golden eagle nesting and foraging habitat would be classified Z – 1; 2,199 acres would be classified Z – 2; and 1,775 acres would be classified Z-3. This alternative identifies the third lowest amount of acres for retention, while designating the third highest number of acres of primary golden eagle emphasis habitat for disposal.

Military Training – Alternatives 6 and 7 have impacts to golden eagle habitat, which are not present in Alternatives 1 – 5, due to the addition of 4,098 acres and 1,214 acres, respectively, of rotation or extended training areas which fall within golden eagle habitat. As a result, these are the only two alternatives that have the potential for direct and indirect effects on golden eagle nesting and foraging habitat. These additional areas would not be approved until after completion of a site-specific plan, but could be expected to add direct disturbance impacts from tread vehicles and foot traffic during the time of the exercise, as well as indirect impacts from damage to habitat until sites are recovered. Alternative 6 has three times more acreage (4,098) allocated to military use than Alternative 7 (1,214), and therefore the greatest potential impacts to golden eagle habitat.

The direct effect of all proposed military activities in Alternative 6 on golden eagle habitats would be the allocation of 4,098 acres of golden eagle habitat for military uses. Of the acres of golden eagle habitats that would be affected by military uses, 9 percent (351 acres) would be managed with a primary wildlife emphasis and 91 percent (3,747 acres) would be managed with a general wildlife emphasis.

The direct effect of all proposed military activities in Alternative 7 on golden eagle habitats would be the allocation of 1214 acres of golden eagle habitats for military uses. Of the acres of golden eagle habitats that would be affected by military uses, 29 percent (351 acres) would be managed with a primary wildlife emphasis and 71 percent (863 acres) would be managed with a general wildlife emphasis. For a complete breakdown of the total golden eagle habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-10 Comparison of Military Training in Golden Eagle Habitat.

Vegetation Management – Alternatives 2, 4 and 5 could provide as low as 9,146 acres of suitable shrub-steppe habitats and up to 29,085 acres of unsuitable juniper habitats. Alternatives 3, 6 and 7 could provide up to 26,260 acres of suitable shrub-steppe habitats and as low as 12,074 acres of unsuitable juniper habitats.

Table 4-10 Comparison of Military Training in Golden Eagle Habitat

Alternative	Yearly Use	Equipment Use	Acres	% of Total
6	**Rotational**		**4,098**	
		Foot	3,330	81%
		Tire	768	19%
7	**Extended**		**1,214**	
		Foot	446	37%
		Tire	768	63%

Sage Grouse

In Alternatives 2, 4 and 5, recreational interests would receive priority consideration before wildlife in terms of managing young juniper trees. In Alternatives 3 and 6, wildlife interests (sage grouse) would receive priority consideration before recreation. Alternative 7 would take a similar approach as in Alternatives 3 and 6, in terms of managing with the "historic" theme and generally favors sage grouse (shrub-steppe) habitat maintenance and restoration. However, Alternative 7 would also take an adaptive management approach at meeting both wildlife and recreational needs in the North Millican geographic area and would likely retain some juniper trees for recreation management needs.

Wildlife Emphasis – The direct effect of Alternative 2, on sage grouse habitats would be the allocation of 15,416 acres (20 percent of all sage grouse habitats) for managing with a primary wildlife emphasis, 268 acres (1 percent) with a secondary wildlife emphasis, and 61,919 (79 percent) with a general emphasis for sage grouse. This alternative provides the 5th highest amount of lands to be managed at a primary wildlife emphasis. Horse Ridge provides most (93 percent) of the acres to be managed at a primary wildlife emphasis level, which would result in poor distribution of habitat across the planning area that would be managed with an emphasis for sage grouse.

The direct effect of Alternative 3, on sage grouse habitats would be the allocation of 75,659 acres (98 percent of all sage grouse habitats) for managing with a primary wildlife emphasis, 1,943 acres (2 percent) with a secondary wildlife emphasis, and 0 acres (0 percent) with a general emphasis for sage grouse. This alternative provides one of the highest amounts of lands to be managed with a primary wildlife emphasis for sage grouse. However, the seasonal closure period in the North Millican geographic area only covers the winter and breeding season, but does not cover the nesting season.

The direct effect of Alternative 4, on sage grouse habitats would be the allocation of 31,622 acres (41 percent of all sage grouse habitats) for managing with a primary wildlife emphasis, 15,097 acres (19 percent) with a secondary wildlife emphasis, and 30,881 (40 percent) with a general emphasis for sage grouse. This alternative provides the 4th highest amount of lands to be managed at a primary wildlife emphasis. Horse Ridge and South Millican geographic areas provide the main areas to be managed at a primary wildlife emphasis level, which would result in poor distribution of habitat across the planning area that would be managed with a primary wildlife emphasis for sage grouse.

The direct effect of Alternative 5 on sage grouse habitats would be the allocation of 15,895 acres (20 percent of all sage grouse habitats) for managing with a primary wildlife emphasis, 59,762 acres (77 percent) with a secondary wildlife emphasis, and 1,943 (3 percent) with a general emphasis for sage grouse. While this alternative provides only the 5th highest amount of lands to be managed at a primary wildlife emphasis, it provides the 2nd highest of primary and secondary together. The Horse Ridge geographic area is the main area to be managed with a primary wildlife emphasis for sage grouse, which would result in poor distribution of habitat across the planning area that would be managed with a primary wildlife emphasis for sage grouse.

The direct effect of Alternative 6, on sage grouse habitats would be the allocation of 59,572 acres (77 percent of all sage grouse habitats) for managing with a primary wildlife emphasis, 1,195 acres (2 percent) with a secondary wildlife emphasis, and 16,836 acres (22 percent) with a general emphasis for sage grouse. This alternative provides the third highest amounts of lands to be managed with a primary wildlife emphasis for sage grouse. With primary wildlife emphasis areas located in the Horse Ridge and North Millican geographic areas, there would be a fair distribution of habitat with a primary wildlife emphasis for sage grouse in the planning area.

The direct effect of Alternative 7 on sage grouse habitats would be the allocation of 77,601 acres (100 percent of all sage grouse habitats) for managing with a primary wildlife emphasis for sage grouse. This alternative provides the highest amount of lands possible and the best distribution of habitat to be managed with a primary wildlife emphasis for sage grouse in the planning area.

Transportation – When comparing the anticipated effects of changes in the classification of motorized travel routes across the entire planning area, Alternatives 3-7 would reclassify approximately 200 miles of collector roads to local roads, compared to maintaining the current classification system under Alternatives 1 and 2. This would result in about 19 percent potential higher habitat effectiveness (HE) than Alternatives 1 and 2, based on the anticipated arterial and collector system envisioned in those alternatives. Alternative 2 would have an expected HE of about 48 percent (same as Alternative 1), while Alternatives 3-7 would have an HE of about 67 percent based on the designated arterial and collector system in those alternatives.

In Alternatives 3-7, the largest differences would occur in the North Millican (+22 percent) and Horse Ridge (+16 percent) areas. However, South Millican has a considerable difference as well (+10 percent). In each of the alternatives, additional travel management designations and wildlife emphases would also affect the overall quality of the habitat.

North Millican appears to have the ability to achieve a moderately high level of habitat effectiveness based on arterial and collector roads; however, this area is also identified to provide OHV trails that are not considered in the HE calculations and access to private lands, mineral sites, and range management developments. In order to achieve a primary wildlife emphasis for sage grouse and provide a reasonable trail network in this area, trails would be favored over roads, and a large amount of local roads may be closed seasonally or permanently after site specific analysis. The difference in approaches to managing young juniper trees growing in shrub-steppe habitats between the "historic" (Alternatives 3, 6 and 7) and the "current" (Alternatives 2, 4 and 5) themes also create complications to achieving desirable habitat effectiveness for sage grouse management. This complication is increased by the recreational interest in retaining juniper trees (which degrades sage grouse habitats) for management of the OHV trail system.

Alternative 2 would provide no seasonal closures during the winter breeding or nesting seasons in the Millican Plateau, North Millican and South Millican geographic areas. Horse Ridge also does not have a seasonal closure, but motorized travel would be limited to designated roads only.

Alternative 3 would provide for a fairly good opportunity to manage local roads to achieve a Secondary management emphasis in the planning area. But seasonal closures on some collector roads would be necessary to achieve 70 percent HE or higher.

In the North Millican geographic area, Alternative 4 provides a partial seasonal closure that covers the latter part of the winter season, most of the breeding season and none of the nesting season. While Horse Ridge doesn't have a seasonal closure, motorized travel would be limited to designated roads only.

Alternative 5 would provide partial seasonal closures for motorized travel in North Millican and South Millican geographic areas, which covers only part of the winter season, most of the breeding season and part of the nesting season. Part of Horse Ridge is closed year-round to motorized travel and part would be limited to designated roads only.

Alternative 6 would provide for a fairly good opportunity to manage local roads to achieve a secondary management emphasis in the planning area. But seasonal closures

on some collector roads would be necessary to achieve 70 percent HE or higher. The seasonal closure period in the South Millican geographic area doesn't cover the winter season, only covers part of the breeding season, but covers the whole nesting and brood-rearing seasons. The seasonal closure in the North Millican fully covers the winter and breeding season, but does not cover any nesting or brood-rearing periods.

The seasonal closure period in the South Millican geographic area covers all of the important needs of sage grouse in Alternative 7. The year-round closure to motorized travel in the eastern part of the Horse Ridge geographic area would fully protect sage grouse habitats, and limiting motorized travel to designated roads only in the west part would provide considerable protection to sage grouse habitat on the west side. In the North Millican geographic area, some portion of a motorized trail system would be open year-round. However, the density and locations of the trails would be designed to achieve between 50 and 60 percent habitat effectiveness in order to maintain habitat conditions suitable for year-round occupation by sage grouse. While this alternative emphasizes restoration of shrub-steppe habitats, there would be some junipers retained in the North Millican geographic area for OHV trail development.

Recreation – Recreation has the potential to impact sage grouse in a variety of manners, including but not limited to direct harassment through noise or activity during critical breeding and nesting periods, indirect alterations to foraging habitat, and direct disturbance to sage grouse while feeding/foraging. Specific designations such as "Limited to Roads Only Year Round" and "Limited to Roads and Trails Seasonally" would be employed to mitigate the effects of motorized travel. These designations would be expected to minimize the effects of noise disturbance and reduce the chance of vehicle collisions with sage grouse.

Of all alternatives, Alternative 2 would identify the lowest amount of travel management allocations that could have a positive effect on sage grouse in their habitats (27 percent, 20,861 acres; see Table 4-11, Summary of Travel Management Designations in Sage Grouse Habitat). This alternative uses the travel management designation Limited to "Designated Roads Only Year Round" most to mitigate the effects of motorized travel to sage grouse in suitable habitat.

Of all alternatives, Alternative 3 would identify the second highest amount (Alternative 6 would allocate nearly the same amount) of travel management allocations that could have a positive effect on sage grouse in their habitats (98 percent, 76,357 acres). This alternative uses the travel management designation "Limited to Roads and Trails Seasonally" most to mitigate the effects of motorized travel to sage grouse in suitable habitat.

Table 4-11 Summary of Travel Management Designations in Sage Grouse Habitat

Travel Management Summary	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Percent of habitat allocated to motorized travel	100%	98%	98%	99%	96%	98%	85%
Percent of habitat closed to year round motorized travel	0%	2%	2%	1%	89%	82%	15%
Percent of habitat allocated to motorized trail use	85%	75%	79%	21%	11%	18%	64%
Percent of habitat allocated to year round motorized trail use	32%	73%	2%	21%	80%	74%	41%

Alternative 4 would designate the fourth highest amount of travel management allocations that could have a positive effect on sage grouse in their habitats (79 percent, 62,036 acres). This alternative uses the travel management designation "Limited to Designated Roads Only Year Round" most to mitigate the effects of motorized travel to sage grouse in suitable habitat.

Alternative 5 would designate the third highest amount of travel management allocations that could have a positive effect on sage grouse in their habitats (96 percent, 75,346 acres). This alternative uses the travel management designation "Limited to Designated Roads and Trails Seasonally" most to mitigate the effects of motorized travel to sage grouse in suitable habitat.

Alternative 6 would designate the highest amount (Alternative 3 would allocate nearly the same amount) of travel management allocations that could have a positive effect on sage grouse in their habitats (98 percent, 76,363 acres). This alternative uses the travel management designation "Limited to Designated Roads and Trails Seasonally" most to mitigate the effects of motorized travel to sage grouse in suitable habitat.

Alternative 7 would designate the second lowest amount of travel management allocations that could have a positive effect on sage grouse in their habitats (59 percent, 46,231 acres). In the North Millican geographic area, the primary wildlife emphasis guidelines could result in more habitats being managed to benefit sage grouse use than is calculated in the analysis above (see Table 4-12, Wildlife Emphasis and Travel Management Designations in Sage Grouse Habitat). If the travel management allocations in North Millican geographic area were considered a positive effect then all of the sage grouse habitat would be managed positively for sage grouse. However, some portions of North Millican will have OHV trails and roads that will negatively impact grouse and their habitat so all of North Millican cannot be considered to be managed positively for sage grouse. The intent of the combined primary wildlife emphasis and travel management allocations in North Millican is to provide for OHV use while improving habitat conditions for sage grouse. How this would be accomplished is not yet known, and because the location and extent of the trail system are not fully known, there is no direct comparison other than what has been presented above. This alternative uses a variety of travel management allocations to mitigate the effects of motorized travel to sage grouse in suitable habitat.

Land Ownership – The direct effect of the proposed land tenure designations in Alternative 2 on all sage grouse habitats on BLM-administered lands would be the allocation of 95 percent of all sage grouse habitats (74639 acres) as Z – 1, and 5 percent (3631 acres) as Z – 2. 19 percent of the lands identified for retention would be managed with a primary wildlife emphasis, and approximately 28 percent of the lands identified for exchange would be managed with a primary wildlife emphasis.

The direct effect of the proposed land tenure designations in Alternative 3 on all sage grouse habitats on BLM-administered lands would be the allocation of 95 percent of all sage grouse habitats (74,243 acres) as Z – 1, and 5 percent (4,025 acres) as Z – 2. Approximately 42 percent of the lands identified for retention would be managed with a primary wildlife emphasis, and 27 percent of the lands identified for exchange would be managed with a primary wildlife emphasis.

The direct effect of the proposed land tenure designations in Alternative 4 on all sage grouse habitats on BLM-administered lands would be the allocation of 95 percent of all sage grouse habitats (78,289 acres) as Z – 1, and 5 percent (8,049 acres) as Z – 2. Approximately 42 percent of the lands identified for retention would be managed with a primary wildlife emphasis, and 27 percent of the lands identified for exchange would be managed with a primary wildlife emphasis.

Table 4-12 Wildlife Emphasis and Travel Management Designations in Sage Grouse Habitat

	Wildlife Emphasis	Closed at Snow Depth	Ltd Road and Trails Seasonally	Ltd Roads/ Trails Year Round	Open Year Round	Ltd type of vehicle	Closed Year Round	Ltd Rds Only Seasonally	Ltd Designated Roads Year Round
Alternative		**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**
Alt 1	Primary	0	41477	21493	35	0	0	0	12112
	Secondary	0	0	2252	0	0	0	0	0
	General	0	0	879	0	0	0	0	0
Alt 2	Primary	0	0	0	0	0	1668	0	13357
	Secondary	0	55	0	0	0	0	0	268
	General	0	902	57402	0	0	0	0	4610
Alt 3	Primary	0	60211	0	0	0	1669	0	14478
	Secondary	1943	0	0	0	0	0	0	0
	General	0	0	0	0	0	0	0	0
Alt 4	Primary	0	27	0	0	0	986	0	31021
	Secondary	0	15384	0	0	0	0	0	0
	General	0	856	0	0	0	0	0	30030
Alt 5	Primary	0	1883	1016	0	0	8525	0	5496
	Secondary	0	58059	0	0	0	0	0	1383
	General	0	0	1943	0	0	0	0	0
Alt 6	Primary	0	38347	0	0	0	14161	0	5091
	Secondary	0	64	0	0	0	0	0	1192
	General	0	17509	1943	0	0	0	0	0
Alt 7	Primary	0	17691	32016	0	0	11724	0	16816
	Secondary	0	0	0	0	0	0	0	0
	General	0	0	0	0	0	0	0	0

The direct effect of the proposed land tenure designations in Alternative 5 on all sage grouse habitats on BLM-administered lands would be the allocation of 83 percent of all sage grouse habitats (65,274 acres) as Z – 1, and 17 percent (12,954 acres) as Z – 2. Less than one percent (40 acres) would be identified for community expansion. Only 22 percent of the lands identified for retention would be managed with a primary wildlife emphasis, and 79 percent of the lands identified for exchange would be managed with a primary wildlife emphasis. The 40 acres identified for community expansion would also be managed with a primary wildlife emphasis.

The direct effect of the proposed land tenure designations in Alternative 6 on all sage grouse habitats on BLM-administered lands would be the allocation of 97 percent of all sage grouse habitats (76,055 acres) as Z – 1, and 3 percent (2,191 acres) as Z – 2. Less than one percent (40 acres) would be identified for community expansion. Approximately 76 percent of the lands identified for retention would be managed with a primary wildlife emphasis, and only 8 percent of the lands identified for exchange would be managed with a primary wildlife emphasis. The 40 acres identified for community expansion would also be managed with a primary wildlife emphasis.

The direct effect of the proposed land tenure designations in Alternative 7 on all sage grouse habitats on BLM-administered lands would be the allocation of 94 percent of all sage grouse habitats (73,529 acres) as Z – 1, and 6 percent (4710 acres) as Z – 2. All of the 73529 acres identified as Z – 1 and all of the 12954 acres identified as Z – 2 would be managed with a primary wildlife emphasis.

In conclusion, land tenure for all alternatives would be favorable to sage grouse conservation, retaining most habitats, but allowing opportunities for land exchanges with some small to moderate blocks of BLM-administered. There would be no habitat allocated to Zone 3, which could be considered for disposal, but in Alternatives 5 and 6 there is a 40-acre parcel identified for community expansion.

Vegetation Management – Sage grouse require large expanses of sagebrush habitats. Raptors are a major predator of sage grouse and trees provide hunting perches making habitats less suitable for grouse. Also, as tree cover increases they out-compete desirable sagebrush, grasses and forbs, decreasing the suitability of the habitat for sage grouse. For this analysis shrub-steppe habitats are considered suitable habitats and juniper woodlands are considered unsuitable habitats. Alternatives 2, 4 and 5 could provide as low as 77,600 acres of suitable shrub-steppe habitats and up to 26,230 acres of unsuitable juniper habitats. Alternatives 3, 6 and 7 could provide up to 98,750 acres of suitable shrub-steppe habitats and as low as 5,080 acres of unsuitable juniper habitats.

Mule Deer

An important difference between the approaches taken in the B/LP RMP versus the FEIS/PRMP is that the management strategy of using crucial winter range has been dropped in the FEIS/PRMP and all winter range is recognized (but not always managed with an emphasis). This change in approach was proposed because of the concern that unpredictable weather patterns sometimes make areas of crucial winter range unavailable during some years. In order to resolve this concern, the FEIS/PRMP takes the approach to recognize all winter range and manage for more areas with a better distribution than B/LP RMP.

Wildlife Emphasis – Alternatives 2, 4 and 5 would manage the migration corridor in La Pine in the same manner, but vary in the treatment of deer habitat throughout the rest of the planning area. Alternative 2 would allocate 84,626 acres of deer winter range for managing with a primary wildlife emphasis, 15,691 acres with a secondary wildlife emphasis, and 163,189 acres with a general emphasis for deer. As a result, Alternative 2 provides the least amount of lands to be managed at a primary wildlife emphasis

and subsequently provides the least distribution of winter range across the planning area that would be managed with a primary wildlife emphasis for deer. Horse Ridge and the Badlands geographic areas provide the largest, most contiguous piece of BLM-administered lands for deer winter range.

Alternative 4 would allocate 136,922 acres of deer winter range for managing with a primary wildlife emphasis, 25,976 acres with a secondary wildlife emphasis, and 100,607 with a general emphasis for deer. This alternative provides the 4th highest amount of lands to be managed with a primary wildlife emphasis, but provides only the 6th highest amounts of lands with a primary and secondary wildlife emphasis. This alternative would provide for a fairly-good distribution of winter range across the planning area that would be managed with at least a secondary wildlife emphasis for deer.

Alternative 5 would allocate 97,563 acres of deer winter range to be managed with a primary wildlife emphasis, 101,478 acres with a secondary wildlife emphasis, and 64,471 with a general emphasis for deer. This alternative provides the 5th highest amount of lands to be managed with a primary wildlife emphasis, but provides only the 3rd highest amounts of lands with a primary and secondary wildlife emphasis. This alternative would provide for a low to moderate amount of distribution of winter range across the planning area that would be managed with a primary wildlife emphasis, but when considering the secondary wildlife emphasis areas this alternative would provide a good distribution of habitats that emphasize deer.

In Alternatives 2, 4 and 5, the deer migration corridor in the La Pine area would be managed with a primary wildlife emphasis on 7,449 acres, and with a general wildlife emphasis for deer on 33,194 acres. This allocation of lands would result in a low distribution of habitat across the migration corridor that would be managed with a primary wildlife emphasis for deer and would only cover the northern high use area. This alternative would provide the lowest amount (along with Alternatives 4 and 5) of BLM-administered lands that would be managed with a primary wildlife emphasis for the deer migration corridor.

Alternatives 3, 6 and 7 provide the highest amount of lands to be managed with a primary wildlife emphasis and provide the least amount of lands to be managed with a general wildlife emphasis. Subsequently, these alternatives provide the best distribution of winter range across the planning area that would be managed with a primary wildlife emphasis for deer. Alternative 3 would allocate 196,450 acres of deer winter range to be managed with a primary wildlife emphasis, 31,896 acres with a secondary wildlife emphasis, and 35,160 with a general emphasis for deer. Alternative 7 would allocate 197,085 acres for managing with a primary wildlife emphasis, 10,817 acres with a secondary wildlife emphasis, and 55,367 acres with a general emphasis for deer. Alternative 6 would allocate 171,429 acres for managing with a primary wildlife emphasis, 13,165 acres with a secondary wildlife emphasis, and 78,920 acres with a general emphasis for deer. Unlike Alternatives 3 and 7, Alternative 6 allocates a relatively low amount of deer habitat to be managed with a secondary wildlife emphasis.

Additionally, in La Pine, Alternatives 3 and 6 would manage approximately 38,975 acres of the deer migration corridor with a primary wildlife emphasis and 1,665 acres with a general emphasis for deer. This allocation of lands would result in a high distribution of habitat across the migration corridor that would be managed with a primary wildlife emphasis for deer. These alternatives would provide the highest amount of BLM-administered lands that would be managed with a primary wildlife emphasis for the deer migration corridor.

Alternative 7 would manage fewer acres (34,225) of the deer migration corridor with a primary wildlife emphasis than Alternatives 3 and 6, and would manage 6,418 acres with a general emphasis for deer. This allocation of lands would result in a moderately

high distribution of habitat across the migration corridor that would be managed with a primary wildlife emphasis for deer. In comparison to the other alternatives, this alternative would fall in the middle in the amount of BLM-administered lands that would be managed with a primary wildlife emphasis for the deer migration corridor.

Transportation – When comparing the average effects of motorized travel routes across the entire planning area on mule deer winter ranges, Alternatives 3-7 would provide approximately 11 percent higher habitat effectiveness (HE) than Alternatives 1 and 2 based on the reclassification of collector roads to local roads on BLM-administered lands. The largest differences would occur in the Mayfield (+33 percent), Horse Ridge (+21 percent), and North Millican (+21 percent) areas. Steamboat Rock, Prineville and Prineville Reservoir geographic areas would also show a lower HE in comparison with Alternatives 1 and 2. Steamboat Rock has a considerably (-12 percent) lower HE in Alternatives 3-7, but is still rated at 72 percent. Cline Buttes and the Northwest would also anticipate substantial increases in habitat effectiveness. However, this index does not consider the effects of local roads and would rely on varying levels of local road use limits, based the targeted habitat effectiveness for specific geographic areas. Roads reclassified as local are generally considered more available for closing either on a seasonal, temporary, or permanent basis. The amount of local roads in an area is, when considered with the wildlife emphasis for an area, related to the amount of management flexibility to achieve target road densities associated with higher habitat effectiveness.

Alternatives 3-7 would have roughly 200 miles of road classified as local that are classified as collectors in Alternatives 1 and 2. The primary difference between the alternatives described below is the targeted habitat effectiveness for specific geographic areas and the amount of apparent management flexibility to achieve targeted habitat effectiveness guidelines in specific areas when considering the current habitat effectiveness in an area, as well as the planning area as a whole.

Alternative 2 would classify arterial and collector roads the same as described in Alternative 1 and displayed in Table 4-7. In Alternative 2, roads classified as collectors or arterials would be anticipated to continue at a level resulting in an overall habitat effectiveness of approximately 56 percent across the planning area on BLM-administered lands (see Table 4-7 Roads and Wildlife Habitat Effectiveness Index Summary for a complete listing of the habitat effectiveness for each alternative and geographic area). Of the 14 geographic areas that contain deer winter range, three (Badlands, Smith Rock and Steamboat Rock) would retain over 70 percent HE and maintain a significant amount of management ability to manage local roads to achieve the equivalent of a primary wildlife emphasis level for deer.

Four geographic areas (Cline Buttes, Northwest, Prineville and Prineville Reservoir) would anticipate roads classified as collectors to continue at levels expected to result in a HE between 50 percent and 70 percent, and maintaining some ability to manage local roads at a secondary wildlife emphasis level. An existing seasonal closure in the Sanford Creek and travel restrictions in the Wild and Scenic River Corridor (which would be continuing management direction for all alternatives) already provides some of these winter ranges with an emphasis for deer. As mentioned under the wildlife emphasis section, the Prineville and Prineville Reservoir geographic areas would emphasize some deer winter range areas while Cline Buttes and Northwest would not.

The remaining geographic areas would anticipate roads classified as collectors to continue at levels expected to result in a HE below 50 percent HE, and resulting in a difficult situation to manage for a minimum of a secondary wildlife emphasis. Potentially, many local roads and some collector roads would need to be permanently or seasonally decommissioned to achieve this ultimate result. As previously mentioned in the wildlife emphasis section, four of these areas (Horse Ridge, North Millican, South Millican and Tumalo) currently have travel restrictions that result in a primary

wildlife emphasis for deer while the Millican Plateau would be managed for a secondary management emphasis. The Mayfield geographic area would not emphasize deer winter range; however, this area contains the least amount of winter range of all geographic areas.

In Alternatives 3 and 7, seven geographic areas (Horse Ridge, Millican Plateau, North Millican, South Millican Northwest, Prineville and Tumalo) would target management of the combined collector and local road system at an HE of between 50 percent and 70 percent. Given the current road configuration, this would provide more management flexibility to manage open roads at a secondary wildlife emphasis level, but a significantly reduced ability to manage for a primary wildlife emphasis. In Alternative 3, the remaining geographic areas (La Pine and Prineville Reservoir) would anticipate roads classified as arterials and collectors to continue at levels expected to result in a 50 percent HE, resulting in a reduced ability to manage for a minimum of a secondary wildlife emphasis. Alternative 7 would manage 80 percent of the La Pine migration corridor with a primary wildlife emphasis. Potentially, many local roads and/or collector roads would need to be permanently or seasonally decommissioned in the future to manage at targeted habitat effectiveness levels for open motorized roadways. For this alternative, both La Pine and Prineville Reservoirs would have a portion of their areas with a primary wildlife emphasis for deer (winter or migration). In Alternative 7, Cline Buttes is the only one of these geographic areas where only a small portion (31 percent) of the area would be managed with a primary wildlife emphasis for deer. The rest of these geographic areas would be managed for nearly their entire area with a primary wildlife emphasis for deer winter range. Alternative 7 would have one main difference; it would manage 65 percent of the winter range in Mayfield with a primary wildlife emphasis for deer. Alternative 7 would also manage approximately 50 percent of the Prineville geographic area with a primary wildlife emphasis for deer. All of Horse Ridge, North Millican, South Millican and Tumalo areas and almost all of the Northwest geographic area would be managed with a primary wildlife emphasis for deer.

In Alternatives 4, 5 and 6 of the 14 geographic areas that contain deer winter range, five (Badlands, Cline Buttes, Mayfield, Smith Rock and Steamboat Rock) would target a wildlife habitat effectiveness guideline of 70 percent HE. These areas are anticipated to have a high degree of management flexibility for local roads to achieve these targeted guidelines. Cline Buttes is the only one of these geographic areas that would not manage any portion with a primary wildlife emphasis for deer and would manage 96 percent of the area with a general emphasis for deer. The rest of these geographic areas would manage all, or nearly all, of their area as a primary wildlife emphasis for deer winter range.

Seven geographic areas (Horse Ridge, Millican Plateau, North Millican, South Millican Northwest, Prineville and Tumalo) would anticipate roads classified as arterials and collectors to continue at levels expected to result in a HE greater than 50 percent and maintain a high ability to manage local roads at a secondary wildlife emphasis level, but a low ability to manage for a primary wildlife emphasis. All of Horse Ridge, South Millican and Tumalo and almost all of Northwest geographic areas would be managed with a primary wildlife emphasis for deer and would require closing (seasonally or permanently) a lot of local roads and potentially some collector roads.

Alternatives 5 and 6 are slightly different, and Alternative 5 would manage only seven percent of the South Millican and 13 percent of the Prineville Reservoir geographic area with a primary wildlife emphasis as compared to 100 percent and 75 percent under Alternative 4. Alternative 6 would manage 96 percent of the North Millican and 90 percent of the Prineville Reservoir geographic area with a primary wildlife emphasis as compared to 8 percent and 13 percent under Alternative 5. The remaining geographic areas (La Pine and Prineville Reservoir) would anticipate roads classified as arterials and collectors to continue at levels expected to result in a HE range of 46 percent to 49

percent HE resulting in a difficult situation to manage for a minimum of a secondary wildlife emphasis. Potentially, many local roads and some collector roads would need to be permanently or seasonally closed to manage for deer winter range. While Alternative 4 would only emphasize a small portion (18 percent) of the La Pine geographic area, Prineville Reservoir would manage 75 percent with a primary wildlife emphasis for deer. Alternative 6 varies slightly here and would manage an additional 78 percent of the La Pine deer migration corridor with a secondary wildlife emphasis.

Recreation – Alternative 2 would identify the second lowest amount of travel management allocations that could have a positive effect on mule deer in winter range (38 percent, 101,353 acres; see Table 4-13, Summary of Travel Management Designations in Deer Winter Range). This alternative uses "Limited to Designated Roads Only Year Round" considerably more than other allocations to mitigate the effects of motorized travel to mule deer in winter range.

Alternative 3 would identify the highest amount of travel management allocations that could have a positive effect on mule deer in winter range (77 percent, 202,488 acres). This alternative uses a variety of travel management designations to mitigate the effects of motorized travel to mule deer in winter range.

Alternative 4 would identify the third lowest amount of travel management allocations that could have a positive effect on mule deer in winter range (62 percent, 163,476 acres). This alternative uses "Limited to Designated Roads Only Year Round" considerably more than other allocations travel management designations to mitigate the effects of motorized travel to mule deer in winter range.

Alternative 5 would identify the third highest amount of travel management allocations that could have a positive effect on mule deer in winter range (76 percent, 199,767 acres. This alternative seasonally limits motorized travel more than most other alternatives to mitigate the effects of motorized travel to mule deer in winter range.

Alternative 6 would identify the second highest amount of travel management allocations that could have a positive effect on mule deer in winter range (77 percent, 202,354 acres). Alternative 6 would allocate nearly the same amount as Alternative 3. This alternative uses travel management designations "Closed Year Round" and "Limited to Roads and Trails Seasonally" most to mitigate the effects of motorized travel to mule deer in winter range.

Alternative 7 would identify the fourth highest amount of travel management allocations that could have a positive effect on mule deer in winter range (63 percent, 167,104 acres. This alternative uses the travel management designations "Closed Year Round" and "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to mule deer in winter range. In the North Millican geographic area, the primary wildlife emphasis guidelines could result in more winter range being managed to benefit deer use than is described in the analysis above (see Table 4-14 Wildlife Emphasis and Travel Management Designations in Deer Winter Range).

Land Ownership – Alternative 2 would designate approximately 91 percent of all deer habitats on BLM-administered lands (241,325 acres) as Z – 1, 5 percent (11,762 acres) would be designated Z – 2, and 4 percent (11,056 acres) would be designated Z-3. Approximately 50 percent (5893 acres) of the acres identified for exchange would be managed with a primary wildlife emphasis, and six percent of the acres identified for disposal would be managed with a primary wildlife emphasis.

Table 4-13 Summary of Travel Management Designations in Deer Winter Range

Travel Management	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Percent of winter range allocated to motorized travel	99%	98%	75%	98%	96%	74%	72%
Percent of winter range closed to year round motorized travel	1%	5%	23%	6%	13%	28%	28%
Percent of winter range allocated to motorized trail use	75%	66%	53%	47%	49%	47%	44%
Percent of winter range allocated to year round motorized trail use	56%	62%	23%	38%	24%	23%	37%

Alternative 3 would classify approximately 88 percent of all deer habitats on BLM-administered lands (232,219 acres) as Z – 1, 10 percent (25,823 acres) would be designated Z – 2, and 2 percent (6,102 acres) would be designated Z-3. Approximately 65 percent of the acres identified for exchange would be managed with a primary wildlife emphasis, and nine percent of the acres identified for disposal would be managed with a primary wildlife emphasis.

Alternative 4 would classify approximately 85 percent of all deer habitats on BLM-administered lands (224,399 acres) as Z – 1, 12 percent (31,000 acres) would be designated Z – 2, and 3 percent (8,745 acres) would be designated Z-3. Approximately 46 percent of the acres identified for exchange would be managed with a primary wildlife emphasis, and approximately 25 percent of the acres identified for disposal would be managed with a primary wildlife emphasis.

Alternative 5 would classify approximately 83 percent of all deer habitats on BLM-administered lands (219,363 acres) as Z – 1, 15 percent (38,348 acres) would be designated Z – 2, and 2 percent (6,334 acres) would be designated Z-3. Less than 1 percent (104 acres) would be identified for community expansion. Approximately 29 percent of the acres identified for exchange would be managed with a primary wildlife emphasis, and 47 percent of the acres identified for disposal would be managed with a primary wildlife emphasis.

Alternative 6 would classify approximately 94 percent of all deer habitats on BLM-administered lands (247,393 acres) as Z – 1, 2 percent (4,653 acres) would be designated Z – 2, and 5 percent (11,958 acres) would be designated Z-3. Less than 1 percent (104 acres) would be identified for community expansion.

Approximately 16 percent of the acres identified for exchange would be managed with a primary wildlife emphasis, and approximately 38 percent of the acres identified for disposal would be managed with a primary wildlife emphasis.

Alternative 7 would classify approximately 89 percent of all deer habitats on BLM-administered lands (235,222 acres) as Z – 1, 6 percent (16,595 acres) would be designated Z – 2, and 5 percent (12,482 acres) would be designated Z-3. Approximately 82 percent of the acres identified for exchange would be managed with a primary wildlife emphasis, and 41 percent of the acres identified for disposal would be managed with a primary wildlife emphasis.

Table 4-14 Wildlife Emphasis and Travel Management Designations in Deer Winter Range

	Wildlife Emphasis	Closed at Snow Depth	Ltd Roads/Trails Seasonally	Ltd Roads/ Trails Year Round	Open Year Round	Ltd Type of Vehicle	Closed Year Round	Ltd Roads Only Seasonally	Ltd Designated Roads Year Round
Alternative		**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**
Alt 1	Primary	0	50635	0	11131	0	2661	0	61923
	Secondary	15388	0	0	46268	0	556	0	0
	General	0	40	0	0	0	664	0	49
Alt 2	Primary	0	11663	0	0	0	14250	396	58946
	Secondary	0	0	80	0	0	0	0	15607
	General	0	0	162732	0	0	0	0	491
Alt 3	Primary	0	0	0	0	0	60531	11805	40142
	Secondary	19719	0	80	0	0	8	40	11731
	General	0	0	162732	0	0	0	0	0
Alt 4	Primary	0	2935	104	0	0	16564	41374	76617
	Secondary	0	21131	52	0	0	0	0	4794
	General	0	0	100490	0	50	0	17	44
Alt 5	Primary	0	1290	38	0	0	32788	41662	22418
	Secondary	0	64226	24	0	0	499	0	36770
	General	0	0	64353	0	0	79	0	37
Alt 6	Primary	0	44223	262	0	0	72376	24093	31095
	Secondary	0	0	0	0	0	158	0	13006
	General	0	17403	61317	0	252	0	0	0
Alt 7	Primary	0	17581	38210	0	0	75622	24980	42242
	Secondary	0	0	2922	0	0	926	52	8441
	General	0	0	53404	0	50	241	0	0

Military Training – The direct effect of all proposed military activities in Alternative 6 on deer habitats would be the allocation of 16,126 acres (6 percent of all deer habitats) for military uses. Of the acres of deer habitats that would be affected by military uses, 12 percent (1,921 acres) would be managed with a primary wildlife emphasis and 88 percent (14,205 acres) would be managed with a general wildlife emphasis.

All of the acres of deer habitats that would be allocated for military activities would be used on a rotational basis. The military would not use track vehicles on these sites, and would use tire vehicles on 44 percent (7,105 acres) and foot activity off designated trails on 56 percent (9,021 acres). For a complete breakdown of the total deer habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-15 Comparison of Military Training in Deer Winter Range.

Alternative 6 has greater impacts to deer winter range than Alternatives 1 – 5 due to the addition of 16,126 acres of rotational training areas. These rotational use areas will add direct disturbance impacts from tread vehicles and foot traffic during the time of the exercise, as well as indirect impacts from damage to habitat until sites are recovered. Alternative 6 has slightly more deer habitat allocated to military use than Alternative 7.

Alternative 7 on deer habitats would designate approximately 15,257 acres (6 percent of all deer habitats) for military activities. Of the acres of deer habitats that would be affected by military uses, 7 percent (1,052 acres) would be managed with a primary wildlife emphasis and 93 percent (14,205 acres) would be managed with a general wildlife emphasis.

All of the acres of deer habitats that would be allocated for military activities would be used on a rotational or extended basis, depending upon the alternative. The military would not use track vehicles on these sites, and would use tire vehicles on 40 percent (6,162 acres) and foot activity off designated trails on 60 percent (9,095 acres). For a complete breakdown of the total deer habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-15 Comparison of military use acres on deer habitat. Alternative 7 has greater potential impacts to deer winter range than Alternatives 1 – 5 due to the addition of approximately 15,257 acres of extended training areas. These additional areas would not be approved until after completion of a site-specific plan, but could be expected to add direct disturbance impacts from tread vehicles and foot traffic during the time of the exercise, as well as indirect impacts from damage to habitat until sites are recovered. This alternative has slightly less acreage allocated to military use than Alternative 6.

Table 4-15 Comparison of Military Training in Deer Winter Range

Alternative	Yearly Use	Equipment Use	Acres	% of Total
6	**Rotational**		**16,126**	
		Foot	9,021	56%
		Tire	7,105	44%
7	**Extended**		**15,257**	
		Foot	9,095	60%
		Tire	6,162	40%

Vegetation Management – Alternatives 2, 4 and 5 ("Current Distribution") could provide up to 167,592 acres of juniper woodland cover habitats and 88,358 acres of foraging habitats. These alternatives would likely provide a desirable mix of cover and forage habitats for mule deer.

Alternatives 3, 6 and 7 ("Historic Range") could provide as low as 82,387 acres of juniper woodland cover habitats and up to 174,031 acres of shrub-steppe foraging habitats. These alternatives probably would not provide a desirable mix of cover and forage habitats because they would promote the restoration of shrub-steppe habitats (forage) over juniper habitats (cover). However, it is important to also consider the travel management and wildlife emphasis allocations because they could limit human access thereby reducing the need for cover.

Rocky Mountain Elk

Wildlife Emphasis – Alternative 2 would allocate 57,472 acres of elk winter range for managing with a primary wildlife emphasis, 2,001 acres with a secondary wildlife emphasis, and 120,699 acres with a general emphasis for elk. This alternative provides the lowest amount of lands to be managed with a primary wildlife emphasis and provides the highest amount of lands to be managed with a general emphasis for elk. Subsequently, this alternative provides a low distribution of winter range across the planning area that would be managed with a primary wildlife emphasis for elk. Alternative 2 would manage 1,342 acres of elk connectivity habitat with a primary wildlife emphasis; 119 acres with a secondary wildlife emphasis and 6,728 acres with a general emphasis for elk (Chapter 2, Table 2-9, Alt 2 Summary of Wildlife Migration and Connectivity Corridors). This allocation of lands would result in a low amount and distribution of habitat within the migration corridor that would be managed with an emphasis (primary and secondary) for elk. This area would be open year-round to motorized travel on roads and trails, which would limit elk use.

Alternative 3 provides the highest amount of lands to be managed with a primary wildlife emphasis and provides the lowest amount of lands to be managed with a general emphasis for elk. Alternative 3 allocates 141,707 acres for managing with a primary wildlife emphasis, 17,513 acres with a secondary wildlife emphasis, and 20,948 with a general emphasis for elk. Subsequently, this alternative would provide a good distribution of winter range across the planning area that would be managed with a primary wildlife emphasis for elk. Alternative 3 would manage 6,729 acres of elk connectivity habitat with a primary wildlife emphasis and 1,461 acres with a secondary wildlife emphasis (refer to Chapter 2, Table 2-9, Alt 3 Summary of Wildlife Migration and Connectivity Corridors). This allocation of lands would result in a high amount and distribution of habitat within the migration corridor that would be managed with a primary wildlife emphasis for elk. This would be accomplished using both seasonal restrictions in some areas and limiting motorized travel to a low density of designated roads in other areas.

Alternative 4 would provide a fairly low distribution of winter range across the planning area that would be managed with a primary wildlife emphasis for elk or with a secondary wildlife emphasis. This alternative would allocate 70,311 acres for managing with a primary wildlife emphasis, 13,780 acres with a secondary wildlife emphasis, and 99,031 acres with a general emphasis for elk. This alternative provides the fifth highest amount of lands to be managed with a primary wildlife emphasis and provides the 2nd lowest amount of lands to be managed with a general emphasis for elk. Alternative 4 would manage 5,842 acres of elk connectivity habitat with a primary wildlife emphasis; 119 acres with a secondary wildlife emphasis; and 2,228 acres with a general emphasis for elk (refer to Chapter 2, Table 2-9, Alt 4 Summary of Wildlife Migration and Connectivity Corridors). This allocation of lands would result in a moderately high amount and distribution of habitat within the migration corridor that would be managed with a

primary wildlife emphasis for elk. This would be accomplished mainly by limiting motorized travel to a low density of designated roads.

Alternative 5 would provide a fairly low distribution of winter range across the planning area that would be managed with a primary wildlife emphasis for elk; however, when secondary wildlife emphasis areas are considered, this alternative would provide a fairly good distribution of winter range with either a primary or secondary wildlife emphasis for elk. The direct effect of Alternative 5 on elk winter range would be the allocation of 61,447 acres for managing with a primary wildlife emphasis, 51,066 acres with a secondary wildlife emphasis, and 67,661 with a general emphasis for elk. This alternative would provide the 6th highest amount of lands to be managed with a primary wildlife emphasis, but when combined with secondary wildlife emphasis areas this alternative provides the fourth highest. Alternative 5 would manage no areas of elk connectivity habitat with a primary wildlife emphasis, 6,728 acres with a secondary wildlife emphasis and 1,461 acres with a general emphasis for elk (refer to Chapter 2, Table 2-9, Alt 5 Summary of Wildlife Migration and Connectivity Corridors). This allocation of lands would result in a high amount and distribution of habitat within the migration corridor that would be managed with a secondary wildlife emphasis for elk. This would be accomplished mainly by limiting motorized travel to a moderate density of designated roads.

Alternative 6 would provide the third highest amount of lands to be managed with a primary wildlife emphasis and the fifth lowest amount of lands to be managed with a general emphasis for elk. The direct effect of Alternative 6 on elk winter range would be the allocation of 127,411 acres for managing with a primary wildlife emphasis, 3,800 acres with a secondary wildlife emphasis, and 48,964 acres with a general emphasis for elk. This alternative would provide a fairly good distribution of winter range across the planning area that would be managed with a primary wildlife emphasis for elk. Alternative 6 would manage 6,704 acres of elk connectivity habitat with a primary wildlife emphasis and 1,485 acres with a secondary wildlife emphasis (refer to Chapter 2, Table 2-9, Alt 6 Summary of Wildlife Migration and Connectivity Corridors).This allocation of lands would result in a high amount and distribution of habitat within the migration corridor that would be managed with a primary wildlife emphasis for elk. This would be accomplished using both seasonal restrictions in some areas and limiting motorized travel to a low density of designated roads in other areas.

Alternative 7 would provide the second highest amount of lands to be managed with a primary wildlife emphasis and the sixth lowest amount of lands to be managed with a general emphasis for elk. The direct effect of Alternative 7 on elk winter range would be the allocation of 132,563 acres for managing with a primary wildlife emphasis, 4,992 acres with a secondary wildlife emphasis, and 42,616 acres with a general emphasis for elk. This alternative would provide a good distribution of winter range across the planning area that would be managed with a primary wildlife emphasis for elk. Alternative 7 would manage nearly all (8,070 acres) of the elk connectivity corridor with a primary wildlife emphasis, and only 119 acres with a secondary wildlife emphasis (refer to Chapter 2, Table 2-9, Alt 7 Summary of Wildlife Migration and Connectivity Corridors). This allocation of lands would result in a high amount and nearly complete distribution of habitat within the migration corridor that would be managed with a primary wildlife emphasis for elk. This would be accomplished using both seasonal restrictions in some areas and limiting motorized travel to a low density of designated roads in other areas.

Transportation – When comparing the average effects of motorized travel routes across the entire planning area Alternatives 3-7 would provide 12 percent higher HE than Alternatives 1 and 2. The largest differences occur in the Horse Ridge (+23 percent), North Millican (+27 percent) and La Pine (+18 percent) areas. Mayfield lists a significant higher HE in Alternatives 3-7; however, there are only 441 acres of elk habitat in that geographic area. As stated earlier, the North Millican area sometimes is identified for

managing for both OHV trail use and primary wildlife emphasis and can create difficult and complicated management implications. Some alternatives, such as 3, 4, 5 and 6, use seasonal use periods for OHV use in order to avoid the impacts to wintering animals. Seasonal use periods may provide a more effective method to managing for high HE than trying to limit the amounts of roads and OHV trails in areas identified for OHV use.

Overall, Alternative 2 would anticipate roads classified as arterials and collectors to continue at levels expected to result in a habitat effectiveness of 57 percent in elk winter range across the planning area on BLM-administered lands. Refer to Table 4-4 for a complete listing of the habitat effectiveness for each geographic area. Of the 13 geographic areas that contain elk winter range, two (Badlands and Steamboat Rock) would anticipate roads classified as arterials and collectors to continue at levels expected to result in a 70 percent HE and maintain relatively high flexibility to manage local roads and achieve a primary wildlife emphasis level for elk. These two areas would also be managed with a primary wildlife emphasis for elk winter range. Four geographic areas (Cline Buttes, Millican Plateau, Northwest, and Prineville Reservoir) would anticipate roads classified as arterials and collectors to continue at levels expected to result in an HE between 50 percent and 70 percent, which would maintain a moderate flexibility to manage local roads at a secondary wildlife emphasis level. However, only the Northwest geographic area would emphasize (primary or secondary) any considerable amount of elk winter range for elk in this alternative. The remaining geographic areas (Horse Ridge, La Pine, Mayfield, North Millican, South Millican, Prineville and Tumalo) would anticipate roads classified as arterials and collectors to continue at levels expected to result in an HE below 50 percent with limited flexibility to manage for a minimum of a secondary wildlife emphasis. Potentially, many local roads and some collector roads would need to be permanently or seasonally closed fully achieve targeted habitat effectiveness guidelines. For Alternative 2, all of Horse Ridge and Tumalo would be managed with a primary wildlife emphasis for elk, with potentially considerable amounts of travel restrictions, and most of Prineville geographic area would be managed with a secondary wildlife emphasis, potentially requiring some travel restrictions.

Overall, Alternative 3 would anticipate roads classified as arterials and collectors to continue at levels expected to result in a habitat effectiveness of 69 percent across the planning area on BLM-administered lands. Refer to Table 4-4 for a complete listing of the habitat effectiveness for each alternative and geographic area. Of the 13 geographic areas that contain elk winter range, four (Badlands, Mayfield, North Millican and Steamboat Rock) would retain over 70 percent HE and maintain a high level of flexibility to manage local roads and achieve a primary wildlife emphasis level for elk. All of these geographic areas would have all, or nearly all, of their area managed with a primary wildlife emphasis for elk. Eight geographic areas (Cline Buttes, Horse Ridge, La Pine, Millican Plateau, South Millican, Northwest, Prineville Reservoir and Tumalo) would anticipate roads classified as arterials and collectors to continue at levels expected to result in an HE between 50 percent and 70 percent, which would maintain a high degree of management flexibility to manage local roads at a secondary wildlife emphasis level. However, five of these geographic areas (Horse Ridge, South Millican, Northwest, Prineville Reservoir and Tumalo) would be managed with a primary wildlife emphasis for elk requiring a considerable amount of potential future travel restrictions to achieve targeted guidelines for habitat effectiveness. In the Millican Plateau geographic area, Alternative 3 would manage 99 percent of elk winter range with a secondary wildlife emphasis for elk, which would be relatively easy to accomplish based on anticipated designated arterial and collector roads. Prineville is the only geographic area where roads classified as collectors would be expected to continue at levels that would result in an HE below 50 percent, resulting in a limited flexibility to manage for a minimum of a secondary wildlife emphasis. Most of the Prineville geographic area would be managed with a secondary wildlife emphasis for elk, requiring some travel restrictions on collector roads to achieve targeted habitat effectiveness guidelines. Potentially, many local roads would also need to be permanently or seasonally decommissioned to meet management guidelines.

Alternative 4 would classify arterial and collector roads the same as Alternative 3, resulting in the same HE scores for each geographic area. However, Alternative 4 differs from Alternative 3 in the emphasis levels for some geographic areas, sometimes results in a different ability to achieve a desired threshold. These differences are the focus of the discussion below. Of the 13 geographic areas that contain elk winter range, four (Badlands, Mayfield, North Millican and Steamboat Rock) would anticipate roads classified as arterials and collectors to continue at levels expected to result in 70 percent HE and maintain a high degree of flexibility to manage local roads and achieve a primary wildlife emphasis level for elk. All of these geographic areas would have all, or nearly all, of their area managed with a primary wildlife emphasis for elk. Eight geographic areas (Cline Buttes, Horse Ridge, La Pine, Millican Plateau, South Millican, Northwest, Prineville Reservoir and Tumalo) would anticipate roads classified as arterials and collectors to continue at levels expected to result in an HE between 50 percent and 70 percent, which would maintain a high degree of flexibility to manage local roads at a secondary wildlife emphasis level. However, five of these geographic areas (Horse Ridge, South Millican, Northwest, Prineville Reservoir and Tumalo) would be managed with a primary wildlife emphasis for elk, potentially requiring a considerable amount of travel restrictions to meet targeted habitat effectiveness guidelines. Most of the Millican Plateau geographic area would be managed with a secondary wildlife emphasis for elk and should be relatively easy to achieve managing only local roads. Prineville is the only geographic areas that would anticipate roads classified as arterials and collectors to continue at levels expected to result in an HE below 50 percent resulting in a limited ability to manage for a minimum of a secondary wildlife emphasis. Forty three percent of the Prineville geographic area would be managed with a secondary wildlife emphasis for elk, requiring some travel restrictions to achieve ≥50 percent HE. Potentially, many local roads would also need to be permanently or seasonally closed to manage for elk winter range.

Alternative 5 would classify arterials and collectors the same as Alternatives 3 and 4, resulting in the same HE scores for each geographic area. However, Alternative 5 differs from the other alternatives in the emphasis levels for some geographic areas, which sometimes results in a different ability to achieve a desired threshold. Of the 13 geographic areas that contain elk winter range, four (Badlands, Mayfield, North Millican and Steamboat Rock) would retain over 70 percent HE and maintain a high ability to manage local roads and achieve a primary wildlife emphasis level for elk. The Badlands and Steamboat Rock geographic areas would be managed with a primary wildlife emphasis for elk. All elk winter range in Mayfield and 90 percent of elk winter range in North Millican would be managed with a secondary wildlife emphasis for elk, which would be relatively easy to accomplish because of the high current HE for these areas. Eight geographic areas (Cline Buttes, Horse Ridge, La Pine, Millican Plateau, South Millican, Northwest, Prineville Reservoir and Tumalo) would anticipate roads classified as arterials and collectors to continue at levels expected to result an HE between 50 percent and 70 percent, which would maintain a high degree of flexibility to manage local roads at a secondary wildlife emphasis level. However, three of these geographic areas (Horse Ridge, Northwest and Tumalo) would be managed with a primary wildlife emphasis for elk requiring a considerable amount of road closures, including some collector roads to achieve ≥70 percent HE. Most of the South Millican and Prineville Reservoir geographic areas would be managed with a secondary wildlife emphasis for elk and should be relatively easy to achieve based on current levels of arterials and collectors. Prineville is the only geographic area that would anticipate roads classified as arterials and collectors to continue at levels expected to result in HE below 50 percent, resulting in limited flexibility to manage for a minimum of a secondary wildlife emphasis. Eighty-one percent of the Prineville geographic area would be managed with a primary wildlife emphasis for elk, requiring considerable travel restrictions on collector roads to achieve the targeted habitat effectiveness guidelines. Potentially, most local roads would also need to be least seasonally closed to manage for elk winter range.

Alternative 6 would classify arterial and collector roads the same as Alternatives 3, 4 and 5 resulting in the same HE scores for each geographic area. However, Alternative 6 differs from the other alternatives in the emphasis levels for some geographic areas, which sometimes results in a different ability to achieve a desired threshold. Of the 13 geographic areas that contain elk winter range, four (Badlands, Mayfield, North Millican and Steamboat Rock) would anticipate roads classified as arterials and collectors to continue at levels expected to result in 70 percent HE and maintain a high flexibility to manage local roads and achieve a primary wildlife emphasis level for elk. All of the elk winter range in the Badlands and most of the elk winter range in the North Millican and Steamboat Rock geographic areas would be managed with a primary wildlife emphasis for elk. Also, most elk winter range in Mayfield would be managed with a secondary wildlife emphasis for elk, which should be relatively easy to accomplish because of the current high HE for these areas. Eight geographic areas (Cline Buttes, Horse Ridge, La Pine, Millican Plateau, South Millican, Northwest, Prineville Reservoir and Tumalo) would anticipate roads classified as arterials and collectors to continue at levels expected to result in an HE between 50 percent and 70 percent, which would maintain a high flexibility to manage local roads at a secondary wildlife emphasis level. However, five of these geographic areas (Horse Ridge, La Pine, Northwest, Prineville Reservoir and Tumalo) would manage most of the winter range with a primary wildlife emphasis for elk requiring a considerable amount of road closures, including some collector roads, to achieve ≥70 percent HE. Prineville is the only geographic area that would anticipate roads classified as arterials and collectors to result in HE below 50 percent HE, resulting in a limited ability to manage for a minimum of a secondary wildlife emphasis. 81 percent of the Prineville geographic area would be managed with a primary wildlife emphasis for elk, requiring considerable travel restrictions on arterial or collector roads to achieve ≥70 percent HE. Potentially, most local roads would also need to be at least seasonally closed to manage at targeted habitat effectiveness guidelines for elk winter range.

Alternative 7 would classify arterial and collector roads the same as Alternatives 3, 4, 5 and 6 resulting in the same HE scores for each geographic area. However, Alternative 7 differs from the other alternatives in the emphasis levels for some geographic areas, which sometimes results in a different ability to achieve a desired threshold. Of the 13 geographic areas that contain elk winter range, four (Badlands, Mayfield, North Millican and Steamboat Rock) would retain over 70 percent HE and maintain a high degree of flexibility to manage local roads and achieve a primary wildlife emphasis level for elk. All of the elk winter range in the Badlands and North Millican and most of the elk winter range in the Steamboat Rock geographic areas would be managed with a primary wildlife emphasis for elk. Also, most elk winter range in Mayfield would be managed with a secondary wildlife emphasis for elk, which should be relatively easy to accomplish because of the current HE for these areas. Eight geographic areas (Cline Buttes, Horse Ridge, La Pine, Millican Plateau, South Millican, Northwest, Prineville Reservoir and Tumalo) would anticipate roads classified as arterials and collectors to continue at levels expected to result in an HE between 50 percent and 70 percent, which would maintain a high degree of flexibility to manage local roads at a secondary wildlife emphasis level. However, six of these geographic area (Horse Ridge, La Pine, Northwest, Prineville Reservoir, South Millican and Tumalo) would manage most of the winter range with a primary wildlife emphasis for elk requiring a considerable amount of travel management restrictions to achieve the targeted habitat effectiveness guidelines related to road densities. Prineville is the only geographic areas that would anticipate roads classified as arterials and collectors to continue at levels expected to result in below 50 percent HE resulting in a limited ability to manage for a minimum of a secondary wildlife emphasis. Under Alternative 7, 81 percent of the Prineville geographic area would be managed with a primary wildlife emphasis and 19 percent with a secondary wildlife emphasis for elk, requiring considerable travel restrictions targeted habitat effectiveness guidelines related to road densities for this area. Potentially, most local roads would also need to be at least seasonally closed to manage for elk winter range.

Recreation – Alternative 2 would provide the lowest amount (33 percent) of travel management allocations that could have a positive effect on elk in winter range (see Table 4-16, Summary of Travel Management Designations in Elk Winter Range). This alternative uses seasonal closures the least to limit motorized travel to a low density of designated roads that would be open year-round.

Of all alternatives, Alternative 3 would allocate the highest amount (76 percent) of travel management allocations that could have a positive effect on elk in winter range. This alternative uses a variety of guidelines such as roads-only, closed year-round and seasonal closures to limit motorized travel to a low density of designated roads that would be open year-round.

As a result of the travel management designations, Alternative 4 would provide the third lowest amount (47 percent) of travel management allocations that could have a positive effect on elk in winter range. This alternative uses travel management designations "Limited to Roads Only Year Round" and "Limited to Roads Only Seasonally" most to mitigate the effects of motorized travel to elk in winter range.

As a result of the travel management designations, Alternative 5 would provide the third highest amount (62 percent) of travel management allocations that could have a positive effect on elk in winter range. This alternative uses seasonal closures the most to mitigate the effects of motorized travel to elk on winter range, and when adding areas closed year round to motorized travel this alternative would provide the highest amount (67 percent) of winter range without motorized disturbance activities during the winter period.

Alternative 6 would allocate the second highest amount (76 percent) of travel management designations that could have a positive effect on elk in winter range. This is only slightly less than Alternative 3. This alternative uses a variety of guidelines such as closed year-round, limited to roads seasonally and limited to roads and trails seasonally to mitigate the effects of motorized travel to elk in winter range.

Of all alternatives, Alternative 7 would allocate the third lowest amount (Alternative 4 would allocate nearly the same amount) of travel management designations that could have a positive effect on elk in winter range (47 percent). This alternative uses the travel management designation "Closed Year Round" most to mitigate the effects of motorized travel to elk in winter range. In the North Millican geographic area, the primary wildlife emphasis guidelines could result in more winter range being managed to benefit elk use than is described in the analysis above (see Table 4-17, Wildlife Emphasis and Travel Management Designations in Elk Winter Range).

Table 4-16 Summary of Travel Management Designations in Elk Winter Range

Travel Management Elk winter range	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Percent of winter range allocated to motorized travel	100%	98%	75%	98%	96%	74%	73%
Percent of winter range closed to year round motorized travel	<1%	2%	25%	2%	4%	26%	28%
Percent of winter range habitat allocated to motorized trail use	78%	73%	49%	59%	57%	43%	56%
Percent of winter range allocated to year round motorized trail use	63%	67%	24%	53%	38%	25%	53%

Table 4-17 Wildlife Emphasis and Travel Management Designations in Elk Winter Range

	Wildlife Emphasis	Closed at Snow Depth	Ltd Roads/ Trails Seasonally	Ltd Roads/ Trails Yr Rnd	Open Year Round	Ltd type of vehicle	Closed Year Round	Ltd Roads Only Seasonally	Ltd designated rds yr rnd
Alternative		**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**
Alt 1	Primary	0	28329	16643	5454	0	380	0	8951
	Secondary	11814	0	4166	28372	0	0	0	29401
	General	0	40	20846	25517	0	366	0	49
Alt 2	Primary	0	11678	0	0	0	3584	0	42230
	Secondary	0	0	0	0	0	0	0	2000
	General	0	0	120657	0	0	0	0	40
Alt 3	Primary	0	44170	7303	0	0	44347	7429	38562
	Secondary	15004	51	0	0	0	0	0	2366
	General	0	0	20401	0	549	0	0	0
Alt 4	Primary	0	0	4	0	0	3160	41312	25856
	Secondary	0	11224	52	0	0	0	0	2465
	General	0	0	95509	0	549	0	17	274
Alt 5	Primary	0	0	0	0	0	7402	41329	12401
	Secondary	0	35491	24	0	0	161	0	15392
	General	0	0	67662	0	0	0	0	0
Alt 6	Primary	0	28449	394	0	0	46155	41548	11114
	Secondary	0	0	43446	0	0	0	0	3796
	General	0	4833	0	0	687	0	0	0
Alt 7	Primary	0	4834	50217	0	0	52156	15490	13405
	Secondary	0	0	3599	0	0	529	52	1329
	General	0	0	38441	0	549	1	0	0

Land Ownership – Alternative 2 would designate approximately 96 percent of all elk habitats on BLM-administered lands (172,746 acres) as Z – 1, 4 percent (7,083 acres) as Z – 2, and less than one percent (457 acres) as Z-3. Less than one percent (136) acres would also be designated for community expansion. Of the acres identified for retention, approximately 52,996 would be managed with a primary wildlife emphasis, and of the acres identified for exchange, approximately 4189 acres would be managed with a primary wildlife emphasis. Of the acres classified for disposal, 298 would be managed with a primary wildlife emphasis.

Alternative 3 would classify approximately 91 percent of all elk habitats on BLM-administered lands (163,393 acres) as Z – 1, 9 percent (16,424 acres) would be designated Z – 2, and less than one percent (119 acres) would be designated Z-3. Less than one percent (487 acres) would also be identified for community expansion. Of the acres identified for retention, approximately 128,766 would be managed with a primary wildlife emphasis, and of the acres identified for exchange, approximately 12,471 would be managed with a primary wildlife emphasis. All of the acres identified for disposal would be managed with a secondary wildlife emphasis.

Alternative 4 would classify approximately 87 percent of all elk habitats on BLM-administered lands (157,032acres) as Z – 1, 13 percent (23,392acres) as Z – 2, and no lands as Z-3. Of the acres identified for retention, approximately 61,017would be managed with a primary wildlife emphasis, and of the acres identified for exchange, approximately 9,311 would be managed with a primary wildlife emphasis.

Alternative 5 would classify approximately 89 percent of all elk habitats on BLM-administered lands (160,635 acres) as Z – 1, 11 percent (19,018 acres) would be designated Z – 2, and less than one percent (119 acres) would be designated Z-3. Less than 1 percent (654 acres) would be classified for community expansion. Of the acres identified for retention, approximately 53,221 would be managed with a primary wildlife emphasis, and of the acres identified for exchange, approximately 8,309 would be managed with a primary wildlife emphasis. All of the acres identified for disposal would be managed with a secondary wildlife emphasis and 40 acres of the lands identified for community expansion would be managed with a primary wildlife emphasis for elk.

Alternative 6 would classify approximately 84 percent of all elk habitats on BLM-administered lands (150,846 acres) as Z – 1, 16 percent (28,472 acres) would be designated Z – 2, and less than one percent (457 acres) would be designated Z-3. Less than one percent (654 acres) would also be classified for community expansion. Of the acres identified for retention, approximately 99,196 would be managed with a primary wildlife emphasis, and of the acres identified for exchange, approximately 28,266 would be managed with a primary wildlife emphasis. Approximately 159 of the acres identified for disposal would be managed with a primary wildlife emphasis.

Alternative 7 would classify approximately 80 percent of all elk habitats on BLM-administered lands (143,578 acres) as Z – 1, 20 percent (34,820 acres) would be designated Z – 2, and 1 percent (2,188 acres) would be designated Z-3. Of the acres identified for retention, approximately 102,177 would be managed with a primary wildlife emphasis, and of the acres identified for exchange, approximately 29,703 would be managed with a primary wildlife emphasis. Approximately 1,683 of the acres identified for disposal would be managed with a primary wildlife emphasis.

Military Training – Alternative 6 would allocate approximately 232 acres of elk habitat (less than one percent of all elk habitats) for military uses. All of the acres of elk habitats that would be affected by military uses would be managed with a general wildlife emphasis. All of the acres of elk habitats that would be allocated for military activities would be used on a rotational basis and would only allow foot activity off designated trails. For a complete breakdown of the total elk habitats affected by annual use versus

rotational use and their associated use type (i.e., track, tire or foot) see Table 4-18, Comparison of military use activities on elk habitat.

Alternative 6 has greater impacts to elk winter range than Alternatives 1 – 5 and 7 due to the addition of 232 acres of rotational use training areas. These additional areas would not be approved until after completion of a site-specific plan, but could be expected to add direct disturbance impacts from tread vehicles and foot traffic during the time of the exercise, as well as indirect impacts from damage to habitat until sites are recovered. All of the acres of elk habitats that would be affected by military uses would be managed with a general wildlife emphasis.

All of the acres of elk habitats that would be allocated for military activities would be used on a rotational basis and would allow foot activity off designated trails. For a complete breakdown of the total elk habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-18 Comparison of Military Training in Elk Winter Range.

Alternative 7 has minimally greater impacts to elk winter range than Alternatives 1 – 5 due to the addition of 2 acres of rotational training areas. These additional areas would not be approved until after completion of a site-specific plan, but could be expected to add direct disturbance impacts from tread vehicles and foot traffic during the time of the exercise, as well as indirect impacts from damage to habitat until sites are recovered.

Vegetation Management – Alternatives 2, 4 and 5 ("Current Distribution") could provide up to 101,426 acres of juniper woodland cover habitats and 48,251 acres of foraging habitats. These alternatives would likely provide a desirable mix of cover and forage habitats.

Alternatives 3, 6 and 7 ("Historic Range") could provide as low as 53,808 acres of juniper woodland cover habitats up to 96,199 acres of shrub-steppe foraging habitats. These alternatives probably would not provide a desirable mix of cover and forage habitats because they would promote the restoration of shrub-steppe habitats (forage) over juniper habitats (cover).

Pronghorn

Wildlife Emphasis – Alternative 2 provides the lowest amount of lands to be managed with a primary wildlife emphasis and provides the highest amount of lands to be managed with a general emphasis for pronghorn. This alternative would allocate 31,432 acres for managing with a primary wildlife emphasis, 9,833 acres with a secondary wildlife emphasis, and 125,913 acres with a general emphasis for pronghorn. This alternative would provide a low distribution of pronghorn habitats across the planning area that would be managed with a primary or secondary wildlife emphasis for pronghorn.

Table 4-18 Comparison of Military Training in Elk Winter Range

Alternative	Yearly Use	Equipment Use	Acres	% of Total
6	**Rotational**	Foot	232	99%
7	**Extended**	Foot	2	1%

Alternative 2 would also manage 2,347 acres of pronghorn connectivity corridors with a primary wildlife emphasis, 3,419 acres with a secondary wildlife emphasis and 15,353 acres with a general emphasis for pronghorn (Table 2-9, Alt 2 Summary of Wildlife Migration and Connectivity Corridors). This alternative would provide the lowest amount of connectivity habitat, of all the alternatives, with a primary or secondary wildlife emphasis for pronghorn and subsequently would result in a low distribution of habitat across the different connectivity corridors. The general emphasis that would be placed on the pronghorn connectivity corridors in the northern part of the Mayfield and the Millican Plateau geographic areas could limit pronghorn movements through these areas in the future.

Alternative 3 provides the highest amount of lands to be managed with a primary wildlife emphasis and provides the lowest amount of lands to be managed with a general emphasis for pronghorn. Alternative 3 would allocate 80,392 acres for managing with a primary wildlife emphasis, 38,047 acres with a secondary wildlife emphasis, and 48,737 acres with a general emphasis for pronghorn. This alternative would provide a moderately high distribution of pronghorn habitats across the planning area that would be managed with a primary or secondary wildlife emphasis for pronghorn. The Bend-Redmond and Millican Plateau geographic areas are two areas where there would be no primary wildlife emphasis for pronghorn. Alternative 3 would manage 10,762 acres of pronghorn connectivity corridors with a primary wildlife emphasis, 10,313 acres with a secondary wildlife emphasis and less than one percent with a general emphasis for pronghorn (Table 2-9, Alt 3 Summary of Wildlife Migration and Connectivity Corridors). This alternative would provide the highest amount of connectivity habitat, of all the alternatives, with a primary or secondary wildlife emphasis for pronghorn and would result in a high distribution of habitats across all the connectivity corridors. This alternative is the only alternative that would manage the potential connectivity corridor that is located in the Bend-Redmond geographic area along Highway 126, with an emphasis for pronghorn. This emphasis, coupled with the historic vegetation management theme would provide the greatest opportunity to facilitate movements of wildlife (especially pronghorn) between the larger more contiguous BLM-administered lands in the southern part of the planning area and Smith Rock geographic area and the National Grasslands to the north.

Alternative 4 provides the 4th highest amount of lands to be managed with a primary wildlife emphasis and provides the 2nd highest amount of lands to be managed with a general emphasis for pronghorn. Alternative 4 would allocate 57,746 acres for managing with a primary wildlife emphasis, 5,628 acres with a secondary wildlife emphasis, and 103,805 acres with a general emphasis for pronghorn. This alternative would provide a low distribution of pronghorn habitats across the planning area that would be managed with a primary or secondary wildlife emphasis for pronghorn. Alternative 4 would manage 5,694 acres of pronghorn connectivity corridors with a primary wildlife emphasis, 2,368 acres with a secondary wildlife emphasis and 13,044 acres with a general emphasis for pronghorn (Table 2-9, Alt 4 Summary of Wildlife Migration and Connectivity Corridors). This alternative would provide a moderately low amount of lands and a moderately low distribution of habitats that would be managed with an emphasis for pronghorn.

Alternative 5 provides the 6th highest amount of lands to be managed with a primary wildlife emphasis and provides the 5th highest amount of lands to be managed with a general emphasis for pronghorn. Alternative 5 would allocate 34,206 acres for managing with a primary wildlife emphasis, 65,304 acres with a secondary wildlife emphasis, and 67,680 acres with a general emphasis for pronghorn. This alternative would provide a low distribution of pronghorn habitats across the planning area that would be managed with a primary wildlife emphasis for pronghorn and would provide a moderately low distribution when secondary wildlife emphasis areas are also considered. Alternative 5 would also manage 2,321 acres of pronghorn connectivity corridors with a primary

wildlife emphasis, 8,963 acres with a secondary wildlife emphasis and 9,825 acres with a general emphasis for pronghorn (Table 2-9, Alt 5 Summary of Wildlife Migration and Connectivity Corridors).. This alternative would provide a moderate amount of lands and a moderate distribution of habitats that would be managed with an emphasis for pronghorn. However, most (79 percent) of this emphasis is located in the secondary wildlife emphasis category.

Alternative 6 provides the 5th highest amount of lands to be managed with a primary wildlife emphasis and provides the 4th highest amount of lands to be managed with a general emphasis for pronghorn. This alternative would allocate 55,660 acres for managing with a primary wildlife emphasis, 11,784 acres with a secondary wildlife emphasis, and 99,748 acres with a general emphasis for pronghorn. This alternative would provide a low distribution of pronghorn habitats across the planning area that would be managed with a primary or secondary wildlife emphasis for pronghorn. Alternative 6 would also manage 6,582 acres of pronghorn connectivity corridors with a primary wildlife emphasis, 3,866 acres with a secondary wildlife emphasis, and 10,659 acres with a general emphasis for pronghorn (Table 2-9, Alt 6 Summary of Wildlife Migration and Connectivity Corridors). This alternative would manage a moderate amount of connectivity habitat and a moderate distribution of habitats that would be managed with an emphasis for pronghorn. This alternative, like Alternative 3, would manage some of the potential connectivity corridor located along Highway 126 with an emphasis for pronghorn, and would facilitate wildlife movement between the Bend-Redmond geographic area to the south and the Smith Rock geographic areas and the National Grasslands to the north.

Alternative 7 would provide the 2nd highest amount of lands to be managed with a primary wildlife emphasis and provides the 2nd lowest amount of lands to be managed with a general emphasis for pronghorn. This alternative would allocate 76,842 acres for managing with a primary wildlife emphasis, 25,350 acres with a secondary wildlife emphasis, and 64,997 acres with a general emphasis for pronghorn. This alternative would provide a moderate distribution of pronghorn habitats across the planning area that would be managed with a primary wildlife emphasis for pronghorn and would provide a moderately high distribution when secondary wildlife emphasis areas are also considered. Alternative 7 would manage 12,562 acres of pronghorn connectivity corridors with a primary wildlife emphasis, 2,392 acres with a secondary wildlife emphasis and 10,659 acres with a general emphasis for pronghorn (Table 2-9, Alt 7 Summary of Wildlife Migration and Connectivity Corridors). This alternative would manage a moderately high amount of connectivity habitat with a moderately high distribution of habitats that would be managed with an emphasis for pronghorn. This alternative would not manage for pronghorn in the Millican Plateau geographic area corridor that connects to the Mayfield area and may limit pronghorn movements between the two areas.

Transportation – The assessment of potential effects to pronghorn habitats was compared using a road influence index (RII) rather than a habitat effectiveness index. The amount of habitat that is influenced by arterial and collector roads is calculated based on the percentage of the habitat affected or influenced by motorized travel. Generally speaking, a lower road influence percentage is likely to have a lower amount of human influence on pronghorn habitat than a higher percentage.

Alternative 2 would classify arterial and collector roads so their potential effects on pronghorn year-round habitats would result in an average road influence of 31 percent across the planning area on BLM-administered lands and would constitute a moderate level of human influence. Even though local roads are not yet factored in, having a moderate RII score indicates that BLM has some management flexibility to manage local roads with a secondary wildlife emphasis for pronghorn. Of the nine geographic areas that contain pronghorn habitats, three (Badlands, Prineville and Prineville Reservoir) would retain less than 30 percent level of road influence on pronghorn habitats and

maintain a high amount of management flexibility to manage local roads and achieve a primary wildlife emphasis level for pronghorn. However, these three geographic areas contain only 19 percent of the pronghorn habitat in the planning area that is located on BLM-administered lands. The Badlands would include nearly all (9,367 acres) pronghorn habitat with a primary wildlife emphasis for pronghorn, and Prineville would manage 76 percent (2,380 acres) and Prineville Reservoir would manage 100 percent (1,552 acres) of pronghorn habitats within their geographic areas with a secondary wildlife emphasis. Six geographic areas (Bend-Redmond, Horse Ridge, Mayfield, Millican Plateau, North Millican and South Millican) would manage arterial and collector roads with a road influence between 30 percent and 50 percent, which would maintain a relatively high ability to manage local roads at a secondary wildlife emphasis level. However, Horse Ridge would be managed with a primary wildlife emphasis for pronghorn, which would probably require restrictions on many local roads and limitations on some collector roads to achieve a low level of human influence. In the Millican Plateau area, roads in Alternatives 1 and 2 would have a 33 percent level of influence on pronghorn habitats. This area is also part of the existing Millican OHV area and the trails would increase the level of influence that motorized vehicles have on pronghorn. Alternative 7 provides the least amount of habitat in this geographic area in a primary or secondary wildlife emphasis level, which includes winter range. There would be no geographic areas that would manage arterial and collector roads with a road influence greater than 50 percent.

Because of the reclassification of collectors to local roads, Alternatives 3-7 would provide the lowest amount of human influence on pronghorn when comparing the average potential effects of motorized travel routes across the entire planning area. Alternatives 3 - 7 would classify arterial and collector roads so their potential effects on pronghorn year-round habitats would result in an average road influence of 18 percent across the planning area on BLM-administered lands and result in an estimated low level of human influence. Even though local roads are not yet factored in, having a low RII score indicates that BLM has more management flexibility to manage local roads to emphasize pronghorn habitats with a primary wildlife emphasis. The Badlands provides the most stable habitat emphasis between the alternatives, but only has 9380 acres of suitable habitat. Horse Ridge contains over 19,000 acres and in Alternatives 3-7, only 8 percent of the habitat falls within the influence zone of roads. This is a 24 percent decrease from Alternatives 1 and 2. The Millican Plateau contains the largest amount (41,236 acres) of BLM administered lands that are suitable pronghorn habitats, and this area also has winter range. All 9 geographic areas that contain pronghorn habitats would manage arterial and collector roads with a road influence of less than 30 percent, which maintains a low level of human influence and retains a high amount of management ability to manage local roads to manage with a primary or secondary wildlife emphasis for pronghorn.

Table 4-19 Summary of Travel Management Designations in Pronghorn Habitat

Travel Management for Pronghorn Year Round Habitat	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Percent of habitat allocated to motorized travel	100%	98%	89%	98%	95%	88%	85%
Percent of habitat closed to year round motorized travel	<1%	2%	11%	2%	6%	12%	15%
Percent of habitat allocated to motorized trail use	73%	75%	63%	45%	65%	75%	58%
Percent of habitat allocated to year round motorized trail use	49%	75%	38%	43%	40%	50%	48%

Table 4-20 Wildlife Emphasis and Travel Management Designations in Pronghorn Habitat

	Wildlife Emphasis	Closed at Snow Depth	Ltd Road and Trails Seasonally	Ltd Roads/ Trails Year Round	Open Year Round	Ltd type of vehicle	Closed Year Round	Ltd Roads Only Seasonally	Ltd designated Roads Year Round
Alternative		**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**
Alt 1	Primary	0	26978	16560	32	0	20	0	26788
	Secondary	10504	0	10	994	0	0	0	18138
	General	0	13504	17785	36292	0	0	0	0
Alt 2	Primary	0	0	0	0	0	3536	396	38572
	Secondary	0	0	80	0	0	0	0	9766
	General	0	0	125558	0	0	0	0	354
Alt 3	Primary	0	41400	1176	0	0	18240	396	20254
	Secondary	10486	0	4136	0	0	0	0	23411
	General	0	0	48742	0	0	0	0	0
Alt 4	Primary	0	2935	1709	0	0	2311	9379	43729
	Secondary	0	0	0	0	0	548	0	3875
	General	0	0	70953	0	0	0	0	32839
Alt 5	Primary	0	1841	134	0	0	8846	48	24409
	Secondary	0	40231	241	0	0	373	0	24858
	General	0	0	67311	0	0	0	0	0
Alt 6	Primary	0	24135	38	0	0	20499	0	12063
	Secondary	0	0	1465	0	0	0	0	10305
	General	0	17354	82433	0	0	0	0	0
Alt 7	Primary	0	17398	64086	0	0	24347	0	19175
	Secondary	0	0	16823	0	0	926	0	24926
	General	0	0	0	0	0	525	0	4

Recreation – The assessment for pronghorn was done slightly different than for deer, elk and sage grouse, and therefore will be discussed in a slightly different manner. The comparisons are made relative to the amount of habitat that is influenced by roads (arterial and collectors) and having a lower road influence percentage is better for pronghorn than a higher one.

Alternative 2 would identify the lowest amount (25 percent, 42,625 acres) of travel management allocations that could have a positive effect on pronghorn in year round habitat. In order to mitigate the effects of motorized travel on pronghorn in year-round habitat, Alternative 2 would primarily use the "Limited to Roads Only Year Round" travel management designation (See Table 4-19, Summary of Travel Management Designations in Pronghorn Habitat).

Alternative 3 would identify the highest amount (62 percent, 103,701 acres) of travel management allocations that could have a positive effect on pronghorn in year round habitat. Alternative 3 would primarily use the travel management designations "Limited to Roads and Trails Seasonally" and "Limited to Roads Only Year Round" to mitigate the effects of motorized travel to pronghorn in year round habitat.

Alternative 4 would identify the third highest amount (57 percent, 95,615 acres) of travel management allocations that could have a positive effect on pronghorn in year round habitat. Alternative 4 primarily uses "Limited to Roads Only Year Round" travel management designation to mitigate the effects of motorized travel to pronghorn in year round habitat.

Alternative 5 would identify the second highest amount (60 percent, 100,606 acres) of travel management allocations that could have a positive effect on pronghorn in year round habitat. Alternative 5 primarily uses travel management designations "Limited to Roads and Trails Seasonally" and "Limited to Roads Only Year Round" to mitigate the effects of motorized travel to pronghorn in year round habitat.

Alternative 6 would identify the second lowest amount (50 percent, 84,357 acres) of travel management allocations that could have a positive effect on pronghorn in year round habitat. Alternative 6 primarily uses "Limited to Roads and Trails Seasonally" to mitigate the effects of motorized travel to pronghorn in year round habitat, and would close the second highest amount of habitat to motorized travel year round.

Alternative 7 would identify the fourth highest amount (52 percent, 87,301 acres) of travel management allocations that could have a positive effect on pronghorn in year round habitat. Alternative 7 primarily uses "Limited to Roads Only Year Round" to mitigate the effects of motorized travel to pronghorn in year round habitat, and would close the highest amount of habitat to motorized travel year round. In the North Millican geographic area, the primary wildlife emphasis guidelines could result in more habitats being managed to benefit pronghorn use than is described in the analysis above (See Table 4-20, Wildlife Emphasis and Travel Management Designations in Pronghorn Habitat).

Land Ownership – Alternative 2 would allocate 92 percent of all pronghorn habitats (155,016 acres) as Z – 1, 4 percent (6,178 acres) would be designated Z – 2, and 2 percent (4,046 acres) would be designated Z-3. Approximately 2 percent (3,028 acres) would be identified for community expansion. Of the acres identified for retention, approximately 31,545 acres would be managed with a primary wildlife emphasis, and of the acres identified for exchange, approximately 964 acres would be managed with a primary wildlife emphasis.

Alternative 3 would allocate 93 percent of all pronghorn habitats (156,081 acres) as Z – 1, 6 percent (10,057 acres) would be designated Z – 2, and 1 percent (1,518 acres) would be designated Z-3. Less than one percent (611 acres) would be identified for community expansion. Of the acres identified for retention, approximately 76,767 acres would be managed with a primary wildlife emphasis, and of the acres identified for exchange, approximately 4,317 acres would be managed with a primary wildlife emphasis. Of the 1,518 acres designated Z – 3, 26 percent would be managed with a primary wildlife emphasis.

Alternative 4 would allocate 87 percent of all pronghorn (145914 acres) as Z – 1, 9 percent (14580 acres) would be designated Z – 2, and 3 percent (4683 acres) would be designated Z-3. Approximately 2 percent (3090 acres) would be identified for community expansion. Of the acres identified for retention, approximately 51,303 acres would be managed with a primary wildlife emphasis, and of the acres identified for exchange, approximately 6,574 acres would be managed with a primary wildlife emphasis. Of the 1,518 acres designated Z – 3, 435 acres would be managed with a primary wildlife emphasis.

Alternative 5 would allocate 80 percent of all pronghorn habitats (135261 acres) as Z – 1, 18 percent (30436 acres) would be designated Z – 2, and less than one percent (755 acres) would be designated Z-3. Approximately 1 percent (1826 acres) would be identified for community expansion. Of the acres identified for retention, approximately 31,679 acres would be managed with a primary wildlife emphasis, and of the acres identified for exchange, approximately 2,793 acres would be managed with a primary wildlife emphasis. All of the acres designated Z – 3 would be managed with a primary wildlife emphasis.

Alternative 6 would allocate 95 percent of all pronghorn habitats (159347 acres) as Z – 1, 2 percent (3999 acres) would be designated Z – 2, and 2 percent (4,046 acres) would be designated Z-3. Less than one percent (1003 acres) would be identified for community expansion. Of the acres identified for retention, approximately 56,609 acres would be managed with a primary wildlife emphasis, and of the acres identified for exchange, approximately 87 acres would be managed with a primary wildlife emphasis.

Alternative 7 would allocate 89 percent of all pronghorn habitats (149396 acres) as Z – 1, 8 percent (13125 acres) would be designated Z – 2, and 3 percent (4,721 acres) would be designated Z-3. Less than one percent (959 acres) would be identified for community expansion. Of the acres identified for retention, approximately 70,819 acres would be managed with a primary wildlife emphasis, and of the acres identified for exchange, approximately 6,916 acres would be managed with a primary wildlife emphasis. Of the 1,518 acres designated Z – 3, 26 percent would be managed with a primary wildlife emphasis.

Military Training – Alternative 2 would allocate 22,016 acres (13 percent of all pronghorn habitats) for military uses. All of the 22,016 acres of pronghorn habitats that would be affected by military uses would be managed with a general wildlife emphasis.

All of the total 22,016 acres that would be allocated for military activities would be designated for annual use and none would be used on a rotational basis. Of the total 22,016 acres allocated for annual use, 18 percent (3,890 acres) would allow track vehicles, 46 percent (10,152 acres) would allow tread vehicles and 36 percent (7,975 acres) would allow only foot activity off of designated roads. For a complete breakdown of the total pronghorn habitats affected by annual use versus rotational use and their associated use type (i.e., track, tread or foot) see Table 4-21.

Alternative 3 would allocate 20,697 acres (12 percent of all pronghorn habitats) for military uses. For the 20,697 acres of pronghorn habitats that would be affected by military uses, none would be managed with a primary wildlife emphasis, while 33 percent (6,766 acres) would be managed with a secondary and 67 percent (13,931 acres) with a general wildlife emphasis.

All of the total 20,697 acres that would be allocated for military activities would be designated for annual use and none would be used on a rotational basis. Of the total 20,697 acres allocated for annual use, 19 percent (3,890 acres) would allow track vehicles, 49 percent (10,147 acres) would allow only tread vehicles and 32 percent (6,660 acres) would allow only foot activity off of designated roads. For a complete breakdown of the total pronghorn habitats affected by annual use versus rotational use and their associated use type (i.e., track, tread or foot) see Table 4-21.

The direct effect of all proposed military activities in Alternative 4 on pronghorn habitats would be the allocation of the least amount of acres of all alternatives for military uses. This alternative would allocate 16,548 acres (10 percent of all pronghorn habitats). Since the use for tread and track vehicles is the same as identified in Alternatives 2,3,5, and 6, it would be expected that this alternative would concentrate a similar amount of use in a smaller area. For the 16,548 acres of pronghorn habitats that would be affected by military uses, none would be managed with a primary or a secondary wildlife emphasis, but all would be managed with a general wildlife emphasis.

All of the total 16,548 acres that would be allocated for military activities would be designated for annual use and none would be used on a rotational basis. Of the total 16,548 acres allocated for annual use, 24 percent (3,890 acres) would allow track vehicles, 61 percent (10,146 acres) would allow only tread vehicles and 15 percent (2,512 acres) would allow only foot activity off of designated roads. This represents the smallest amount of allowable foot activity of all alternatives. For a complete breakdown of the total pronghorn habitats affected by annual use versus rotational use and their associated use type (i.e., track, tread or foot) see Table 4-21.

Alternative 5 would allocate 22,012 acres (13 percent of all pronghorn habitats) for military uses. For the 22,012 acres of pronghorn habitats that would be affected by military uses, none would be managed with a primary or a secondary wildlife emphasis, but all would be managed with a general wildlife emphasis.

All of the total 22,012 acres that would be allocated for military activities would be designated for annual use and none would be used on a rotational basis. Of the total 22,012 acres allocated for annual use, 18 percent (3,891 acres) would allow track vehicles, 46 percent (10,149 acres) would allow only tread vehicles and 36 percent (7,973 acres) would allow only foot activity off of designated roads. For a complete breakdown of the total pronghorn habitats affected by annual use versus rotational use and their associated use type (i.e., track, tread or foot) see Table 4-21.

Alternative 6 would allocate of the most acres (both annual and rotational) for military use. This alternative allocates 44,246 acres (27 percent of all pronghorn habitats). For the 44,246acres of pronghorn habitats that would be affected by military uses, 4 percent (1,551 acres) would be managed with a primary, 4 percent (1,388 acres) with a secondary wildlife emphasis and 92 percent (41307 acres) would be managed with a general wildlife emphasis.

Of the total 44246 acres that would be allocated for military activities, 64 percent (28,490 acres) would be designated for annual use and 36 percent (15,756 acres) would be used

on a rotational basis. Of the total 22,012 acres allocated for annual use, 18 percent (3,890 acres) would allow track vehicles, 46 percent (10,156 acres) would allow only tread vehicles and 36 percent (7,972 acres) would allow only foot activity. Of the total 15,755 acres allocated for rotational use, none would allow track vehicles and 42 percent (6,660 acres) would allow only tread vehicles. This alternative allows the greatest amount (58 percent) of foot only off designated roads (9,095 acres). For a complete breakdown of the total pronghorn habitats affected by annual use versus rotational use and their associated use type (i.e., track, tread or foot) see Table 4-21.

Although this alternative allocates the most acres to military use activities, the actual amount of use for tread and track vehicles is similar to other alternatives. As a result, the impacts from these types of use would be spread out over a larger area. This alternative also provides more than 15,000 acres of rotational training sites which, although annual areas remain available, provides more opportunities for locating training. Overall, this would be expected to reduce the impacts on annual sites.

Alternative 7 would allocate 39,674 acres (24 percent of all pronghorn habitats) for military uses. For the 39,674 acres of pronghorn habitats that would be affected by military uses, 3 percent (1,135 acres) would be managed with a primary, 16 percent (6,563 acres) with a secondary and 92 percent (31,977 acres) with a general wildlife emphasis.

Of the total 39,674 acres that would be allocated for military activities, 62 percent (24,749 acres) would be designated for annual use and 38 percent (14,925 acres) would be used on a rotational basis. Of the total 14,925 acres allocated for annual use, 23 percent (5,767 acres) would allow track vehicles, 37 percent (9,094 acres) would allow only tread vehicles and 40 percent (9,888 acres) would allow only foot activity. Of the total 14,925 acres allocated for rotational use, none would allow track vehicles, 39 percent (5,829 acres) would allow only tread vehicles and 61 percent (9,096 acres) would allow only foot activity off of designated roads. For a complete breakdown of the total pronghorn habitats affected by annual use versus rotational use and their associated use type (i.e., track, tread or foot) see Table 4-21.

Although this alternative allocates the second highest number of acres to military use activities, the actual amount of use for tread and track vehicles is similar to other alternatives. As a result, the impacts from these types of use would be spread out over a larger area. This alternative also provides almost 15,000 acres of rotational training sites which, although annual areas remain available, provides more opportunities for locating training. Overall, this would be expected to reduce the impacts on annual sites.

Vegetation Management – Pronghorn are adapted to open grasslands and sagebrush flats and typically do not use areas that are wooded or forested. However, in certain parts of the planning area pronghorn have been using some woodland areas. This is probably due to the pronghorn adapting to the slow conversion of shrub-steppe habitats toward juniper woodlands. The pronghorn continue to use the more open shrub-steppe habitats that are located within the woodlands. For this analysis shrub-steppe habitats are considered suitable habitats and juniper woodlands are considered unsuitable habitats. Alternatives 2, 4 and 5 could provide as low as 61,165 acres of suitable shrub-steppe habitats and up to 103,853 acres of unsuitable juniper habitats. Alternatives 3, 6 and 7 could provide up to 80,290 acres of suitable shrub-steppe habitats and as low as 84,759 acres of unsuitable juniper habitats. Alternatives 3, 6 and 7 would provide the best management possibilities for improving pronghorn habitats.

Table 4-21 Comparison of Military Training in Pronghorn Habitat

Alternative	Yearly Use	Equipment Use	Acres	% of Total
1	**Annual**		**20,902**	
		Foot	8,771	42%
		Tread	8,201	39%
		Track	3,930	19%
2	**Annual**		**22,016**	
		Foot	7,975	36%
		Tread	10,152	46%
		Track	3,890	18%
3	**Annual**		**20,697**	
		Foot	6,660	32%
		Tread	10,147	49%
		Track	3,890	19%
4	**Annual**		**16,548**	
		Foot	2,512	15%
		Tread	10,146	61%
		Track	3,890	24%
5	**Annual**		**22,012**	
		Foot	7,973	18%
		Tread	10,149	46%
		Track	3,891	36%
6	**Total**		**44,246**	
	Annual		**28,490**	**64%**
		Foot	14,446	36%
		Tread	10,154	46%
		Track	3,890	18%
	Rotational		**15,756**	**36%**
		Foot	9,096	58%
		Tread	6,660	42%
7	**Total**		**39,674**	
	Annual		**24,749**	**62%**
		Foot	9,888	40%
		Tread	9,094	37%
		Track	5,767	23%
	Extended		**14,925**	**38%**
		Foot	9,096	61%
		Tread	5,829	39%

Riparian Source Habitats

The following discussion focuses on riparian-wetland areas as riparian source habitat for wildlife species. These areas along streams provide important habitat for numerous species and are important for maintaining and restoring water quality (For an additional discussion of the effects of the alternatives on riparian areas, refer to the *Hydrology* section in this chapter). In both the short- and long-term, managing riparian source habitat would be expected to maintain or increase the distribution and abundance of riparian-

dependent species. Continued direction from The Brothers/La Pine RMP includes protecting stream riparian areas to full vegetative potential, while added direction includes protecting and restoring special habitat components or features that contribute to the productivity of species. Additional guidance to maintain or improve habitats to support healthy, productive and diverse populations, also contributes to the expectation that riparian habitat would be expected to continue to improve in all geographic areas. As habitat improves, the species diversity and richness would also be expected to increase.

Wildlife Emphasis – Alternatives 2 – 7 would designate about 90 (846 acres) percent of the total riparian source habitats in La Pine, Millican Plateau, Prineville Reservoir, and Steamboat Rock to be managed as primary wildlife emphasis areas. These riparian source habitat would be maintained or improved to support healthy and diverse populations and communities of native plants and animals appropriate to riparian-wetland habitats. The allocation of an additional 3 percent of riparian habitat varies by alternative, and seven percent of the riparian area is allocated between general and secondary wildlife emphasis levels. However, as described in the Riparian and Hydrology section, there is significant emphasis in Alternatives 2-7 to support healthy and properly functioning hydrologic and riparian systems that would provide numerous incidental wildlife benefits regardless of the wildlife emphasis applied to the area.

Transportation – The analysis of transportation (motorized) travel effects on riparian source habitat (and associated wildlife species) varies by alternative. However, the increased amount of riparian source habitat that is allocated to be managed at a primary wildlife emphasis level, and the objective to maintain or improve all riparian-wetland habitat, decreases the proportion of riparian habitat that is anticipated to be influenced by roads in the long term (see Table 4-22, Wildlife Emphasis for Riparian Source Habitat). The degree to which recreation activities influence riparian habitats would also be lower for Alternatives 2 – 7 (see Table 4-23, Riparian Source Habitat Road Influence Index) than for Alternative 1.

Table 4-22 Wildlife Emphasis for Riparian Source Habitat

Geographic Area	Wildlife Emphasis Common to Alternatives 2-7	Existing Riparian Habitat Acres
Badlands	Primary	14.52
Bend/Redmond	General	9.34
Cline Buttes	General, Secondary	51.75
La Pine	Primary	49.45
Mayfield Pond	varies by alt	3.39
Millican Plateau	Primary	248.64
North Millican	varies by alt	25.02
Prineville Reservoir	Primary	81.98
Smith Rock	Primary	7.48
Steamboat Rock	Primary	443.77

Table 4-23 Riparian Source Habitat Road Influence Index

Geographic Area	Existing riparian habitat acres influenced by roads*	Existing riparian habitat acres	Proportion of riparian habitat influence by roads		Relative Influence rating**	Alt 1 Emphasis Level
Badlands	0	14.52	0	0%	Low	Primary
Bend/Redmond	2.16	9.34	0.23	23%	Low	General
Cline Buttes	7.08	51.75	0.14	14%	Low	General
La Pine	6.67	49.45	0.14	14%	Low	Primary
Mayfield Pond	2.14	3.39	0.63	63%	High	Secondary
Millican Plateau	119.31	248.64	0.48	50%	Mod	Secondary,General
North Millican	2.76	25.02	0.11	11%	Low	Primary
Prineville Reservoir	15.16	81.98	0.19	19%	Low	Primary,General
Smith Rock	0	7.48	0	0%	Low	Primary
Steamboat Rock	15.74	443.77	0.04	4%	Low	Primary, General

* Habitat influence index addresses edge effects, snag and downed log reduction road-associated factors, and includes a buffer around the roads to address the degree of woodcutting along roads.
**Relative rating: determines the extent that recreation activities influence riparian habitats (< 30% = low level of human influence; 30 - 50% = moderate level of human influence; >50% = high level of human influence).

Shrub-Steppe Source Habitats

Wildlife Emphasis – Alternative 2 would provide the lowest amount (22 percent) of lands to be managed with a primary wildlife emphasis and provide the highest amount (75 percent) of lands to be managed with a general emphasis for shrub-steppe habitat. When primary and secondary wildlife emphasis areas are combined this alternative would provide the lowest amount (25 percent) of lands that would be allocated with at least a secondary wildlife emphasis for wildlife. Subsequently, this alternative would provide a moderately low distribution of shrub-steppe habitat across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 3 would provide the highest amount (80 percent) of lands to be managed with a primary wildlife emphasis and provide the lowest amount (8 percent) of lands to be managed with a general emphasis for shrub-steppe habitat. When primary and secondary wildlife emphasis areas are combined this alternative would provide the highest amount (93 percent) of lands that would be allocated with at least a secondary wildlife emphasis for wildlife. This alternative would provide a high distribution of shrub-steppe habitat across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 4 would provide the third lowest amount (43 percent) of lands to be managed with a primary wildlife emphasis and provide the second highest amount (44 percent) of lands to be managed with a general emphasis for shrub-steppe habitat. When primary and secondary wildlife emphasis areas are combined this alternative would provide the second lowest amount (56 percent) of lands that would be allocated with at least a secondary wildlife emphasis for wildlife. This alternative would provide a moderate distribution of shrub-steppe habitat across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 5 would provide the second lowest amount (27 percent) of lands to be managed with a primary wildlife emphasis and provide the second lowest amount (19 percent, tied with Alternative 1) of lands to be managed with a general emphasis for shrub-steppe habitat. When primary and secondary wildlife emphasis areas are combined this alternative would provide the third highest amount (81 percent, tied with Alternative 1) of lands that would be allocated with at least a secondary wildlife emphasis for wildlife. This alternative would provide a high distribution of shrub-steppe habitat across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 6 would provide the third highest amount (64 percent, tied with Alternative 1) of lands to be managed with a primary wildlife emphasis and provide the third highest amount (32 percent) of lands to be managed with a general emphasis for shrub-steppe habitat. When primary and secondary wildlife emphasis areas are combined this alternative would provide the third lowest amount (68 percent) of lands that would be allocated with at least a secondary wildlife emphasis for wildlife. This alternative would provide a moderately high distribution of shrub-steppe habitat across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 7 would provide the second highest amount (78 percent) of lands to be managed with a primary wildlife emphasis and provide the second lowest amount (14 percent) of lands to be managed with a general emphasis for shrub-steppe habitat. When primary and secondary wildlife emphasis areas are combined this alternative would provide the second highest amount (86 percent) of lands that would be allocated with at least a secondary wildlife emphasis for wildlife. This alternative would provide a high distribution of shrub-steppe habitat across the planning area that would be managed with at least a secondary wildlife emphasis.

Transportation – The analysis of transportation (motorized travel) effects on shrub-steppe source habitat (and associated wildlife species) includes all mapped roads (arterial, collector and local roads) and motorized OHV trails in the Millican Valley OHV trail system. In some geographic areas this calculation underestimates the effects of motorized travel because not all roads and trails are mapped and therefore are not included in the analysis. Also, some areas would be open to cross-country travel and some areas would be seasonally closed, and these areas have not been included.

Alternatives 1, 2, 4, and 5 would manage arterial and collector roads so their effects on shrub-steppe source habitats would result in an average road influence of 36 percent across the planning area on BLM-administered lands and results in a moderate level of human influence. Local roads were also included in this analysis, so having a moderate RII score indicates that BLM has a relatively high ability to manage local roads to have a low level of human influence on shrub-steppe source habitats.

Of the 14 geographic areas that contain shrub-steppe source habitats, three (Badlands, Northwest and Steamboat Rock) would retain less than a 30 percent level of road influence on shrub-steppe source habitats and maintain a high ability to manage local roads with a low level of human influence on shrub-steppe source habitats. However, these three geographic areas contain only seven percent of the shrub-steppe source habitats in the planning area that is located on BLM-administered lands and most (63 percent) of this is located in the Badlands WSA.

Ten geographic areas (Cline Buttes, Horse Ridge, Mayfield, Millican Plateau, North Millican, Prineville, Prineville Reservoir, Smith Rock, South Millican and Tumalo) would manage arterial and collector roads with a road influence between 30 percent and 50 percent, which would maintain a relatively high ability to manage local roads at a moderate level of human influence, especially since local roads are included in this

analysis. These ten areas would contain 90 percent of the shrub-steppe source habitats in the planning area that are located on BLM-administered lands.

The Bend-Redmond geographic area would be the only geographic area that would manage arterial and collector roads with a road influence greater than 50 percent resulting in a high level of human influence. This would create a limited ability to manage local roads with at least a moderate level of human influence. The Bend-Redmond geographic area contains only three percent of the shrub-steppe source habitats in the planning area that are located on BLM-administered lands.

Alternatives 3, 6, and 7 would manage arterial and collector roads so their effects on shrub-steppe source habitats would result in an average road influence of 32 percent across the planning area on BLM-administered lands and results in a moderate level of human influence. Local roads were also included in this analysis, so having a moderate RII score indicates that BLM has a relatively high ability to manage local roads to have a low level of human influence on shrub-steppe source habitats.

Of the 14 geographic areas that contain shrub-steppe source habitats, five (Badlands, Horse Ridge, Prineville Reservoir, Northwest and Steamboat Rock) would retain less than a 30 percent level of road influence on shrub-steppe source habitats and maintain a high ability to manage local roads with a low level of human influence on shrub-steppe source habitats. These five geographic areas contain 36 percent of the shrub-steppe source habitats in the planning area that is located on BLM-administered lands.

Seven geographic areas (Cline Buttes, Mayfield, Millican Plateau, North Millican, Prineville, Smith Rock and South Millican) would manage arterial and collector roads with a road influence between 30 percent and 50 percent, which would maintain a relatively high ability to manage local roads at a moderate level of human influence, especially since local roads are included in this analysis. These seven geographic areas would contain 60 percent of the shrub-steppe source habitats in the planning area that are located on BLM-administered lands.

The Bend-Redmond and Tumalo geographic areas would be the only geographic areas that would manage arterial and collector roads with a road influence greater than 50 percent, resulting in a high level of human influence. This would create a limited ability to manage local roads with at least a moderate level of human influence. These two geographic areas would contain four percent of the shrub-steppe source habitats in the planning area that are located on BLM-administered lands.

Table 4-24 Summary of Travel Management Designations in Shrub-Steppe Source Habitat

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Percent of habitat allocated to motorized travel	99%	96%	88%	95%	90%	83%	84%
Percent of habitat closed to year round motorized travel	1%	4%	12%	5%	10%	17%	16%
Percent of habitat allocated to motorized trail use	76%	75%	57%	56%	60%	57%	52%

Recreation – Of all alternatives, Alternative 1 would allocate the lowest amount of travel management allocations that could have a positive effect on wildlife in shrub-steppe source habitat (24 percent; see Table 4-24, Summary of Travel Management Designations in Shrub-Steppe Source Habitat and Table 4-25, Wildlife Emphasis and Travel Management Designations in Shrub-Steppe Source Habitat). Of the habitat that would be managed positively for wildlife, this alternative uses travel management designation "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to wildlife in shrub-steppe habitats.

Of all alternatives, Alternative 2 would allocate the second lowest amount of travel management allocations that could have a positive effect on wildlife in shrub-steppe source habitat (25 percent). Of the habitat that would be managed positively for wildlife, this alternative uses travel management designation "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to wildlife in shrub-steppe habitats.

Of all alternatives, Alternative 3 would allocate the second highest amount of travel management allocations that could have a positive effect on wildlife in shrub-steppe source habitat (42 percent). Of the habitat that would be managed positively for wildlife, this alternative uses travel management designation "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to wildlife in shrub-steppe habitats.

Of all alternatives, Alternative 4 would allocate the third highest amount of travel management allocations that could have a positive effect on wildlife in shrub-steppe source habitat (39 percent). Of the habitat that would be managed positively for wildlife, this alternative uses travel management designation "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to wildlife in shrub-steppe habitats.

Of all alternatives, Alternative 5 would allocate the third lowest amount of travel management allocations that could have a positive effect on wildlife in shrub-steppe source habitat (34 percent). Of the habitat that would be managed positively for wildlife, this alternative uses travel management designation "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to wildlife in shrub-steppe habitats.

Of all alternatives, Alternative 6 would allocate the fourth highest amount of travel management allocations that could have a positive effect on wildlife in shrub-steppe source habitat (35 percent). Of the habitat that would be managed positively for wildlife, this alternative uses travel management designation "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to wildlife in shrub-steppe habitats.

Of all alternatives, Alternative 7 would allocate the highest amount of travel management allocations that could have a positive effect on wildlife in shrub-steppe source habitat (44 percent habitat). Of the habitat that would be managed positively for wildlife, this alternative uses travel management designation "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to wildlife in shrub-steppe habitats.

Land Ownership – Alternative 1 would allocate 67 percent of shrub-steppe source habitat as Z – 1, 31 percent as Z – 2, and two percent as Z – 3. Approximately 2 percent has been identified for community expansion. Of the 73,905 acres identified for retention, 81 percent would be managed with a primary wildlife emphasis; 34 percent of acres available for exchange would be managed with a primary wildlife emphasis; and 23 percent would be managed with a primary wildlife emphasis.

Table 4-25 Wildlife Emphasis and Travel Management Designations in Shrub-Steppe Source Habitat

	Wildlife Emphasis	Closed at Snow Depth	Ltd Road and Trails Seasonally	Ltd Roads/ Trails Yr Rnd	Open Year Round	Ltd type of vehicle	Closed Yr Rnd	Ltd Rds Only Seasonally	Ltd designated rds yr rnd
Alternative		**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**
Alt 1	Primary	0	32777	15720	2357	0	1419	0	18784
	Secondary	4376	45	969	6847	0	18	0	6176
	General	0	0	7977	12943	0	186	0	2
Alt 2	Primary	0	943	1	0	0	4449	0	19480
	Secondary	0	0	16	0	0	0	0	3230
	General	0	0	82308	0	0	4	0	169
Alt 3	Primary	0	46781	2424	0	0	13315	1821	23626
	Secondary	4740	39	81	0	0	0	2	8944
	General	0	0	8560	0	227	4	0	29
Alt 4	Primary	0	484	48	0	0	4992	5695	36150
	Secondary	0	12984	27	0	0	325	0	1130
	General	0	14	48470	0	224	6	4	45
Alt 5	Primary	0	771	12	0	0	10793	5203	11344
	Secondary	0	43840	4	0	0	163	0	15439
	General	0	0	20795	0	0	55	0	30
Alt 6	Primary	0	27982	56	0	0	18135	8598	16039
	Secondary	0	2	0	0	0	209	0	4117
	General	0	13878	21265	0	273	12	0	29
Alt 7	Primary	0	13950	28083	0	0	16639	4111	23650
	Secondary	0	0	293	0	0	410	12	8110
	General	0	0	15024	0	0	347	0	30

Alternative 2 would allocate 94 percent of shrub-steppe source habitat as Z – 1, four percent as Z – 2, and two percent as Z – 3. Approximately one percent has been identified for community expansion. Of the acres identified for retention, 22 percent would be managed with a primary wildlife emphasis, 1,974 acres of exchange lands would be managed with a primary wildlife emphasis and of the 1620 acres identified for disposal, 14 percent would be managed with a primary wildlife emphasis. Of the 826 acres identified for community expansion 13 percent would be managed with a primary wildlife emphasis.

Alternative 3 would allocate 91 percent of shrub-steppe source habitat as Z – 1, seven percent as Z – 2, and one percent as Z – 3. About 560 acres have been identified for community expansion. Approximately 82 percent of the acres identified for retention, 66 percent of the acres identified for exchange and 9 percent of the acres identified for disposal would be managed with a primary wildlife emphasis. Of the 560 acres identified for community expansion 29 percent would be managed with a primary wildlife emphasis.

Alternative 4 would allocate 89 percent of shrub-steppe source habitat as Z – 1, 10 percent as Z – 2, and less than one percent (937 acres) as Z – 3. Roughly one percent has been identified for community expansion. Approximately 43 percent of the acres identified for retention, 38 percent of the acres identified for exchange, and 83 percent of the acres identified for disposal would be managed with a primary wildlife emphasis.

Alternative 5 would allocate 82 percent of shrub-steppe source habitat as Z – 1, 16 percent as Z – 2, and one percent as Z – 3. Roughly one percent has been identified for community expansion. Approximately 28 percent of the acres identified for retention, 19 percent of the acres identified for exchange and 67 percent of the acres identified for disposal would be managed with a primary wildlife emphasis. Of the 937 acres identified for community expansion, 22 percent would be managed with a primary wildlife emphasis.

Alternative 6 would allocate 90 percent of shrub-steppe source habitat as Z – 1, eight percent as Z – 2, and 2 percent as Z – 3. Approximately one percent has been identified for community expansion. Of the acres identified for retention, approximately 63 percent would be managed with a primary wildlife emphasis, as would the 6786 acres of exchange lands, and the 1196 acres of disposal lands. Of the 869 acres identified for community expansion, 28 percent would be managed with a primary wildlife emphasis.

Alternative 7 would allocate 86 percent (95332 acres) of shrub-steppe source habitat as Z –1, 11 percent as Z – 2, and 2 percent as Z – 3. Approximately one percent has been identified for community expansion.

Of the 95332 acres identified for retention, 79 percent would be managed with a primary wildlife emphasis and 75 percent of the acres identified for exchange would be managed with a primary wildlife emphasis. In addition, 68 percent of the acres identified for disposal would be managed with a primary wildlife emphasis, as would 532 of the acres identified for community expansion.

Military Training – Alternative 2 would allocate 2,868 acres for military uses. All of the acres of shrub-steppe habitats that would be affected by military uses would be managed with a general wildlife emphasis, and all would be designated for annual use and none would be used on a rotational basis. The military would use track vehicles on 1 percent (38 acres), tire vehicles on 36 percent (1,206 acres), and foot activity off designated trails on 63 percent (1,804 acres). For a complete breakdown of the total shrub-steppe habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-26.

Alternative 3 would allocate 2,059 acres for military uses. All of the acres of shrub-steppe habitats that would be affected by military uses would be managed with a general wildlife emphasis. Of the total 2,059 acres that would be allocated for military activities, all would be designated for annual use and none would be used on a rotational basis. The military would use track vehicles on 2 percent (38 acres), tire vehicles on 36 percent (1,026 acres), and foot activity off designated trails on 63 percent (995 acres). For a complete breakdown of the total shrub-steppe habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-26.

Alternative 4 would allocate 2,196 acres for military uses. Of the acres of shrub-steppe habitats that would be affected by military uses would be managed with a general wildlife emphasis. Of the total 2,196 acres that would be allocated for military activities, all would be designated for annual use and none would be used on a rotational basis. The military would use track vehicles on 2 percent (38 acres), tire vehicles on 47 percent (1,026 acres), and foot activity off designated trails on 51 percent (1,131 acres). For a complete breakdown of the total shrub-steppe habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-26.

Alternative 5 would allocate 2,627 acres for military uses. Of the acres of shrub-steppe habitats that would be affected by military uses 33 percent would be managed with a secondary wildlife emphasis, and 67 percent would be managed with a general wildlife emphasis. Of the total 2,627 acres that would be allocated for military activities, all would be designated for annual use and none would be used on a rotational basis. The military would use track vehicles on 1 percent (38 acres), tire vehicles on 39 percent (1,026 acres), and foot activity off designated trails on 60 percent (1,563 acres). For a complete breakdown of the total shrub-steppe habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-26.

Alternative 6 would allocate 5,383 acres for military uses. Of the acres of shrub-steppe habitats that would be affected by military uses, 7 percent would be managed with a primary wildlife emphasis, 12 percent would be managed with a secondary wildlife emphasis and 81 percent would be managed with a general wildlife emphasis. Of the total 5,383 acres that would be allocated for military activities, 53 percent (2,863 acres) would be designated for annual use and 47 percent (2,520 acres) would be used on a rotational basis. Of the total 2863 acres allocated for annual use, 1 percent (38 acres) would allow track vehicles, 36 percent (1,206 acres) would allow only tire vehicles and 63 percent (1,799 acres) would allow only foot activity. Of the total 2,520 acres allocated for rotational use, 4 percent (92 acres) would allow track vehicles, 49 percent (1,237 acres) would allow only tire vehicles and 47 percent (1,190 acres) would allow only foot activity off of designated roads. For a complete breakdown of the total shrub-steppe habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-26.

Alternative 7 would allocate 5,471 acres for military uses. Of the acres of shrub-steppe habitats that would be affected by military uses, 4 percent (209 acres) would be managed with a primary wildlife emphasis, 32 percent would be managed with a secondary wildlife emphasis and 64 percent would be managed with a general wildlife emphasis. Of the total 5,471 acres that would be allocated for military activities, 61 percent (3,361 acres) would be designated for annual use and 39 percent (2,110 acres) would be used on a rotational basis. Of the total 3,361 acres allocated for annual use, 5 percent (174 acres) would allow track vehicles, 30 percent (1,019 acres) would allow only tire vehicles and 65 percent (2,168 acres) would allow only foot activity. Of the total acres allocated for extended use, none would allow track vehicles, 44 percent (919 acres) would allow only tire vehicles and 56 percent (1,190 acres) would allow only foot activity off of designated roads. For a complete breakdown of the total shrub-steppe habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-26.

Table 4-26 Comparison of Military Training in Shrub-Steppe Source Habitat

Alternative	Yearly Use	Equipment Use	Acres	% of Total
1	**Annual**		**2,271**	
		Foot	1,285	57%
		Tire	906	40%
		Track	80	3%
2	**Annual**		**2,868**	
		Foot	1,804	63%
		Tire	1,026	36%
		Track	38	1%
3	**Annual**		**2,059**	
		Foot	995	48%
		Tire	1,026	50%
		Track	38	2%
4	**Annual**		**2,196**	
		Foot	1,131	51%
		Tire	1,026	47%
		Track	38	2%
5	**Annual**		**2,627**	
		Foot	1,563	60%
		Tire	1,026	39%
		Track	38	1%
6	**Total**		**5,383**	
	Annual		**2,863**	**53%**
		Foot	1,799	63%
		Tire	1,026	36%
		Track	38	1%
	Rotational		**2,520**	**47%**
		Foot	1,190	47%
		Tire	1,237	49%
		Track	92	4%
7	**Total**		**5,471**	
	Annual		**3,361**	**61%**
		Foot	2,168	65%
		Tire	1,019	30%
		Track	174	5%
	Extended		**2,110**	**39%**
		Foot	1,190	56%
		Tire	919	44%

Vegetation Management – Some wildlife species such as the sage sparrow, sagebrush lizard and pygmy rabbit depend on healthy sagebrush habitats and live nowhere else. The conversion of shrub-steppe habitats to juniper or ponderosa pine woodlands is a loss of habitat to these and other species. For this analysis shrub-steppe habitats are considered suitable habitats and juniper woodlands are considered unsuitable habitats.

All alternatives would strive to maintain or improve the health and structure of shrub-steppe habitats. Alternative 1 would manage for slightly more shrub-steppe habitats than Alternatives 2, 4 and 5 by removing young juniper from historically shrub-steppe habitat on approximately 35,000 acres. This would be less than the approach provided in Alternatives 3, 6 and 7 which could restore most young juniper woodlands back to shrub-steppe habitat. Alternatives 2, 4 and 5 would manage for current levels of suitable shrub-steppe habitats and unsuitable juniper habitats. This would result in approximately 47 percent less suitable shrub-steppe habitats and 63 percent more unsuitable juniper woodland habitats than could be provided in alternatives 3, 6 and 7. Subsequently, Alternatives 3, 6 and 7 could provide almost twice as much suitable shrub-steppe habitats as Alternatives 2, 4 and 5, by restoring shrub-steppe habitats in areas currently occupied by young juniper.

Juniper Woodland Source Habitats

Wildlife Emphasis – Alternative 2 would provide the second lowest amount (26 percent) of lands to be managed with a primary wildlife emphasis and provide the highest amount (70 percent) of lands to be managed with a general emphasis for juniper woodland habitats. When primary and secondary wildlife emphasis areas are combined this alternative would provide the lowest amount (30 percent) of lands allocated for the benefit of wildlife. Subsequently, this alternative would provide a poor distribution of juniper woodlands across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 3 would provide the highest amount (38 percent) of lands to be managed with a primary wildlife emphasis and provide the lowest amount (45 percent) of lands to be managed with a general emphasis for Juniper woodland habitats. When primary and secondary wildlife emphasis areas are combined this alternative would provide the highest amount (55 percent) of lands that would be allocated with at least a secondary wildlife emphasis for wildlife. This alternative would provide a moderate distribution of juniper woodlands across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 4 would provide the third highest amount (33 percent) of lands to be managed with a primary wildlife emphasis and provide the second highest amount (63 percent, tied with Alternative 6) of lands to be managed with a general emphasis for Juniper woodland habitats. When primary and secondary wildlife emphasis areas are combined this alternative would provide the second lowest amount (37 percent, tied with Alternative 6) of lands that would be allocated with at least a secondary wildlife emphasis for wildlife. This alternative would provide a poor distribution of juniper woodlands across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 5 would provide the fourth highest amount (32 percent) of lands to be managed with a primary wildlife emphasis and provide the third lowest amount (53 percent) of lands to be managed with a general emphasis for juniper woodland habitats. When primary and secondary wildlife emphasis areas are combined this alternative would provide the second highest amount (47 percent) of lands that would be allocated with at least a secondary wildlife emphasis for wildlife. This alternative would provide a moderately high distribution of juniper woodlands across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 6 would provide the third lowest amount (28 percent) of lands to be managed with a primary wildlife emphasis and provide the second highest amount (63 percent) of lands to be managed with a general emphasis for juniper woodland habitats. When primary and secondary wildlife emphasis areas are combined this alternative would provide the second lowest amount (37 percent, tied with Alternative 4) of lands that would be allocated with at least a secondary wildlife emphasis for wildlife. This alternative would provide a moderate distribution of juniper woodlands across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 7 would provide the second highest amount (34 percent) of lands to be managed with a primary wildlife emphasis and provide the fourth highest amount (56 percent) of lands to be managed with a general emphasis for juniper woodland habitats. When primary and secondary wildlife emphasis areas are combined this alternative would provide the third highest amount (44 percent) of lands that would be allocated with at least a secondary wildlife emphasis for wildlife. This alternative would provide a moderately high distribution of juniper woodlands across the planning area that would be managed with at least a secondary wildlife emphasis.

Transportation – The analysis of transportation (motorized travel) effects on juniper woodland source habitats (and associated wildlife species) includes all mapped roads (arterial, collector and local roads) and motorized OHV trails in the Millican Valley OHV trail system. In some geographic areas this calculation underestimates the effects of motorized travel because not all roads and trails are mapped and therefore not included in the analysis. Also, some areas would be open to cross-country travel and some areas would be seasonally closed and these areas have not been included.

Alternatives 1, 2, 4 and 5 would manage arterial and collector roads so their effects on juniper woodlands source habitats would result in an average road influence of 21 percent across the planning area on BLM-administered lands and results in a low level of human influence. Local roads were also included in this analysis, so having a low RII score indicates that BLM has a high ability to manage local roads to have a low level of human influence on juniper woodland source habitats.

Of the 14 geographic areas that contain shrub-steppe source habitats, nine (Badlands, Cline Buttes, Horse Ridge, Mayfield, Millican Plateau, North Millican, Prineville, Prineville Reservoir and Northwest) would retain less than a 30 percent level of road influence on juniper woodland source habitats and maintain a high ability to manage local roads with a low level of human influence on juniper woodland source habitats. These nine geographic areas contain only 78 percent of the juniper woodland source habitats in the planning area that are located on BLM-administered lands.

Five geographic areas (Bend-Redmond, Smith Rock, South Millican, Steamboat Rock and Tumalo) would manage arterial and collector roads with a road influence between 30 percent and 50 percent, which would maintain a relatively high ability to manage local roads at a moderate level of human influence, especially since local roads are included in this analysis. These five areas would contain 22 percent of the shrub-steppe source habitats in the planning area that are located on BLM-administered lands.

In Alternatives 1, 2, 4 and 5, there are no geographic areas that would manage arterial and collector roads with a road influence greater than 50 percent, resulting in a high level of human influence.

Alternatives 3, 6 and 7 would manage arterial and collector roads so their effects on shrub-steppe source habitats would result in an average road influence of 25 percent across the planning area on BLM-administered lands and results in a low level of human influence. Local roads were also included in this analysis, so having a low RII score

indicates that BLM has a high ability to manage local roads to have a low level of human influence on juniper woodland source habitats source habitats.

Of the 14 geographic areas that contain juniper woodland source habitats, six (Badlands, Horse Ridge, Mayfield, Millican Plateau, North Millican and Northwest) would retain less than a 30 percent level of road influence on juniper woodland source habitats and maintain a high ability to manage local roads with a low level of human influence on juniper woodland source habitats. These six geographic areas contain 59 percent of the juniper woodland source habitats in the planning area that is located on BLM-administered lands.

Seven geographic areas (Bend-Redmond, Cline Buttes, Prineville, Prineville Reservoir, South Millican, Steamboat Rock and Tumalo) would manage arterial and collector roads with a road influence between 30 percent and 50 percent, which would maintain a relatively high ability to manage local roads at a moderate level of human influence, especially since local roads are included in this analysis. These seven geographic areas would contain 41 percent of the juniper woodland source habitats in the planning area that are located on BLM-administered lands.

Smith Rock would be the only geographic area that would manage arterial and collector roads with a road influence greater than 50 percent resulting in a high level of human influence. This would create a limited ability to manage local roads with at least a moderate level of human influence. However, this geographic contains a low amount (<1 percent) of woodlands and BLM does not have jurisdiction of the main roads (arterial or collector) in this area. Also, in Alternatives 2-7 BLM-administered lands in the Smith Rock geographic area would be closed to motorized travel.

Recreation – Of all alternatives, Alternative 2 would allocate the third lowest amount (which is almost the same amount as Alternative 1) of travel management allocations that could have a positive effect on wildlife in old-growth juniper woodland source habitats (29 percent; see Table 4-27, Summary of Travel Management Designations in Juniper Source Habitat and Table 4-28, Wildlife Emphasis and Travel Management Designations in Juniper Woodland Source Habitat). Of the 45,311 acres that would be managed positively for juniper woodland source habitats, this alternative uses travel management designation "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to wildlife in old-growth juniper woodlands.

Of all alternatives, Alternative 3 would allocate the highest amount of travel management allocations that could have a positive effect on wildlife in old-growth juniper woodland source habitats (47 percent). Of the 66,516 acres that would be managed positively for juniper woodland source habitats, this alternative uses travel management designation "Closed Year Round" most to mitigate the effects of motorized travel to wildlife in old-growth juniper woodlands.

Of all alternatives, Alternative 4 would allocate the lowest amount of travel management allocations that could have a positive effect on wildlife in old-growth juniper woodland source habitats (18 percent). Of the 28,111 acres that would be managed positively for juniper woodland source habitats, this alternative uses travel management designation "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to wildlife in old-growth juniper woodlands.

Of all alternatives, Alternative 5 would allocate the fourth highest amount of travel management allocations that could have a positive effect on wildlife in old-growth juniper woodland source habitats (30 percent). Of the 46,497 acres that would be managed positively for juniper woodland source habitats, this alternative uses travel

management designations "Limited to Roads Only Year Round" and "Closed Year Round" often to mitigate the effects of motorized travel to wildlife in old-growth juniper woodlands.

Of all alternatives, Alternative 6 would allocate the third highest amount of travel management allocations that could have a positive effect on wildlife in old-growth juniper woodland source habitats (35 percent). Of the 55,611 acres that would be managed positively for juniper woodland source habitats, this alternative uses travel management designation "Closed Year Round" most to mitigate the effects of motorized travel to wildlife in old-growth juniper woodlands.

Of all alternatives, Alternative 7 would allocate the second highest amount of travel management allocations that could have a positive effect on wildlife in old-growth juniper woodland source habitat (42 percent). Of the 65,413 acres that would be managed positively for juniper woodland source habitats, this alternative uses travel management designations "Closed Year Round" most to mitigate the effects of motorized travel to wildlife in old-growth juniper woodlands.

Land Ownership – Alternative 2 would allocate 103,548 acres of juniper woodlands as Z – 1, 4668 acres as Z – 2, and 1620 acres as Z – 3. Approximately 1 percent (826 acres) has been identified for community expansion. Of the acres identified for retention, approximately 22 percent would be managed with a primary wildlife emphasis, 42 percent of the acres identified for exchange would be managed with a primary wildlife emphasis, and 14 percent of disposal lands would also be managed with a primary wildlife emphasis. Of the 826 acres identified for community expansion 13 percent (111 acres) would be managed with a primary wildlife emphasis.

Alternative 3 would allocate 101,223 acres as Z – 1, 7 percent (7643 acres) as Z – 2, and 1 percent (1268 acres) as Z – 3. Approximately 1 percent (560 acres) has been identified for community expansion. Approximately 82 percent of the acres identified for retention would be managed with a primary wildlife emphasis, as would 66 percent of the acres identified for exchange. In addition, 9 percent of the lands identified for disposal and 29 percent of the community expansion lands would be managed with a primary wildlife emphasis for wildlife.

Table 4- 27 Summary of Travel Management Designations in Juniper Source Habitat

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Percent of habitat allocated to motorized travel	99%	96%	71%	96%	88%	77%	71%
Percent of habitat closed to year round motorized travel	<1%	4%	29%	4%	12%	23%	29%
Percent of habitat allocated to motorized trail use	71%	71%	58%	65%	54%	64%	58%

Table 4-28 Wildlife Emphasis and Travel Management Designations in Juniper Woodland Source Habitat

	Wildlife Emphasis	Closed at Snow Depth	Ltd Road and Trails Seasonally	Ltd Roads/ Trails Yr Rnd	Open Year Round	Ltd type of vehicle	Closed Yr Rnd	Ltd Rds Only Seasonally	Ltd designated rds yr rnd
Alternative		**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**
Alt 1	Primary	0	3488	962	477	0	681	0	32284
	Secondary	9388	0	495	146	0	0	0	11632
	General	0	396	41761	54298	0	422	0	0
Alt 2	Primary	0	2740	0	0	0	6526	0	31755
	Secondary	0	0	0	0	0	0	0	6923
	General	0	0	108998	0	0	0	0	107
Alt 3	Primary	0	3132	2809	0	4263	45703	93	8474
	Secondary	9444	0	4049	0	0	7	0	12228
	General	0	0	66740	0	0	0	0	103
Alt 4	Primary	0	1791	53	0	0	6793	26318	17006
	Secondary	0	1984	23	0	0	23	0	4074
	General	0	0	94626	0	4142	0	0	216
Alt 5	Primary	0	0	0	0	0	19189	26318	5396
	Secondary	0	1941	0	0	0	0	0	21791
	General	0	0	82291	0	0	18	0	103
Alt 6	Primary	0	1639	116	0	4358	35930	875	5208
	Secondary	0	0	0	0	0	0	0	14198
	General	0	264	94185	0	0	172	0	103
Alt 7	Primary	0	264	2074	0	0	44914	875	5212
	Secondary	0	0	2081	0	0	320	0	13779
	General	0	0	82079	0	4263	1082	0	105

Alternative 4 would allocate 97,465 acres of juniper woodlands as Z – 1, 10 percent (10405 acres) as Z – 2, and less than one percent (937 acres) as Z – 3. Approximately 1 percent (1251 acres) has been identified for community expansion. Approximately 43 percent of the lands identified for retention, and 38 percent of the lands identified for exchange would be managed with a primary wildlife emphasis. Of the lands identified for disposal, 83 percent would be managed with a primary wildlife emphasis.

Alternative 5 would allocate approximately 91051 acres of juniper woodlands as Z -1, 16 percent (17356 acres) as Z – 2, and one percent (1351 acres) as Z – 3. Approximately 1 percent (937 acres) has been identified for community expansion. Approximately 28 percent of the lands identified for retention, 19 percent of the lands identified for exchange, and 67 percent of the lands identified for disposal would be managed with a primary wildlife emphasis for wildlife. Of the 937 acres identified for community expansion, 22 percent (208 acres) would be managed with a primary wildlife emphasis.

Alternative 6 would allocate 90 percent (99522 acres) of juniper woodlands as Z – 1, 8 percent (8567 acres) as Z – 2, and 2 percent (1733 acres) as Z – 3. Approximately 1 percent (869 acres) has been identified for community expansion. Approximately 63 percent of the lands identified for retention, 79 percent of the lands identified for exchange, and 69 percent of the lands identified for disposal would be managed with a primary wildlife emphasis for wildlife. Of the 869 acres identified for community expansion, 28 percent (242 acres) would be managed with a primary wildlife emphasis.

Alternative 7 would allocate 86 percent (95,322 acres) of juniper woodlands as Z – 1, 11 percent (12429 acres) as Z – 2, and 2 percent (2593 acres) as Z – 3. Approximately 1 percent (532 acres) has been identified for community expansion. Approximately 79 percent of the lands identified for retention, 75 percent of the lands identified for exchange, and 68 percent of the lands identified for disposal would be managed with a primary wildlife emphasis for wildlife. Of the 532 acres identified for community expansion, 20 percent (242 acres) would be managed with a primary wildlife emphasis.

Military Training – Alternative 2 would allocate 33,028 acres (15 percent of all juniper habitats) for military uses. This is the largest allocation of acres available for annual training (Alternatives 6 and 7 have greater total acres). Of the acres of juniper habitats that would be affected by military uses, all would be managed with a general wildlife emphasis.

All of the total 33,028 acres that would be allocated for military activities would be designated for annual use and none would be used on a rotational basis. The military would use track vehicles on 3,935 acres, tire vehicles on 9,254 acres, and foot activity off designated trails on 19,840 acres. Alternative 2 allows the greatest amount of acreage for foot activity off designated trails. For a complete breakdown of the total juniper habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-29, for a comparison of military use acres on juniper source habitat.

Alternative 3 would allocate the least amount of acres for military training purposes. In this alternative only 19,060 acres (9 percent of all juniper habitats) are allocated. Of the acres of juniper habitats that would be affected by military uses, 6,086 (3 percent) would be managed with a secondary wildlife emphasis and 12,974 acres (6 percent) would be managed with a general wildlife emphasis.

All of the total 19,060 acres that would be allocated for military activities would be designated for annual use and none would be used on a rotational basis. The military would use track vehicles on 4,152 acres, tire vehicles on 9,248 acres, and foot activity off designated trails on 5,659 acres. The alternative allows the least amount of acreage of

all alternatives for foot traffic. For a complete breakdown of the total juniper habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-29, for a comparison of military use acres on juniper source habitat.

Alternative 4 would allocate 23,881 acres (11 percent of all juniper habitats) for military uses. This is the second lowest amount of acres allocated for military training of all the alternatives. Of the acres of juniper habitats that would be affected by military uses, all would be managed with a general wildlife emphasis.

All of the total 23,881 acres that would be allocated for military activities would be designated for annual use and none would be used on a rotational basis. The military would use track vehicles on 3,935 acres, tire vehicles on 9,248 acres, and foot activity off designated trails on 10,698 acres. For a complete breakdown of the total juniper habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-29, for a comparison of military use acres on juniper source habitat.

Alternative 5 would allocate 26,783 acres (12 percent of all juniper habitats) for military uses. Of the acres of juniper habitats that would be affected by military uses, 3,448 (2 percent) would be managed with a secondary wildlife emphasis and 23,336 acres (11 percent) would be managed with a general wildlife emphasis.

All of the total 26,783 acres that would be allocated for military activities would be designated for annual use and none would be used on a rotational basis. The military would use track vehicles on 3,935 acres, tire vehicles on 9,248 acres, and foot activity off designated trails on 13,600 acres. For a complete breakdown of the total juniper habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-29 for a comparison of military use acres on juniper source habitat.

Alternative 6 would allocate the greatest total amount of acres for military training exercises of all alternatives. This alternative would allocate 47,924 acres (22 percent of all juniper habitats) for military uses. Of the acres of juniper habitats that would be affected by military uses, 784 (less than one percent) would be managed with a primary wildlife emphasis, 5,121 (2 percent) would be managed with a secondary wildlife emphasis and 42,019 acres (20 percent) would be managed with a general wildlife emphasis.

Of the total 47,924 acres that would be allocated for military activities, 68 percent (32,381 acres) would be designated for annual use and 32 percent (15,544 acres) would be used on a rotational basis. Of the total 32,381 acres allocated for annual use, 8 percent (3,935 acres) would allow track vehicles, 19 percent (9,250 acres) would allow only tire vehicles and 40 percent (19196 acres) would allow only foot activity. Of the total 15,543 acres allocated for rotational use, none would allow track vehicles, 9 percent (4,256 acres) would allow only tire vehicles and 24 percent (11,287 acres) would allow only foot activity off of designated roads. This alternative would allocate the second highest amount of acreage for foot activity off designated roads. For a complete breakdown of the total juniper habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-29, for a comparison of military use acres on juniper source habitat.

Although this alternative allocates the most acres to military use activities, the actual amount of use for tread and track vehicles is similar to other alternatives. As a result, the impacts from these types of use would be spread out over a larger area. This alternative also provides more than 15,000 acres of rotational training sites which, although annual areas remain available, provides more opportunities for locating training. Overall, this would be expected to reduce the impacts on annual sites.

Alternative 7 would allocate 36,542 acres for military uses. This is the second highest total allocation for military activities. Of the acres of juniper habitats that would be affected

by military uses, 516 (11 percent) would be managed with a primary wildlife emphasis, 4,761 (13 percent) would be managed with a secondary wildlife emphasis and 31,266 acres (86 percent) would be managed with a general wildlife emphasis.

Of the total 36,542 acres that would be allocated for military activities, 69 percent (25,176 acres) would be designated for annual use and 31 percent (11366 acres) would be used on a rotational basis. Of the total 36,542 acres allocated for annual use, 16 percent (5675 acres) would allow track vehicles, 22 percent (8,015 acres) would allow only tire vehicles and 31 percent (11,487 acres) would allow only foot activity. Of the total 11,366 acres allocated for rotational use, none would allow track vehicles, 10 percent (3,757 acres) would allow only tire vehicles and 21 percent (7,609 acres) would allow only foot activity off of designated roads. For a complete breakdown of the total juniper habitats affected by annual use versus rotational use and their associated use type (i.e., track, tire or foot) see Table 4-29, Comparison of military use acres on juniper source habitat.

Table 4-29 Comparison of Military Training in Juniper Source Habitat

Alternative	Yearly Use	Equipment Use	Acres	% of Total
1	**Annual**		**27,383**	
		Foot	10,925	40%
		Tire	10,815	40%
		Track	5,643	20%
2	**Annual**		**33,028**	
		Foot	19,840	60%
		Tire	9,254	28%
		Track	3,935	12%
3	**Annual**		**19,060**	
		Foot	5,659	30%
		Tire	9,248	49%
		Track	4,152	21%
4	Annual		23,881	
		Foot	10,698	45%
		Tire	9,248	39%
		Track	3,935	16%
5	Annual		26,783	
		Foot	13,600	51%
		Tire	9,248	34%
		Track	3,935	15%
6	Annual		32,381	
		Foot	19,196	59%
		Tire	9,250	29%
		Track	3,935	12%
	Rotational		15,544	
		Foot	11,287	73%
		Tire	4,256	27%
7	Annual		25,176	
		Foot	11,487	46%
		Tire	8,015	32%
		Track	5,675	22%
	Extended		11,366	
		Foot	7,609	67%
		Tire	3,757	33%

Although this alternative allocates the second highest number of acres to military use activities, the actual amount of use for tread and track vehicles is similar to other alternatives. As a result, the impacts from these types of use would be spread out over a larger area. This alternative also provides almost 12,000 acres of rotational training sites which, although annual areas remain available, provides more opportunities for locating training. Overall, this would be expected to reduce the impacts on annual sites.

Transportation – Some wildlife species such as Townsend's solitaire, gray flycatcher and several bat species are directly tied to woodland habitats for one or more of their life cycle needs. The lack of mature and old-growth trees and their features (i.e. snags) is a loss of habitat to these and other species. For this analysis juniper woodland habitat is considered suitable habitat and shrub-steppe is considered unsuitable habitat. In all alternatives old-growth juniper woodlands would be managed as woodlands and are not proposed for conversion to a different habitat type.

Alternatives 2-7 would all strive to maintain or improve the health and structure of existing old-growth juniper woodland habitats by identifying a broad-scale conservation and maintenance approach to the management of old-growth juniper source habitats. Young, invasive juniper, would be reduced to some extent in all alternatives. Alternatives 2, 4 and 5 would emphasize current levels of juniper woodland habitats with the exception of the anticipated treatments in the aquatic strongholds and high restoration priority areas and unsuitable shrub-steppe habitats. This would result in approximately 63 percent more suitable juniper woodland habitats than could be provided in Alternatives 3, 6 and 7. However, Alternatives 3, 6 and 7 provide direction for the maintenance and improvement of existing old-growth juniper woodlands.

Ponderosa Pine Source Habitat

Wildlife Emphasis – Alternative 2 would provide the second lowest amount (55 percent, tied with Alternative 5) of lands to be managed with a primary wildlife emphasis and provide the fourth highest amount (30 percent) of lands to be managed with a general emphasis for ponderosa pine woodland habitats. When primary and secondary wildlife emphasis areas are combined this alternative would provide the fourth highest amount (70 percent) of lands allocated for the benefit of wildlife. Subsequently, this alternative would provide a moderately high distribution of ponderosa pine woodlands across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 3 would provide the second highest amount (83 percent) of lands to be managed with a primary wildlife emphasis and provide the second lowest amount (1 percent) of lands to be managed with a general emphasis for ponderosa pine woodland habitats. When primary and secondary wildlife emphasis areas are combined this alternative would provide the second highest amount (99 percent) of lands that would be allocated with at least a secondary wildlife emphasis for wildlife. Subsequently this alternative would provide a high distribution of ponderosa pine woodlands across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 4 would provide the fourth highest amount (60 percent) of lands to be managed with a primary wildlife emphasis and provide the second highest amount (38 percent, tied with Alternative 6) of lands to be managed with a general emphasis for ponderosa pine woodland habitats. When primary and secondary wildlife emphasis areas are combined this alternative would provide the second lowest amount (62 percent, tied with Alternative 6) of lands that would be allocated with at least a secondary emphasis for wildlife. This alternative would provide a moderately high distribution of ponderosa pine woodlands across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 5 would provide the second lowest amount (55 percent) of lands to be managed with a primary wildlife emphasis and provide the third highest amount (36 percent) of lands to be managed with a general emphasis for ponderosa pine woodland habitats. When primary and secondary wildlife emphasis areas are combined this alternative would provide the third lowest amount (64 percent) of lands that would be allocated with at least a secondary emphasis for wildlife. This alternative would provide a moderately high distribution of ponderosa pine woodlands across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 6 would provide the highest amount (88 percent) of lands to be managed with a primary wildlife emphasis and provide the second lowest amount (less than 1 percent) of lands to be managed with a general emphasis for ponderosa pine woodland habitats. When primary and secondary wildlife emphasis areas are combined this alternative would continue to provide the highest amount (100 percent) of lands that would be allocated with at least a secondary emphasis for wildlife. This alternative would provide a high distribution of ponderosa pine woodlands across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 7 would provide the third highest amount (79 percent) of lands to be managed with a primary wildlife emphasis and provide the third lowest amount (8 percent) of lands to be managed with a general emphasis for ponderosa pine woodland habitats. When primary and secondary wildlife emphasis areas are combined this alternative would provide the third highest amount (92 percent) of lands that would be allocated with at least a secondary emphasis for wildlife. This alternative would provide a high distribution of ponderosa pine woodlands across the planning area that would be managed with at least a secondary wildlife emphasis.

Recreation – Of all alternatives, Alternative 2 would designate the fourth highest amount of travel management allocations that could have a positive effect on wildlife in ponderosa pine source habitats (48 percent, 3,483 acres; see Table 4-30, Travel Management Designations in Ponderosa Pine Source Habitat and Table 4-31, Wildlife Emphasis and Travel Management Designations in Ponderosa Pine Source Habitat). Of the 3,483 acres that would be managed positively for wildlife, this alternative uses travel management designation "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to wildlife in ponderosa pine habitats.

Of all alternatives, Alternative 3 would designate the highest amount of travel management allocations that could have a positive effect on wildlife in ponderosa pine source habitats (89 percent, 6,495 acres). Of the 6,495 acres that would be managed positively for wildlife, this alternative uses travel management designation "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to wildlife in ponderosa pine habitats.

Of all alternatives, Alternative 4 would designate the second lowest amount of travel management allocations that could have a positive effect on wildlife in ponderosa pine source habitats (37 percent, 2,660 acres). Of the 2,660 acres that would be managed positively for wildlife, this alternative uses travel management designation "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to wildlife in ponderosa pine habitats.

Of all alternatives, Alternative 5 would designate the third lowest amount of travel management allocations that could have a positive effect on wildlife in ponderosa pine source habitats (39 percent, 2,811 acres). Of the 2,811 acres that would be managed positively for wildlife, this alternative uses travel management designation "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to wildlife in ponderosa pine habitats.

Of all alternatives, Alternative 6 would designate the second highest amount of travel management allocations that could have a positive effect on wildlife in ponderosa pine source habitats (72 percent, 5,228 acres). Of the 5,228 acres that would be managed positively for wildlife, this alternative uses travel management designation "Closed Year Round" nearly as much as "Limited to Roads Only Year Round" to mitigate the effects of motorized travel to wildlife in ponderosa pine habitats.

Of all alternatives, Alternative 7 would designate the third highest amount of travel management allocations that could have a positive effect on wildlife in ponderosa pine source habitats (71 percent, 5,193 acres). Of the 5,193 acres that would be managed positively for wildlife, this alternative uses travel management designation "Closed Year Round" nearly as much as "Limited to Roads Only Year Round" most to mitigate the effects of motorized travel to wildlife in ponderosa pine habitats.

Land Ownership – Alternative 2 would classify approximately 5341 acres of ponderosa pine as Z – 1, 12 percent (884 acres) as Z – 2, and 14 percent (991 acres) as Z – 3. Less than one percent (71 acres) has been identified for community expansion. None of these acres would be managed with a primary wildlife emphasis.

Alternative 3 would classify approximately 5982 acres of ponderosa pine as Z – 1, 12 percent (884 acres) as Z – 2, and 6 percent (422 acres) as Z – 3. Approximately 91 percent of the acres identified for exchange would be managed with a primary wildlife emphasis, and all other acres would be managed with a secondary wildlife emphasis.

Alternative 3 would classify approximately 4307 acres of ponderosa pine as Z – 1, and 32 percent (2304 acres) as Z – 2, and 8 percent (569 acres) as Z - 3. Approximately 1 percent (88 acres) of ponderosa pine habitat has been identified for community expansion. Although 62 percent of the acres identified for exchange would be managed with a primary wildlife emphasis, the rest of the acres would be managed with secondary and general wildlife emphases.

Alternative 5 would classify approximately 5412 acres of ponderosa pine as Z – 1, and 20 percent (1453 acres) as Z – 2, and 6 percent (422 acres) as Z - 3. Approximately 55 percent of the acres identified for exchange would be managed with a primary wildlife emphasis, and all other acres would be managed with secondary and general wildlife emphases.

Table 4-30 Summary of Travel Management Designations in Ponderosa Pine Source Habitat

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Percent of habitat allocated to motorized travel	100%	88%	70%	91%	91%	66%	66%
Percent of habitat closed to year round motorized travel	0%	12%	30%	9%	9%	34%	35%
Percent of habitat allocated to motorized trail use	100%	73%	5%	38%	36%	1%	18%

Table 4-31 Wildlife Emphasis and Travel Management Designations in Ponderosa Pine Source Habitat

	Wildlife Emphasis	Closed at Snow Depth	Ltd Road/ Trails Seasonally	Ltd Roads/ Trails Year Round	Open Year Round	Ltd type of vehicle	Closed Yr Round	Ltd Roads Only Seasonally	Ltd Designated Roads Year Round
Alternative		**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**
Alt 1	Primary	0	610	0	422	0	0	0	0
	Secondary	0	0	0	2443	0	0	0	0
	General	0	0	0	3813	0	0	0	0
Alt 2	Primary	0	1613	0	0	0	898	0	1474
	Secondary	0	0	0	0	0	0	0	1110
	General	0	0	2192	0	0	0	0	0
Alt 3	Primary	0	308	0	0	0	2186	450	3119
	Secondary	0	0	0	0	0	0	0	1190
	General	0	0	34	0	0	0	0	0
Alt 4	Primary	0	0	0	0	0	637	1874	1845
	Secondary	0	0	0	0	0	0	0	179
	General	0	0	2753	0	0	0	0	0
Alt 5	Primary	0	0	0	0	0	637	1874	1514
	Secondary	0	0	0	0	0	0	0	661
	General	0	0	2602	0	0	0	0	0
Alt 6	Primary	0	0	38	0	0	3452	1988	1915
	Secondary	0	0	0	0	0	0	0	860
	General	0	0	34	0	0	0	0	0
Alt 7	Primary	0	2531	784	422	0	9321	6945	11610
	Secondary	0	0	0	2443	0	0	0	4939
	General	0	0	8172	3813	0	0	0	0

Alternative 6 would classify approximately 4430 acres of ponderosa pine as Z – 1, and 24 percent (1742 acres) as Z – 2, and 14 percent (991 acres) as Z - 3. Approximately 2 percent (125 acres) of ponderosa pine habitat has been identified for community expansion. Of the acres identified for exchange, 98 percent would be managed with a primary wildlife emphasis, 87 percent of the acres identified for disposal and all of the community expansion lands would also be managed with primary wildlife emphases.

Alternative 7 would classify approximately 3999 acres of ponderosa pine as Z – 1, and 29 percent (2121 acres) as Z – 2, and 15 percent (1098 acres) as Z - 3. Less than one percent (38 acres) of ponderosa pine habitat has been identified for community expansion. Approximately 77 percent of the acres identified for exchange would be managed with a primary wildlife emphasis, as well as 14 percent of the acres identified for disposal.

Vegetation Management – Please see effects discussion in the vegetation section of Ecosystem Management.

Lodgepole Pine Source Habitat

Wildlife Emphasis – Alternatives 2, 4 and 5 would provide the second lowest amount (18 percent) of lands to be managed with a primary wildlife emphasis and provide the highest amount (82 percent) of lands to be managed with a general emphasis for lodgepole pine habitats. When primary and secondary wildlife emphasis areas are combined, these alternatives would provide the lowest amount (18 percent) of lands allocated for the benefit of wildlife. Subsequently, these alternatives would provide low distribution of lodgepole pine habitats across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternatives 3 and 6 would provide the highest amount (95 percent) of lands to be managed with a primary wildlife emphasis and provide the lowest amount (5 percent) of lands to be managed with a general emphasis for lodgepole pine habitats. When primary and secondary wildlife emphasis areas are combined these alternatives would provide the highest amount (95 percent) of lands that would be allocated with at least a secondary emphasis for wildlife. Subsequently these alternatives would provide a high distribution of lodgepole pine habitats across the planning area that would be managed with at least a secondary wildlife emphasis.

Alternative 7 would provide the third highest amount (83 percent) of lands to be managed with a primary wildlife emphasis and provide the third lowest amount (17 percent) of lands to be managed with a general emphasis for lodgepole pine habitats. When primary and secondary wildlife emphasis areas are combined this alternative would continue to provide the third highest amount (83 percent) of lands that would be allocated with at least a secondary emphasis for wildlife. This alternative would provide a high distribution of lodgepole pine habitats across the planning area that would be managed with at least a secondary wildlife emphasis.

Recreation – Alternatives 2, 4, and 5 would allocate the third highest amount of travel management allocations that could have a positive effect on wildlife in lodgepole pine source habitats (18 percent; see Table 4-32, Summary of Travel Management Designations in Lodgepole Pine Source Habitat and Table 4-33, Wildlife Emphasis and Travel Management Designations in Lodgepole Pine Source Habitat). Of the lodgepole habitat that would be managed positively for wildlife, these alternative use the travel management designation "Limited to Roads Only Year Round" most frequently to mitigate the effects of motorized travel to wildlife in lodgepole pine habitats.

Alternative 3 would allocate the highest amount of travel management allocations that could have a positive effect on wildlife in lodgepole pine source habitats (95 percent). Of the lodgepole pine habitat that would be managed positively for wildlife, this alternative

uses the travel management designation of "Limited to Roads Only Year Round" most frequently to mitigate the effects of motorized travel to wildlife in lodgepole pine habitats.

Alternatives 6 and 7 would allocate the second highest amount of travel management allocations that could have a positive effect on wildlife in lodgepole pine source habitats (19 percent) Of the lodgepole pine habitat that would be managed positively for wildlife, these alternative use the travel management designations of "Closed Year Round" and "Limited to Roads Only Year Round" most frequently to mitigate the effects of motorized travel to wildlife in lodgepole pine habitats.

Land Ownership – Alternative 2 would allocate 93 percent (27,004 acres) of lodgepole pine source habitat as Z – 1, and 1 percent (314 acres) as Z – 3. Approximately 6 percent (1,820 acres) have been identified for community expansion. Of the 27004 acres identified as Z - 2, 18 percent (4,808 acres) would be managed with a primary wildlife emphasis, and all of the Z – 3 acres would be managed with a primary wildlife emphasis.

Alternative 3 would allocate 95 percent (27,675 acres) as Z – 1, and 1 percent (314 acres) as Z – 2. Approximately 4 percent (1149 acres) have been identified for community expansion. Of the 27675 acres identified for retention, 97 percent (26838 acres) would be managed with a primary wildlife emphasis, and all of the Z – 2 acres would be managed with a primary wildlife emphasis. Of the 1149 acres identified for community expansion 54 percent (620 acres) would be managed with a primary wildlife emphasis.

Alternative 4 would allocate 82 percent of all lodgepole pine habitats (23988 acres) as Z – 1, and 12 percent (3425 acres) as Z – 2. Approximately 6 percent (1725 acres) of lodgepole pine habitat has been identified for community expansion. Of the 23988 acres identified for retention, 13 percent (3131 acres) would be managed with a primary wildlife emphasis, and 58 percent (1991 acres) of the acres identified for exchange would be managed with a primary wildlife emphasis.

Table 4-32 Summary of Travel Management Designations in Lodgepole Pine Source Habitat

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Percent of habitat allocated to motorized travel	99%	97%	97%	97%	97%	97%	93%
Percent of habitat closed to year round motorized travel	1%	3%	3%	3%	3%	3%	7%
Percent of habitat allocated to motorized trail use	99%	82%	5%	82%	82%	7%	81%

Table 4-33 Wildlife Emphasis and Travel Management Designations in Lodgepole Pine Source Habitat

	Wildlife Emphasis	Closed at Snow Depth	Ltd Road and Trails Seasonally	Ltd Roads/ Trails Yr Rnd	Open Year Round	Ltd type of vehicle	Closed Yr Rnd	Ltd Rds Only Seasonally	Ltd designated rds yr rnd
Alternative		**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**	**Acres**
Alt 1	Primary	0	0	0	0	0	279	0	0
	Secondary	0	0	0	23492	0	0	0	0
	General	0	0	0	5365	0	0	0	0
Alt 2	Primary	0	0	0	0	0	975	0	4147
	Secondary	0	0	0	0	0	0	0	0
	General	0	0	24015	0	0	0	0	0
Alt 3	Primary	0	0	0	0	0	952	0	26821
	Secondary	0	0	0	0	0	0	0	0
	General	0	0	1365	0	0	0	0	0
Alt 4	Primary	0	0	0	0	0	975	0	4147
	Secondary	0	0	0	0	0	0	0	0
	General	0	0	24015	0	0	0	0	0
Alt 5	Primary	0	0	0	0	0	975	0	4147
	Secondary	0	0	0	0	0	0	0	0
	General	0	0	24015	0	0	0	0	0
Alt 6	Primary	0	0	545	0	0	975	21565	4683
	Secondary	0	0	0	0	0	0	0	0
	General	0	0	1370	0	0	0	0	0
Alt 7	Primary	0	0	18644	0	0	1929	0	3750
	Secondary	0	0	0	0	0	0	0	0
	General	0	0	4871	0	0	0	0	0

Alternative 5 would allocate 99 percent of all lodgepole pine habitats (28897 acres) as Z – 1, and 1 percent (240 acres) as Z – 2. Of the 28897 acres identified as Z - 1, 17 percent (4882 acres) would be managed with a primary wildlife emphasis, and all of the 240 acres identified as Z – 2 would be managed with a primary wildlife emphasis.

Alternative 6 would allocate 15 percent of all lodgepole pine habitats (4244 acres) as Z – 1, 84 percent (24598 acres) as Z – 2, and less than one percent (240 acres) as Z – 3. Less than one percent (40 acres) would be identified for community expansion. All of the acres identified for retention and disposal would be managed with a primary wildlife emphasis and of the acres identified for exchange, approximately 94 percent (23228 acres) would be managed with a primary wildlife emphasis. The 55 acres identified for community expansion would all be managed with a primary wildlife emphasis.

Alternative 7 would allocate 16 percent of all lodgepole pine habitats (4765 acres) as Z – 1, and 79 percent (22926 acres) as Z – 2, and 1 percent (367 acres) as Z – 3. Approximately 4 percent (1135 acres) have been identified for community expansion. Of the acres identified for retention, 89 percent (4247 acres) would be managed with a primary wildlife emphasis, approximately 86 percent of the acres identified for exchange would be managed with a primary wildlife emphasis, and all of the Z – 3 acres would be managed with a primary wildlife emphasis.

Vegetation Management – Please see effects discussion in the vegetation section of Ecosystem Management.

Cumulative Effects

This section describes the likely effects on species of focus and source habitats from BLM actions combined with those of past, present, and reasonably future actions on other lands.

The BLM administers approximately half the land base within the planning area. Activities outside of the control of BLM in and adjacent to the planning area are likely to have a more significant cumulative impact on wildlife resources. These activities include continued population growth, urban expansion, conversion of ranchland to residential and resort development, and associated roadways, highways, rights-of-way and other infrastructure to support this development. These actions are especially likely to occur adjacent to the urban and rural areas of fastest growth, Redmond, La Pine, Bend and rural Crook County. These areas include but are not limited to the Northwest, Tumalo, La Pine, Prineville Reservoir, and Prineville geographic areas.

These activities would reduce habitat effectiveness and cause a downward trend in the general quality of wildlife habitat, especially for those species that are less adaptable to human disturbance such as pronghorn.

Individually these activities are not likely to ultimately cause a decline in habitat quality or connectivity on BLM-administered lands, or the amount of suitable habitat on BLM-administered lands, they would affect these qualities on adjacent land, thus reducing the BLM's effective area of influence and management flexibility in specific portions of the planning area, particularly related to fragmentation.

Compared to Alternative 1, all action alternatives would reduce the potential cumulative effects on wildlife habitat, primarily due to the travel management and wildlife emphasis designations. These effects would vary by alternative, and are described in detail below.

Future fuels treatments, mining activities or other habitat altering activities in shrub-steppe habitats could have localized minor or short-term negative effects to sage grouse habitats. Some activities, such as fuel treatments could also have long-term positive

effects. These activities include, but are not limited to fuels treatments and mining. Additionally, there are some BLM proposed actions that where the effect is not significant enough to change a conclusion. These are described in the cumulative effects section below, but they will not be described elsewhere.

Bald Eagles

Less than one percent of the planning area contains bald eagle habitat. There are some large ponderosa pine trees located on BLM-administered lands that bald eagles use for nesting, roosting and perching. In the Prineville Reservoir geographic area, most of the foraging habitat is provided on withdrawn lands administered by the Oregon Department of Parks and Recreation and the Bureau of Reclamation (BOR). This area has at least one pair of bald eagles nesting on BLM, but foraging occurs mainly along the reservoir and the BOR administered lands. The Oregon State Parks and Recreation Department and the BOR have recently completed a master plan for developed recreation sites around Prineville Reservoir. Activities proposed to occur on State Parks lands in the Prineville Reservoir area are likely to limit eagle use.

Prineville Reservoir State Park is currently improving recreational facilities at Juniper Point, including road, campground, and boat ramp improvements and/or expansions. These actions would be expected to improve visitor experience but potentially increase harassment of eagles at the nest or feeding. Private lands surrounding Prineville Reservoir are being developed, which can potentially remove nest trees, roost trees, and perch trees, and can generally increase use of the reservoir and surrounding areas. Currently, the eagles at the reservoir do not appear to be greatly impacted by human activities; however, it would be reasonable to assume that recreational use from adjacent residents and out-of-area visitors would increase and increase negative effects to bald eagles.

At least one pair of bald eagles is nesting on Grizzly Mountain. The Grizzly Mountain nest is located on BLM-administered lands within ¼ mile of private land to the north/northeast and east/southeast. In addition, the State owns approximately 80 acres within ¼ mile to the west of the nest. Outside of isolated parcels of BLM-administered lands, the majority of land within one mile of the nest is privately owned. The nest tree is approximately 550 feet down-slope from the BLM communications tower and other communications sites on a north/northeast-facing slope. Approximately 27 communication site grant holders have right-of-way access to radio/cell towers at the top of Grizzly Mountain. Although the nest territory receives extensive human use as a result of numerous communications towers (42-71 visits per month between May and October based on a 1993 survey), the human activity related to the communication sites does not appear to be an issue for the eagles. There does not appear to be an alternate nest for this pair (Isaacs pers. comm. 2002).

Most of the private land around the nest area was originally developed for farming and/or ranching purposes. Development from Prineville is expanding north along Highway 26, and land is being sold and subdivided for multiple homes. There are currently numerous private residences on Grizzly Mountain, although most of those are located in the lower elevations along the west, southwest, and south sides. Human use seems to be limited to the area immediately around the towers, and does not appear to extend down the hill toward the nest. However, while summer human activity has been monitored, little is known about the effects of winter use from motorized and non-motorized travel in/near the nest site (Isaacs, pers. comm. 2002).

The eagles using the Grizzly Mountain nest primarily forage at Haystack Reservoir. This area lies within the Crooked River National Grasslands managed by the Forest Service

and is therefore, mostly protected from residential development. There are two small sections of privately owned land along the reservoir; however, most is managed by the Forest Service.

Golden Eagles

There are approximately 66,969 acres of golden eagle nesting and adjacent foraging habitat on private lands within the planning area with a road influence score of 88 percent (considering all roads). Private homes are continually being built in rural areas in golden eagle habitats; there are plans for destination resorts and an OHV park on private lands; and increased recreational facilities on BOR lands within the planning area that could have cumulative future negative effects on golden eagle nesting and foraging habitat. Some portion of suitable shrub-steppe habitats would continue to be converted to unsuitable juniper woodlands on both private and federal lands due to continued suppression of fire, although the development of a special products research station in Prineville and the continued emphasis on watershed restoration activities throughout the basin may alter this general trend over the next 10-20 years. Outdoor recreation continues to increase and people are attracted to canyons and cliff areas that provide suitable nesting habitat for golden eagles and this use can cause negative impacts to breeding birds. The expected continued use and operation of two minerals sites located in golden eagle habitats are of minor concern and would likely have limited cumulative effects in all alternatives, because the actual use area is only 40 acres, less than one percent of the total habitat. Travel routes to access the mineral sites combined with other roadways in the area would add fragmentation to existing habitats as described in the effects analysis. Alternatives 2-7 examine different wildlife emphasis and travel management designations that would mitigate these effects on BLM-administered lands. These effects are discussed under the individual alternatives.

The potential for adverse cumulative effects on the ecological condition of wildlife habitats from vegetation management direction, when considered with expected associated trends on adjacent lands, is greatest under Alternatives 1, 2, 4, and 5 because of the lack of emphasis on the restoration of shrub-steppe ecosystems when compared to Alternatives 3, 6, and 7.

Alternatives 3, 6 and 7 are expected to do the most to reduce the potential for adverse cumulative effects to golden eagle habitats by emphasizing improved forage options and favorable travel management designations. Although military use would be expanded into golden eagle habitats, the amount of area (between 3 and 10 percent), the low frequency and intensity of use, and the military requirements for land stewardship combine to result in a low potential for any adverse cumulative effect on habitat stability.

Lands classified for disposal (Z-3) would have the most potential, when considered with current trends, to contribute to future development and loss of connectivity and wildlife habitat, although specific relationships to future development is more dependent upon future county zoning actions and proximity to urban or rural residential developments than disposal classifications. Alternatives would range from two to four percent of golden eagle habitat – generally foraging habitat - that would be available for disposal, which would not likely create a significant cumulative impact to overall habitat quality or quantity from any of the alternatives.

Alternatives 1 and 2 would have the greatest potential for adverse cumulative effects on golden eagle habitats when considered with actions on other lands and the travel management and wildlife emphases. Potential cumulative effects of Alternatives 1 and 2 would be expected to result in a decline in golden eagle habitat quality and the amount of suitable eagle habitat in the planning area. This would primarily result from having only a moderate level of combined primary and secondary wildlife emphasis and the high percentage of habitats that would be available for motorized use. Between 53-93 percent

of the planning area would be available for some type of motorized travel during the year. That use would be seasonally restricted to a range of 54-66 percent, thus somewhat reducing the potential impacts. However, this reduction would not be expected to be sufficient to reduce or significantly modify downward trends likely to be associated with future development of private lands within the area.

Alternatives 3-7 would provide varying levels of anticipated mitigations for current downward trends in golden eagle habitats. These would include anticipated improvement in the suitability of habitats based on the wildlife emphasis and travel management designations described in detail in the alternatives analyses. Improvements of between 69-80 percent of golden eagle habitats would be expected by the designation of a primary or secondary wildlife emphasis. This, combined with a low to moderate range (31-44 percent) of motorized travel designations, would anticipate reduced potential for significant cumulative effects under all of these alternatives. Alternative 7 would provide the most overall favorable habitat designations, and would therefore have the least potential for cumulative effects.

Sage Grouse

Sage grouse habitat in and adjacent to the planning area is in various ownerships. Private ownership of sage grouse habitat within and adjacent to the planning area is about 79,500 acres; about 52,900 of these acres are within the planning area and about 26,600 are adjacent to the planning area. Federal lands include about 95,600 acres of sage grouse habitat outside of but adjacent to the planning area. These lands are administered by the BLM (78,800 acres) and the US Forest Service (16,800 acres). Expectations about cumulative effects on sage grouse habitat were based on the relative habitat effectiveness index combined with the expected vegetation condition of the area, not on land ownership.

Considering arterial and collector roads, average habitat effectiveness (HE) is about 57 percent on BLM-administered lands, about 49 percent on Forest Service administered lands, and between 62 and 67 percent on private lands. These indices do not include local roads and trails that may occur within these areas. Some of this area is located in the East Fort Rock OHV trail system, which is open year round, so actual HE indices may be reduced.

Immediately to the south of Horse Ridge and South Millican geographic areas, the Forest Service is proposing (in the Opine project) to manage, as a priority objective, to restore shrub-steppe habitats for sage grouse on 24 percent (7,090 acres) to 62 percent (18,315 acres) depending on the alternative selected, of sage grouse historical habitat (Lowrie, 2003). This would represent a potentially beneficial cumulative effect in extending the range and quality of the shrub-steppe habitat, especially when considered with other shrub-steppe restoration anticipated in Alternatives 3, 6, and 7. Activities that maintain or promote shrub-steppe habitat, such as fuels treatments and general vegetation management, would have positive effects on sage grouse.

While Alternative 1 would put a primary wildlife emphasis on all sage grouse habitat and seasonally limits motorized travel on 53 percent of their current range, it would not provide other land use allocations that would contribute to the conservation of sage grouse habitats. For example, motorized travel on designated roads is allowed in 100 percent of the sage grouse habitat, and motorized trails are allowed in 85 percent of this area, potentially fragmenting habitat, increasing the spread of noxious weeds, and increasing the chance of vehicles-animal collisions. Cumulative effects of the combined activities of Alternative 1 and 2 on BLM administered lands and actions on other lands in and immediately adjacent to the planning area would be expected to result in a decline in sage grouse habitat quality and in the amount of suitable habitat in the planning area. This expected decline would be due to the anticipated high levels of motorized roads

and trails as indicated by the low HE indices based on only consideration of arterial and collector routes, and the potential use of 6 mineral sites located in primary wildlife emphasis areas.

Anticipated declines in Alternative 2 would be due to the low amount of sage grouse habitat that would be managed with a primary wildlife emphasis (20 percent); the emphasis on maintaining shrub-steppe habitats in their current distribution (thereby promoting the conversion of shrub-steppe communities to juniper woodlands); the high levels of year-round motorized use associated with the high densities of motorized roads and trails as indicated in the low HE scores (24 percent for all roads and 48 percent in relation to arterial and collector roads only); and the high amount of habitat allocated to year-round motorized trail use (74 percent). Additionally, there would be 6 mineral material sites located in sage grouse habitat that would be managed under the general wildlife emphasis and afforded the minimum protection needed (see Table 4-6, Summary of the Effects of Mineral Sites on Wildlife Species and Source Habitats).

Cumulative effects of the combined activities of Alternative 3 on BLM-administered lands and actions on other lands in and immediately adjacent to the planning area are expected to result in an improvement in sage grouse habitat quality and an increase in the amount of suitable habitat in the planning area. This expected improvement would be due to the high amount of sage grouse habitat that would be allocated to a primary wildlife emphasis (98 percent); the emphasis of restoring shrub-steppe habitats to their historical distribution on BLM-administered lands; the priority restoration emphasis placed on 127, 276 acres; the favorable travel management allocations such as the seasonal closures in North and South Millican geographic areas; and limiting motorized travel to designated roads only in the Horse Ridge area.

Cumulative effects of the combined activities of Alternative 4 on BLM-administered lands and actions on other lands in and immediately adjacent to the planning area are expected to result in limited improvements in sage grouse habitat quality in the Horse Ridge and South Millican geographic areas, and a decline in sage grouse habitat quality in North Millican geographic area and a decline in the amount of suitable habitat in the planning area overall. The expected improvement in habitat condition is due to the primary wildlife emphasis and limiting motorized travel to designated roads in the Horse Ridge and South Millican geographic areas coupled with some emphasis toward habitat restoration is these areas. The expected habitat decline in North Millican geographic area would be due to the high road and trail densities, which are open during most of the sensitive periods for sage grouse and the general wildlife emphasis allocation. Additionally, this alternative would manage plant communities in their current distribution, which would manage against the restoration of sage grouse and their habitats and would promote the conversion of shrub-steppe communities to juniper woodlands.

Cumulative effects of the combined activities of Alternative 5 on BLM-administered lands and actions on other lands in and immediately adjacent to the planning area are expected to result in limited improvements in sage grouse habitat quality located mainly in the Horse Ridge geographic area. This alternative would manage plant communities in their current distribution, which would manage against the restoration of sage grouse and their habitats and would promote the conversion of shrub-steppe communities to juniper woodlands. The North Millican geographic area would be targeted for some sage grouse habitat restoration efforts, but the retention of juniper trees for OHV trail design and hiding cover for deer and elk management would compromise the suitability of some of this area. Additionally, motorized travel would be allowed on a high density road and trail system during portions of different seasons important to sage grouse. Therefore, there would be an expected decline in the amount of suitable sage grouse habitat in the planning area overall. Even though there is a high percentage (97) of habitat that would be managed with at least a secondary wildlife emphasis some of the guidelines (seasonal

closures) don't do enough for sage grouse. Also, the lack of an aggressive shrub-steppe restoration priority hinders any conservation measure in this alternative.

Cumulative effects of the combined activities of Alternative 6 on BLM-administered lands and actions on other lands in and immediately adjacent to the planning area are expected to result in an improvement in sage grouse habitat quality and an increase in the amount of suitable habitat in the planning area. This expected improvement would be due to 77 percent of the sage grouse habitat allocated to a primary wildlife emphasis; the habitat emphasis of restoring shrub-steppe habitats to its historical distribution on BLM-administered lands; the favorable travel management allocations such as the seasonal closures in North and South Millican geographic areas; and closing part of Horse Ridge to motorized travel and limiting it to designated roads in the rest. However, the sage grouse population may not respond as positively as expected because South Millican would be open to motorized vehicles on a high density of roads and trails during the winter period, which is an important and sensitive season for sage grouse and South Millican is a high use area for sage grouse.

Cumulative effects of the combined activities of Alternative 7 on BLM-administered lands and actions on other lands in and immediately adjacent to the planning area are expected to result in an improvement in sage grouse habitat quality and an increase in the amount of suitable habitat in the planning area. This expected improvement would be due to having 100 percent of the sage grouse habitat allocated to a primary wildlife emphasis; the habitat emphasis of restoring shrub-steppe habitats to its historical distribution on BLM-administered lands; the favorable travel management allocations such as the seasonal closure in South Millican geographic area; and closing part of Horse Ridge to motorized travel and limiting travel to designated roads in the rest. The current transportation system is a concern for sage grouse conservation, but the direction in the plan would be to improve the situation considerably, especially in the North Millican geographic area.

Mule Deer

In general, most winter ranges recognized by ODFW would have BLM-administered lands managed as a primary wildlife emphasis for deer. The exception is the Metolius Deer Winter Range where BLM would manage 6,745 acres with a general emphasis. The BLM manages an additional 42,829 acres of deer winter range outside but adjacent to the planning area with an HE of 53 percent (considering only arterial and collector roads). Most of these areas are open to off-road vehicle use. The Forest Service manages deer winter range, with an emphasis for high use, on lands immediately adjacent to the plan area. Deer herds use both ownerships together and sometimes move back and forth depending on weather conditions. As a general example, the Forest Service manages approximately 209,822 acres of deer winter range immediately adjacent to the plan area. The average HE of this habitat, in relation to arterial and collector roads, is 48 percent. A more specific example is where the Deschutes National Forest is currently proposing management activities on over 48,600 acres of deer winter range in the Pine Mountain area. "Providing high quality winter forage in adequate quantity and distribution to meet nutritional demands of wintering mule deer" was a primary wildlife objective during the planning of the Opine project (Lowrie, Wildlife Report, 2003). The East Fort Rock OHV Trail System is also located adjacent to the BLM planning area boundary and occupies some of the same area as the Opine project. This OHV trail system is open year-round and when coupled with roads has a high motorized travel route density, which is not favorable to deer habitat management.

Private lands also play a role in managing for healthy deer herds. Fencing, urban development and some agricultural practices are a few examples of actions on private lands that can have negative effects on deer and their habitats. Water development, certain agricultural practices and limiting human access to private lands are a few

examples of actions on private lands that help contribute effective habitat for deer. The creation of the new West Butte Road will increase motorized travel along this road and increase the amount of human visitation that the BLM managed lands (and deer habitat) will receive in the near future.

There are approximately 133,255 acres of deer winter range located on private lands within and outside (but adjacent to) the planning area that have an HE of 53 percent (considering only arterial and collector roads). This acreage figure only includes agricultural lands. Property listed by the counties as urban were removed from consideration as contributing to winter range habitat.

Cumulative effects of the combined activities of *Alternative 1* on BLM-administered lands and actions on other lands in the planning area, and immediately adjacent areas, are expected to result in maintaining current habitat conditions for deer. This expected maintenance is due to the moderate amount of winter range (60 percent) and the high amount of migration corridor (83 percent) allocated to a primary wildlife emphasis; the moderate HE score (56 percent for arterial and collector roads) coupled with the moderate amount of management restrictions placed on motorized travel in Horse Ridge, Prineville Reservoir and North and South Millican; the large amount of federal ownership; and the moderately favorable management practices on adjacent Forest Service lands. Additionally, the vegetation management proposed in this alternative would provide the opportunity to maintain a desirable mix of cover and forage habitats.

Cumulative effects of combined activities of *Alternative 2* on BLM-administered lands and actions on other lands in the planning area, and immediately adjacent areas, are expected to result in a decline in deer habitat quality and in the amount of suitable habitat. This expected decline would be due to the low amount of winter range (32 percent) and migration corridor (18 percent) allocated to a primary wildlife emphasis; the high levels of motorized roads and trails as indicated by the low HE scores (28 percent based on all roads (and trails for the Millican OHV area); and the anticipated high amount of winter use on 62 percent of the deer winter range by motorized vehicles on BLM-administered lands. Additionally, the vegetation management and fuels treatments in La Pine would contribute to declining habitat quality because most of the migration corridor would be allocated to a general wildlife emphasis.

Cumulative effects of combined activities of *Alternative 3* on BLM-administered lands and actions on other lands in the planning area, and immediately adjacent areas, are expected to result in an improvement in deer habitat quality and in the amount of suitable habitat. These expected positive effects would be due to the high amount (87 percent) of winter range that would be managed with either a primary wildlife emphasis (75 percent) or secondary wildlife emphasis (12 percent); the high amount of the migration corridor (96 percent) that would be managed with a primary wildlife emphasis for deer; the moderately high amount (77 percent) of winter range with favorable travel management allocations; and having 75 percent of the mineral material sites managed under a primary wildlife emphasis (see Table 4-6).

Cumulative effects of combined activities of *Alternative 4* on BLM-administered lands and actions on other lands in the planning area (not including La Pine) and immediately adjacent areas, are expected to result in maintaining and improving healthy deer habitat quality and maintaining the amount of suitable habitat. This expected maintenance would be due to the moderately high combined amounts of deer winter range allocated to a primary (52 percent) and secondary (10 percent) wildlife emphasis; the moderately high HE (64 percent) that would result from the allocation of the transportation system (collector roads); the favorable travel management allocations in 62 percent of the winter range; and having 69 percent of the minerals sites managed under either a primary

or secondary wildlife emphasis. Also, this alternative provides adequate direction for restoring healthy plant communities and states that deer hiding cover is an important consideration during vegetation management.

For the La Pine area, the cumulative effects of Alternatives 4 and 5 are expected to result in a decline in deer habitat quality and in the amount of suitable habitat in and around the mule deer migration corridor. This expected decline would be due to the low amount of lands allocated to a primary (or secondary) wildlife emphasis (18 percent); the current high density of roads as indicated in the low HE rating (20 percent); and the unfavorable travel management allocations (open year round to motorized travel on roads and trails) in 82 percent of the migration corridor.

Cumulative effects of combined activities of Alternative 5 on BLM-administered lands and actions on other lands in the planning area (not including La Pine), and immediately adjacent areas, are expected to result in maintaining and improving healthy deer habitat quality and in maintaining the amount of suitable habitat. This expected maintenance would be due to the moderately high combined amounts of deer winter range allocated to a primary (37 percent) and secondary (39 percent) wildlife emphasis; the moderately high HE (64 percent) that would result from the allocation of the transportation system (collector roads); the favorable travel management allocations in 76 percent of the winter range; and having 81 percent of the minerals sites managed under either a primary or secondary wildlife emphasis. Also, this alternative provides adequate direction for restoring healthy plant communities and states that deer hiding cover is an important consideration during vegetation management.

Cumulative effects of combined activities of Alternative 6 on BLM-administered lands and actions on other lands in the planning area and immediately adjacent areas are expected to result in maintaining and improving healthy deer habitat quality and in maintaining the amount of suitable habitat. This expected maintenance would be due to the allocation of a moderately high amount (65 percent) of deer winter range and a high amount of the migration corridor (96 percent) to a primary wildlife emphasis (and the additional 5 percent winter range allocated to a secondary wildlife emphasis); the moderately high HE (64 percent) that would result from the allocation of the transportation system (collector roads); the favorable travel management allocations in 77 percent of the winter range; and having 75 percent of the minerals sites managed under either a primary or secondary wildlife emphasis.

Cumulative effects of combined activities of Alternative 7 on BLM-administered lands and actions on other lands in the planning area, and immediately adjacent areas, are expected to result in maintaining and improving healthy deer habitat quality and in maintaining the amount of suitable habitat. This expected maintenance would be due to the moderately high amount (70 percent) of deer winter range that would be managed with either a primary wildlife emphasis (65 percent) or a secondary wildlife emphasis (5 percent) for deer; the high amount the migration corridor (80 percent) that would be managed with at least a primary wildlife emphasis for deer; the favorable travel management allocations in many of the different geographic areas (63 percent of the winter range and 84 percent of the migration corridor); and having 75 percent of the minerals sites managed under a primary wildlife emphasis. The vegetation management emphasis of managing habitats toward their historical distribution would result in less cover and could limit population growth. However this vegetation management emphasis would also improve forage production and when coupled with some of the travel restrictions proposed in some geographic areas (i.e. Horse Ridge, Prineville Reservoir, etc.) the amount of cover may not be as important because the concern of human disturbances during the winter period would be reduced due to access limitations.

Rocky Mountain Elk

The BLM manages an additional 8,033 acres of winter range outside but adjacent to the planning area with an HE score of 53 percent (based on arterial and collector roads only). These areas are not identified for benefiting elk, but a small amount does fall into areas identified as crucial deer winter range and the management in these areas would benefit elk to some degree. However, most of these areas are open to off-road vehicle use. On lands immediately adjacent to the plan area the Forest Service manages elk winter ranges with varying emphasis for elk use. Because elk have been increasing their use more recently in areas that were not always recognized during earlier forest plan developments, the Forest Service may not have all current winter range identified or considered for elk use (i.e., area immediately south of Horse Ridge and South Millican geographic areas). However, many of these areas overlap with deer winter range and subsequently receive some management consideration that benefits elk. The Forest Service has identified "Key Elk Areas" where they manage with an emphasis for elk. Several of these areas are located immediately adjacent to BLM-administered lands in the planning area, such as in La Pine. Elk herds use both BLM and Forest Service ownerships together and sometimes move back and forth depending on weather conditions. In general, the Forest Service manages approximately 175,374 acres of elk winter range immediately adjacent to the plan area. The average HE for this habitat, in relation to arterial and collector roads, is 47 percent.

Private lands also play a role in managing elk herds. Fencing, urban sprawl, splitting of large ranches into smaller "ranchettes" and some agricultural practices are a few examples of actions on private lands that can have negative effects on elk and their habitats. Water development, certain agricultural practices and limiting human access to private lands are a few examples of actions on private lands that help contribute to effective habitat for elk. The new upgrade (paving) of West Butte Road will increase motorized travel along this road and increase the amount of human visitation to BLM managed lands (and elk habitat) in the near future.

There are approximately 24,250 acres inside and 175,878 acres of elk winter range located on private lands outside (but adjacent to) the planning area that have an average HE rating of 67 percent (based on arterial and collector roads) inside and 50 percent outside the planning area. This acreage figure only includes agricultural lands. Property listed by the Counties as "urban" were removed from consideration as contributing to winter habitat.

Cumulative effects of combined activities of Alternative 1 on BLM-administered lands and actions on other lands in and immediately adjacent to the planning area are expected to result in a decline in elk habitat quality and in the amount of suitable habitat in the Cline Buttes, La Pine, Mayfield, Prineville, Prineville Reservoir, North West and Steamboat Rock geographic areas. This expected decline would be due to anticipated high levels of roads, urban sprawl and a focus on other BLM resource management programs. However, elk habitat quality and the amount of suitable habitat are expected to remain stable in the Badlands, Horse Ridge, North Millican, South Millican and Tumalo geographic areas. This expected maintenance of elk habitat in these areas is due to the allocations of primary wildlife emphasis and the subsequent management restrictions placed on motorized travel and the large amount of federal ownership and the moderately favorable management practices on adjacent Forest Service lands.

Cumulative effects of combined activities of Alternative 2 on BLM-administered lands and actions on other lands in amount of suitable habitat in the planning area, and immediately adjacent areas, are expected to result in a decline in elk habitat quality and in the amount of suitable habitat. This expected decline would be due the low amount of BLM-administered lands that would be managed with a primary or secondary wildlife emphasis for elk (33 percent) and the anticipated high levels of motorized use that would

occur with few seasonal restrictions. Also, there would be a low distribution of elk winter range managed with an emphasis (primary or secondary) for elk located in geographic areas that contain elk winter range. The current transportation/road network has a low HE score (28 percent) and since there is not an emphasis in most elk winter range to increase the habitat effectiveness to at least a secondary level (50 percent HE) this alternative will manage for poor habitat conditions.

Cumulative effects of combined activities of Alternative 3 on BLM-administered lands and actions on other lands in the planning area, and immediately adjacent areas, are expected to result in an improvement in elk habitat quality and in the amount of suitable habitat. This expected increase would be due to the high amount (89 percent) of elk habitats that would be managed with both a primary (79 percent) and secondary (10 percent) wildlife emphasis; the high distribution of habitats that would be managed with an emphasis (primary or secondary) for wildlife located in all geographic areas that contain elk winter range; and the moderately high amount (76 percent) of winter range with favorable travel management allocations. While the current transportation/road network is extensive the proposed arterial and collector road system provides a moderately high HE (69 percent) score indicating the BLM has the ability to manage local roads to achieve most of the plan's road management goals for wildlife. The vegetation management emphasis of managing habitats toward their historical distribution would result in less cover and could limit the HE. However this vegetation management emphasis would also improve forage production and when coupled with some of the travel restrictions proposed in some geographic areas (i.e. Horse Ridge, Prineville Reservoir, etc.) the amount of cover may not be as important because the concern of human disturbances during the winter period would be reduced due to access limitations.

Cumulative effects of combined activities of Alternative 4 on BLM-administered lands and actions on other lands in the planning area, and immediately adjacent areas, are expected to result in a decline in elk habitat quality and in the amount of suitable habitat. This expected decline would be due to the moderate level of winter range that would be managed with both a primary (38 percent) and secondary (8 percent) wildlife emphasis; the low distribution of elk winter range managed with an emphasis (primary or secondary); and the moderate level of travel management allocations that would benefit elk. Fuels treatments and mining would add negative effects to make the habitat less suitable for elk in this alternative while the vegetation management emphasis of managing habitats in their current distribution should not cause minor negative effects.

Cumulative effects of combined activities of Alternative 5 on BLM-administered lands and actions on other lands in the planning area, and immediately adjacent areas, are expected to result in an overall maintenance of suitable elk habitat quality and quantity. This expected maintenance would be due to the moderately high amount (62 percent) of elk habitat that would be managed with both a primary (34 percent) and secondary (28 percent) wildlife emphasis; the moderately low amount (34 percent) of elk habitat that would be managed with a primary wildlife emphasis for elk; the moderately high amount (62 percent) of winter range with favorable travel management designations; and having the vegetation management emphasis of managing habitats in their correct distribution.

Cumulative effects of combined activities of Alternative 6 on BLM-administered lands and actions on other lands in the planning area, and immediately adjacent areas, are expected to result in an improvement in elk habitat quality and an increase in the amount of suitable habitat. This expected increase would be due to the moderately-high amount (72 percent) of elk habitats that would be managed with either a primary wildlife emphasis (70 percent) or secondary wildlife emphasis (2 percent) and the moderately high amount (76 percent) of winter range with favorable travel management

designations. Also, there would be a moderately-high distribution of habitats that would be managed with an emphasis (primary or secondary) located in most geographic areas that contain elk winter range.

Cumulative effects of combined activities of Alternative 7 on BLM-administered lands and actions on other lands in the planning area, and immediately adjacent areas, are expected to result in an improvement in elk habitat quality and an increase in the amount of suitable habitat. This expected improvement would be due to the moderately high amount (77 percent) of elk habitat that would be managed with both a primary wildlife emphasis (74 percent) and a secondary wildlife emphasis (3 percent) and there would be a high distribution of habitats that would be managed with a primary or secondary wildlife emphasis located in geographic areas that contain elk winter range. While the current transportation system has a low HE score (28 percent) the proposed arterial and collector system would have a moderately high HE (69 percent) providing the BLM with the ability to manage local roads to maintain or improve elk habitats. While the travel management allocations show only a moderate amount (47 percent) of elk winter range would have a positive management approach for elk, this does not take into consideration that all of the North Millican geographic area would be managed with a primary wildlife emphasis. In Alternative 7, 78 percent of the elk winter range in the North Millican geographic area would be managed under the "Limited to Roads and Trails Year-Round" designation generally indicating considerable negative effects. However, because of the primary wildlife emphasis for this area Alternative 7 should maintain, if not improve the condition of the habitat because the management guidelines would require the area to maintain 50 to 60 percent HE, including large unfragmented blocks of habitat, concentrate OHV use in already disturbed areas and seasonally close a portion of the area during the winter.

For Alternative 7, the general negative effects of the land tenure program across the planning area on elk winter range would not be significant. There would be great potential for elk to benefit because the allocations focus on retaining 99 percent (80 percent Z-1, 19 percent Z-2) of elk winter range. Even though 19 percent would be allocated to Z-2, which allows them to be traded, the land action emphasis in this alternative is for wildlife.

Pronghorn

BLM manages an additional 42,750 acres outside, but adjacent to the planning area with a RII score of 15 percent (based on arterial and collector roads only). Some of this habitat (10,240 acres) is recognized as crucial pronghorn winter range and would be managed similarly to a primary wildlife emphasis. On lands immediately adjacent to the planning area, the Forest Service manages 55,040 acres of pronghorn habitats with 39 percent (a moderate level) of influence from arterial and collector roads. These habitats are split between two areas; one area is located south of Horse Ridge and South Millican, and the other area is on the National Grasslands located north of Smith Rock. On private lands within the planning area, there are 85,018 acres of pronghorn habitat with an 18 percent level of human influence (a low level) based on arterial and collector roads. On private lands outside but adjacent to the planning area there are 31,754 acres of pronghorn habitat with a 16 percent level of human influence (a low level) from arterial and collector roads. Pronghorn are being impacted on private lands similarly as described earlier for deer and elk; however, pronghorn are affected more by fencing than deer or elk. Some private ranch lands within the planning area (Bend-Redmond and Prineville geographic areas) are being developed as destination resorts and likely will become unsuitable habitat for pronghorn. Additionally, these resorts create access routes and build additional fences that negatively impact pronghorn by removing and fragmenting habitats and providing for greater opportunities for animal and vehicle collisions.

Cumulative effects of the combined activities of Alternative 1 on BLM-administered lands and actions on other lands in and immediately adjacent to the planning area are expected to result in a decline in pronghorn habitat quality and in the amount of suitable habitat in the Bend/Redmond, Mayfield and Millican Plateau geographic areas. This expected decline would be due to the moderately low amount of pronghorn habitat (39 percent) that would be managed with a primary wildlife emphasis; having only a moderate amount of habitat (51 percent) that would be managed with favorable travel management designations; and anticipated high levels of motorized use associated with high densities of roads and trails over most of their habitats (61 percent). Also, this alternative provides no emphasis for habitat management in these areas. Suitable pronghorn habitat quality and quantity are expected to remain stable in the Badlands, Horse Ridge, North Millican and South Millican geographic areas. This expected maintenance of pronghorn habitat in these areas is due to travel management limitations placed on motorized travel, especially during the winter in North Millican, winter through early summer in south Millican and the proposed low motorized travel route densities in the Badlands and Horse Ridge geographic areas. Additionally, the recent past and current vegetation management efforts have contributed and likely would continue to contribute to suitable pronghorn habitat conditions in these areas.

Cumulative effects of combined activities of Alternative 2 on BLM-administered lands and actions on other lands in the planning area, and immediately adjacent areas, are expected to result in a decline in pronghorn habitat quality and in the amount of suitable habitat. This expected decline would be due to the moderately low amount of pronghorn habitat (25 percent) that would be managed with both a primary (19 percent) and secondary (6 percent) wildlife emphasis; the low distribution of pronghorn habitats that would be managed with a primary or secondary wildlife emphasis; the moderately low amount (25 percent) of pronghorn habitat that would be managed with favorable travel management allocations; the anticipated high levels of motorized use that would occur in most of their habitat (75 percent), especially in the two geographic areas that contain the highest amounts of habitat, and the increasing fragmentation of habitat, especially due to the addition of new arterial roads (i.e., West Butte Road and the access road to the "Pronghorn" resort) and their associated fencing.

Cumulative effects of combined activities of Alternative 3 on BLM-administered lands and actions on other lands in the planning area, and immediately adjacent areas, are expected to result in an increase in pronghorn habitat quality and in the amount of suitable habitat. This expected increase would be due to the moderately-high amount (71 percent) of habitat that would be managed with a primary (48 percent) and secondary (23 percent) wildlife emphasis and the moderate distribution of these habitats; the moderately high amount (62 percent) of pronghorn habitat that would be managed with favorable travel management allocations; and this alternative would manage habitats toward their historical vegetative conditions and distributions, which would improve a large amount of pronghorn habitat that either has been or is being over-grown by young juniper trees.

Cumulative effects of combined activities of Alternative 4 on BLM-administered lands and actions on other lands in the planning area, and immediately adjacent areas, are expected to result in a decline in pronghorn habitat quality and in the amount of suitable habitat. This expected decline would be due the moderately low amount (38 percent) and the low distribution of habitat that would be managed with a primary (35 percent) and secondary (3 percent) wildlife emphasis; the moderately low amount (57 percent) of pronghorn habitat that would be managed with favorable travel management allocations; the anticipated high levels of motorized use on a high density of travel routes; the low amount (7 percent) of pronghorn habitat that would be closed seasonally to motorized vehicles; the increasing fragmentation of habitat that would occur, and this alternative

would manage habitats within their current range, which would allow a considerable amount of suitable shrub-steppe habitat to be converted into unsuitable juniper woodlands.

Cumulative effects of combined activities of Alternative 5 on BLM-administered lands and actions on other lands in the planning area, and immediately adjacent areas, are expected to result in a decline in pronghorn habitat quality and in the amount of suitable habitat. This expected decline would be due to the moderately low amount (20 percent) and low distribution of BLM-administered lands that would be managed with a primary wildlife emphasis. Although there is an additional 39 percent of pronghorn habitat that would be managed with a secondary wildlife emphasis these areas are mitigated mainly by seasonal closures which do not cover the entire winter period. Also, the seasonal closures are only helpful during a portion of the year in an area that is used year round by pronghorn. This expected decline would also be due to allowing high levels of motorized use on a high density of travel routes; the increasing fragmentation of habitat, especially due to the addition of new arterial roads (i.e., West Butte Road and the access road to the "Pronghorn" destination resort) and their associated fencing; and management of habitats within their current range, which would allow a considerable amount of suitable shrub-steppe habitat to be converted into unsuitable juniper woodlands.

Cumulative effects of combined activities of Alternative 6 on BLM-administered lands and actions on other lands in the planning area, and immediately adjacent areas, are expected to result in a decline in pronghorn habitat quality and in the amount of suitable habitat. This expected decline would be due to having only a moderate amount (40 percent) of habitat that would be managed with a primary (33 percent) and secondary (7 percent) wildlife emphasis and the poor distribution of this habitat across the planning area; the anticipated high levels of motorized use on a high density of travel routes; the limited amount of pronghorn habitat that would be closed seasonally to motorized vehicles; and the increasing fragmentation of habitat, especially due to the addition of new arterial roads (i.e., West Butte Road and the access road to the "Pronghorn" destination resort) and their associated fencing.

Cumulative effects of combined activities of Alternative 7 on BLM-administered lands and actions on other lands in the planning area, and immediately adjacent areas, are expected to result in an increase in pronghorn habitat quality and in the amount of suitable habitat. This expected increase would be due to the moderately-high amount (61 percent) and the moderate distribution of suitable habitat that would be managed with a primary (46 percent) or secondary (15 percent) wildlife emphasis; the moderately high amount (71 percent) of connectivity habitat that would be managed with a primary (60 percent) and a secondary (11 percent) wildlife emphasis; management of habitats toward their historical vegetative conditions and distributions, which would improve a large amount of pronghorn habitat that either has been or is being over-grown by young juniper trees. Alternative 7 would not only provide favorable travel management designations in 52 percent of year round pronghorn habitat, but in the North Millican geographic area, which has a travel management designation that is generally considered unfavorable for wildlife (limited to roads and trails year round), primary wildlife emphasis guidelines would provide for reasonably favorable conditions such as large unfragmented habitat patches. And when North Millican is added there would be 62 percent of the year round habitat managed with a favorable travel management designation. Managing for quality pronghorn habitat in the Bend/Redmond geographic would continue to be a challenge and this alternative would likely continue on the trend of decreasing suitability for pronghorn.

Shrub-Steppe Source Habitat

Also see cumulative effects discussion in the vegetation section of Ecosystem Management.

Alternatives 2, 4 and 5 would manage shrub-steppe habitats in their current range significantly limiting the benefits of vegetation treatments. Alternatives 3, 6 and 7 would manage shrub-steppe habitats toward their historic distribution providing significant benefits to shrub-steppes and likely off-setting some of the negative impacts of the proposed actions by providing more suitable shrub-steppes habitats for dependent wildlife. The fuels treatments within the wildland urban interface areas will generally improve habitat conditions for shrub-steppe. The extent of the improvement will be somewhat tied to the direction of the vegetation management emphasis of each alternative. Fuels management will benefit shrub-steppes more in Alternatives 3, 6 and 7 because the treatments can be better tied into the restoration of grass/shrub plant communities. Whereas in Alternatives 2, 4 and 5 wildlife habitat management, in relation to shrub-steppes, would not be able to fully benefit from the opportunities that would be available in areas where fuels treatments units would overlap or be located adjacent to shrub-steppe habitat treatment units.

Cumulative effects of the combined activities of Alternative 1 on BLM-administered lands and actions on other lands within the planning area are expected to result in a decline in shrub-steppe habitat quality and in the amount of suitable shrub-steppe habitat in the planning area. This expected decline would be due to having a low amount (24 percent) of shrub-steppe habitat with favorable travel management allocations; having a high amount (99 percent) of habitat that would be allocated to motorized travel coupled with the moderately high amount (76 percent) allocated to motorized travel on roads and trails; and the limited amount of shrub-steppe restoration efforts proposed. Even though Alternative 1 would have a high amount (81 percent) of habitat that would be managed with both a primary (64 percent) and secondary (17 percent) wildlife emphasis the associated guidelines often mitigate effects using seasonal closures that occur during the winter time and not during the spring and summer when these source habitats are important to the survival by a large number of migratory birds and seasonally active small mammals, amphibians and reptiles.

Cumulative effects of the combined activities of Alternative 2 on BLM administered lands and actions on other lands within the planning area are expected to result in a decline in shrub-steppe habitat quality and in the amount of suitable shrub-steppe habitats in the planning area. This expected decline would be due to having a moderately low amount (25 percent) of habitat that would be managed with both a primary (22 percent) and secondary (3 percent) wildlife emphasis; having a moderately low amount (25 percent) of shrub-steppe habitat with favorable travel management allocations; the high amount (96 percent) of habitat that would be allocated to motorized travel coupled with the moderately high amount (75 percent) allocated to motorized travel on roads and trails; and the unfavorable vegetation management emphasis of managing habitats in their current distribution.

Cumulative effects of the combined activities of Alternative 3 on BLM administered lands and actions on other lands within the planning area are expected to result in an improvement in shrub-steppe habitat quality and the increase in amount of suitable habitat. This expected improvement would be due to the high amount (93 percent of shrub-steppe habitat that would be managed with both a primary (80 percent) and secondary (13 percent) wildlife emphasis; the moderate amount (42 percent) of shrub-steppe habitat with favorable travel management allocations; having only a moderate amount (57 percent) of habitat that would be allocated to motorized roads and trails;

having 12 percent of habitat closed year round to motorized travel; and having the favorable vegetation management emphasis of managing habitats toward their historic distribution.

Cumulative effects of the combined activities of Alternative 4 on BLM administered lands and actions on other lands within the planning area are expected to result in a decline in shrub-steppe habitat quality and in the amount of suitable shrub-steppe habitats in the planning area. This expected decline would be due to having only a moderate amount (56 percent) of habitat that would be managed with both a primary (43 percent) and secondary (13 percent) wildlife emphasis; having a moderately low amount (39 percent) of shrub-steppe habitat with favorable travel management allocations; the high amount (95 percent) of habitat that would be allocated to motorized travel coupled with the moderate amount (56 percent) allocated to motorized travel on roads and trails; and the unfavorable vegetation management emphasis of managing habitats in their current distribution.

Cumulative effects of the combined activities of Alternative 5 on BLM administered lands and actions on other lands within the planning area are expected to result in a decline in shrub-steppe habitat quality and in the amount of suitable shrub-steppe habitats in the planning area. This expected decline would be due to having a moderately low amount (34 percent) of shrub-steppe habitat with favorable travel management allocations; the high amount (90 percent) of habitat that would be allocated to motorized travel coupled with the moderate amount (56 percent) allocated to motorized travel on roads and trails; and the unfavorable vegetation management emphasis of managing habitats in their current distribution. While this alternative would allocate 81 percent of shrub-steppe source habitats to a both a primary (27 percent) and secondary (54 percent) wildlife emphasis the positive effects of those guidelines will likely be off-set by the amounts of the proposed actions and cumulative effects to result in a decline in shrub-steppe habitat quality and in the amount of suitable shrub-steppe habitats in the planning area.

Cumulative effects of the combined activities of Alternative 6 on BLM administered lands and actions on other lands within the planning area are expected to result in the maintenance of shrub-steppe habitat quality and an increase in amount of suitable habitat. This expected improvement would be due to the moderately high amount (68 percent) of shrub-steppe habitat that would be managed with both a primary (64 percent) and secondary (4 percent) wildlife emphasis; the moderately low amount (35 percent) of shrub-steppe habitat with favorable travel management allocations; the high amount (83 percent) of habitat that would be allocated to motorized travel coupled with the moderate amount (57 percent) allocated to motorized travel on roads and trails; and the favorable vegetation management emphasis of managing habitats toward their historic distribution.

Cumulative effects of the combined activities of Alternative 7 on BLM administered lands and actions on other lands within the planning area are expected to result in an improvement in shrub-steppe habitat quality and the increase in amount of suitable habitat. This expected improvement would be due to the high amount (86 percent) of shrub-steppe habitat that would be managed with both a primary (78 percent) and secondary (8 percent) wildlife emphasis; the moderate amount (44 percent) of shrub-steppe habitat with favorable travel management allocations; having only a moderate amount (52 percent) of habitat that would be allocated to motorized roads and trails; having 52 percent of habitat closed year round to motorized travel; and having the favorable vegetation management emphasis of managing habitats toward their historic distribution.

Juniper Woodland Source Habitat

Also see effects discussion in the vegetation section of Ecosystem Management.

Alternative 1 would manage for slightly less young juniper woodland habitats than Alternatives 2, 4 and 5 by removing young juniper from historically shrub-steppe habitat on approximately 35,000 acres. However, Alternative 1 would result in more young juniper woodlands than Alternatives 3, 6 and 7, because it lacks the aggressive approach of restoring shrub-steppe habitats to its historical range.

Alternatives 2, 4 and 5 would manage juniper woodland habitats in their current range providing significant benefits to juniper woodland dependant species and likely off-setting some of the negative impacts of the proposed actions by providing more suitable juniper woodlands habitats for dependent wildlife. Alternatives 3, 6 and 7 would manage juniper woodland habitats in their current distribution limiting the potential benefits of vegetation treatments. The fuels treatments within the wildland urban interface areas would generally improve habitat conditions for juniper woodlands. The extent of the improvement will be somewhat tied to the direction of the vegetation management emphasis of each alternative. Fuels management would benefit juniper woodlands more in Alternatives 2, 4 and 5 because the treatments can be better tied into the maintenance and restoration of juniper woodland plant communities.

Cumulative effects of the combined activities of Alternative 1 on BLM administered lands and actions on other lands within the planning area are expected to result in a decline in juniper woodland habitat quality and in the amount of suitable juniper woodland habitat in the planning area. This expected decline would be due to having a moderately low amount (38 percent) of habitat that would be managed with both a primary (24 percent) and secondary (14 percent) wildlife emphasis; having a moderately low amount (29 percent) of juniper woodland habitat with favorable travel management allocations; having a high amount (99 percent) of habitat that would be allocated to motorized travel coupled with the moderately high amount (71 percent) allocated to motorized travel on roads and trails; and the limited amount of juniper woodland restoration efforts proposed.

Cumulative effects of the combined activities of Alternative 2 on BLM administered lands and actions on other lands within the planning area are expected to result in a decline in juniper woodland habitat quality and the maintenance in the amount of juniper woodland habitats in the planning area. This expected decline would be due to having a moderately low amount (30 percent) of habitat that would be managed with both a primary (26 percent) and secondary (4 percent) wildlife emphasis; having a moderately low amount (29 percent) of juniper woodland habitat with favorable travel management allocations and the high amount (96 percent) of habitat that would be allocated to motorized travel coupled with the moderately high amount (71 percent) allocated to motorized travel on roads and trails. The maintenance in the amount of juniper woodland habitats would be due to the favorable vegetation management emphasis of managing juniper woodland habitats in their current distribution, and to the priority restoration of 12,317 acres of juniper woodlands.

Cumulative effects of the combined activities of Alternative 3 on BLM administered lands and actions on other lands within the planning area are expected to result in an improvement in old-growth juniper woodland habitat quality but a decline in the amount of suitable juniper woodland habitat. This expected improvement would be due to the moderate amount (55 percent) of juniper woodland habitat that would be managed with both a primary (38 percent) and secondary (17 percent) wildlife emphasis; the moderate amount (47 percent) of juniper woodland habitat with favorable travel management allocations; having only a moderate amount (58 percent) of habitat that would be allocated to motorized roads and trails; having 29 percent of habitat closed year

round to motorized travel; and the specific priority restoration emphasis for managing 56,611 acres. The expected decline in the amount of suitable juniper woodland habitat would be due to the general vegetation management emphasis of managing habitats toward their historic distribution.

Cumulative effects of the combined activities of Alternative 4 on BLM administered lands and actions on other lands within the planning area are expected to result in limited improvements in juniper woodland habitat quality and in the amount of suitable juniper woodland habitats in the planning area. This expectation would be due to the specific priority restoration emphasis for managing 11,000 acres; the favorable vegetation management emphasis of managing juniper woodland habitats in their current distribution; having a moderately low amount (37 percent) of juniper woodland habitat that would be managed with both a primary (33 percent) and secondary (4 percent) wildlife emphasis; having a moderately low amount (18 percent) of juniper woodland habitat with favorable travel management allocations; and the high amount (96 percent) of habitat that would be allocated to motorized travel coupled with the moderately high amount (65 percent) allocated to motorized travel on roads and trails.

Cumulative effects of the combined activities of Alternative 5 on BLM administered lands and actions on other lands within the planning area are expected to result in the maintenance in juniper woodland habitat quality and in the amount of suitable juniper woodland habitats in the planning area. This expected maintenance would be due to the moderate amount (47 percent) of juniper woodland habitat that would be managed with both a primary (32 percent) and secondary (15 percent) wildlife emphasis; having a moderately low amount (30 percent) of juniper woodland habitat with favorable travel management allocations; the high amount (88 percent) of habitat that would be allocated to motorized travel coupled with the moderate amount (54 percent) allocated to motorized travel on roads and trails; having 29 percent of habitat closed year round to motorized travel, and the favorable vegetation management emphasis of managing habitats in their current distribution.

Cumulative effects of the combined activities of Alternative 6 on BLM administered lands and actions on other lands within the planning area are expected to result in the decline of juniper woodland habitat quality and in amount of suitable habitat. This expected decline would be due to the moderately high amount (63 percent) of juniper woodland habitat that would be managed with a general wildlife emphasis; the vegetation management emphasis of managing habitats within their historic distribution; the moderately low amount (35 percent) of juniper woodland habitat with favorable travel management allocations; and the high amount (77 percent) of habitat that would be allocated to motorized travel coupled with the moderately high amount (67 percent) allocated to motorized travel on roads and trails.

Cumulative effects of the combined activities of Alternative 7 on BLM administered lands and actions on other lands within the planning area are expected to result in the maintenance in juniper woodland habitat quality and the decrease in amount of suitable habitat. The expected maintenance would be due to having only a moderate amount (44 percent) of juniper woodland habitat that would be managed with both a primary (34 percent) and secondary (10 percent) wildlife emphasis; the moderate amount (42 percent) of juniper woodland habitat with favorable travel management allocations; having a moderately high amount (71 percent) of habitat that would be allocated to motorized roads and trails coupled with having a moderate amount (58 percent) allocated to motorized travel on roads and trails; and having the unfavorable vegetation management emphasis of managing juniper habitats within their historic distribution.

Ponderosa and Lodgepole Pine

Also see effects discussion in the vegetation section of Ecosystem Management.

Cumulative effects of the combined activities on BLM-administered lands and actions on other lands in the planning area are expected to result in an improvement in ponderosa pine habitat quality and in the growth rate for increasing the amount of suitable mature ponderosa pine habitats in Alternatives 2 through 7. This expected improvement is due to the anticipated restoration efforts identified in Common to 2 through 7, the proposed WUI treatments and the allocation of 100 percent of the ponderosa pine habitats to a primary wildlife emphasis in Alternative 7. Cumulative effects of the combined activities on BLM-administered lands and actions on other lands in the planning area are expected to result in an improvement in lodgepole pine habitat quality and in the growth rate for increasing the amount of suitable mature lodgepole pine habitats in Alternatives 2 through 7. This expected improvement is due to the anticipated restoration efforts identified in Common to 2 through 7, the proposed WUI treatments and the allocation of 75 percent of the lodgepole pine habitats to a primary wildlife emphasis in Alternative 7.

Fisheries

Summary

The BLM is mandated to manage fisheries habitat for fish species present on public lands. The actual fish populations and management of species is controlled by the Oregon Department of Fish and Wildlife. Fish species and locations are described in detail in Chapter 3. The planning area includes only adult foraging habitat (no spawning, rearing, or juvenile habitat) for populations of Bull Trout (Squaw Creek and the Middle Deschutes River) and Effective Fish Habitat (EFH) as defined by the Magnuson-Stevens Act as amended for historic spring Chinook in the Crooked River.

Fisheries habitat within the planning area is primarily affected by hydrologic function, watershed and riparian conditions, and water quality. Aspects of the proposed alternatives that have the potential to affect fisheries habitat are the designation of collector and local roads, designation of Riparian Conservation Areas (RCAs), and the objectives and guidelines for activities that may be conducted in those areas, designation of aquatic strongholds and high priority restoration areas, travel management designations (Open, Closed, or Limited motorized use), and areas available for grazing within riparian areas. These designations may ultimately affect timing of stream flows, amount and quality of riparian vegetation, and water quality. Since most of the Upper Deschutes planning area is uplands, the potential for direct impacts to fisheries from any of the alternatives is low.

Alternatives 2-7 would designate RCAs and aquatic strongholds that would potentially improve fisheries habitat by protecting and maintaining channel complexity and stability, abundance and diversity of side channel habitats, low levels of fine sediment, and instream wood recruitment. Designation of RCAs, prioritization of aquatic strongholds, and guidelines for future activities within those areas would potentially improve future fisheries habitat by protecting, conserving and allowing the recovery of riparian vegetation. Designation of the Chimney Rock and Squaw Creek aquatic strongholds would benefit fisheries habitat by providing guidelines for actions that can occur within RCAs and aquatic strongholds that have the potential to threaten the integrity of the sub-watershed. These guidelines would prevent the degradation of bull trout habitat. Aquatic strongholds would provide a source of individuals to colonize other areas. Alternatives 2-7 also include management direction for the protection of water quality during management activities, and would classify approximately 82 miles of existing roads within RCAs as local roads. This would allow for future designation or closure

of these roads, thus reducing the potential for impacts from sediment that could be delivered from these sources. These common elements of Alternatives 2-7 would provide sufficient management guidance that there would be no anticipated effects to Bull Trout or EFH for historic spring Chinook under any of these alternatives.

General Relationships

Fisheries habitat within the planning area is primarily affected by hydrologic function, watershed and riparian conditions, and water quality. Proposed decisions being considered in the alternatives that have the potential to affect fisheries habitat are the designation of collector and local roads, designation of Riparian Conservation Areas (RCA) and the objectives and guidelines for activities that may be conducted in those areas, designation of aquatic strongholds and high priority restoration areas, travel management designations (Open, Closed, or Limited motorized use), and areas available for grazing within riparian areas. Riparian vegetation is important to fisheries habitat because it aids in channel development by holding stream banks together and providing down, woody material, overhead and instream cover and is used by insects which are an important food source.

The Chimney Rock segment of the Lower Crooked Wild and Scenic River includes State Highway 27 and numerous BLM campgrounds are on the east side of the river. With the exception of the highway and campgrounds, all other sections of the Chimney Rock segment are closed to motorized use, and there are no foreseeable effects to fisheries habitat due to motorized use in that area.

Livestock grazing within the Deschutes River and Crooked River canyons is currently not allowed and would not be changed under any of the alternatives considered in this FEIS/PRMP. Therefore, there would be no effect to fisheries habitat due to grazing in these canyons. Grazing prescriptions for alternatives that would allow grazing would be as outlined in the B/LP RMP. Bear, Sanford, and Deer Creek would continue to allow grazing. Current grazing strategies were designed to improve riparian and stream function thereby improving fisheries habitat. These grazing prescriptions are short duration, deferred rotation, or early season use. They have all been shown to improve riparian habitat and stream channels over time (Ehrhart and Hansen, and Leonard et al. 1993). Potential impacts to fisheries from livestock grazing could include removal of vegetation and shearing of stream banks, which are used for velocity control and overhead cover. Adverse impacts to fisheries habitat from grazing practices are not expected to occur in any alternative considered due to the timing and duration of the existing grazing prescriptions.

Analysis of the Alternatives

The potential to affect fisheries habitat is directly related to the potential for effects to riparian vegetation and water quality. The Riparian and Hydrology sections include more detailed descriptions of the potential effects of the alternatives on these resources.

Alternatives 1 and 2 have the greatest potential to affect fisheries habitat due to the amount of area Open or Limited to motorized travel. Alternatives 3 and 7 have the least potential to affect perennial streams with fisheries south of Prineville Reservoir such as Bear Creek, Sanford Creek, and Deer Creek, since Bear Creek Buttes and the entire area south of Prineville Reservoir would be designated as Limited to roads only. This would reduce the potential for water and sediment derived from motorized trails to enter perennial stream channels and intermittent channels, which would ultimately flow into the perennial streams. Alternative 7 would also reduce the potential for routing sediment and water on motorized trails to Bear Creek by designating the tributary watershed, Sage Hollow, as Limited to designated roads only. Improvements to water quality in these perennial streams would benefit fisheries habitat. Designation of the area in the

vicinity of Sage Hollow for motorized use on roads and trails with Alternative 3 would result in greater potential for sediment being routed to Sage Hollow and Bear Creek than Alternative 7.

Alternatives 1, 2, 3, and 6 would continue grazing at roughly the same levels. Alternatives 4, 5, and 7 would discontinue or reduce the acreage where grazing is allowed. Expected effects are that riparian areas and stream channels would recover at natural rates where grazing would be removed and at or near natural rates on streams where grazing would be allowed to continue.

Cumulative Effects

Alternative 1 has the greatest potential for cumulative effects to fisheries due to the amount of area that would continue to be open to motorized use off of designated routes. When combined with the anticipated population growth and popularity of motorized off road uses, this could result in significant adverse effects to perennial and intermittent streams that currently support resident fisheries. See also the Riparian and Hydrology sections.

Hydrology

Summary

This section includes discussion on watersheds, hydrologic function, riparian, aquatics, and water quality. The BLM and Forest Service are in the process of preparing a joint Water Quality Restoration Plan to comply with the Federal Clean Water Act in addressing 303(d) listed streams (See Appendix E, 303(d) Listed Streams and Protocol). This plan may include actions BLM would need to implement to improve water quality in BLM administered streams and rivers. Many of the hydrologic, riparian, and aquatic elements considered in the alternatives establish an effective framework within which these future actions can be taken. Proposed decisions in the alternatives that may affect water resources include the designation of collector or local roads that would become part of future transportation management decisions; establishment of Riparian Conservation Areas (RCAs) and the objectives and guidelines for the management of those areas; designation of high priority restoration areas including aquatic strongholds and areas where anticipated treatments would focus on the restoration of watershed and hydrologic function; travel management designation and recreation emphasis designed to reduce impacts associated with motorized use; designation of areas available for livestock grazing; and the designation of regional transportation corridors where future use anticipates additional major roadways within the planning area. .

Effects that are reasonably foreseeable as a result of implementing the alternatives are long term, indirect effects on water resources such as changes in infiltration rates, overland flow, routing of water, and erosion; changes in timing of streamflows and riparian vegetation; the potential for livestock use on riparian vegetation; and the related changes in water quality.

For all alternatives, livestock grazing allotments would be evaluated according to the Fundamentals of Rangeland Health. These standards require properly functioning physical conditions so that: 1) soil and plant conditions support infiltration, and soil moisture storage and the release of water are in balance with the climate and landform; 2) water quality meets state standards; and 3) riparian-wetland areas are in properly functioning physical condition. Where the standards are not being met, vegetation would be managed to sustain hydrologic processes to improve surface runoff and subsequent riparian function and water quality.

All action alternatives (Common to Alternatives 2-7) would potentially improve hydrologic function and result in less direct impacts to RCAs, riparian vegetation, and water quality relative to Alternative 1 primarily as a result of moving from "open" to "limited" travel management designations. Alternatives 3, 5, 6, and 7 would be the least disruptive to hydrologic function, with Alternatives 3 and 7 better maintaining hydrologic function within the Bear Creek area and Cline Buttes area adjacent to the Deschutes River, Alternative 5 on Horse Ridge, and Alternative 6 on Horse Ridge and within Smith Canyon. In addition, Alternatives 3, 6 and 7 would have more closed areas to motorized use in the south-central portion of the planning area, in the vicinity of Horse Ridge, Smith Canyon, the Badlands, and in the Tumalo area. However, Alternatives 3, 6, and 7 would also likely displace motorized recreation use, particularly OHV use, to open areas east of the planning area due to motorized use restrictions within the planning area. Closed areas on intermittent and ephemeral streams for Alternative 6 would reduce potential for sedimentation within the Badlands, Horse Ridge, and Tumalo areas. The water quality within these intermittent and ephemeral stream channels would likely be improved, though may be immeasurable. In terms of water quantity within intermittent and ephemeral stream channels, beneficial uses for livestock and wildlife may also be improved.

Potential to affect perennial streams south of Prineville Reservoir such as Bear Creek, Sanford, Creek and Deer Creek through extension of the drainage network would be least with Alternatives 3 and 7 since the Bear Creek Buttes area and the entire area south of Prineville Reservoir would be designated as roads only. This would reduce the potential for water and sediment derived from motorized trails to enter perennial stream channels and intermittent channels, which would ultimately flow into the perennial streams. Alternative 7 would go one step further in reducing potential for routing of sediment and water on motorized trails to Bear Creek by designating the tributary watershed, Sage Hollow, to designated roads only. Improvements to water quality in these perennial streams would support and maintain many beneficial uses, including domestic, livestock, irrigation, recreation, wildlife and fish. Designation of the area in the vicinity of Sage Hollow for motorized use on roads and trails with Alternative 3 would result in potential for more sediment and water being routed to Sage Hollow and Bear Creek. Intermittent and ephemeral streams in the Cline Buttes area may become hydrologically connected to the road and trail network more so with Alternatives 4, 5, 6 and 7 as compared with Alternative 3 because the Cline Buttes area would be closed in Alternative 3 vs. open to roads only in Alternative 5, and open to roads and trails in Alternatives 4, 6 and 7. Potential for routing of sediment and water via the recreation road surfaces on Cline Buttes is the least with Alternative 3 since the whole Cline Buttes area is closed to motorized vehicles, and is reduced with Alternatives 5 and 7 due to the closed area to the east of Cline Buttes adjacent to the basalt rim of the Deschutes River. The closed area in Alternatives 5 and 7 will reduce the potential conduits for transport of sediment and water off of Cline Buttes and into the Deschutes River.

Horse Ridge would be designated for roads only in Alternatives 2, 3 and 4 vs. closed to motorized use in Alternatives 5, 6, and 7. Thus, potential for transport of sediment and water to the ephemeral channels in the Horse Ridge area is greatest for Alternatives 3 and 4 as compared with Alternatives 5, 6, and 7. However, effects would be limited to the ephemeral channels on Horse Ridge, and possibly Dry River, as these stream channels do not flow into any perennial streams.

General Relationships

Vegetation Management

Western juniper affects the hydrologic cycle of a watershed through canopy interception, evapotranspiration, and competition for resources (water/nutrients) with associated

vegetative species. Current conditions have allowed present-day juniper woodlands to become considerably denser than in the recent past. On many sites within the planning area, post-settlement expansion of western juniper has altered the hydrologic function within the shrub-steppe community due to high rates of canopy interception and evapotranspiration. As a result, soil cover by forbs, grasses, and shrubs has declined in the interspace between juniper canopies (Miller et al., 1989; Miller and Wigand, 1994). Vegetative cover acts as an obstruction to overland flow that increases "residence time," or the length of time water remains on the surface before running off. The longer the residence time, the higher the likelihood of increased infiltration. Slope and surface roughness also determine residence time. Where soil cover is reduced, residence time and infiltration is reduced and water does not readily enter the soil. As a result, less water is stored for plant growth and plant production declines, and runoff erodes soil from the surface through either sheet erosion or rill and gully erosion (Trimble and Mendel, 1995; USDA Forest Service, 1996a). Continued soil loss over time can result in crossing a threshold to a lower site potential (Borman, 1995; Dobrowolski, 2000; Eddleman, 1991; USDA Natural Resources Conservation Service, 2001). Sediment derived from this erosion process may contribute to downstream sedimentation of perennial and intermittent stream channels.

When infiltration is low and overland flow is high, a change in timing and amount of peak flows in stream channels may occur, making the system "flashier" (flow events will occur more quickly). While the total runoff does not change, the distribution does, with potentially higher peak flows and reduced flow duration. Those streams located in watersheds with reduced ground cover and steeper slopes, as is the case for areas mapped as High Priority for Restoration, are likely experiencing increased peak flows and reduced flow duration. Therefore, stream channel banks and the associated riparian vegetation are eroded during high flow events, and riparian vegetation is stressed or limited due to the reduced time that water actually remains in the channel. Areas mapped as High Priority for Restoration would benefit the most in terms of hydrologic function and reduced erosion by the removal of post-settlement juniper, primarily due to the higher slopes and amount of bare ground between juniper canopies. The response of plant community composition and structure following juniper removal is highly variable. However, following juniper removal, the annual native perennial forbs and grasses tend to respond the most on sites with shallow soils or south facing slopes (Miller and Wigand, 1994). Data from the past 20 years in existing juniper removal treatment sites within the area mapped as High Priority for Restoration indicate a 9-20 percent decrease in bare ground, and a 1-11 percent increase in grasses.

Analysis of the alternatives is based on projected or likely vegetation treatments that would occur within the High Priority Restoration, Aquatic Stronghold, sage grouse, and canyon restoration areas. Within the priority restoration areas, the potential for improvement to upland hydrologic function is determined by the projected acres of restoration activities in each of those categories. The potential for more riparian-type vegetation and improved channel stability and water quality is determined by the miles of stream within the possible priority areas. Proposed decisions in the plan will determine where, and to what extent, the priority for vegetation treatments may occur. Thus, the acres of potential treatment and miles of streams within those treatment areas will give a relative difference by alternative as to the potential improvement to water quality. More site specific analysis will be completed prior to implementation of any vegetation treatments and would consider effects to water quality. Fuels treatments within the Wildland Urban Interface zones are not expected to have any measurable effects to hydrologic function because most treatments will occur on relatively flat ground

Vegetation treatments anticipated for all alternatives include mechanical and prescribed fire. Wildland fires have been found to accelerate erosion rates because vegetation is an important factor controlling erosion. Factors that control the erosion processes include

the prevailing climate, geology and topography, and the type of fire regime that disrupts vegetative cover. Surface erosion, caused by overland flow, is a dominant response to wildland fires in the Interior Northwest (Wondzell and King, In Press). Severe wildland fire would likely cause greater susceptibility to surface erosion and mass wasting than would prescribed fire or mechanical removal of western juniper due to less consumption of surface organic matter and less probability that soils would become hydrophobic (water repellent). Preliminary results for mountain big sagebrush prescribed fire and wildfires in Oregon, Nevada and California by Miller (2003) indicate that perennial and annual forbs increase in the burned areas; litter cover decreases from 4.5 percent to less than 1 percent following a fire but approaches pre-burn levels after three growing seasons, and bare ground is increased from one to three years following fire.

Burning the vegetation on upland watersheds can affect downslope riparian areas indirectly through changes on surrounding hillslopes. Soil erosion can increase when the burned soil surface becomes exposed to water and wind, although much of the eroded soil materials often only move short distances downslope before stabilizing (DeBano et al., 1998). Although periodic, large influxes of sediment to channels are a fundamental part of stream ecosystems, severe wildland fire may cause rill and gully erosion, which increases the amount of sediment that is deposited on valley floors and in stream channels. However, while influxes of sediment to stream channels have both immediate, often detrimental, impacts on aquatic communities, these effects are often patchy and are essential in the creation and maintenance of certain channel and riparian landforms (Benda et al., In Press; Miller et al.; In Press).

Riparian communities have been replaced by western juniper due to the reduced occurrence of fire (Miller and Tausch, 2001). Conifer expansion into riparian zones competes directly with riparian vegetation such as willow, currant, and bitter cherry to the detriment of the riparian habitat. Riparian shrubs and trees provide more bank and floodplain cover and roughness, and better protect streambanks and floodplains from excessive erosion. In eastern Washington, Liquori and Jackson (2001) found that fire suppression and/or lack of active riparian zone management resulted in dense encroachment of fir forests, which led to poor channel morphology and higher water temperatures relative to streams with scrub-shrub riparian vegetation.

For vegetative treatments using prescribed fire, riparian plant species may be directly affected, but they generally possess adaptations to fluvial disturbances that facilitate survival, recovery, and reestablishment following fires (Dwire, In Press). In addition, many of the riparian plant species found in the planning area will resprout or reestablish by seed, including water birch, serviceberry, chokecherry, currant, and red osier dogwood (USDA Forest Service, 1997b; USDA Forest Service, 1992; Johnson, 2000). White alder would likely be killed if the fire was severe (USDA Forest Service, 1989b). Severe wildland fire can cause severe damage to vegetative covers, while a low-intensity burn, typical of prescribed burns, is likely to have less severe consequences (DeBano et al., 1998). Those areas mapped as High Priority for Restoration, the Aquatic Stronghold Restoration Priorities, and Canyon treatments would respond to a reduction in young conifers within the riparian areas with more vigorous riparian vegetation and improved channel morphology and water quality.

Recreation-Motorized Roads and Trails

Roads and trails effectively increase the drainage network of the watershed through compaction of the road surface and interception of groundwater, thereby creating a more efficient drainage network. Where surface flows are continuous between roads and streams, the road generating or receiving the runoff is considered "hydrologically connected" to the stream network (Wemple, and Grant 1996; Furniss et al., 2000). As a result, a change in timing and amount of peak flows may occur making the system "flashier," meaning the flow events occur more quickly. While the total runoff does not

change, the distribution does, with potentially higher peak flows and reduced flow duration. The effects of an increased drainage network are most prevalent on midslope or roads located higher on hillslopes.

With a "flashier" system and potentially higher peak flows, stream channel banks and the associated riparian vegetation are eroded during high flow events, and riparian vegetation is stressed or limited due to reduced time water remains in the channel. In addition, roads that are located adjacent to or within the floodplain may directly affect riparian vegetation and channel function during high flows. Often during high flow events, roads parallel to the stream channel within the floodplain will capture the flow and act as a secondary channel. Thus, rather than the floodplain functioning to reduce flow and deposit sediment, the road will transport the flow and the road could be eroded into a stream channel.

In addition, erosion from roads and trails is dependent on soil type and slope. Due to the compacted nature of roads, most roads on steep slopes are susceptible to erosion by rilling and gullying where there is not enough rock to provide stability and roughness. However, even roads located on flat slopes with non-cohesive soils, such as sand, may erode into rills and gullies. Erosion of roads may affect upland vegetation and soil productivity where gullies drain the surrounding surface and subsurface water, and may supply to stream channels sediment and road associated chemicals such as spills or oils generated on the road surface (Furniss et al., 2000).

Analysis of the alternatives is based on the allocation of motorized use by the following management designations: motorized use on designated roads only, motorized use on designated roads and trails, motorized use on existing roads and trails, open to motorized vehicles, and closed to motorized vehicles. For analysis purposes, it is assumed that areas closed to motorized use would have the least effect to hydrologic function, riparian vegetation, and water quality. The relative effects would increase with higher road and trail densities, which are assumed to increase in the following order: designated roads only, designated roads and trails, existing roads and trails, and open. For each management area the susceptibility to erosion and extension of the drainage network will be determined by the acres of area on slopes >15 percent, and the potential to directly impact riparian vegetation and stream and floodplain function will be determined by the number of miles of rivers and streams. This information will allow for a qualitative analysis of relative differences between alternatives. However, the analysis does not reflect the hydrologic impacts that may result from more frequent use of roads within designated roads only areas. This is because the analysis is based solely on the type of motorized road and trail management area, and not on levels of use. Expected use on roads within designated roads only management areas, from both OHV and full-sized vehicles, may exceed the BLM's ability to maintain the roads for standard vehicle use. This may result in erosion of the roadbed and creation of additional roads as full-size vehicles drive cross-country to avoid bad road conditions.

Existing closures to motorized use within the Deschutes River and Crooked River canyon bottoms would continue, as would the motorized use closures within the Chimney Rock segment of the Lower Crooked Wild and Scenic River. These closures do not include State Highway 27 and the BLM campgrounds that are located within proposed Riparian Conservation Areas (RCAs) on the east side of the Chimney Rock segment of the Lower Crooked River.

For all alternatives, areas designated as open or having designated roads or trails, there would be potential to extend the drainage network and cause routing of sediment and water on slopes >15%. Thus, areas with motorized use may affect hydrologic function, water quality, and riparian area condition.

Transportation Management

The relationships between effects on water resources and regional and local transportation management are similar to those for Recreation-Motorized Roads and Trails.

Regional Transportation

The proposed allocation of regional transportation corridors could, eventually, result in the granting of road rights-of-way for major local and/or regional arterial roadways. These roadways, if eventually constructed, could affect water resources by construction activities, design and operation of the roadway, and maintenance activities. Construction impacts result from ground disturbance exposing soil to wind and water erosion, and by potential spills of chemicals. Traffic and impervious surface area combine to produce polluted runoff, while a future roadway alignment can disturb landscape elements that contribute to maintaining water quality. An eventual roadway of this nature could disrupt both surface and subsurface hydrology. Maintenance activities could disturb the surface, apply chemicals, and deposit sediments on the roadway that can be washed into surface waters.

The effects of these activities upon water resources depend primarily on site specific information - the magnitude of the proposed roadway, projected traffic volumes, location, vulnerable resources, and the implementation and effectiveness of mitigation measures. There would be no effect on water resources from allocating a corridor. An eventual future roadway constructed in the South Redmond corridor would not affect natural surface waters because there are none in the proposed corridor, nor are there any drainages that would carry storm water to natural surface waters. Nearby irrigation canals could be affected, depending upon eventual road alignment. Similarly, effects to groundwater from a future roadway are likely to be at most nominal. The area has low rainfall and is not a significant contributor to the groundwater aquifer. The potential effects of future development or uses of the corridor cannot be meaningfully analyzed without specific alignments, but the anticipated roadway would be developed to support expected build-out within the current urban growth boundary, and is not expected to induce future development in the area that would have the potential to impact water quality or hydrologic function.

Local Transportation

Analysis of the alternatives is based on the susceptibility to erosion and extension of the drainage network as determined by road miles/density of roads by road class (arterial, collector, local) on slopes >15 percent by watershed. Unlike Recreation- Motorized Roads and Trails, the locations of the major road systems are known. This will allow for comparison of relative differences between alternatives in potential road miles that could be subject to future closures (local roads) and subsequent road miles that are anticipated to be part of the permanent open travel system (arterials and collectors) that could potentially route water and their associated pollutants (sediment, oil, other chemicals, etc.) to stream channels. A net reduction in road miles would potentially decrease the stream network extension by roads and decrease the hydrologic integration of roads and streams.

Analysis of the alternatives is also based on the potential to directly impact riparian vegetation and stream and floodplain function as determined by the miles of road, by road class, that are located within 100 ft. of a perennial stream, or 50 ft. of an intermittent or ephemeral stream channel, by watershed. The 100 ft. and 50 ft. distances are chosen as representative values for RCAs and serve as surrogate RCA interim values, which are based on the flood-prone width. This data would provide a rough estimate of the roads that are located within the floodplain and flood-prone area and may be directly affecting

floodplain function and riparian vegetation. Currently, data does not exist that would precisely locate where roads are impinging on floodplains and riparian areas. Therefore, the 50 ft. and 100 ft. buffer areas serve as surrogates for analysis purposes to determine direct effects on riparian areas and floodplains.

Currently, 82 miles of roadways within proposed RCAs could be available for closure. If closed this would allow for improved riparian vegetation and stream channel function, eliminating compaction within the floodplain and disturbance of riparian vegetation.

Grazing Management

Grazing animals reduce water infiltration by removing protective plant material and compacting the soil surface by hoof action. In general, un-grazed lands have higher infiltration rates than those of grazed lands, moderate and light grazing intensities have similar infiltration rates, and heavy grazing causes definite reductions in infiltration rates over moderate and light grazing intensities (Holechek et al., 1995). A decline in infiltration rates and increase in sediment production is significantly higher on moist soils as compared to dry (Warren et al., 1986a; Warren et al., 1986b). Heavy grazing accelerates erosion by reducing the mulch and plant cover that protects the soils and retards overland flow. Moderate to light grazing will not cause a statistically significant increase in erosion when good plant cover is developed and maintained. Increased erosion may result in sedimentation of streams and rivers. In addition to increased sediment delivery to streams, overland flow may transport animal wastes directly into stream channels, impairing water quality through bacterial contamination and increased nutrient levels (MacDonald et al,. 1991).

One common human activity that has been responsible for the degradation of riparian diversity throughout the western United States is improper domestic livestock grazing (Kauffman et al., 2000). Others confirm that improper livestock grazing, such as continuous or season-long use is most damaging to streamside areas and wetlands because livestock concentrate and linger on those areas due to the convenience of forage, water and cover (Gunderson, 1968; Evans and Krebs, 1977; Severson and Boldt, 1978; Knopf and Cannon, 1981). Effects from improper livestock management through excessive grazing and trampling include reduction or elimination of riparian vegetation which may cause channel aggradation or degradation, changing streambank and channel morphology, and a lowering of the surrounding water tables (Platts, 1986; Kovalchik and Elmore, 1991; Tucker and Leininger, 1990).

Historic grazing regimes have resulted in residual effects to stream channels within the planning area, and currently there are a few localized areas within the planning area where stream channel banks and riparian vegetation continue to be impacted by livestock grazing. Current monitoring within the planning area indicates that most allotments receive light to moderate grazing use.

Proposed decisions for this FEIS will not change grazing season-of-use or grazing intensity. This process occurs as part of a scheduled evaluation process across the Prineville District. All allotments in the planning area will be assessed for compliance with Rangeland Health Standards and Guidelines for Livestock Grazing to promote healthy sustainable rangeland ecosystems (USDI Bureau of Land Management, 1997). The goal is to reduce overland flow and subsequent transport of pollutants to stream channels, enhance timing and duration of streamflows, and to maintain or improve water quality. Therefore, long-term, all allotments within the planning area would be managed for properly functioning riparian and wetland areas and protective vegetative cover to increase infiltration, reduce overland flow and erosion, and improve water quality. In addition, the BLM and FS are preparing joint Water Quality Restoration Plans to address water quality impaired streams listed as 303(d) which could identify additional actions needed to help to improve water quality.

Although grazing use is light to moderate throughout most of the planning area, there is still some potential for reduced infiltration capacity within areas available for grazing compared to areas closed to grazing. This difference between the alternatives will be compared by displaying the number of acres within allotments available for grazing, and the number of acres within allotments closed to livestock grazing. The comparative potential for livestock impacts in riparian areas is described by the number of miles of rivers and streams within allotments proposed to be closed to grazing. For analysis purposes, it is assumed that any grazing will allow for a higher potential for effects to occur to hydrologic function, riparian vegetation, and water quality. Thus, this information will not measure actual acres or miles of streams and rivers that would definitely improve due to removal of livestock grazing. However, it will give a relative measure as to the potential for livestock to reduce infiltration and to use riparian areas, and the potential for surface runoff that contains elevated levels of sediment, bacteria, and nutrients to reach streams.

Perennial, Intermittent, and Ephemeral Streams

Livestock grazing is not currently allowed within the Deschutes River and Crooked River canyons, including the Middle Deschutes and Lower Crooked Wild and Scenic Rivers (USDI Bureau of Land Management et al., 1992) (see Table 4-34). This is continuing management direction that is not revised by the alternatives. Therefore, differences in effects focus on smaller perennial, intermittent, and ephemeral streams.

No current direction limits livestock grazing within the Bear Creek watershed, which is on the 303(d) list for stream temperature. Therefore, there would remain potential for livestock to utilize riparian vegetation to the detriment of the channel. However, a riparian grazing system for over 20 years has transformed Bear Creek from a denuded gully into a recovering system that is currently in Proper Functioning Condition. While it is not at potential, the stream continues to move in the desired direction with reduced stream width, increased depth, and introduction of willows and overhanging sedges that provide shade. Upstream water withdrawals are potentially a major contributing factor for reduced summer stream flows and higher stream temperatures.

Other perennial streams that include allotments that would continue open to livestock grazing include those located south of Prineville Reservoir, including Deer Creek and Sanford Creek. Riparian vegetation and channel conditions in Deer and Sanford Creeks are beginning to recover from past livestock trespass use and flashy streamflows during high intensity thunderstorms. These streams flow directly into Prineville Reservoir and the section of the Crooked River that is on the 303(d) list for stream temperature and pH. High stream temperatures within Deer Creek and Sanford Creek are likely contributing some additional warm water to the reservoir and the Crooked River at low reservoir elevations. However, due to the small quantity of flow derived from Deer Creek and Sanford, they are likely insignificant contributors to the high stream temperatures in the listed segment of the Crooked River.

Table 4-34 Miles of Rivers/Streams Proposed for "Closed" or "Closed or Within Reserve Forage Allotment"[1]

Miles of river or stream in Closed or Closed within RFA	Alternatives							
	Closed							RFA
	1	2	3	4	5	6	7	7
Perennial Rivers (Crooked and Deschutes)	11	11	11	11	11	11	11	0
Perennial/Intermittent/Ephemeral Streams	2	4	4	92	296	133	40	128

[1] Numbers in this table refer to miles within allotments Closed to Grazing, except right-hand column under Alternative 7 refers to miles within allotments in Close or RFA category. Allotments in Close or RFA that are vacant are considered "closed" in this table.

Analysis of the Alternatives

Effects of Alternative 1

Vegetation

This alternative would anticipate treatment of approximately 17,000 acres for improved infiltration, reduced runoff and erosion, and improved soil productivity. However, relative to Alternatives 2-7, Alternative 1 treats very few acres within the planning area and would result in limited improvement to watershed function and riparian vegetation condition as compared with Alternatives 2-7.

Recreation-Motorized Roads and Trail

Based on the amount of area with slopes >15 percent , Alternative 1 would have the most effect to hydrologic function as compared with all other alternatives due to the amount of area where existing roads and trails would be available for use (22,275 acres), and the amount of area designated as open for use year-round (21,215 acres) (see Table 4-35). These areas include Cline Buttes, Powell Buttes, Horse Ridge, West Butte, Prineville Reservoir area, Bear Creek, and canyons in the northwest part of the planning area. These areas open to motorized use and use on existing roads and trails contain hundreds of miles of streams, including Bear Creek, McKenzie Canyon, Deep Canyon, Squaw Creek, and the Crooked River (at low pool elevation in Prineville Reservoir) (Table 4-36). Therefore, Alternative 1 would result in the greatest potential for direct impacts to RCAs relative to the other alternatives by allowing motorized use off roads or trails within watersheds containing perennial, intermittent and ephemeral streams. Increased amounts of sediment and water would be routed into these stream channels, including Bear Creek, Squaw Creek, and the Crooked River, which are on the 303(d) list for stream temperature.

Table 4-35 Miles of Roads on Slopes >15% by Road Class

Road Class	Alternative						
	1	2	3	4	5	6	7
Arterial	13	13	13	13	13	13	13
Collector	7	7	4	4	4	4	4
Local	30	30	33	33	33	33	33
Powerline/Utility ROWs	32	32	32	32	32	32	32

Table 4-36 Acres of Management Area for Roads /Trails on Slopes >15% by Travel Access Designation

Travel Access Designation	Alternative						
	1	2	3	4	5	6	7
Closed to Motorized Vehicles	3,433	7,233	10,705	9,065	15,582	19,017	22,874
Limited to Designated Roads and Trails	8,128	40,804	29,053	30,931	26,331	22,349	15,749
Limited to Designated Roads Only	20	17,475	25,753	25,515	23,599	24,144	28,183
Limited to Existing Roads and Trails	22,275	0	0	0	0	0	0
Open Year Round	21,215	0	0	0	0	0	0

Table 4-37 Number of Miles of Rivers/Streams by Motorized Travel Access Designation

Travel Access Designation	Alternative						
	1	2	3	4	5	6	7
Closed to Motorized Vehicles							
Perennial Rivers (Crooked and Deschutes)	27	27	27	27	27	27	27
Perennial/Intermittent/Ephemeral Streams	30	64	139	74	124	187	138
Limited to Designated Roads and Trails							
Perennial/Intermittent/Ephemeral Streams	207	746	487	508	530	460	367
Limited to Designated Roads Only							
Perennial/Intermittent/Ephemeral Streams	112	168	354	399	325	334	418
Limited to Existing Roads and Trails							
Perennial/Intermittent/Ephemeral Streams	330	0	0	0	0	0	0
Open Year Round							
Perennial/Intermittent/Ephemeral Streams	302	0	0	0	0	0	0

Therefore, water quality would be diminished in terms of sediment, but would likely not affect stream temperature, the parameter for which the streams were listed. The areas with designated roads and trails would include the steeper slopes between West Butte and Horse Ridge. Horse Ridge would be designated road use only. These areas only contain intermittent and ephemeral stream channels that flow out into broad flats and would not likely contribute to water quality problems in perennial streams.

Grazing Management

Based on acres available for livestock grazing (see Table 2-1), and due to the relatively high acreage available for grazing, Alternative 1 would have a moderate to high potential to affect watershed and hydrologic function. However, where light-moderate grazing within the planning area occurs, the potential to reduce infiltration rates as a result of grazing is lessened. Most allotments would allow livestock grazing, which would allow for increased potential for grazing in RCAs that may not be consistent with RCA objectives and would have the least miles of streams (along with Alternatives 2 and 3) closed as compared to Alternatives 4 – 7.

Effects Common to Alternatives 1 and 2

Alternatives 1 and 2 would have potential to affect hydrologic function and extend the drainage network more so than Alternatives 3-7 given the transportation network on slopes >15 percent (Table 4-35). This is due to more miles of collectors remaining open in the vicinity of Sage Hollow, Bear Creek Buttes, Horse Ridge, and north of Prineville Reservoir. Thus, there would be potential in Alternatives 1 and 2 for transport of more sediment and water to be routed from the road surfaces to Sage Hollow, Bear Creek, and Prineville Reservoir relative to Alternatives 3-7.

Effects Common to Alternatives 2-7

Vegetation

All action alternatives (Common to Alternatives 2-7) would make approximately 165,000 acres available for vegetative treatment that would occur within a portion of the High Priority Restoration Area in the vicinity of Prineville Reservoir, the Aquatic Stronghold Restoration Priority areas, and the sage grouse restoration area. Vegetation treatment

with Common to Alternatives 2-7 would indirectly benefit approximately 680 miles of stream channels and riparian areas (see Table 4-38). The treatments within a portion of the High Priority Restoration Area in the vicinity of Prineville Reservoir would potentially improve streamflows, reduce peak flows, and reduce juniper competition with riparian vegetation on 10 miles of perennial streams and 306 miles of intermittent/ephemeral streams, including Bear Creek, Sanford Creek, Deer Creek, Little Bear Creek, and Sage Hollow. Bear Creek is water quality limited for stream temperature. In the long-term, reducing coniferous tree density within the RCAs that directly compete with riparian vegetation would improve stream shade as riparian vegetation amount and vigor is increased. As a consequence, stream temperature and bank and channel stability would be improved, thereby improving conditions for beneficial uses of irrigation, fish, and wildlife. Within the Aquatic Stronghold Restoration Priority areas, similar benefits to streamflow and riparian vegetation would potentially be realized on 20 miles of perennial streams and 62 miles of intermittent/ephemeral streams, including Crooked River below Bowman Dam, the Deschutes Wild and Scenic River from Big Falls to Lake Billy Chinook, and McKenzie Canyon.

Common to Alternatives 2-7 would be expected to increase in riparian vegetation resulting in subsequent improvement in stream channel condition, function, diversity, water quality, and habitat for both aquatic and terrestrial species. Water quality for the Crooked River below Bowman Dam would not be improved as the water quality meets state standards except for dissolved gasses as a result of dam operations. Although the Deschutes River is listed as water quality limited for temperature and pH and is on the 303(d) list, water quality would not likely improve with implementation of any of the alternatives because of limitations due to upstream water diversions for irrigation purposes. (Additional information on this subject will be available in the Water Quality Restoration Plan). Objectives for vegetative treatments within these segments would be to improve the ecological and vegetative condition of the riparian areas. Although some encroachment by western juniper has occurred within the Deschutes River riparian area, it is not to the detriment of shade provided to the stream. Within the Sage Grouse Restoration Area, 280 miles of intermittent and ephemeral streams may attain reduced peak flows and longer residence time of water within the channels.

Recreation-Motorized Roads and Trail

All action alternatives (2-7) would potentially improve hydrologic function and result in fewer direct impacts to RCAs, riparian vegetation, and water quality relative to Alternative 1, no action. This is due to all action alternatives having designated roads or roads and trails, and eliminating open areas. Therefore, since all action alternatives

Table 4-38 Number of Miles of Rivers and Streams within Vegetation Management Emphasis Areas

Stream Type	Alternative						
	1[1]	2	3	4	5	6	7
Perennial Rivers/Streams	5	37	30	37	37	30	30
Intermittent/Ephemeral Streams	75	657	730	657	657	730	730

[1] miles are estimated based on acres of treatment in Brothers-La Pine

are an improvement to water resources and hydrologic function, the remaining effects discussion will focus on relative differences between the action alternatives.

Effects Common to Alternatives 2, 4, and 5

Vegetation

In addition to those areas treated (cut and/or burned) in all action alternatives, Alternatives 2, 4, and 5 would treat 5,800 more acres located within river canyon areas, for a total treatment area of approximately 170,800 acres. Compared with Alternative 1, which would treat approximately 17,000 acres, improved infiltration, reduced runoff and erosion and improved soil productivity would be attained in the long-term on 153,800 more acres with Alternatives 2, 4, and 5. Alternatives 2, 4 and 5 would also make available for treatment an additional 7 miles of river canyon areas, including several segments of the Deschutes River upstream of Lower Bridge, and the Crooked River in the vicinity of Smith Rocks State Park and within the Lower Crooked Wild and Scenic River downstream of the Highway 97 bridge. Water quality would be maintained or improved on these river segments, which are all listed as water quality limited for temperature. Although vegetative treatments within these riparian areas would improve riparian vegetation and bank stability, these treatments would not likely improve stream temperatures. This is due to the reduction in stream flow within the Deschutes and Crooked Rivers as a result of upstream diversions for irrigation and is outside the control of the BLM. It is also likely that the listing for stream temperature of the Crooked Wild and Scenic River downstream of the Highway 97 bridge is not completely accurate, as that segment has a significant groundwater component and may meet state standards for a majority of that segment. Currently, sufficient water temperature data is not available to remove the Lower Crooked River from the 303(d) list.

Also with Alternatives 2, 4, and 5, approximately 7 miles of Deep Canyon would receive vegetative treatments to benefit riparian plant communities by reducing competition with juniper. In the long-term, stream shade would be improved in Deep Canyon as riparian vegetation amount and vigor is increased, which would ultimately lead to improved water quality. In total, implementation of Alternatives 2, 4, or 5 would treat 37 miles of perennial rivers and streams and 657 miles of intermittent and ephemeral streams for a total of 694 miles.

Effects of Alternative 2

Recreation-Motorized Roads and Trails

Alternative 2 would disrupt hydrologic function less so than Alternative 1, but more so than Alternatives 3-7. This is due to most of the area being designated for “road and trail” use with 40,804 acres of area on slopes >15 percent that are designated for “roads and trails”. As a result, Alternative 2 has the most miles of streams (740 miles) of all the alternatives within areas designated for motorized use on “roads and trails”. Therefore, potential to route water and sediment to stream channels, possibly affecting riparian vegetation within RCAs, is highest relative to Alternatives 3-7. The main difference between Alternatives 3-7 and Alternative 2 is that Alternatives 3-7 would have more potential to maintain or improve conditions within perennial streams south of Prineville Reservoir, including Bear Creek, Sanford Creek and Deer Creek, due to motorized use on “designated roads only”. Whereas, within this area south of the reservoir, Alternative 2 would allow motorized use on both designated roads and trails. Thus, potential exists with Alternative 2 for a higher road and trail density and more direct and indirect effects within the RCAs and stream channels than with Alternatives 3-7.

Streams that would potentially be affected with implementation of the roads and trails designation of Alternative 2 include McKenzie Canyon, Deep Canyon, and Tumalo

Creek, which are tributaries to the Deschutes River, a 303(d) listed stream for stream temperature and pH. Other streams potentially affected include Sanford Creek, Deer Creek, Bear Creek, and Sage Hollow, all of which flow into Prineville Reservoir and the Crooked River, which is 303(d) listed for stream temperature and pH. Bear Creek is also on the 303(d) list for stream temperature. Long Slough, a tributary to the Little Deschutes (which is 303(d) listed for stream temperature and dissolved oxygen), would also be managed for motorized use on roads and trails. Water quality for all of these listed segments would not improve relative to Alternatives 3-7 with respect to sediment and possibly pH, but stream temperature would not likely be affected. However, while Alternative 2 would improve riparian vegetation and water quality less so than Alternatives 3-7, improvements to riparian vegetation in RCAs and subsequent water quality would likely occur with implementation of Alternative 2 relative to Alternative 1, which would have an "open" or "existing roads and trails" designation. Alternative 2 would maintain closures to motorized use in small, isolated blocks that would affect short segments of intermittent and ephemeral streams.

Grazing Management

Compared to the other alternatives and based on acres available for livestock grazing (see Table 2-1), Alternative 2 would have a moderate-high potential to affect watershed and hydrologic function. However, where light-moderate grazing within the planning area occurs, the potential to reduce infiltration rates as a result of grazing is lessened. Livestock grazing would be allowed in most allotments, which would allow for increased potential for grazing in RCAs that may not be consistent with RCA objectives and would have the least miles of streams (along with Alternatives 1 and 3) closed as compared to Alternatives 4-7.

Effects Common to Alternatives 3-7

Transportation and Access Management

Alternatives 3-7 would have the same effects, and slightly fewer impacts than Alternatives 1 and 2, due to few collectors located on slopes >15 percent. The reduction in collectors with Alternatives 3-7 would occur in the vicinity of Bear Creek Buttes and Sage Hollow, Horse Ridge, and north of Prineville Reservoir. This reduction in collectors translates directly to an increase in locals that would be available for closure. Thus, there would be less potential with Alternatives 3-7 to transport sediment and water from road surfaces to Sage Hollow, Bear Creek, and Prineville Reservoir if these locals were selected for closure in the future. Bear Creek and the Crooked River in Prineville Reservoir at low pool elevation are on the 303(d) list for stream temperature. If the local roads within Bear Creek and Prineville Reservoir area were closed, there would be potential to reduce sediment introduced into the stream channels, but may not assist in reducing stream temperatures.

Effects Common to Alternatives 3, 6, and 7

Vegetation

Alternatives 3, 6, and 7 would treat approximately 180,000 acres of post-settlement juniper within the entire area identified as High Priority for Restoration, Aquatic Stronghold areas, and an expanded sage grouse treatment area. Compared with Alternative 1, which would treat approximately 17,000 acres, improved infiltration, reduced runoff and erosion and improved soil productivity would be attained in the long-term on 160,000 more acres with Alternatives 3, 6 or 7. Alternatives 3, 6 and 7 would also treat a total of 760 miles of stream channels. In addition to those miles treated in Alternatives 2-7, 80 more miles of intermittent and ephemeral channels located within the entire area mapped as High Priority for Restoration (including Dry River), and within

the expanded sage grouse restoration area would benefit from reduced competition with juniper. However, while Alternatives 3, 6, and 7 treat a higher number of stream miles, Alternatives 2, 4, and 5 propose to treat more miles of perennial streams and rivers. Alternatives 3, 6 and 7 treat more intermittent and ephemeral stream channels. These additional stream miles treated with Alternatives 3, 6 and 7, for the most part, flow out onto broad, flat expanses in the southern portion of the planning area, or may flow into Dry River, an intermittent stream that is a tributary to the Crooked River. Therefore, although there would be more miles of improved water quality with implementation of Alternatives 3, 6, and 7, it would likely not improve stream temperature or other water quality parameters in perennial streams.

Short-term (within 1-3 years), runoff and surface erosion would remain the same or possibly increase in treatment areas, particularly during intense storms, with implementation of all alternatives until which time vegetative cover returns in the form of forbs, grasses, shrubs, and litter. Due to the larger number of acres treated, Alternatives 3 and 6 would potentially produce the most surface erosion in the short term. Over the long term, following increased ground cover and reduced bare ground, it is estimated that overland flow and surface erosion will decrease as compared to current conditions.

Effects of Alternative 3

Recreation-Motorized Roads and Trail

Alternative 3 would have less potential to affect hydrologic function compared with Alternatives 1, 2, and 4 because Alternative 3 has more area in the "closed" and "roads only" categories where slopes are greater than 15 percent. Alternative 3 would close the Cline Buttes and Tumalo area to motorized use. Potential for routing of sediment and water via the recreation road surfaces on Cline Buttes is the least with Alternative 3 since the whole Cline Buttes area would be closed to motorized vehicles. Alternative 3 would maintain a closure to motorized vehicles in the Badlands, thereby closing the Dry River RCA to motorized use. Alternative 3 would allow use on designated roads and trails in the area north of Prineville Reservoir and in the Sage Hollow area, which is a tributary to Bear Creek. Thus, with Alternative 3, there is potential for direct effects to intermittent and ephemeral streams north of Prineville Reservoir and in the Sage Hollow area. As stated above, Bear Creek and the Crooked River in Prineville Reservoir at low pool elevation are on the 303(d) list for stream temperature and pH (Crooked R. only). Motorized use on designated roads on Horse Ridge would potentially increase transport of sediment and water to the ephemeral channels in the Horse Ridge relative to Alternatives 5, 6, and 7, which close Horse Ridge to motorized use. However, effects would be limited to the ephemeral channels on Horse Ridge, and possibly Dry River, as these stream channels do not flow into any perennial streams. Alternative 3 would also close areas above the canyon rim along the Deschutes River. Although this section of the Deschutes River is listed for temperature and pH, Alternative 3 would potentially reduce the amount of sediment derived from roads and trails above the canyon rim. Alternative 3 would also likely displace motorized recreation use, particularly OHV use, to open areas east of the planning area due to motorized use restrictions within the planning area.

Grazing Management

Compared to the other alternatives and based on acres available for livestock grazing (see Table 2-1), Alternative 3 would have a moderate to high potential to affect watershed and hydrologic function. However, where light-moderate grazing within the planning area occurs, the potential to reduce infiltration rates as a result of grazing is lessened. Livestock grazing would be allowed in most allotments, which would allow for increased potential for grazing in RCAs that may not be consistent with RCA objectives and would have the least miles of streams (along with Alternatives 1 and 2) closed as compared to Alternatives 4-7.

Effects of Alternative 4

Recreation-Motorized Roads and Trail

Alternative 4 would have motorized use on "designated roads" along the Deschutes River rim near Cline Buttes, Tumalo area, east side of Bear Creek area, the Badlands, and Horse Ridge. The west side of Bear Creek would also have "designated roads and trails" with Alternative 4. This alternative would maintain more area in the "roads only" category than "closed" relative to Alternatives 3-7. Therefore, Alternative 4 has more potential to introduce sediment and directly impact RCAs and water quality in the Deschutes River, Bear Creek, and intermittent and ephemeral streams in the Badlands (Dry River), and Horse Ridge area as compared with Alternatives 3 and 7. However, the stream network in the Badlands and Horse Ridge area is entirely ephemeral in nature (including Dry River); and therefore, they flow only during times of intense summer thunderstorms or snowmelt, and do not connect to any perennial streams. Areas closed to motorized use are limited to small, isolated blocks that would affect short segments of intermittent and ephemeral streams.

Grazing Management

Compared to the other alternatives and based on acres available for livestock grazing (see Table 2-1), Alternative 4 would have a moderate potential to affect watershed and hydrologic function. However, where light-moderate grazing within the planning area occurs, the potential to reduce infiltration rates as a result of grazing is lessened.

Alternative 4 would be better at maintaining or improving RCAs than Alternatives 1-3 by closing portions of the Deep Canyon and McKenzie Canyon areas to livestock grazing. McKenzie and Deep Canyon both flow into a segment of the Deschutes River that is on the 303(d) list for stream temperature and pH. While there is currently no information to indicate that McKenzie and Deep Canyons are contributing to the high stream temperatures, potential remains for livestock grazing to utilize riparian vegetation and reduce stream shade. However, McKenzie Canyon is a perennial stream only due to its use as an irrigation canal during the growing season, when water stored in a pond in its headwaters is released for irrigation purposes. As a consequence, McKenzie Canyon supports diverse and healthy riparian vegetation. The area adjacent to Cline Buttes and along the Deschutes River canyon rim would also be closed to livestock grazing with Alternative 4. Thus, there would be less potential for compaction and runoff of water, sediment, and nutrients into the Deschutes River, and Deep and McKenzie Canyons.

Effects of Alternative 5

Recreation-Motorized Roads and Trail

Alternative 5 would be less disruptive to hydrologic function than Alternatives 2, 3, and 4 due to more area on slopes >15 percent in the closed category, including Horse Ridge and Powell Buttes. However, the higher acreage figure shown as closed on slopes >15 percent in Alternative 5 as compared with Alternative 3 is due to the closed designation on Horse Ridge. As a result, there is less potential for extension of the drainage network by roads on Horse Ridge, and the intermittent and ephemeral channels would not have increased flows or be directly impacted by roads. Based on the number of miles of streams located within closed areas, the potential to directly affect RCAs and riparian vegetation is greater for Alternative 5 relative to Alternative 3. Most of these additional miles open to use on designated roads are located on Cline Buttes and in the Tumalo area. Alternative 5 would allow for motorized use on roads only in the Badlands, which is relatively flat terrain, and north of Prineville Reservoir. Therefore, there would be limited potential for roads to capture and transport water and sediment to stream channels as compared with a roads and trails designation. However, as indicated with Alternative 4, the streams in the Badlands area are all ephemeral in nature and do not connect to any perennial streams. The roads and trails category for a portion of the Bear Creek area and Sage

Hollow would potentially introduce more sediment and increase water transport in Bear Creek relative to Alternative 7.

Grazing Management

Based on the total acres available to livestock grazing (see Table 2-1), Alternative 5 would have the least potential to affect watershed and hydrologic function.

Since Alternative 5 would have more area closed to livestock grazing, it is assumed there would be the least compaction and best infiltration of all alternatives. As a consequence, Alternative 5 would be the best at improving or maintaining water quality in perennial, intermittent and ephemeral streams by reducing the potential for compaction, reduced infiltration and overland flow. Streams within these closed areas include Deep and McKenzie Canyons, Squaw Creek, and the Little Deschutes River. Alternative 5 would result in fewer miles of RCAs grazed relative to all other alternatives by closing the most area and the most miles of intermittent and ephemeral streams to livestock grazing. Elimination of livestock use in these areas would reduce potential for livestock use on riparian vegetation, thereby maintaining or improving stream shade, channel bank stability, and reducing potential for sedimentation and nutrient loading. Both Squaw Creek and the Little Deschutes River are listed for stream temperature. However, the amount of BLM managed lands immediately adjacent to these two waterbodies is very limited (Squaw Creek 0.5 miles; Little Deschutes 1.0 mile). Therefore, in other alternatives that are open to livestock grazing in these two areas (Alternatives 1-4 and 6), potential for direct effects to riparian vegetation and stream banks on Squaw Creek and the Little Deschutes River would be extremely minimal.

Effects of Alternative 6

Recreation-Motorized Roads and Trail

Implementation of Alternative 6 (and 7) would have the least potential effect within RCAs because they would maintain the most intermittent and ephemeral channels within zones closed to motorized use relative to all action alternatives. The streams located in closed areas to motorized use with Alternative 6 would include Dry River within the Badlands WSA, Smith Canyon, and other intermittent and ephemeral streams on Horse Ridge and within the Tumalo area. Alternative 7 would close the Badlands WSA, Tumalo area, and the rim along the Deschutes River near Cline Buttes to motorized use, but would allow motorized use on roads and trails in Smith Canyon. Both Alternative 6 and 7 would allow motorized use on roads and trails in Cline Buttes area, Deep Canyon and McKenzie Canyon watersheds. While both Alternative 6 and 7 would maintain roads only surrounding Prineville Reservoir and much of Bear Creek, Alternative 7 would extend the roads only designation to include all of Bear Creek and the Sage Hollow area, a tributary to Bear Creek. Therefore, most of the Bear Creek watershed would be subject to much reduced transport of sediment and water into Bear Creek, a 303(d) listed stream for temperature, with Alternative 7. Alternative 6 would also likely displace motorized recreation use, particularly OHV use, to open areas east of the planning area due to motorized use restrictions within the planning area.

Grazing Management

Compared to the other alternatives and based on acres available for livestock grazing (see Table 2-7), Alternative 6 would have a moderate potential to affect watershed and hydrologic function. However, where light to moderate grazing within the planning area occurs, the potential to reduce infiltration rates as a result of grazing would be lessened.

Alternative 6 would be similar to Alternative 4, but would better protect intermittent and ephemeral streams through closures in the La Pine area, but would not provide

closures in the Deep Canyon and McKenzie Canyon area. Thus, although Table 4-37 indicates more miles of streams closed in Alternative 6, all of those miles closed would be intermittent or ephemeral streams, whereas Alternative 4 would close several miles of perennial stream on McKenzie and Deep Canyon, as stated above in the discussion of Alternative 4.

Effects of Alternative 7

Recreation-Motorized Roads and Trails

Implementation of Alternative 7 would have the least potential effect within RCAs because they would maintain the most intermittent and ephemeral channels within zones closed to motorized use relative to all action alternatives (see Alternative 6 description of effects).

Grazing Management

Compared to the other alternatives and based on acres available for livestock grazing (see Table 2-7), Alternative 7 would have a moderate to low potential to affect watershed and hydrologic function. However, where light-moderate grazing within the planning area occurs, the potential to reduce infiltration rates as a result of grazing is lessened.

Alternative 7 would also provide many miles of streams closed to livestock grazing or reduced grazing frequency (grazed one out of three years) and would be the next best alternative, compared with Alternative 5, for reducing potential for reduced infiltration and overland flow, and maintaining and protecting RCAs on perennial streams. Although the majority of the Squaw Creek area would remain open to livestock grazing, the Deep Canyon and McKenzie Canyon areas, as well as the area directly adjacent to Squaw Creek (<0.5 mi of Squaw Creek) would be closed to livestock grazing or within the RFA. The Badlands, including Dry River, would be closed to grazing. Therefore, potential for livestock use on vegetation adjacent to Dry Creek, an intermittent/ephemeral channel, would be eliminated. In the long-term, a reduction in the frequency of grazing would minimize compaction and return infiltration to near non-grazing rates.

Cumulative Effects

Potential cumulative effects of the alternatives considered include channeling or routing of water and subsequent erosion that may cause reductions in water quality as a result of "designated routes" or "closures" to recreation motorized roads and trails, non-motorized recreation use, and vegetation management. The area of analysis includes the planning area, north of the planning areas as that is direction of flow of the major rivers, and east of the planning area due to its "open" designation for motorized use.

The combination of juniper management and designation of recreation motorized roads and trails to "designated routes" or "closed", would reduce potential for excessive erosion and routing of sediment to stream channels with all action alternatives. This would result in less turbid water being supplied to the Crooked River and Deschutes River and, ultimately Lake Billy Chinook to the north. However, with expected increased future use of both motorized and non-motorized recreation, there is potential that use may exceed the BLM's ability to maintain the roads and trails to standards required for resource protection and maintenance and improvement of water quality. In addition, with restrictions on motorized use within the planning area with implementation of the action alternatives, use may be shifted to the east, outside of the planning area where the motorized use designation is "open". This may result in unintended additional erosion and routing of water and sediment to streams that flow into the Crooked River upstream, and to the east, of the planning area.

Fire and Fuels Management

Summary

Fuel treatment activities often have a short-term effect on recreation opportunities, visual and air quality, and a long-term effect of improved vegetative vigor, a more fire-safe landscape, and more fire-safe communities. Introduction of exotic species will be a concern given any vegetative treatment, especially those areas with a seed source already available.

The Wildland Urban Interface (WUI) zone currently occupies 212,500 acres of the planning area, and it is expected to continue its expansion. BLM administers about 39 percent of the WUI zone, with the remaining 61 percent in the hands of private owners.

All action alternatives in the FEIS/PRMP respond to National Fire Plan objectives to manage for wildland fuel conditions that contribute to fire safe communities with an aggressive hazardous fuels reduction program. Annual treatments in the Wildland Urban Interface could be as much as 12,650 acres. Given a large commitment to the fuels program, the first entry could be accomplished within a five year period. An annual WUI maintenance program would follow that could treat approximately 4,300 acres annually. These treatments would greatly improve the ability of fire suppression forces to safely manage wildland fire adjacent to communities in the planning area, although there will be effects to air quality, wildlife habitat availability, visual quality, and recreational opportunities. The WUI fuels treatments will create jobs in the natural resources contracting community, increasing income potential for the local economy.

General Relationships

Populations in Central Oregon will continue to expand at or near the current growth rates, filling in open spaces within existing communities and reaching out into current wildlands with new subdivisions and community centers. At the same time, open spaces with communities fill in with new homes and businesses, slowly alleviating the risk of wildland fire within neighborhoods as the communities themselves become more urban.

The concerns regarding fire movement across property lines goes both ways; from the federal lands to the private and from the private onto the federal. Public and firefighter safety is the top priority in fuels and fire management. Ground suppression forces can operate safely adjacent to flames that are 4 feet in length and less. Extreme fire behavior, including crown fire, rapid surface spread, and long-range spotting, creates an unsafe environment for firefighters and the public. Objectives for treatments in the Wildland Urban Interface focus on creating a safe working environment for fire suppression forces. The area adjacent to homes and communities is also valued for a variety of reasons, including wildlife habitat, unique vegetative communities, visual quality and recreational opportunities among others. Any management done in the name of hazardous fuels reduction in that zone must also consider the other objectives

Wildland fire will not be eliminated in these ecosystems. The vegetation, both living and dead, that fuels wildland fire will continue its cycle of birth, growth, reproduction, death and decay. In the dry Central Oregon climate, the growth and accumulation of biomass is more rapid than the decay potential in most areas, so in general fuels accumulate over time. The rangeland and woodland ecosystems tend to develop more total biomass over time, but fewer fine grasses and forbs that could carry fire, resulting in greater fire potential on the hottest, driest, windiest days and lesser potential for fire spread on average days. The landscape is prone to wildland fires in the summer months, when the combination of hot, dry weather, lightning, and human caused ignitions contribute to conditions perfect for burning.

A successful strategy will be built upon designing a vegetative environment, including species and structural characteristics that will produce desired, safely manageable fire behavior in the event of an unplanned ignition. There are no communities that are completely "fire safe." Certain combinations of ignition, fuel moisture in the live and dead vegetation, wind, and relative humidity can combine under extreme circumstances to threaten any community. A reasonable target is for fire behavior that will allow for firefighter safety and community protection given 90th percentile weather conditions. Successful community protection strategies must include all of the players and partners within and adjacent to communities. Federal agencies must coordinate closely with state and local government and private community efforts across jurisdictional lines. Fuels treatments on federal lands alone will rarely improve the chances for safe and successful fire suppression if the homes to be protected are surrounded by fuel on the private property, and the structure itself is constructed of extremely flammable materials. The most effective strategy is to have a fire-safe structure, surrounded by vegetation on the private property that will burn with low intensities, surrounded by wildlands (regardless of ownership) that are managed for low-intensity fire behavior.

Proposed decisions within the scope of this EIS may directly or indirectly affect fuels and fire potential on BLM-administered lands by establishing allocations, objectives, and guidelines for fire and fuels management. The effects described here are discussed in terms of potential for effects, because many of the potential activities described are likely to be implemented in the future but are not specifically analyzed or authorized at this time.

Wildland Fire Management

Under any alternative considered, some level of prescribed burning would continue to occur annually in the planning area, including wildland fire incidents and prescribed fire activities at current levels under Alternative 1 and that anticipated under Alternatives 2-7.

All alternatives would have fire effects, either from wildland fires or managed prescribed fires. Fire activity that would occur within the planning area includes human and lightning-caused unplanned ignitions, broadcast burns, jackpot burns, and pile burning. All alternatives and all fire events would have similar burn effects, with differences only in the amount of acres involved, intensities, and timing of events. These effects include:

- Potential conflicts with recreational users who may be displaced by emergency management vehicles;
- Potential invasion or spread of exotic species following fire, particularly where an exotic species seed source is present and the native vegetation is not dominant or vigorous.
- Grazing permittees who are asked to rest the site before and after a prescribed burn;
- Air quality effects from burning;
- Changes to visual character of an area;
- Changes to wildlife habitat conditions for sage grouse and other species making their homes in the high desert shrub-steppe environment. Vegetation that is burned is often not used by wildlife immediately following the fire, but as the area recovers with a growth of grasses and forbs the following year, the fire area often becomes habitat for those species using early seral plant communities. Disturbance events like fire tend to add more edge habitat and vegetative diversity when the burn is a mosaic pattern, or the burned patch is in the hundreds to thousands of acres range. Extremely large fire events (tens to hundreds of thousands of acres) burning with high- severity tend to reduce the overall vegetative diversity;
- Soils effects from burning, ranging from light burns that leave some of the organic material on site to severe burns that remove most of the organic matter and expose the soil surface to potential erosion from wind and precipitation. These effects are specific

to the site, the properties of the soil, the amount, size, and arrangement of organic material before burning, and the amount of slope. In some cases fire frees nutrients and makes them available for uptake by plants, but very hot burns or pile burns that concentrate fuels could volatilize a majority of nitrogen directly beneath the fire.

Wildland Fire Use and Suppression

Protection of human life (firefighter and public safety) is the highest priority during a wildland fire. Once firefighters have been assigned to a fire, their safety and that of the public is the highest value to be protected. Property and natural and cultural resources are lower priorities. Fire suppression activities will continue based on providing an appropriate management response to each incident. Existing fire risk classes range from the lowest values at risk (Class 1) to the highest values at risk (Class 6 – urban/wildland interface). This management direction identifies where and under what conditions prescribed fire may be safely used to manage vegetation and habitat in the planning area and provides the basis for determining fire suppression action.

Fire Regime Condition Classes and Hazardous Fuels Reduction

The "Review Update of the 1995 Federal Wildland Fire Management Policy" acknowledges that fire is a critical natural process and must be reintroduced into the ecosystem on a landscape scale. Both the "Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin" (USDA Forest Service and USDI Bureau of Land Management, 1998) and the "Review Update of the 1995 Federal Wildland Fire Management Policy and Program Review" recognize fire's essential role as an ecological process. The plan describes areas appropriate for the use of fire to meet management goals, and guidelines to direct its use. The plan also provides for non-burning alternative treatments designed to reduce fire potential. Hazardous fuels reduction objectives may be met through a combination of fuels treatments, including thinning, mowing, pruning, piling, burning, grazing, or other approaches that reduce the three dimensional fuel profiles and reduce the risk of crown fire or uncontrollable surface fire.

Approximately 74 percent of BLM-administered lands within the planning area have missed two or more expected fire cycles. Changes to the native plant communities from past management choices such as fire suppression, road building, agricultural and urban conversion of wildlands, timber harvest, and grazing have contributed to the altered fire environment.

It is not desired, or possible, to restore every acre of federal land within the planning area to a Fire Regime Condition Class 1. Many acres will be managed for those Fire Regime Condition Class 2 and 3 vegetative structures and fuel loadings that are desirable for meeting other resource objectives (see Table 4-39). Choices about how to prioritize restoration and maintenance projects involve opportunities to meet multiple objectives at the landscape scale, including reduction of risk at the WUI, sustainable habitats and watersheds, visual resources and recreational opportunity, and social and economic opportunities and constraints.

The most significant change in the natural fire environment has been the establishment and growth of the human populations within the planning area. The presence and continuous growth of human communities will limit the opportunity for fire use as a natural process to maintain wildland ecosystems into the foreseeable future. There is a great potential to approximate some the effects of wildland fire through the use of prescribed fire and mechanical fuels treatments.

With the protection of human life as the highest priority during a wildland fire, fuel conditions will be managed adjacent to "Communities at Risk" to allow for safe operations during fire suppression. All hazardous fuels management activities in the

Wildland Urban Interface (WUI) would take place following site-specific analysis. That analysis would consider the amount and arrangement of fuel that will contribute to wildland fire behavior under high and extreme summer weather conditions. Objectives for fuels management in the WUI would be linked to obtaining fire behavior that yields the desired results and includes safety of the public and fire suppression forces.

All alternatives are anticipated to have some mechanical fuels treatment effects to reduce hazardous fuels, the difference being only in the amount of acres identified as priority for treatments. Mechanical fuels treatments effects include cutting, thinning, pruning, or brushing with chainsaws, mowers, or other mechanized equipment. Mechanical treatments may also be accomplished with grazing. Those effects are:

- Potential conflicts with recreational users who may be displaced or re-directed during operations,
- Potential conflicts with recreational users who may create trails or access areas that are closed to motorized use following vegetation treatments that reduce ground cover,
- Changes to visual character of an area, particularly if activities create linear visual features in visual resource management categories 1 and 2,
- Changes to wildlife habitat and availability. Fuels treatments may reduce hiding cover, interrupt connectivity corridors, and alter the kind and abundance of habitat available, which may benefit some species while disadvantaging others.
- Soil effects are possible with mechanized equipment that could cause compaction,
- Potential invasion or spread of exotic species following mechanized treatment is a potential, especially where a seed source exists already and the native vegetation is not vigorous.

Wildland Urban Interface Zone

The Wildland Urban Interface is a zone based on the development and expansion of "Communities at Risk" from wildland fire. The Wildland Urban Interface (WUI) currently occupies 212,500 acres of the planning area, and it is expected to continue its expansion. BLM administers about 39 percent of the WUI zone, with the remaining 61 percent in the hands of private owners. Those total acres considered to be within the WUI zone are likely to increase with new development.

Analysis of the Alternatives

Effects of Alternative 1

Management direction in the Brothers/La Pine Resource Management Plan is carried forward unchanged in all of the action alternatives.

Effects Common to Alternatives 2- 7

For the purposes of this plan, which is strategic rather than prescriptive, fuels treatment effects are indirect effects. No direct effects are evaluated here.

The values at risk classes as described in Alternative 1, Brothers/La Pine RMP, are not being changed in Alternatives 2-7, with the exception of the creation of a new Wildland Urban Interface special management zone that will replace portions of the areas previously mapped as Classes 4 to 6.

Alternatives 2-7 respond to National Fire Plan objectives to manage for wildland fuel conditions that contribute to fire safe communities with an aggressive hazardous fuels reduction program. Anticipated annual treatments in the Wildland Urban Interface could total up to 12,000 acres. Given a large local and national commitment to the fuels program, the initial treatment for interface treatment will be executed within a

five year period, with an annual WUI maintenance program following that could treat approximately 4,300 acres annually.

Hazardous fuel reduction in the Wildland Urban Interface is a high priority. Due to the number of acres involved, not all acres can be accomplished in one year. While the ability to complete the analysis and implementation depends heavily upon the budget, based on fuels treatment dollar availability in the past three years, we will assume that in the WUI hazardous fuels dollars are not limiting, and the only constraint is in the ability to plan and implement given scarce contracting and planning resources. The most ambitious program would accomplish the initial treatment of all acres within a five-year period. Acres that are currently functioning well would need a maintenance treatment once every 10 to 15 years in forested ecosystems, and annual mowing or grazing to maintain light fuels at the interface in rangeland systems.

Table 4-39 – WUI Potential Annual Treatments, displays the maximum projected annual treatment acres in the WUI. Actual annual treatments are expected to be smaller than the 12,650 acres described below due to budget, climatic, or environmental limitations.

The size of the WUI varies with vegetative type, based on potential fire behavior. Forest fuels are heavy and can support extreme fire behavior, with crown fire and long range spotting contributing to safety concerns and resistance to control. In these areas, including lands in the La Pine area and ponderosa pine stands near Tumalo and Sisters, the WUI zone is 1.5 miles from the mapped Communities at Risk as published in the 2001 Federal Register. For communities surrounded by rangelands and woodland vegetation types with lighter fuel loadings, the WUI zone is 1.2 miles. These zones are considered to be the starting point from which to discuss and analyze hazardous fuels that may threaten firefighters or the public in the event of an unplanned ignition. Actual treatment areas may be narrower or wider than that, depending upon site-specific objectives and conditions of fuels and topography that are adjacent to communities.

Table 4-39 Wildland Urban Interface, Potential Annual Treatments

WUI Acres by Type	Total Acres	BLM Ownership (percent of total)	BLM Acres to Treat Total	BLM Annual Treatment Acres	Types of Treatment Activities
Forest, 1.5 mile zone, first treatment	76,005	44,701 (58%)	30,000 ac (about 2/3 of BLM forestland WUI)	6,000	Thinning, piling, and pile burning, pruning, mowing, grazing
Forest, 1.5 mile zone, maintenance treatment			44, 700 ac, maintenance treatment every 15 years	2,980	Mowing, grazing, hand cutting of shrubs and seedlings to prevent ladder fuel development
Range 0.5 mile zone, first treatment	136,502	39,207 (34%)	11,700 ac (assumes that only 1/3 of BLM rangeland WUI needs restoration treatment)	2,340	Mowing, grazing, hand cutting of shrubs, piling and pile burning
Range 0.5 mile zone maintenance treatment			39,200 ac	1,320	Mowing, grazing, hand cutting of shrubs, within 200 feet of property line, treat every two years
Totals	**208,657**	**79,963 (38%)**	**41,700 first treatment**	**12,650 acres (8,340 first entry 4,300 maint. treatment)**	**Total potential annual treatments in the WUI, 12,650 acres**

Visual Resources

Visual resources are an important consideration in the planning area. Opportunities for conflict exist where the Wildland Urban Interface overlaps a VRM Category 1 or 2 area. Where that occurs, fuels management reduction projects would be designed to meet VRM objectives for that category as defined below in Table 4-40.

WUI fuel treatments and potential social conflicts

Where WUI intersects other specially designated areas, WSAs, Wild and Scenic River corridors, ACECs, or RNAs, the fuels objectives will be pursued within the framework of the objective for the special management designation.

Reduction of hazardous fuels in the WUI may increase conflicts between recreational users and adjacent landowners, increase incidents of unauthorized use, and could potentially impact visual quality, wildlife habitats, populations of rare plant species, spread of exotic species, or availability of forage or small wood products to the public. To better manage public use of BLM-administered land and to reduce the potential adverse impacts of fuels treatments to adjacent landowners, site-specific analysis would include mitigating measures in the project design. Those measures may include:

- Educational approaches, including posting of signs and working with the adjacent homeowners to enlist their support for appropriate use of BLM-administered land;

Table 4-40 VRM Category/Acres within WUI Zone

VRM Category	Acres of Each Category in the UDRMP WUI Zone	Percent of BLM WUI acres
Private Ownership	441	
Unassigned Acres	3,247	
Class 1 – Natural ecological changes and very limited management activity are allowed. Any contrast created within the characteristic landscape must not attract attention.	1,717	1.97%
Class 2 – Changes in any of the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape. Contrasts are seen, but must not attract attention.	6,580	7.56%
Class 3 – Contrasts to the basic elements caused by a management activity are evident, but should remain subordinate to the existing landscape.	9,019	10.37%
Class 4 – Any contrast attracts attention and is a dominant feature of the landscape in terms of scale, but it should repeat the form, line, color, and texture of the characteristic landscape.	67,230	77.28%
Class 5 – The classification is applied to areas where the natural character of the landscape has been disturbed to a point where rehabilitation is needed to bring it up to one of the four other classifications. The classification also applies to areas where there is potential to increase the landscape's visual quality. It would, for example, be applied to areas where unacceptable cultural modification has lowered scenic quality; it is often used as an interim classification until objectives of another class can be reached.	0	0.00
Total	**88,234**	

- Physical barriers left or installed as part of the fuels treatment, including boulder placement, log barriers, fences, and vegetative patches or strips left in deliberate patterns to discourage unauthorized use;
- Design features should be employed to reduce the potential indirect effects of the fuels treatment on designated trails. It may be appropriate to move or close designated trails or roads within the WUI zone to reduce conflicts between users and adjacent landowners;
- Where backyard stewardship contracts are forged to treat the hazardous fuels at the WUI, consider including an agreement with adjacent landowner/stewards to refrain from accessing their private lands or other BLM-administered land through the treated area.

The effectiveness of the measures described above is unknown. There are examples of success using these approaches to minimize conflicts in the past. Table 4-41, Travel Management Designations (acres) within WUI by Alternative, displays the acres in the Wildland Urban Interface by travel management designations. The greatest potential for conflict comes from those acres that are closed year-round. The WUI fuels treatments that open up access opportunities will use the guidelines for project design to limit the conflicts in those areas.

Table 4-41 Travel Management Designations (acres) within WUI by Alternative

Travel Management Designation	**Alternative**						
	1	**2**	**3**	**4**	**5**	**6**	**7**
Private (no travel management designation)	3,653	3,651	3,651	3,651	3,651	3,651	3,656
Closed Year-round		6,190	11,878	7,247	10,579	10,958	15,445
Closed at specific snow depth	1,173		1,883				
Closed to motorized use	1,760						
Designated roads only year-round	4,221	15,354	44,648	12,200	14,730	17,630	14,170
Existing roads and trails seasonally *	2,942	7,210	6,056	7,335	7,491	34,624	31,543
Existing roads and trails year-round*	7,764	54,440	16,707	54,603	50,551	17,844	20,971
Open Year-round	65,485						
Designated roads seasonally		157	157				
Limited to type of vehicle			2,022	1,965		2,294	2,022
TOTAL**	**86,998**	**87,002**	**87,002**	**87,001**	**87,002**	**87,001**	**87,807**

Table 4-42 Annual Fuels Treatment Levels by Alternatives (acres)

	Alternatives 2, 4, and 5		**Alternatives 3, 6, and 7**	
	Year 1-5	**Year 6-15**	**Year 1-5**	**Year 6-15**
Total Mechanical	11,385	5,253	11,512	6,140
Total Prescribed Fire	1,265	5,253	3,838	9,210
Total Treatment	**2,650**	**10,506**	**15,350**	**15,350**

Ecosystem Restoration and Fuels Treatments

Alternatives 2, 4, and 5 and Alternatives 3, 6, and 7 anticipate different levels of treatment for ecosystem restoration and hazardous fuels treatments. These are summarized in Table 4-42.

To understand effects of restoration and fuels treatments, it would be helpful to review a description of the Fire Regime Condition Classes. Current condition classes are a qualitative measure describing the degree of departure from historical fire regimes, possibly resulting in alterations of key ecosystem components such as species composition, structural stage, stand age, seral stage, canopy closure, and fuel loadings. One or more of the following activities may have contributed to this departure: fire suppression, livestock grazing, timber harvest, introduction and establishment of non-native species, human-induced spread of insects and disease, or other management activities. Alternatives 2-7 would prioritize fuels treatments in areas of Condition Class 2 and 3 for restoration toward Condition Class 1, where the probability of success is high and other resource objectives can be met. In Condition Class 1 areas, fuels treatments, mostly prescribed burning, would be done to maintain desired conditions and prevent these areas from progressing into a Condition Class 2 or 3. Table 4-43, Fire Regime Condition Classes, describes the definitions and risks associated with each Fire Regime Condition Class. Table 4-44, Fire Regime Condition Classes in UDRMP Area, shows the fire regime condition classes by ownership.

Table 4-43 Fire Regime Condition Class Descriptions and Potential Risks.

Fire Regime Condition Class	Description	Potential Risks
Class 1	Within the natural (historical) range of variability of vegetation characteristics, fuel composition, fire frequency, severity and pattern, and other associated disturbances	Fire behavior, effects, and other associated disturbances are similar to those that occurred prior to fire exclusion (suppression) and other types of management that do not mimic the natural fire regime and associated vegetation and fuel characteristics. Composition and structure of vegetation and fuels are similar to the natural (historical) regime. Risk of loss of key ecosystem components
Class 2	Moderate departure from the natural (historical) range of vegetation characteristics, fuel composition, fire frequency, severity and pattern, and other associated disturbances.	Fire behavior, effects, and other associated disturbances are moderately departed (more or less severe). Composition and structure of vegetation and fuel are moderately altered. Uncharacteristic conditions range from low to moderate. Risk of loss of key ecosystem components is moderate.
Class 3	High departure from the natural (historical) range of vegetation characteristics, fuel composition, fire frequency, severity and pattern, and other associated disturbances	Fire behavior, effects, and other associated disturbances are highly departed (more or less severe). Composition and structure of vegetation and fuel are highly altered. Uncharacteristic conditions range from moderate to high. Risk of loss of key ecosystem components is high.

Table 4-44 Fire Regime Condition Classes in UDRMP Area, Acres by Ownership

Condition Classes	BLM	Other	Private	Total
1	103,725	1,411	71,625	176,761
2	294,037	7,792	279,874	581,703
3	279	6	1,249	1,534
Total	398,041	9,209	352,749	759,999

Cumulative Effects

There is an emphasis from the National Fire Plan on hazardous fuels reduction for Wildland Urban Interface areas and municipal watersheds across all federal land management agencies, and with the state and local fire protection partners. The Deschutes and Ochoco National Forests will be increasing the acres treated in their own hazardous fuels reduction and restoration of fire-adapted ecosystem projects, including prescribed fire use and mechanical fuels treatments. This will result in a potential cumulative effect on wildlife habitat quality and distribution, including possible degraded habitat opportunities in the short-term, followed by improved conditions across the landscape in the long-term. Visual effects and changes to the landscape appearance at the broad scale may be a cumulative effect. These projects may change or limit the recreational opportunities in the short-term during project operations. Opportunities for new user-created trails or illegal dumping may be more plentiful across the landscape. Ecosystems will tend to be more resilient to large scale disturbances from fire, with more opportunities to limit wildland fire growth using treated areas as control lines. Smoke production during prescribed burning will increase, but there is a potential then for a decrease in smoke from wildland fires over time. Treatment of fuels will create job opportunities in the contract community. Commercial biomass availability may be a by-product of fuels treatments in some areas.

Air Quality

Summary

Ambient air quality in the urban interface area is predominately rated as good. Air quality in the Bend area was a growing concern in the 1980s when inefficient wood stoves were a prominent source of heat for many residents. Despite rapid growth in the urban areas, air quality is improving. Airborne particulates and carbon monoxide levels are on a steady declining trend. Many older wood stoves have been phased out, and most new homes being built are relying on cleaner natural gas as a heat source rather than wood. Newer automobiles with emission reduction features also contribute to better air quality. The fall and winter months are most prone to inversions, where stable, cooler air becomes trapped beneath a layer of warmer air aloft, and air quality in the populated areas can be impacted by land management activities such as pile burning or dust generated by heavy equipment on dirt roads.

Air quality in Central Oregon is affected by actions taken on federal lands such as burning and road building. Alternatives 3, 6, and 7 propose to burn up to 9,200 acres per year, and would therefore pose greater potential for emissions than Alternatives 1, 2, 4, or 5 which only propose to burn up to about 5,000 acres per year.

The quality of the air is also sensitive to non-federal emissions including but not limited to smoke from field burning, automotive exhaust, dust raised during farming, mining and road construction, or loose soil that is lifted by the winds from the wildlands. Wildland fire on any ownership is often the cause of poor air quality for a limited time during the event. This analysis will only address proposed decisions that would be taken on BLM-administered lands that may impact air quality within the airshed. It will not discuss or change the potential of any emissions outside of the planning area. Any burning, road construction, or other activities likely to result in emissions that may affect air quality would require additional analysis prior to a final decision.

Mitigation measures to reduce smoke emissions while burning wildland fuels include reducing the amount of overall biomass for burning by removing it from the site, burning under dry fuels conditions, burning when the weather is predicted to carry smoke up and away from populated areas, or burning during or just before the onset of inclement weather. These measures are all proven to be extremely successful, but not guaranteed. Strategies based on our ability to forecast weather events are limited by the success of the forecast.

General Relationships

Sources of air pollutants are smoke from wildland fire and prescribed burning, herbicide applications, and dust from use of unsurfaced roads as well as road construction activities. Dust from road construction and maintenance primarily settles within a short time period and stays relatively close to the point of origin. Localized effects from road dust would be noticed by residents within the planning area. The normal adverse effects from these actions would exist in all alternatives. The effects would be local, occurring mainly during the summer months when dust is produced from both public and administrative use of unpaved roads.

Wildland fires from within the planning area and also upwind sources on other ownership will continue to contribute sporadic smoke impacts in the summer months. While most of the smoke impacts to the area come from wildland fires to the west on the Deschutes National Forest, the planning area averages about 37 fires per year, most of them less than one acre in size.

While other sources of emissions are locally important (road construction, maintenance and use, mining, farming, etc.), prescribed burning is the only resource management activity proposed under any alternative that could have a adverse effects on regional or airshed air quality. Smoke emissions from prescribed burning will generally dissipate to the east of the planning area, in the direction of the most common winds. Forested ecosystems that contain more overall biomass will yield more smoke than the more lightly vegetated rangelands and shrub-steppe ecosystems. Smoke management strategies are becoming more and more complex as fire is used more frequently to preserve, restore or maintain forest and rangeland health and reduce hazardous fuels, primarily in the urban interface.

Smoke from prescribed burning competes with smoke from agricultural burning, residential wood consumption, and smoke from neighboring agencies. All smoke emissions are coordinated through the Oregon Department of Forestry under the Oregon Smoke Management Plan (SMP). The BLM is currently a voluntary participant with the SMP on rangeland burning, while participation is mandatory for any emissions from forest land burning.

Analysis of the Alternatives

Effects of Alternative 1

Alternative 1 would continue the current actions and programs in the planning area. Effects to air quality, including visibility and human health, will be consistent with current programs and policies.

Any burning, road construction or other activity likely to result in emissions that may be an air quality issue will only be undertaken following site-specific analysis. There are no direct effects related to this alternative.

As mentioned in the B/LP RMP (page 121) (USDI Bureau of Land Management, 1989), air quality will be managed by holding surface disturbance at all projects sites at a minimum. Disturbed soil will be rehabilitated to blend into the surrounding soil surface and reseeded as necessary with a mixture of grasses, forbs and browse as applicable to replace ground cover and reduce soil loss from wind and water erosion. Pile burning in the spring and fall or broadcast burning in the rangeland and shrub-steppe in late summer will continue at current levels, which total between 1,000 and 5,000 acres annually, with most of the smoke generated dissipating to the sparsely populated areas east of the planning area.

Effects Common to Alternatives 2-7

All action alternatives would treat the hazardous fuels in the Wildland Urban Interface in order to support fire safe communities. All burning activities would comply with the Oregon State Smoke Management Plan, which ensures that the provisions of the Clean Air Act including meeting or exceeding the National Ambient Air Quality Standards (NAAQS). Burning activities away from the WUI would differ by alternative.

Burning would be done in both the WUI, mostly pile burning during inclement weather, and in the uplands away from the populated areas for ecosystem management objectives. The WUI program is Common to Alternatives 2-7. The annual acres treated in the next ten-year period would be as much as 12,650 acres, including maintenance treatments and first entry restoration efforts. Some of those acres would contain piles that would be burned, but in the rangeland and shrub-steppe vegetation those piles would be quite sparse due to the light fuel loading currently in that vegetative type. The majority of rangeland and shrub-steppe treatments would be accomplished using mowing, grazing, and hand cutting directly adjacent to the property line.

While the preferred deposition of hazardous fuels is use as a commercial product or biomass energy source, burning would be done where those options are not feasible due to access or economic factors. Areas near La Pine, in the conifer forest environments are more likely to contain piles for burning than rangeland ecosystems. Piles would be burned in the spring or fall after some precipitation has been received to limit the potential for fire spread, but while the larger material in the piles is still dry enough to burn. Dry fuels burn cleaner and hotter than wetter fuels; therefore, less smoke is produced. All burning would be done under desirable weather conditions to meet objectives for risk reduction and fuel consumption, and to minimize smoke impacts to the populated areas and protect visibility in Class 1 areas. Despite mitigation measures to reduce impacts, smoke would still be visible, and could cause a temporary localized conflict with residents, recreational users, and other visitors.

Effects of Alternatives 2, 4 and 5

Alternatives 2, 4 and 5 anticipate burning approximately 1,100 acres per year in years one through five, and 5,200 acres annually in years six through 15. This creates a greater potential for emissions than Alternative 1 and a lesser potential than Alternatives 3, 6 and 7.

Burning projects would be implemented away from the Wildland Urban Interface on projects that support ecosystem function or restore wildlife habitat. Air quality impacts from such projects are expected to be minor, as most of these activities will take place to the east of populated areas and will be executed under conditions that will carry smoke eastward as well. Rangeland fires are typically hot, rapid events in which most of the consumption and smoke production occurs with the passage of the flaming front, and very little smoldering occurs after the fire due to the lack of duff and large fuels in that vegetative type. All projects would comply with the Oregon Smoke Management Plan and the Clean Air Act, and meet or exceed standards for NAAQS.

Effects of Alternatives 3, 6 and 7

Alternatives 3, 6 and 7 anticipate burning of approximately 3,800 acres per year in years one through five, and 9,200 acres annually in years six through 15. This is a greater potential for emissions than Alternatives 1, 2, 4 and 5.

The indirect effects would be the same as Alternatives 2, 4 and 5, but more acres would be involved. All projects would comply with the Oregon Smoke Management Plan and the Clean Air Act, and meet or exceed standards for NAAQS.

Cumulative Effects

Wildland fires in the region would continue to contribute particulate matter to the airshed periodically. Increasing populations and recreational visits will increase the probability for airborne dust related to travel on dirt and gravel surfaced roads. The Deschutes and Ochoco National Forests, west and northeast of the planning area, are increasing the annual acres burned in response to the National Fire Plan. The fuel treatments anticipated over the life of the plan, in conjunction with concurrent anticipated community hazardous fuels reduction projects, would be expected to eventually reduce the total volume of summer wildland fire emissions as fuel breaks become more common and the probability of stopping fires increases.

Special Management Areas

Summary

Special management areas in the Upper Deschutes planning area include Wilderness Study Areas, Wild and Scenic Rivers, Areas of Critical Environmental Concern, Research Natural Areas, and Caves. The alternatives vary by the number and type of SMAs designated, and what specific management direction is applied to the SMA, either as SMA specific direction or more general plan direction. SMA designation is used to specifically target and conserve resources in some alternatives, while other alternatives rely on area-wide policy that provides resource management direction for the same resources over a broad area, not just to a SMA. For example: in some alternatives the Juniper Woodlands ACEC would specifically target old-growth values for protection. Other alternatives rely on broad scale management direction for old-growth juniper throughout the planning area. SMA designations vary among alternatives chiefly through designation of ACECs. Management direction for RNAs, WSAs, and caves are generally uniform throughout all alternatives or all action alternatives, although there are important differences, mainly in how specific recreation uses are managed.

Wilderness Study Areas (WSAs)

No changes were made to the designations of these areas under any of the alternatives. However, area-specific policies do vary by alternative in terms of recreation use and other land uses in WSAs. These effects are described in the Recreation section of this document, in the Special Management Areas, Steamboat Rock area, or Badlands WSA sections.

Wild and Scenic Rivers (W&SRs)

In general, no changes were made to the management direction applied to Wild and Scenic Rivers throughout the alternatives. However, specific discrepancies were addressed common to Alternatives 2-7. These include providing travel management allocations for the Middle Deschutes Wild and Scenic River and clarifying VRM Class designations for the Lower Crooked Wild and Scenic River. This management direction is a result of the need to clarify the original intent and direction of the Wild and Scenic River Plans. These clarifications are provided in further detail in the Recreation and Visual Resources Sections of the FEIS.

Areas of Critical Environmental Concern (ACECs)

The B/LP RMP did not provide area-specific management direction for all existing ACECs. The FEIS provides additional management direction for ACECs to address issues that were not foreseen in the B/LP RMP. In addition, various alternatives add or remove ACECs or alter ACEC boundaries (see DEIS Map 7 for ACECs, and DEIS Map 4, Vegetation Types). Table 4-45 provides a summary of existing and proposed ACECs by alternative. Each existing and proposed ACEC has a set of management guidelines for

Table 4-45 ACEC Alternative Summary Table

ACEC Designations by Alternative							
ACEC	**Acres by Alternative**						
	1	**2**	**3**	**4**	**5**	**6**	**7**
Existing							
Badlands	16,684	16,684	16,684	16,684	16,684	16,684	16,684
Horse Ridge(RNA)	609	609	609	609	609	609	609
Lower Crooked River	2,592	0	0	0	0	0	0
Peck's Milkvetch	4,073	4,073	4,073	4,073	11,144	11,144	10,325
Powell Butte (RNA)	510	510	510	510	510	510	510
Wagon Roads	75	See Wagon Roads Below					
Proposed							
Alfalfa Market Road	0	0	4,200	4,200	0	0	0
Wagon Roads	0	875	875	875	875	875	875
Juniper Woodland	0	0	31,011	6,756	0	0	0
Sage Grouse	0	0	0	16,257	0	0	0
Smith Rock	0	0	2,119	0	0	2,119	0
Tumalo Canal	0	1,050	0	0	1,050	1,050	1,050
Total Acres by Alternative	**24,543**	**23,801**	**60,081**	**49,964**	**30,872**	**32,991**	**30,053**

allowed uses that is generally more restrictive than those for areas outside of ACECs. For a more complete description of effects of ACEC management guidelines (e.g., Recreation, Transportation), see other relevant sections in this chapter, such as Recreation, Visual Resource Management, Vegetation, Wildlife, and Cultural Resources.

Research Natural Areas (RNAs)

All alternatives retain the two existing RNAs. No new RNAs are proposed in any alternatives. The basic research and educational intent of RNAs remains common to all alternatives. Specific management of the existing RNAs does differ slightly between Alternative 1 and the remaining action alternatives. Alternatives 2 through 7 apply additional management direction to RNAs, in response to issues not foreseen in the B/LP RMP. These include limitations and specific policy direction on mining, various recreational uses, firearm discharge and issuance of R&PP leases.

Caves

Most direction for cave management is common to all alternatives and results from policy contained in the Federal Cave Resources Protection Act (FCRPA). Caves nominated for significance or determined significant would be managed with an emphasis on education, research, and protection of cave resources. No activities would be allowed that would impair the nominated values for which the cave was determined significant. Additional direction is provided in alternatives 2-7 that manage recreational use, and provide specific goals and management strategy for several caves, due to their location and/or resource concerns. See Recreation, Wildlife, and Cultural Resources effects sections for effects of changes in activities allowed in caves.

General Relationships

The effects analysis for Special Management Area (SMA) designations relies on several assumptions that are described below.

First, SMA designations (RNA, ACEC, and Significant Caves) provide some level of plan direction that applies automatically due to the enabling acts/national policy for each.

Second, SMA designations clarify the management goals for an area or site. While the SMA designation may not specifically prohibit various land uses, these designations often provide an overall direction for conserving particular resources that must be considered in any future site or area-specific decisions.

Another assumption is that SMAs may have management plans prepared specifically for the individual area after the area is designated in a RMP process. These plans may provide more details on how each area is managed, how access is provided, how resources are interpreted, and how the resources of each SMA are maintained and conserved.

Analysis of effects to SMAs is dependent upon the particular resources for which the SMA was established. For example, effects on WSAs are judged relative to the effect on impairment of wilderness suitability. For ACECs, effects are dependent on the particular resources and goals of the ACEC. For example, the Tumalo Canal ACEC designation is meant to protect and interpret historic canals, and the Peck's Milkvetch ACEC designation is meant to maintain populations of this BLM Special Status plant species.

The effects analysis also assumes that certain effects would occur in all alternatives, as described for each area, below.

Badlands ACEC

The Badlands ACEC was originally designated to provide continuing recognition and conservation of resources in the area in the event the area is released from consideration as a Wilderness area by Congress. Because of this rationale, the management policy contained in all alternatives for the Badlands ACEC is the national policy for WSA management (IMP for lands under Wilderness Review). If no decision is made by Congress whether the Badlands WSA receives Wilderness designation, then the ACEC would continue to be designated under all alternatives. ACEC values (primitive recreation, geologic formations, old juniper forest, and pictographs) are generally the same as the values recognized in the Wilderness inventory for the area. As such, WSA policy would continue to protect ACEC values by limiting motorized travel to designated routes, requiring management actions to meet the "non-impairment" standard required under national policy (IMP). The visual resource management goals for the area would also help maintain ACEC values by limiting management actions to those that preserve the existing character of the landscape (VRM Class 1). If the Badlands WSA is not designated as Wilderness, then the ACEC designation would be retained and protection of ACEC values would continue as modified by alternatives.

Horse Ridge ACEC/RNA

In Common to All Alternatives, the Horse Ridge ACEC/RNA would remain the same as identified in the B/LP RMP. National policy for Wilderness Study Areas (IMP) also applies to the Horse Ridge ACEC/RNA. For all alternatives, ACEC values would be maintained in the Horse Ridge ACEC/RNA by closing the area to motorized travel, restrictions on vegetative treatments and harvesting of wood products/special forest products, and closure of the area to livestock grazing and new ROWs. The visual resource management goals for the area would also help maintain ACEC values by limiting management actions to those that preserve the existing character of the landscape (VRM Class 1).

Powell Buttes ACEC/RNA

In Common to All Alternatives, the Powell Buttes ACEC/RNA would retain the same boundaries and size as identified in the B/LP RMP. For all alternatives, ACEC values would be maintained in the Powell Butte ACEC/RNA by closing the area to motorized travel, restrictions on vegetative treatments and harvesting of wood products/special forest products, and closure of the area to grazing and new ROW's.

Wagon Roads ACEC

Under all alternatives, the ACEC designation for the portion of Wagon Roads in Township 17, Range 12, and Section 1 would continue. This designation applies to the historic Huntington Road and includes an area 300 feet on either side of the road. Limitations on certain uses within this area, such as mineral developments, motorized use; firewood cutting would help to protect ACEC values. A portion of the ACEC is fenced, and interpretive signs are posted at the entrance. Maintenance of the existing fence and signs would provide some level of protection and interpretation of historic values of the mid-19th century military route.

Wilderness Study Areas

Under all alternatives, the two WSAs in the planning area would continue to be managed under the national policy for WSAs (IMP). The non-impairment standard of the IMP would apply to management decisions and protect wilderness values in each WSA. For example, all alternatives would provide direction for management of vehicular travel in WSAs, with a minimum standard of limiting vehicles to designated routes. The visual

resource management goals for both WSAs would also help maintain WSA suitability by limiting management actions to those that preserve the existing character of the landscape (VRM Class 1).

Research Natural Areas

Common to all alternatives, all RNAs are also ACECs (see preceding ACEC section for analysis of effects common to all alternatives).

Caves

All alternatives would continue emphasis on review and determination for significance of all caves nominated for significance under the FCRPA. Caves would be managed consistent with the FCRPA and existing BLM policy, with restrictions on certain uses within caves (e.g., campfires, smoking, firearm use, etc.) that negatively impact cave resources. All alternatives provide at least a minimum standard of a seasonal closure at Pictograph (Stout) Cave during the hibernacula season for bats. This action would help protect one of the resources identified in the significance nomination and determination for Pictograph (Stout) Cave. Existing partnerships for monitoring of resources at Pictograph (Stout) Cave would likely continue and contribute to protection of cave resources. The 40-acre Redmond Caves site would remain closed to motor vehicles under all alternatives, which would help reduce the garbage dumping and parties occurring on this site.

Analysis of Alternatives

The following effects would occur in addition to the effects described above under General Relationships.

Effects of Alternative 1

Horse Ridge ACEC/RNA

The Horse Ridge ACEC/RNA would be managed with an emphasis on natural processes and research purposes. The area would remain closed to motor vehicles, although under this alternative, the lack of a planned and designated transportation system and designated trailheads in the surrounding area may tend to increase instances of vehicle use (motorized or mountain bike) in the ACEC/RNA. This use may affect ACEC values by destroying vegetation, soil disturbance on slopes, and introduction of non-native plants. The ACEC/RNA is currently fenced; however mountain bike use does occur on a trail route that has been in existence for about a decade. Given the popularity of the Horse Ridge area for winter trail use (equestrian, mountain bicyclists, hikers), impacts to the ACEC may continue, despite the perimeter fence.

Powell Buttes ACEC/RNA

The Powell Buttes ACEC/RNA would be managed with an emphasis on natural processes and research purposes. Motor vehicle use on surrounding BLM-administered lands would be limited to existing roads and trails. The lack of a mapped and designated transportation system in the area may tend to increase inadvertent and unauthorized motor vehicle use in the ACEC. This use may affect ACEC values by destroying vegetation, disturbing soil on slopes, and introducing non-native plants. The increase in mountain bike use on Powell Butte on non-designated, non-maintained trails, and the proposed residential and resort development adjacent to the ACEC/RNA may increase the visitation to, and variety of human activities in the ACEC/RNA.

Lower Crooked River ACEC

Alternative 1 would retain the ACEC designation for the Lower Crooked River. This designation would provide management emphasis for ACEC values (scenic and recreational values, riparian resources) that are in addition to, or redundant with management standards adopted in the Lower Crooked River Wild and Scenic River Plan.

Peck's Milkvetch ACEC

Alternative 1 would maintain the existing 4,073 acre ACEC in the Tumalo area, but not add to the area. Management direction for the Tumalo area would include a seasonal closure to motorized use; however, the lack of a designated road and trail system in the area may result in impacts to Peck's Milkvetch by destruction of vegetation, soil erosion, and introduction of non-native plants during the period that the area is open to motorized use. Residential development of the surrounding area is increasing. This, coupled with overall increases in use of the area, including non-motorized trail use (hiking and equestrian use predominantly), may also increase impacts to vegetation in the ACEC as use of existing and creation of additional trails takes place.

The existing Peck's Milkvetch ACEC includes a portion of the core habitat of this species. Under Alternative 1, much of the remainder of the core habitat (Cline Buttes area) would be managed for motorized use on a designated system. Once a designated system is created in the Cline Buttes area, and use is managed on this transportation system, there would likely be a benefit to the Peck's Milkvetch through control and reduction of access points, and a reduction in the spread of user created roads and trails. Alternative 1 would lack specific ACEC limitations on ROWs and R&PP leases in the larger Cline Buttes area, and thus may afford lesser protection for Peck's milkvetch within its core range.

Wagon Roads ACEC

In Alternative 1, approximately 150 acres surrounding and including the historic Huntington Road would continue to be recognized as the Wagon Roads ACEC. Management policy would provide some level of protection of the historic road by requiring that management actions do not impair ACEC values. In addition, specific management direction would protect ACEC values by restricting woodcutting, ROWs, OHV use, and horseback riding and non-motorized vehicle use along the historic route. This policy would ensure that trees with blaze markers would not be cut, that damage to the historic road surface would be minimized, and that built features (ROWs, wildlife guzzlers, etc.) would not detract from the historic integrity of the road.

Although many measures would be in place to protect ACEC values under this alternative, travel management on the surrounding BLM-administered land would allow cross-country motor vehicle use (Open designation). The surrounding area is regularly used for OHV travel, mainly by riders from the adjacent subdivisions. The lack of a designated transportation system in the area would tend to increase the inadvertent and unauthorized use of motorized vehicles in the ACEC.

The surrounding BLM administered lands contain other segments of the Huntington Road, and other historic roads. Alternative 1 would apply ACEC designation to portions of the Huntington Road adjacent to Pronghorn Resort and south of Redmond. These portions of the Huntington Road generally do not posses ACEC values due to a lack of historic integrity, and do not offer good opportunities for interpretation. Other historic roads in the Bend/Redmond area of BLM posses more historic integrity, and are longer routes that provide for better public education and interpretation. Under this alternative, these other historic roads would not receive specific management guidelines to maintain their historic features.

Wilderness Study Areas

There would be no effects in Alternative 1 other than the general effects described above that would occur in all alternatives.

Caves

Under this alternative, Pictograph (Stout) Cave would be closed year-round to all visitation. This action would help protect cave resources more than all other alternatives by limiting the amount of human disturbance. See Recreation section, caving and cave dependent recreation section – rock-climbing section.

Effects Common to Alternatives 2-7

The following effects would occur in all action alternatives, and would be in addition to those described for each individual action alternative.

Badlands ACEC

In addition to management standards common to all alternatives, the action alternatives (2 – 7) would apply specific guidance for management of the Badlands WSA that would also apply to the ACEC. Permits for organized group use for over 12 people would be required. Given the increasing popularity of the Badlands and its proximity to Bend, this action may reduce impact to ACEC values by providing an opportunity to review and manage group use and provide information to users prior to their use of the area. This action may help keep visitors, particularly large groups, on the designated network of routes.

These alternatives would also call for designated parking and access improvements, which may increase public knowledge of the regulations that apply to the area. Under Alternatives 2-7, if the Badlands WSA is designated as Wilderness by Congress, then the ACEC designation would be dropped. Wilderness designation would provide adequate protection for all resource values; therefore, ACEC designation would no longer be necessary.

The Recreation section of the FEIS also contains an analysis of the effects of different alternatives on management of the Badlands WSA, including a discussion of transportation and access management.

Juniper Woodlands ACEC

While ACECs focusing on old-growth juniper (e.g., Juniper Woodlands and Alfalfa Market ACECs) do not occur Common to Alternatives 2-7, each of these alternatives does take a broad scale conservation approach for old-growth juniper. This includes requiring specific analysis and consideration of old-growth values during authorization of land use activities and reasonable mitigation for impacts to old-growth juniper. Alternatives 2-7 place some limits on the harvest of green trees over 18 inches or over 150 years old, and provide for vegetative treatments to maintain health and integrity of old-growth trees.

Lower Crooked River ACEC

Alternatives 2-7 would remove the Lower Crooked River ACEC from ACEC designation. In 1988 the Lower Crooked River (Chimney Rock Segment) was designated a Wild and Scenic River in the Omnibus Oregon Wild and Scenic Rivers Act of 1988. The Lower Crooked River (Chimney Rock Segment) Management Plan provides guidance for protection of the resources within the ACEC. The W&SR boundary designation is nearly identical to the ACEC boundary designation; therefore, the ACEC designation is no

longer necessary. There would be no effects from this change in designation since ACEC values would continue to be protected.

Alternatives 2-7 do provide further clarification of the travel management and visual resource allocations applied to the area. The clarification of VRM Classes for the area would provide direction that is consistent with BLM's national policy and process for assessment of site or project specific visual impacts. This clarification may make analysis of potential visual impact of future projects more effective, and thus better meet the intent of the ACEC. All action alternatives propose to limit motor vehicle travel on lands adjacent to the ACEC and/or Wild and Scenic River corridor. This change from an "Open" designation to a "Limited to Designated Roads/trails" or "Closed" may reduce the unauthorized use of motor vehicles within the ACEC or Wild and Scenic River corridor, neither of which are posted on the ground. The reduction of cross-country vehicle use may reduce visual impacts caused by road or trail scars and erosion.

Smith Rock ACEC

The scenic values for which the ACEC is designated would be protected through a VRM Class II designation in all action alternatives. This standard would allow management actions to be seen, but they would be designed or mitigated to not attract the attention of the casual observer.

Horse Ridge ACEC/RNA

Common to Alternatives 2-7, the area would be closed to overnight use/camping and closed to mechanized use year-round. These measures would be expected to minimize additional human use effects and maintain natural processes in the RNA. The direction to move to a designated, non-motorized trail system on the surrounding BLM managed land will help maintain RNA values by reducing the use of existing trails within the RNA. With a reduction in trail use, the RNA would likely experience less introduction of non-native seed stock, less erosion, and maintain a more natural condition appropriate for a RNA. The direction to provide designated trailheads in the Horse Ridge area will also provide some measure of protection, as visitors can be informed of the intent of the RNA, the existence of the designated trail system, and the need to remain on designated trails.

Peck's Milkvetch ACEC

All action alternatives would direct that non-motorized trails be designated in the Tumalo area, which comprises the portion of the Peck's Milkvetch ACEC that is common to all alternatives. The area is used for horseback riding, hiking, and other non-motorized trail use and the management of this use on a designated system would allow for consideration of areas of concentrated plant populations and minimize the spread of user created trails.

Powell Buttes ACEC/RNA

Common to Alternatives 2-7, the Powell Butte ACEC/RNA would be closed to camping/overnight use and closed to mechanized travel year-round to maintain natural ecological processes within the RNA. No designated trails would be identified in the RNA.

Alternatives 2-7 do provide overall direction for travel management and visual resource allocations applied to adjacent lands. Under all alternatives, the Powell Butte area would be managed to meet a VRM Class 2 objective, which increases the protection this area receives and retains it in a more naturally appearing condition. Alternatives 2-7 direct that transportation on the surrounding BLM-administered lands be managed on a designated system, which would allow for routing of designated routes to avoid the

ACEC/RNA. The reduction of cross-country vehicle use may reduce visual impacts caused by road or trail scars and erosion.

Tumalo Canal ACEC

The Tumalo Canal ACEC is designated as an ACEC in Alternatives 2, 5, 6, and 7. However, the area is afforded the same protections and management direction in all action alternatives because existing regulations and guidelines for management of the canals located between Barr Road and Cline Falls Highway would be included in general management direction for the Juniper Woodlands ACEC (Alternatives 3 and 4). All action alternatives would increase the emphasis on protection and interpretation of the canals by limiting ROWs and leases, providing for closure or management of road and trail use by motorized and mechanized vehicle use and pack stock, and providing access controls and restrictions on uses that may conflict with historic interpretation such as overnight camping, firearm discharge, etc. The establishment of boundary markers, signs or fencing may increase the visitation of this area, but the plan direction would emphasize foot traffic in the core area of the ACEC, and would help conserve ACEC values by limiting erosion, user created trails, and damage to the historic canals themselves.

Wagon Roads ACEC

In Alternatives 2-7, two segments of the existing Wagon Roads ACEC totaling approximately 75 acres would be removed from ACEC designation, due to their lack of importance and relevance, and two segments of the historic Horner and Bend/Prineville Roads totaling approximately 800 acres would be added to the Wagon Roads ACEC. Thus, there would be an increase in amount of cultural/historic resources maintained and protected under ACEC designation.

Closing the entire area south of McGrath Road to motorized use would provide a greater opportunity for protection and interpretation of Historic Roads in that area. In addition, no shooting would be permitted on BLM managed land south of McGrath Road, which contains the southern-most segment of this ACEC. Mining for mineral materials would not be allowed within ½ mile of the protected road segment. Although military tracked vehicles and OHVs would be allowed to cross the historic roads at designated places within the ACEC, their effects would be minimized because they would be restricted from traveling over the length of the historic roads.

Wilderness Study Areas

For Alternatives 2-7, there would be an increase in measures that incidentally would help maintain Wilderness Suitability in the Steelhead Falls and Badlands WSAs. Limitations and thresholds for group use and commercial use Special Recreation Permits would be adopted, which are generally oriented at resolving user conflicts, managing access points and parking areas, and limiting impacts of large groups. However, these permitting requirements would allow BLM to direct use, maintain use on designated routes, and provide information on leave-no-trace ethics and WSA management.

Caves

Under the action alternatives group use would be restricted to eight people per group and a maximum of one tour per day. The limitations on group use would provide an increase in cave resource protection by limiting disturbance to wildlife, reducing obvious signs of human activities, and helping to maintain a primitive and natural setting for cave visitors. Significant/Nominated Caves would be closed to geocache use (see Caving/Cave Dependent Recreation for additional effects and limitations). The elimination of "open" travel management designations and implementation of designated road and

trail systems would allow the BLM to consider cave locations during transportation planning.

The management emphasis for the Redmond Caves parcel would shift to day-use only. All action alternatives would also emphasize partnership efforts to manage the Redmond Cave parcel, and provide direction to assess the cave's habitat suitability for bats and consider habitat restoration as part of the site management. Together, these actions would tend to increase the management presence at the site, and encourage leave-no-trace cave practices by visitors.

Effects of Alternative 2

Badlands ACEC

Effects on the Badlands ACEC would be the same as those described above in this section under Effects Common to All Alternatives.

Peck's Milkvetch ACEC

Alternative 2 would maintain the existing Peck's Milkvetch ACEC at 4,073 acres. The ACEC protection would apply only to a portion of the plant's range on BLM managed lands. While moving to a designated transportation system throughout BLM-administered lands in the FEIS/PRMP planning area may have a beneficial effect on Peck's milkvetch, this alternative would provide fewer protections than those alternatives that increase the ACEC boundaries (Alternatives 5 and 6) or reduce the likelihood of disturbance by closing the Tumalo area to all motorized use (Alternatives 3, 6, and 7). Alternative 2 retains the smaller existing ACEC boundary and manages the same area for motorized use on roads and trails; therefore it may have the highest potential impacts of the action alternatives to ACEC values through destruction of plants, erosion, and lack of protection measures across more of the plant's range.

Alfalfa Market Road ACEC

No ACEC would be designated in the area south of Alfalfa Market Road. The area would not be afforded specific protection as an ACEC, and there would be a slight increase in threats to old-growth juniper in this one area due to potential ROW development, R&PP leases, and certain types of mineral material development. Actions that would result in the clearing of old-growth juniper would be more likely in this area under Alternative 2. However, old-growth juniper occurs on 34 percent (139,000 acres) of the FEIS/PRMP area, so the effect of not designating this area an ACEC would be relatively insignificant to old-growth juniper values.

Tumalo Canal ACEC

There would be no effects other than those described above in Effects Common to Alternatives 2-7.

Wilderness Study Areas

The effects on Wilderness Study Areas under Alternative 2 would include those described in Effects Common to Alternatives 2-7. The alternative would manage the Badlands for year-round motorized use on a designated system of inventoried routes. While the year-round use is likely to not cause impacts to wilderness suitability, the provision of motorized access into the Badlands may increase the likelihood of unauthorized vehicle use off the designated routes in the area.

Caves

See Caving/Cave Dependent Recreation and Recreation Climbing sections for effects and limitations to caves.

Effects of Alternative 3

Badlands ACEC

Alternative 3 would protect ACEC values in the Badlands ACEC by closing the area to motorized use year-round. This would potentially reduce creation of user created trails. There would be a need to provide designated parking and trailheads, which would improve the BLM's ability to provide visitor information. Of the alternatives considered in the FEIS/PRMP, only Alternatives 3, 6, and 7 manage the area for exclusive, non-motorized travel.

Smith Rock ACEC

Alternative 3 would designate a 2,119 acre Smith Rock ACEC, primarily for scenic values. Scenic values would be afforded slightly greater protection than the alternatives that do not designate the area as an ACEC, due to standards and guidelines that limit development of ROWs, leases, etc. However, as discussed in the effects "Common to All" section above, the area's scenic values would be managed to meet or exceed VRM Class 2 for both ACEC and non-ACEC alternatives.

Peck's Milkvetch ACEC

Alternative 3 would maintain the existing Peck's Milkvetch ACEC at 4,073 acres. The ACEC protection would apply only to a portion of the plant's range on BLM managed lands. While moving to a designated transportation system throughout BLM-administered lands in the FEIS/PRMP planning area (e.g., Cline Buttes) may have a beneficial effect on Peck's milkvetch, this alternative would provide greater protections for ACEC values than Alternatives 1 and 2 by closing approximately 4,000 acres of Peck's Milkvetch habitat (Tumalo area) to motor vehicle use.

Juniper Woodland ACEC

Alternative 3 would designate a 31,011-acre Juniper Woodland ACEC, encompassing the entire Cline Buttes geographic area. Thus this alternative provides ACEC designation for approximately 22 percent of old-growth woodlands in the planning area, in addition to the broad scale conservation regulations and guidelines common to Alternatives 2 – 7. The ACEC designation would provide some additional protections, mainly in the form of limitations on ROWs, and greater emphasis on old-growth values in authorizations within the Cline Buttes area.

Alternative 3 would manage many areas of old-growth in a manner that limits disturbance to these areas by restricting access and motor vehicle use, which presumably would limit ground disturbance and decrease the likelihood of illegal woodcutting. The area in Cline Buttes east of Cline Falls Highway, the area south of Alfalfa Market Road, the Tumalo area, and the Badlands would all be closed to motor vehicles – each of these areas contains old-growth juniper. The restrictions on uses in the Badlands WSA would provide a high degree of conservation of old-growth juniper that compromise about 18 percent of the planning area.

Alfalfa Market Road ACEC

In Alternative 3, the 4,200 acre Alfalfa Market Road ACEC would be designated for protection of old-growth juniper woodland values. This is an area of relatively intact old-growth woodlands south of Alfalfa Market Road and north of Bear Creek Road. The combination of ACEC designation in Cline Buttes, the Alfalfa Market area, and the closures to motorized use at Tumalo, Badlands, and portions of Cline Buttes would offer the greatest protection to ACEC values because it places limitations on development of ROWs and leases due to ACEC designations and closes a large portion of juniper woodlands to motorized use.

Tumalo Canal ACEC

See the effects analysis for Tumalo Canal ACEC, Common to Alternatives 2-7, above.

Wilderness Study Areas

Wilderness suitability in the Badlands WSA would likely be protected in Alternative 3 to a greater degree than Alternatives 1, 2, 4, 5, and 6. The Badlands WSA would be closed to motorized and mechanized vehicles under this alternative. While the area would likely continue to receive unauthorized vehicle use, the probable implementation measures of this alternative (gates, fencing, and barriers for access control) would decrease the amount of vehicle use off inventoried, designated roads. Limitations on group and commercial uses that may provide additional benefits to wilderness suitability are discussed under the Common to Alternatives 2-7 section of this document.

Caves

All Significant/Nominated Caves would be closed to visitation until management plans are prepared. These closures would have the greatest beneficial effect on cave resources of all alternatives, at least over the short-term. The development of cave management plans before allowing access would allow the BLM to consider all impacts and rehabilitation opportunities at significant caves. The impacts to recreational and interpretive use of caves would be significant, and are discussed in the "Caving/Cave Dependent Recreation" and "Recreation – Climbing" sections of the FEIS.

Effects of Alternative 4

Badlands ACEC

This alternative would manage the Badlands ACEC for seasonal motorized use on a designated system of inventoried routes. The provision of motorized access into the Badlands may increase the likelihood of unauthorized vehicle use off the designated routes in the area.

Powell Buttes ACEC/RNA

The effects of Alternative 4 on the Powell Butte ACEC would essentially be the same as those Common to Alternatives 2-7. However, Alternative 4 would place slightly greater emphasis on limiting travel in the area surrounding the ACEC by designating lands adjacent to the ACEC as "Limited to Designated Roads Only", instead of "Limited to Designated Roads and Trails" (Alternatives 2, 3, and 5).

Peck's Milkvetch ACEC

Alternative 4 would maintain the existing Peck's Milkvetch ACEC at 4,073 acres. In general, this alternative would provide the same level of management of ACEC values as

Alternative 3, since it would retain the existing ACEC, close the Tumalo area to motorized use, designate non-motorized trails in the Tumalo area, and limit motorized travel to designated roads and trails in the Cline Buttes area.

Juniper Woodland ACEC and Alfalfa Market Road ACEC

In contrast to Alternative 3 (31,011 acre ACEC), Alternative 4 would designate a much smaller Juniper Woodlands ACEC in Cline Buttes: 6,756 acres (south of Thornburg Road and east of Barr Road). The old-growth woodlands within this area are more contiguous and in relatively good ecological condition compared to most of the larger Cline Buttes area. When coupled with the Alfalfa Market ACEC, this alternative provides ACEC designation for approximately eight percent of old-growth woodlands in the planning area, in addition to the broad scale conservation standards and guidelines common to Alternatives 2 – 7. The two ACEC designations would provide some additional protections, mainly in the form of limitations on ROWs and leases in the ACEC, and greater emphasis on old-growth values in authorizations within a portion of the Cline Buttes area.

Alternative 4 does not provide much incidental protection of old-growth juniper through travel management or other allocations. So the general benefit to old-growth values is mainly dependent on the broad scale conservation strategies common to all action alternatives. Due to the ACEC designation, Alternative 4 may provide slightly better management emphasis for old-growth juniper than Alternatives 1 and 2. When considering travel management allocations throughout the planning area, Alternative 4 probably provides less emphasis on old-growth juniper values than Alternatives 6 and 7.

Sage Grouse ACEC

Alternative 4 would designate 16,257 acres as the Sage Grouse ACEC within the core of existing sage grouse habitat in the planning area. Sage Grouse habitat would receive priority for protection and habitat improvements within the ACEC – this would primarily result from limitations on placement of new ROWs in the area. However, the movement of ROWs to other locations nearby may have similar effects to sage grouse habitat that exists outside the ACEC. A greater effect on sage grouse would occur from the change in travel management for the area. The area would be managed for motorized use on roads only, with no designated OHV trails. This would allow for future designation of a travel system that is much lower in density than the existing system. This affect may be somewhat limited due to the fact that the existing OHV system is only open for four months per year. However, the reduction in use and transportation system density would provide the greatest benefit for sage grouse of all alternatives in this particular area.

The ACEC designation would apply only to the South Millican area; however, Alternatives 2-7 would apply the Greater Sage Grouse and Sagebrush-Steppe Ecosystems Management Guidelines (IB No. OR-2000-334) across the existing and potential habitat throughout the FEIS/PRMP planning area. While the ACEC does provide some additional focus on sage grouse conservation in this one particular area, the travel management and common guidelines for sage grouse and sagebrush-steppe provide greater benefits to ACEC values.

Tumalo Canal ACEC

See the effects analysis for Tumalo Canal ACEC, Common to Alternatives 2-7, above.

Wilderness Study Areas

The effects on Wilderness Study Areas under Alternative 4 would include those described in Common to Alternatives 2-7. The alternative would manage the Badlands for seasonal motorized use on a designated system of inventoried routes. While the seasonal restrictions are likely to not benefit wilderness suitability, the provision of motorized access into the Badlands may increase the likelihood of unauthorized vehicle use off the designated routes in the area.

Caves

See Caving/Cave Dependent Recreation and Recreation Climbing sections for effects and limitations to caves.

Effects of Alternative 5

Badlands ACEC

Effects on the Badlands ACEC would be the same as those for Common to All Alternatives, discussed previously in this section.

Horse Ridge ACEC/RNA

The effects of Alternative 5 on the Horse Ridge ACEC/RNA would be generally the same as those identified in the Common to Alternatives 2-7 section above; however, Alternative 5 would close the surrounding Horse Ridge area to motor vehicles, which may offer some protection to the ACEC/RNA by minimizing cross country vehicle travel, erosion and introduction of non-native seeds in the ACEC/RNA. This benefit is likely to be small, since the area is already fenced and the surrounding area is generally used by equestrians, mountain bicyclists and hikers. The effects of providing designated trails for these users are described in the Common to Alternatives 2-7 section for the Horse Ridge ACEC/RNA.

Peck's Milkvetch ACEC

Alternative 5 would increase the Peck's Milkvetch ACEC to 11,144 acres. This would afford the species slightly greater protection in terms of limitations to ROWs and leases. Alternative 5 would provide for ACEC designation over a much larger portion of the plants range than Alternatives 1, 2, 3, 4, and 7. The entire ACEC under this alternative would be open to motorized travel, on a designated system of roads (Tumalo area) or roads and trails (Cline Buttes area). In general, the combination of larger ACEC designation and moderate limitations on travel place this alternative in the middle to upper range in terms of protecting ACEC values.

Powell Butte ACEC/RNA

The effects of Alternative 5 would be the same as those described above in Effects Common to Alternatives 2-7.

Wagon Road ACEC

The effects of Alternative 5 would be the same as those described above in Effects Common to Alternatives 2-7.

Juniper Woodland ACEC

The effects of Alternative 5 would be the same as those described above in Effects Common to Alternatives 2-7.

Sage Grouse ACEC

This alternative would maintain seasonal closures to motorized use in the area proposed as an ACEC in other alternatives, and in the entire North Millican area. These effects on sage grouse are analyzed in the Wildlife section of this chapter.

Smith Rock ACEC

The effects of Alternative 5 would be the same as those described above in Effects Common to Alternatives 2-7.

Tumalo Canal ACEC

See analysis of effects for Tumalo Canal ACEC, Alternatives 2-7, above.

Wilderness Study Areas

The effects on Wilderness Study Areas under Alternative 5 would include those described in Common to Alternatives 2-7. The alternative would manage the Badlands for seasonal motorized use on a designated system of inventoried routes. While the seasonal limitations are likely to not benefit wilderness suitability, the provision of motorized access into the Badlands may increase the likelihood of unauthorized vehicle use off the designated routes in the area.

Caves

See Wildlife, Caving/Cave Dependent Recreation, and Recreation Climbing sections for effects to caves and cave use.

Effects of Alternative 6

Smith Rock ACEC

Alternative 6 would designate a 2,119 acre Smith Rock ACEC, primarily for scenic values. The effects of this designation are described in this section, under Alternative 3.

Horse Ridge ACEC/RNA

The effects of Alternative 6 on the Horse Ridge ACEC/RNA would be generally the same as those identified in the Common to Alternatives 2-7 section above; however, Alternative 6 would close the surrounding Horse Ridge area to motor vehicles, which could offer some protection to the ACEC/RNA by minimizing cross country vehicle travel, erosion and introduction of non-native seeds in the ACEC/RNA. This benefit is likely to be small, since the area is already fenced and the surrounding area is generally used by equestrians, mountain bicyclists and hikers. The effects of providing designated trails for these users are described in the Common to Alternatives 2-7 section for the Horse Ridge ACEC/RNA.

Powell Buttes ACEC/RNA

The effects of Alternative 6 on the Powell Butte ACEC would essentially be the same as those Common to Alternatives 2-7. However, Alternative 6 would place slightly greater

emphasis on limiting travel in the area surrounding the ACEC by designating lands adjacent to the ACEC as "Limited to Designated Roads Only", instead of "Limited to Designated Roads and Trails".

Peck's Milkvetch ACEC

Alternative 6 would increase the Peck's Milkvetch ACEC to 11,144 acres. This would afford the species slightly greater protection in terms of limitations to ROWs and leases. Alternative 6 would provide for ACEC designation over a much larger portion of the plants range than Alternatives 1, 2, 3, and 4. Alternative 6 could provide slightly greater conservation of ACEC values than Alternative 5, due to about 4,000 acres of the ACEC being closed to all motorized use. In general, the combination of larger ACEC designation and greater limitations on travel place this alternative in the upper range in terms of protecting ACEC values.

Wagon Road ACEC

The effects of Alternative 6 would be the same as those described above in Effects Common to Alternatives 2-7.

Wilderness Study Areas

Wilderness suitability in the Badlands WSA would likely be protected in Alternative 6 to the same degree as Alternatives 3 and 7. The Badlands WSA would be closed to motorized vehicles under this alternative. While the area would likely continue to receive unauthorized vehicle use, the probable implementation measures of this alternative (gates, fencing, and barriers for access control) would decrease the amount of vehicle use off inventoried, designated roads. Additional vehicle use restrictions in the area east of the Badlands may also serve to limit unauthorized access somewhat; however the WSA would still retain a common eastern boundary with the Millican Valley OHV area. There may be some additional impact to wilderness suitability due to mechanized use, which is allowed under this alternative (restricted in Alternative 3). However, the majority of this use is from occasional mountain bike use and horse cart use. Limitations on group and commercial uses that may provide additional benefits to wilderness suitability are discussed under the Common to Alternatives 2-7 section of this document.

Caves

See Caving/Cave Dependent Recreation and Recreation Climbing sections for effects and limitations to caves.

Effects of Alternative 7

Badlands ACEC

Alternative 7 would protect ACEC values in the Badlands ACEC by closing the area to motorized use year-round. This may result in a reduced incident of user created trails in the Badlands, and the necessity to provide designated parking and trailheads may improve the ability of the BLM to provide visitor information. Of the alternatives considered in the FEIS/PRMP, only Alternatives 3, 6 and 7 manage the area for exclusive, non-motorized travel.

Peck's Milkvetch ACEC

Alternative 7 would increase the ACEC to 10,325 acres, about 800 acres less than that of Alternative 6. The effects of this alternative would be the same as Alternative 6, because

the acreasge not included in Alternative 7 is small and not prime habitat for Peck's milkvetch.

Powell Butte ACEC/RNA

The effects of Alternative 7 would be the same as Alternative 6, described above.

Smith Rock ACEC

The effects of Alternative 7 would be the same as those described above in Effects Common to Alternatives 2-7.

Wagon Road ACEC

The effects would be the same as those described above in Effects Common to Alternatives 2-7.

Wilderness Study Areas

Wilderness suitability in the Badlands WSA would likely be protected in Alternative 7 to the same degree as Alternatives 3 and 6. The Badlands WSA would be closed to motorized vehicles under this alternative. While the area would likely continue to receive unauthorized vehicle use, the probable implementation measures of this alternative (gates, fencing, and barriers for access control) would decrease the amount of vehicle use off inventoried, designated roads. Limitations on group and commercial uses that may provide additional benefits to wilderness suitability are discussed under the Common to Alternatives 2-7 section of this document.

Caves

See Caving/Cave Dependent Recreation and Recreation Climbing sections for effects and limitations to caves.

Cumulative Effects

In general, the increased population growth in Central Oregon and the designation of Special Management Areas would tend to increase the numbers of people visiting these areas. This effect would be greatest for those areas where the BLM or other entities (local newspapers, educational institutions, etc.) promote interest in these areas. The increase in visitation would likely be greatest for Special Management Areas that offer good recreation opportunities due to their size (e.g., the Badlands WSA), special recreation opportunities (Steelhead Falls WSA), or interpretive interest (Wagon Road ACEC or Tumalo Canal ACEC).

Potential cumulative effects could arise with the development of a resort on private land to the west of the Powell Buttes ACEC/RNA. Activities on or near the resort could lead to additional human use of the ACEC/RNA. If lands around Powell Butte are acquired, additional access to BLM-administered lands may be provided, resulting in increased visitation to the ACEC/RNA. Similarly, potential cumulative effects could arise with the development of private lands near the Tumalo Canal ACEC in Cline Buttes. However, the Tumalo Canal ACEC would be managed to provide visitor opportunities, while the Powell Butte RNA/ACEC is not meant to be managed for recreational activities.

Land Uses

Livestock Grazing

Summary

This section outlines the effects anticipated on the grazing management program for each of the alternatives. Table 4-46, Forage (AUMs) Available for Livestock Grazing by Alternative, summarizes the total forage, expressed in animal unit months (AUMs), available in the planning area for the current situation and for each alternative. The numbers shown are for estimated authorized[4] AUMs, which average 81 percent of active preference AUMs. The AUM figures shown for Alternative 7 (the preferred alternative) assume that applicable grazing permits are relinquished. At present, only some of these permits have been relinquished (identified in Appendix G as "vacant" allotments). The "Close or create RFA" and "Open or create RFA" categories are manager discretion categories.

Livestock grazing would continue to be allowed in the planning area, with authorized use expected to be at least 72 percent of current authorized use or at least 50 percent of Alternative 1 direction. In all alternatives, allotment monitoring, evaluation, and rangeland health assessments (and subsequent site-specific analysis) may result in changes in forage allocation and season of livestock use and construction of new fences, pipeline, and other range developments to meet allotment and other resource goals and objectives. All areas currently closed to grazing would remain closed in all alternatives.

Alternative 1 (closely followed by Alternatives 2 and 3) results in the largest number of acres and AUMs remaining available for livestock grazing, while Alternative 5 results in the lowest, about 49 percent less than Alternative 1. The potential contribution to local livestock sales is correspondingly greatest in Alternative 1 (about fout percent) and least in Alternative 5 (about two percent).

The potential long-term effects of anticipated forage reductions on individual permittees would be lowest in Alternatives 1, 2, 3, and 7 and highest in Alternative 5 (50 permittees). The actual effects of these forage reductions on individual permittees are unknown,

Table 4-46 Forage (AUMs) Available for Livestock Grazing by Alternative.

Category	Current AUMs [1]	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Open	18,342	25,840	25,779	25,779	23,545	13,261	24,375	20,785
Open or RFA[2]	NA[3]	NA	NA	NA	NA	NA	NA	472
RFA	NA	NA	NA	NA	NA	NA	NA	1,967
Close or RFA	NA	NA	NA	NA	NA	NA	NA	1,834
Additional closed	NA	NA	NA	NA	NA	NA	NA	721

[1] The current situation shows only AUMs authorized for allotments where permits are currently held by a permittee. For the other alternatives, the figure also shows estimated authorized use assuming that the BLM issues permits for all forage made available by plan direction, which sometimes includes vacant allotments and parcels outside of current allotments.
[2] RFA = Reserve Forage Allotment
[3] NA = not applicable

[4]Authorized AUMs are estimated based on a comparison of authorized vs. active preference AUMs for the years 1990, 1995, and 2000. Authorized AUMs averaged 81 percent of active preference AUMs. Active preference AUMs are those shown on permits, and are the maximum allowable in a given year (unless temporary non-renewable use is granted).

but in some cases, especially those alternatives that depend upon mandatory closures, the result could be that the permittees cease ranching and sell their base properties, depending upon individual permittees flexibility and dependence on specific forage.

Reduced AUMs mean permittees must reduce herd size, lease other pasture, decrease the amount of time they graze livestock on public land, place more grazing pressure (more animals for longer time) on their private land, or sell a portion of their base properties. Table 4-47 shows the estimated effects the alternatives would have on the local economy, expressed in the percent reduction of total cattle/calf sales. The effects within each alternative vary based on permittee flexibility in responding to public forage reductions (as described in more detail under General Relationships, Forage, below). The impact would be greatest in Alternative 5, with up to an 8.44 percent reduction in cattle/calf sales compared to Alternative 1, and lowest in Alternatives 1, 2, and 3 with at most a .05 percent reduction in cattle/calf sales.

Conflicts between livestock grazing and other uses on public and adjacent private land are less likely in Alternative 5, which has the fewest acres open to grazing. Alternatives 4, 6, and 7 are likely to have conflict levels somewhat higher than those expected for Alternative 5, but lower than those expected for the other alternatives.

General Relationships

This section describes the general relationships upon which the analysis of the effects on the livestock grazing program is based. These include where the potential for conflict is greatest (and demand the least), and how this potential affects grazing permittees (as well as other public land users and adjacent private landowners), and how forage reductions directed by the various alternatives will affect grazing permittees, and how this in turn will affect the local economy.

Rangeland Health

The Standards for Rangeland Health provide a system to monitor and assess and make changes to the individual grazing systems, including the timing, intensity and season of use. Since this plan does not propose changes in livestock grazing intensity or season of use and existing guidance (Standards for Rangeland Health, Clean Water Act, others) directs the BLM to assess and change management to address problems, the ecological effects of livestock grazing are generally not reviewed in this plan.

Conflict/Demand

Objectives for the livestock grazing program management include reducing conflicts. In the grazing section of this EIS, conflict is defined as the problems that tend to increase as human uses in and adjacent to grazing allotments increase. These problems include stray

Table 4-47 Summary of Change Expected in Cattle/Calf Sales[1]

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Full flexibility	Baseline	- 0.01	- 0.01	- 0.39	- 2.11	- 0.25	- 0.76
Limited flexibility	Baseline	- 0.05	- 0.05	- 1.58	- 8.44	- 1.02	- 3.04

[1] This reflects change from the total for Crook and Deschutes Counties, assuming permittees have full or limited flexibility to utilize other forage sources.

livestock on busy roads and private land resulting from cut fences, inadequate fence maintenance, and failure to close gates. The more conflicts, the higher the management costs for both the permittee and the BLM, and the lower the satisfaction of the user and adjacent landowner. There is a corresponding drop in livestock operator demand for an allotment when the conflicts are high. See Chapter 2 for a more detailed discussion of this concept.

Alternatives 1, 2, and 3 assume that existing and/or common to Alternatives 2-7 guidance will adequately solve conflicts, and that grazing permittees, recreationists, and other public land users and adjacent private landowners can make adjustments as needed to lessen conflicts. In Alternatives 4-7, the assumption is that Common to Alternatives 2-7 guidance does not go far enough in solving conflicts, and in some areas the preferred solution is to discontinue livestock grazing.

In Alternative 7, the definition of conflict is expanded to include an ecological conflict criterion. This criterion does not replace existing guidance (Standards for Rangeland Health, etc.), which adequately direct monitoring and assessment of ecological factors. Instead, it provides a quick estimate of the potential for ecological conflicts with livestock grazing and provides a way for BLM decision makers to integrate potential social, economic and ecological criteria when making decisions about livestock grazing use in an area.

Effects of the various alternatives can be assessed by comparing the relative amount of acres with Low, Moderate, or High potential for conflict or demand. Models are used in this analysis to estimate which allotments have the highest potential for conflict. The estimates are then used to make decisions about where conflicts might be high enough to warrant modification or discontinuance of grazing. The models used in this analysis to estimate conflict and demand are described in detail in Chapter 2.

Forage Availability

Under all alternatives considered, livestock grazing would continue in some of the planning area, with authorized use expected to be at least 72 percent of current authorized use or at least 50 percent of Alternative 1 direction. Management direction for allotment monitoring, evaluation, and rangeland health assessments (and subsequent site-specific analysis) may result in changes in forage allocation and season of livestock use and construction of new fences, pipeline, and other range developments to meet allotment and other resource goals and objectives. All areas currently closed to grazing would stay closed in all alternatives.

The alternatives present a range of solutions for reducing conflict, some of which involve making some allotments unavailable for livestock grazing. Grazing reductions are temporary, for the life of the plan only, and would be re-evaluated at the next planning cycle.

Closing an area to grazing is one way to reduce conflicts. In Alternative 7, some allotments are placed in Reserve Forage Allotment (RFA) status, which also potentially reduces conflicts, as the allotment is not likely to be grazed as frequently as before. Also, grazing can be shifted from a higher conflict area to an RFA, which has the potential to reduce conflict and increase permittee flexibility to deal with forage losses.

Permittees respond to loss of public AUMs by increasing productivity on base properties, purchasing or leasing alternate pasture, buying hay and feeding on owned or leased land, or by selling all or a portion of their herd. Permittee's options are more flexible when they have a larger ratio of owned/leased pasture versus public land, when there is leasable pasture nearby and/or the permittee can easily/cheaply haul animals to new pasture, when there are few seasonal restrictions on public and private land they graze,

or when they ranch as a "hobby" and can afford the increased costs of alternate pasture/feed sources.

The economic analysis estimates the range of effects under both full-flexibility and limited flexibility scenarios. Neither scenario represents all permittees. Actual effects will be dependent on the private business decisions made by individual permittees based on their individual circumstances. A permittee's ability to withstand AUM losses depends on his reliance on federal forage. Reliance is high when permittee's private land acreage is low, or his ability to haul livestock to alternate pastures is low. For the planning area, these conditions are usually met, meaning reliance is often high. Most permittees in the planning area have little private land, probably generally 160 -1,000 acres. They run few livestock (most have less than 50 head), so they are unlikely to be able to bear the cost of shipping livestock to other available pasture.

We do not know the permittees' dependence on federal forage, so we do not know how AUM losses would affect individual permittee's overall grazing operation. A high dependence would make it more likely that AUM losses would cause the permittee to cease grazing altogether, perhaps even selling his private property if the only income came from livestock grazing. A permittee with low dependence on federal forage could more easily absorb AUM losses with no change to his overall grazing operation. Most Alternative 7 forage reductions would not take place unless the grazing permittee voluntarily relinquishes his/her permit. This is assumed to reduce effects on the individual permittee, though the impact on the local economy would be the same as if the closure were forced. A study (Rowe *et al*., 2001) in a rapidly developing area in Colorado examined the factors influencing ranchers who graze on public land to sell their base property (private land to which the grazing privileges are attached). "Since ranch land is often the primary target for subdivision, ranchers play an important role in this pattern of land use change," say the authors. A rancher's decision to sell is affected by changes in federal grazing policy, local land-use planning efforts, and development of surrounding land. Changes in zoning and development can raise property values, increase taxes, and require more frequent checks of gates, fences, and livestock. But the decision is also influenced by non-economic factors, say the authors. "Ranchers continue to ranch despite financial difficulties. They stay because of...sense of place, attractiveness of lifestyle, family values, and tradition."

Analysis of the Alternatives

The action alternatives are compared to the No Action Alternative to display the differences in future outcomes by alternative relative to the projected outcome under continued implementation of existing management direction.

Effects of the various alternatives can be assessed by comparing estimated authorized use across the alternatives, displayed in Table 4-46, calculating how the AUM changes relate to cattle/calf sales, and putting these changes in perspective with the total cattle/calf sales in the local economy.

Authorized use was used to compare alternatives because it more accurately reflects use than does active preference. Active preference is generally the maximum available on a specific permit, while authorized use is the forage actually applied for and used. Authorized AUMs for the current situation are displayed but B/LP RMP direction is used for comparison with FEIS/PRMP alternatives. This is because the amount of vacant and unallocated AUMs in the current situation is not necessarily typical, since the BLM has deferred requests for permits for these parcels pending completion of the FEIS/PRMP. For analysis purposes, B/LP direction is assumed to more accurately reflect baseline conditions of the No Action Alternative.

Effects of Alternative 1

The No Action Alternative (Alternative 1) assumes that demand exists for currently available but unallotted AUMs, and permits will be issued following completion of the RMP, consistent with existing management direction.

Livestock grazing would continue on 389,900 acres, providing an estimated annual authorized use of 25,840 AUMs. No permittees would be affected by AUM reductions, as there would be no additional reductions from the current condition.

Alternative 1 is the baseline to which other alternatives are compared. Note that Alternative 1, the No Action Alternative, is not the same as the current situation. Alternative 1 represents an estimated increase of 7,498 AUMs authorized use from the current situation, and a corresponding increase in livestock sales of 1.26 to 5.03 percent. Estimated sales of cattle and calves under Alternative 1 direction would increase by $327,000 to $1,308,549 from the current situation. This would increase the size of the livestock industry within the planning area, especially in the La Pine area where the unalloted areas are located. In this alternative, BLM-administered forage would provide for just over four percent of local cattle/calf sales.

There would be more authorized AUMs in Alternative 1 than in any of the action alternatives (Alternatives 2-7). Total management costs (BLM and grazing permittee) to patrol and/or repair fences would be greatest in Alternatives 1, 2, and 3, and least in Alternative 5.

Effects Common to Alternatives 2-7

Livestock grazing would continue on 228,625 to 389,348 acres, with 13,261 to 25,779 AUMs. One to fifty permittees would be affected by AUM reductions, and there would be a 0.01 to 8.44 percent reduction in local cattle/calf sales. Conflicts between livestock grazing and other uses would vary by alternative, from approximately the same level as in Alternative 1 in Alternatives 2 and 3, to reduced levels in Alternatives 4, 5, 6, and 7.

The action alternatives provide for additional protection for a portion of the historic canals in the Cline Buttes area, resulting in livestock grazing being excluded from about 550 acres in one allotment (Whiskey Still, #5079). Other areas would be closed to livestock grazing to reduce conflicts, but the amount would vary by alternative from zero acres to thousands of acres. Considering both the historic canal closures and the closures to reduce conflicts, the action alternatives would provide 61 to 12,579 fewer authorized AUMs than Alternative 1. The seasonal use restriction in allotments containing ACECs designated for Peck's milkvetch would reduce permittee flexibility in dealing with other restrictions or forage reductions.

Alternatives 2-7 would all use a grazing matrix for categorizing allotments based on their estimated potential conflict in allotments between livestock grazing and other uses and demand for that allotment. The criteria used in the matrix are slightly modified for Alternative 7. This system would enable the BLM to better prioritize its response to problems.

Alternatives 2-7 include two proposed additional major transportation corridors, to relocate State Highway 126 north of the Redmond Airport, and for a link between the south end of Redmond and the north end of Bend, with a potential intersection at Quarry Road (the actual configuration of the proposed corridor varies in Alternatives 2, 3, and 4 but is the same in 4-7). These allocations would not affect grazing management until and unless an actual right-of-way is granted. At that time, specific impacts to permittees and changes to allotments could be made if determined necessary by site-specific analysis.

Effects of Alternative 2

Livestock grazing would be authorized on 389,348 acres, providing an estimated annual authorized use of 25,779 AUMs. This represents a less than one percent reduction in AUMs from Alternative 1. One permittee would be affected by AUM reductions, and there would be a very minor reduction in local cattle/calf sales. The only AUM reduction is the one to protect historic canals, as described in Common to Alternatives 2-7. Expected conflicts between livestock grazing and other uses would be similar to those expected in Alternatives 1 and 3, and more than those expected in Alternative 4, 5, 6, and 7.

Total management costs (BLM and grazing permittee) to patrol and/or repair fences would be greatest in Alternatives 1, 2, and 3, and least in Alternative 5.

The effect on local livestock sales would be minimal, a 0.01 to 0.05 percent reduction, depending on permittee flexibility in securing alternate forage sources. An estimated $3,000 to $12,000 in livestock sales would be lost compared to Alternative 1. This reduction is minimal and is unlikely to have measurable effects on the local economy. In this alternative, BLM-administered forage would provide for just over four percent of local cattle/calf sales.

Effects of Alternative 3

Livestock grazing would be authorized on 389,348 acres in the planning area, providing an estimated annual authorized use of 25,779 AUMs. This represents a less than one percent reduction in AUMs from Alternative 1. The only AUM reduction is the one to protect historic canals, as described in Common to Alternatives 2-7.

One permittee would be affected by AUM reductions, and there would be a very minor reduction in local cattle/calf sales. Expected conflicts between livestock grazing and other uses would be similar to those expected in Alternatives 1 and 3, and more than those expected in Alternative 4, 5, 6, and 7.

Total management costs (BLM and grazing permittee) to patrol and/or repair fences would be greatest in Alternatives 1, 2, and 3, and least in Alternative 5.

The effect on local livestock sales would be minimal, a 0.01 to 0.05 percent reduction, depending on permittee flexibility in securing alternate forage sources. An estimated $3,000 to $12,000 in livestock sales would be lost compared to Alternative 1. This reduction is minimal and is unlikely to have measurable effects on the local economy. In this alternative, BLM-administered forage would provide for just over four percent of local cattle/calf sales.

Effects of Alternative 4

Livestock grazing would continue to be authorized on 348,682 acres in the planning area, providing an estimated annual authorized use of 23,545 AUMs. This represents a nine percent reduction in AUMs from Alternative 1.

Livestock grazing would be discontinued in several allotments to protect historic canals (as mentioned in Common to 2-7), and to reduce conflicts with other uses. Areas where the analysis models (described fully in Chapter 2) indicate conflicts are likely to be high would be closed to grazing, as would areas where the analysis models indicate demand is likely to be low. About 20 permittees would lose their BLM permits and need to find alternate forage, or reduce their herds, resulting in a 0.039 to 1.58 percent reduction in local cattle/calf sales.

Expected conflicts between livestock grazing and other uses would be less than those expected in Alternatives 1, 2, and 3; more than those expected in Alternative 5, and comparable to those expected in Alternative 6. The expected conflicts would probably be similar to those expected for Alternative 7, but the comparison is difficult because conflict is not defined exactly the same, and it is unknown when or how many permits would be relinquished in Alternative 7.

By discontinuing livestock grazing in allotments that exceed conflict/demand thresholds, the potential for conflicts would be reduced in this alternative (and in Alternatives 5, 6, and 7), compared to the potential for conflicts in Alternatives 1, 2, and 3. This would mean a potential decrease in BLM and grazing permittee management costs. The potential for conflicts that would remain after closures in this alternative is likely to be more than the level remaining in Alternative 5, but less than the level remaining in Alternative 6. The comparison to Alternative 7 is difficult because conflicts are defined slightly differently than in Alternatives 2-6. Fencing areas of high conflict in Alternative 4 would cost the BLM approximately $32,000 (8 miles of fence).

The effect on local livestock sales would be limited, a 0.039 to 1.58 percent reduction depending on permittee flexibility in securing alternate forage sources. An estimated $108,000 to $416,000 in livestock sales would be lost compared to Alternative 1. This reduction would impact the livestock industry but is likely to have minimal effects on the local economy. In this alternative, BLM-administered forage would provide for just less than four percent of local cattle/calf sales.

Effects of Alternative 5

Livestock grazing would be authorized on 228,625 acres, providing an estimated annual authorized use of 13,261 AUMs. This represents a 49 percent reduction in AUMs from Alternative 1, the largest reduction of any alternative. About 50 permittees would lose their BLM permits and need to find alternate forage, or reduce their herds, resulting in a 2.11 to 8.44 percent reduction in local cattle/calf sales.

Livestock grazing would be discontinued in several allotments to protect historic canals, and to reduce conflicts with other uses. Areas where the analysis models indicate conflicts are likely to be moderate or high would be closed to grazing, as would more urban areas (see definition of urban in Chapter 2) where the analysis models indicate demand is likely to be low.

Expected conflicts between livestock grazing and other uses would be less than those expected in all other alternatives.

By discontinuing livestock grazing in allotments that exceed conflict/demand thresholds, the potential for conflicts would be reduced in this alternative (and in Alternatives 4, 6, and 7), compared to the potential for conflicts in Alternatives 1, 2, and 3. This would mean a potential decrease in BLM and grazing permittee management costs. The potential for conflicts that would remain after closures in this alternative is likely to be less than the level remaining in Alternatives 4 and 6. The comparison to Alternative 7 is difficult because conflicts are defined slightly differently than in Alternatives 2-6. Total management costs (BLM and grazing permittee) to patrol and/or repair fences would be the least in Alternative 5. However, BLM management costs may actually be highest in this alternative, since the BLM would have to take over fence maintenance in some areas formerly maintained by grazing permittees.

The effect on local livestock sales would be minimal, a 2.11 to 8.44 percent reduction depending on permittee flexibility in securing alternate forage sources. An estimated $576,000 to $2,221,000 in livestock sales would be lost, compared to Alternative 1. This reduction would affect the livestock industry and is likely to have measurable effects on

the local economy. These induced impacts were not quantified. In this alternative, BLM administered forage would provide for about 2 percent of local cattle/calf sales.

Effects of Alternative 6

Livestock grazing would be authorized on 347,890 acres in the planning area, providing an estimated annual authorized use of 24,375 AUMs. This represents a six percent reduction in AUMs from Alternative 1. Eight permittees would be affected by AUM reductions and need to find alternate forage, or reduce their herds, resulting in a 0.25 to 1.02 percent reduction in local cattle/calf sales.

Livestock grazing would be discontinued in several allotments to protect historic canals, and to reduce conflicts with other uses. Allotments in the rural areas (see definition of rural in Chapter 2) where the analysis models indicate demand is likely to be low or moderate would be closed to livestock grazing, to reduce conflicts.

Expected conflicts between livestock grazing and other uses would be less than those expected in Alternatives 1, 2, and 3; more than those expected in Alternative 5, and comparable to those expected in Alternative 4. The expected conflicts would probably be similar to those expected for Alternative 7, but the comparison is difficult because conflict is not defined exactly the same, and it is unknown when or how many permits would be relinquished in Alternative 7.

By discontinuing livestock grazing in allotments that exceed conflict/demand thresholds, the potential for conflicts would be reduced in this alternative (and in Alternatives 4, 5, and 7), compared to the potential for conflicts in Alternatives 1, 2, and 3. This would mean a potential decrease in BLM and grazing permittee management costs. The potential for conflicts that would remain after closures in this alternative is likely to be more than the level remaining in Alternatives 4 and 5. The comparison to Alternative 7 is difficult because conflicts are defined slightly differently than in Alternatives 2-6.

The effect on local livestock sales would be minimal, a 0.25 to 1.02 percent reduction depending on permittee flexibility in securing alternate forage sources. An estimated $69,000 to $267,000 in livestock sales would be lost compared to Alternative 1. This reduction would impact the livestock industry but is likely to have minimal effects on the local economy. In this alternative, BLM-administered forage would provide for about four percent of local cattle/calf sales.

Effects of Alternative 7

Livestock grazing would be authorized on at least 268,815 acres, with at least 20,785 AUMs. One permittee would be affected by mandatory AUM reductions; the remaining AUM reductions would be accomplished through voluntary permit relinquishments. There would be a 0.76 to 3.04 percent reduction in local cattle/calf sales.

Livestock grazing would be discontinued in several allotments to protect historic canals, and to reduce conflicts with other uses. The combination of conflict and demand criteria that would lead to allotment closure in this alternative is described in Chapter 2. Assuming all applicable permits were relinquished, the reduction in AUMs would be between three and eight percent. Assuming no new permits were relinquished other than those already in “vacant” status, the reduction would be between .06 and three percent. The first number assumes all allotments in the “close or RFA” category would be placed in RFA status; the second assumes they would all be closed. An additional eight percent of the AUMs would be placed in RFA status (also assuming permit relinquishment). The estimated authorized AUMs in “open” status are 20,785 AUMs on 268,815 acres.

Expected conflicts between livestock grazing and other uses would be less than those expected in Alternatives 1, 2, and 3. The expected conflicts would probably be similar to those expected for Alternatives 4 and 6, but the comparison is difficult because conflict is not defined exactly the same, and it is unknown when or how many permits would be relinquished in Alternative 7.

By discontinuing livestock grazing in allotments that exceed conflict/demand thresholds, the potential for conflicts would be reduced in this alternative (and in Alternatives 4, 5, and 6), compared to the potential for conflicts in Alternatives 1, 2, and 3. This would mean a potential decrease in BLM and grazing permittee management costs. The level of potential conflicts that would remain after closures in this alternative varies, depending on whether permittees relinquish permits in the "close" category. The comparison to Alternatives 2-6 is difficult because conflicts are defined slightly differently than in this alternative.

The effect on local livestock sales would be minimal, with a 0.76 to 3.04 percent reduction depending on permittee flexibility in securing alternate forage sources. An estimated $207,000 to $799,000 in livestock sales would be lost compared to Alternative 1. This reduction would impact the livestock industry and is likely to have measurable effects on the local economy. These induced impacts were not quantified. In this alternative, BLM administered forage would provide for 3.6 percent of local cattle/calf sales.

Creating RFAs would increase permittee flexibility to withstand short-term AUM reductions and provide the BLM with leverage to help rest pastures after wildland fire or for other resource reasons.

The voluntary relinquishment for most allotment closures means effects of AUM reductions on individual permittees would be more manageable, because the permittee can choose when (or if) to relinquish his/her permit.

Cumulative Effects

Livestock grazing is historically important in the planning area both culturally and economically, although the contribution from BLM-administered public land is small relative to total cattle/calf production. On average, grazing permittees in the planning area use BLM-administered land for about 20 percent of total feed. However, in several cases, over 90 percent of a permittee's operational forage base consists of federally administered grazing land. Although federally administered land might comprise only a minor portion of a permittee's total forage, it may well be that without that portion the permittee's operation would no longer be viable.

In Oregon, federal permittees use agency forage for 23 percent of total feed (Frewing-Runyon, 1995). Eastern Oregon permittees are less dependent on public forage; the average reliance of eastern Oregon permittees on federal forage (BLM and Forest Service) is 11 percent.

While Oregon's current Statewide Planning Goals and Guidelines manage the transition of land use in the State, future declines in the private agricultural land base are forecast to continue, thereby increasing the importance of remaining federal land resources in the region. Over the next 100 years, it has been projected that total western range lands will probably decrease by 25 to 40 percent (Holechek, 2001).

Authorized use has declined approximately three percent per year on BLM managed land in the planning area over the last decade. Use on the Deschutes and Ochoco National Forests (including the Crooked River National Grassland) has declined about 2.6 percent per year since 1995 (personal communication, Byron Cheney and Don Sargent, USFS employees). The Draft EIS for the Interior Columbia Basin Ecosystem

Management Plan estimated a one percent reduction per year for the basin. The cumulative effect of a continuation of these declines combined with the AUM reductions proposed in some alternatives in the FEIS/PRMP may be that more permittees' operations become unprofitable than expected under either scenario alone.

Some of the permittees affected by AUM reductions (Alternatives 2, 3, and 7 would each affect one; Alternative 4 would affect 20; Alternative 5 would affect 50; and Alternative 6 would affect eight) may not have enough remaining forage (public and/or private) to continue livestock grazing, and may decide to sell their base properties. If this were to occur, given local trends the property might be converted from rangeland to low density residential use, potentially increasing conflicts for remaining public land livestock grazing use in the area. As conflicts increase, additional allotments would meet conflict/demand criteria for grazing discontinuance.

In recent years, there have been steady decreases in the supply of private grazing lands in the region as rapid population growth, resort and other residential development have reduced or fragmented the existing land resources, making grazing less attractive or cost-effective. According to some analysts, for every acre directly lost to development, another three to ten acres may be lost from the ranching base due to fragmentation (Liffman, Huntsinger and Forero, 2000).

Minerals

Summary

The general direct, indirect, and cumulative effects resulting from land allocations open to mining and land allocations designated as avoidance and exclusion areas are identified in this section. Due to data gaps and uncertainties related to the timing, amount, and location of mining operations, the analysis is more relative than quantitative. Mineral materials, precious and base metals, and energy resources produced from BLM-administered lands would provide economic benefits including but not limited to jobs, construction/maintenance cost savings, and quality of life. Indirect effects including but not limited to noise, dust, asphalt batching odor, ground disturbance, erosion, the spread of noxious weeds, and truck traffic would occur on some areas of BLM-administered lands that are open to mining. These indirect effects would likely cause some degree of conflict with residents, recreational users, natural resources, and cumulatively add to the past, present, and future effects caused by other land uses and activities.

Exclusion areas, avoidance areas, and other restrictions could add costs to the mining industry and would add cumulatively to other present and future restrictions (see Table 4-48 for acres available to mineral entry by alternative). Most of the avoidance and exclusion areas occur where the potential for occurrence is moderate for geothermal resources and low for fossil fuels and locatable minerals. Thus, the economic effects of the land allocations with respect to locatable mineral entry and mineral leasing are expected to be minimal. Historical use patterns suggest that the overall potential for development of leasable and locatable minerals during the life of this plan is low; the environmental and social effects of developing these mineral types are not expected to be notable. Most of the effects related to mining are expected to be associated with mineral material sites as suggested by historical and forecasted demand. In some alternatives, potential sites identified by ODOT as having large reserves of high quality rock would be restricted or unavailable and could lead to increased construction costs.

The issues addressed in this plan are similar to the issues faced by land use planners and the aggregate mining industry nationwide. Across the country, rapid urbanization of the landscape has resulted in more demand for mineral materials while leaving less space for mining (Langer, 2002; Arbogast *et al.*, 2000). Many important mineral material

sites conveniently located within close proximity to population centers have been made inaccessible by suburban development (Kesler, 1994). Moreover, people want affordable housing, driveways, bridges, and well-maintained roads and highways yet many oppose the development of mineral material mines, especially in close proximity to where they live. These factors coupled with environmental concerns have made permits increasingly difficult to obtain for mineral material mining (Arbogast, *et al.*, 2000). Cities across the U.S. are facing shortages and/or inflated costs of mineral materials due to increased haul distance. In some parts of the county, land-based sources of mineral materials are no longer available and the continental shelf is being dredged to meet the demand (Kessler, 1994).

Although the communities of Upper Deschutes planning area could face increased costs due to restrictions and the unavailability of some sites on BLM-administered lands, there appears to be enough mineral materials from public and private sources to meet the foreseeable future demand. Although some known and unknown mineral material deposits fall within avoidance or exclusion areas or fall under other restrictions, there are adequate public and private aggregate reserves to meet the expected demand over the next 20 years. According to DOGAMI (Oregon Department of Geology and Mineral Industries, 1995) forecasting models, Deschutes County is expected to consume 2.4 million cubic yards of aggregate for all uses including road construction and maintenance between 2001 and 2020. The estimated reserves from existing aggregate sites identified by ODOT (1999) as having "good" to "excellent" quality or as meeting ODOT specifications add up to 22.4 million cubic yards. This figure excludes at least 13 other sites for which the reserves and/or quality are not available. Given that the known estimated reserves are 9.3 times larger than the expected 20-year demand for Deschutes County and that most of the population centers are in Deschutes County, it is expected that the reserves are more than adequate to meet the demand throughout the entire planning over the next 20 years.

There are areas with moderate to high potential for the occurrence of geothermal energy, oil and gas, and locatable minerals. However, based on historical mining exploration and production, notable development of locatable and leasable minerals within the planning area is not expected to occur in the next 10-20 years. Thus, the effects of the proposed restrictions in this plan on locatable and leasable mineral development are not expected to be notable. Similarly, notable environmental and social effects from the development of these resources are not expected to occur.

Table 4-48 Acres Available for Mineral Entry by Alternative

Indicator	Alternative						
	1	2	3	4	5	6	7
Locatable Minerals							
Open to locatable mineral entry	403,910	403,910	403,910	403,910	403,910	403,910	403,910
Avoidance Areas	34,319	51,216	88,546	78,429	62,360	64,479	61,370
Mineral Leasing							
Open to mineral leasing	374,365	374,365	374,365	374,365	374,365	374,365	374,365
No Surface Occupancy	21,254	38,151	75,481	65,364	49,295	51,414	48,305
Avoidance Areas	4,774	21,671	59,001	48,884	21,671	34,934	31,825
Mineral Materials							
Open to mineral material mining	403,910	349,199	347,080	335,772	311,799	347,080	349,199
Avoidance Areas	34,319	4,073	39,284	31,286	15,217	15,217	14,227

General Relationships

The area available for locatable and leasable minerals mineral development would be common to all alternatives at 403,910 and 374,365 acres, respectively. The no surface occupancy stipulation for fluid mineral leasing would be continued for all alternatives on the 4,073-acre Peck's Milkvetch ACEC, the 510-acre Powell Butte RNA, and the 609-acre Horse Ridge RNA and on 16,480 acres around Prineville Reservoir. The Horse Ridge RNA would continue to be withdrawn from mineral entry under the 1872 mining laws in all alternatives.

At least 75 percent of the planning area is available for mineral material mining and some known mineral material prospects identified by ODOT (1998) are available in each alternative. It is therefore expected that the reasonably foreseeable development scenarios for locatable, leasable and saleable minerals in the planning area are the same under all alternatives. More detailed assumptions and mineral development scenarios are provided in Appendix I.

The direct effect of designating lands for mining uses would be the availability of those lands for filing mining claims and applications for mineral materials and mineral leasing. The approval of mining operations would lead to indirect effects including but not limited to jobs, construction project savings to taxpayers, and increased quality of life. Other indirect effects could include ground disturbance, dust, noise, asphalt batching odor, erosion, the spread of noxious weeds, and permanent removal of mineral resources. Mining in the La Pine area could expose groundwater to evaporation and contamination due to the shallow water table. Developed mineral material sites are often used for target shooting, trash dumping and OHV riding, and would result in increased amounts of litter, noise, and dust. Ground-disturbing effects would primarily be confined to mining sites whereas the dust, noise, and asphalt odor could have adverse effects on adjacent public and private lands up to a few miles away. These effects are less likely to occur in avoidance areas such as ACECs, RNAs, and WSAs and in areas with other restrictions to mitigate conflicts with other land uses and management objectives.

Mineral material development under sales and free use contracts is expected to continue as the most important mineral use within the planning area owing to the expanding population and the corresponding demand for aggregate materials. An indirect effect of the availability of mineral materials from public lands would be reduced costs for mineral materials to federal, state, and local government agencies. Costs would be saved through the free use of mineral materials, decreased hauling distance, and increased bidder competition. The benefits of these savings could be passed on to taxpayers as roads, bridges and other infrastructure are built and maintained at lower costs.

The direct effect of restrictions and closures imposed on mineral material mining would be that some known and unknown economically viable mineral material sources would be unavailable for development. Depending on the location, restrictions and closures could restrict or make some sites unavailable and could have the indirect effect of requiring the ODOT and other users of mineral materials to use alternative sources to meet demand. Hence, ground disturbance, dust, and noise could be displaced to other locations on private, state, county, Forest Service, or other BLM-administered lands within the planning area and up to about 30 miles outside of the planning area boundary. Aggregate from alternative sources could have lower quality and/or longer haul distances. Longer haul distances would increase fuel consumption, emissions, and the probability for accidents. Mineral materials from BLM-administered lands would be provided to ODOT free of charge so the aggregate cost would be affected if privately owned sources are used as alternatives. ODOT typically receives fewer bids on construction projects when a public source of material materials is not available, resulting in higher construction costs due to limited bidder competition (ODOT 1998). Thus, aggregate end-product longevity, construction timetables, road maintenance

costs, taxpayer benefit and/or bidder profitability could be indirectly affected by the restrictions and closures. Because the income for local bidders and public funds from state and federal sources are involved, the economy could be indirectly affected at all levels, most notably at the local level.

The direct effect of restrictions on mineral leasing and locatable mineral entry would be the potential unavailability of some of these resources or the increased difficulty in mining them. This could have an indirect effect on exploration and development costs, mineral commodity production, and profitability and thus could have indirect effects on the local economy. However, most of the avoidance and exclusion areas would occur in the west half of the planning area where there is a moderate potential for the occurrence of geothermal resources and a low potential for fossil fuels and locatable minerals. Due to these factors and the low historical development of leasable and locatable minerals in the planning area, the adverse effects of the restrictions would not be expected to be notable.

The social, economic, and environmental effects of each alternative with respect to mining are difficult to quantify due to the uncertainties of the industry. Each alternative specifies only those lands available and not available for mineral entry but none authorize any specific mining operation. Therefore, the number and locations of future mineral material pits, drilling sites, and other mining developments are generally not known, though a few potential mineral material sites have been identified by the Oregon Department of Transportation (ODOT). Also not foreseeable are what other mineral materials may become popular for use as decorative stone or become industrially important. Likewise, the interest in mineral leasing and locatable mineral development cannot be foreseen due to changing technologies, dynamic energy prices, metal values, and demand.

The comparison of the alternatives with respect to acres available for mineral material mining does not necessarily reflect a comparison of how much mining would occur. There is no direct correlation between the number of acres available for mining and the amount of mining that would take place. What matters is where the economically viable high quality rock deposits are in relation to exclusion and avoidance areas, not how many acres are available. Therefore, it is possible for an alternative with relatively few acres available for mining to result in more mining on public lands than another alternative with more acres available. It is not possible to quantify the effects of mining from each alternative because 1) the locations of all economical high quality rock deposits and how they are distributed across the planning area are not known and 2) the number and outcome of future applications for the development of mineral material sites are not known.

Locatable Minerals

Historically, mining of locatable minerals in the planning area has been sporadic with minor exploration and production of mercury and diatomite. Past exploration and development of mercury deposits from the 1920s to the 1950s in the southeastern part of the planning area resulted in scattered small trenches, adits and shafts, each typically disturbing less than an acre. Future exploration and production would probably result in similar scales of ground disturbance unless a large deposit is discovered, but little or no exploration or development of mercury deposits are expected to occur during the life of this plan. Diatomite was historically produced from private lands east of Terrebonne and was mined by the open pit method. If diatomite is discovered and produced from adjacent BLM-administered lands, up to several hundred acres of ground disturbance could result. However, such large-scale developments of diatomite are not expected during the life of this plan.

There are currently 26 unpatented mining claims and four millsite claims within the planning area and two notices have been filed under the BLM Surface Management

Regulations (43 CFR 3809). Based on historic trends, it is expected that 5 to 10 additional mining claims will be filed within the planning area in the next 20 years. Notice-level exploratory operations on any existing or future claim may disturb up to five acres of ground and plan level operations may disturb more than five acres. It is expected that two to three notice-level and one to two plan-level operations will occur during the life of this plan.

Leasable Minerals

Oil and Gas

Based on the history of past drilling and the low to moderate potential for oil and gas throughout the planning area, exploration will probably continue to be sporadic. During the life of this plan, one to two exploratory wells for oil and gas are expected to be drilled in the eastern part of the planning area where the potential is moderate. The success rate of finding oil or gas is predicted to be no greater than 10 percent based on the average exploratory well success rate in the U.S. Each exploratory well site is expected to disturb up to six acres including new access roads and will be occupied for less than 12 months during the drilling, testing, and abandonment phases. It is not expected that any development of oil or gas fields will occur during the life of this plan. For economically viable development to occur, a gas field would need to have at least 50-60 billion cubic feet (BCF), corresponding to an area of at least 200 acres. Such a field would require five producing wells (including the discovery well) and require 30 to 60 miles of pipeline with a 30-ft width of ground disturbance.

Geothermal Energy

It is likely that the geothermal anomaly at Powell Buttes will be explored further during the life of this plan. A study by Brown et al. (1980) indicated a potential for boiling temperature fluids at depths of approximately 1000 meters. However, the presence of an economically viable geothermal system has not been proven. According to Brown et al. (1980), further geophysical (gravity, magnetic, and electrical) surveys and the drilling of 20 150-meter gradient-stratigraphy holes on the both sides of the buttes are needed to further define the thermal anomaly. Several 1000-meter holes would be required to directly test for elevated temperatures with usable fluids.

The development of a power plant in the Powell Buttes area is not expected to occur during the life off this plan. However, if a 24-megawatt power plant were to be developed, five to seven production wells and one to two injection wells would be drilled with a ground disturbance of two to six acres per well. The power plant facilities would involve 5 to 10 acres and pipelines and power lines would disturb three to six acres. Up to about 75 acres could be disturbed by the entire operation. Due to the predominance of private lands in the Powell Buttes area, it is not known how much development would affect BLM-administered lands if development were to occur.

Geothermal resources have many direct use applications including space heating and cooling of residences, businesses and greenhouses, and applications in aquiculture, industry, and therapeutic bathing. The surface disturbance could range from a few acres for a single well to tens of acres for larger agricultural or aquacultural developments.

Mineral Materials

The demand for mineral materials is expected to continue to increase in conjunction with the population growth in Central Oregon. The mineral material supply from existing private and public sources in the planning area appears to exceed the foreseeable demand over the next 20 years. However, based on the distribution of public and private ownership, ODOT is not able to consistently offer a public mineral material source for

its construction projects in order to increase bidder competition (ODOT, 1998). Based on the distribution of ODOT's prospective mineral material sites across the planning area, it is expected that three to four new mineral material sites will be developed in the next 20 years. Approximately 15-20 acres of ground disturbance would occur to accommodate each mine, including rock crushing operations, truck turnaround areas, and aggregate stockpile areas. Moderate to heavy traffic could occur on up to five miles of non-paved access roads during periods of site utilization. Up to one mile of new access road may be constructed to each site. If the three to four expected new mineral material sites are developed, up to 80 acres of ground disturbance would occur and up to four miles of new access roads would be built.

Analysis of the Alternatives

The direct and indirect effects of each alternative would primarily result from public land allocations available for mining, allocations where mining would be restricted, and allocations where land would be closed to or withdrawn from mineral entry. Since the alternatives vary by the number of acres in each of the allocation categories, the types of effects would be the same for each alternative. Therefore, the effects may vary only in magnitude with each alternative depending on where important mineral deposits are in relation to the land allocations.

Effects of Alternative 1

The environmental effects related to the development of mineral material sites would potentially occur in isolated locations within 403,910 acres open to that use. This alternative has the largest allocation of land open to mineral material sales. Within these open lands, the 29,545- acre Badlands WSA and the 191-acre Wagon Roads ACEC would be designated as avoidance areas. There would be no buffer around residentially zoned areas or designated recreation sites, so mining operations would have the highest potential for effects on residents and recreational users. Under this alternative, none of the sites proposed by ODOT would occur on lands closed to mineral material sales or on lands with restrictions for this use.

Effects Common to Alternatives 2-7

The 29,545-acre Badlands WSA, the 844-acre Tumalo Canal ACEC, and the 9,640-acres around protected roads in the Wagon Roads ACEC would be closed to mineral material sales. The unavailability of mineral resources in the Badlands WSA and the Wagon Roads ACEC is expected to have a minimal economic effect because there are no known high quality aggregate deposits in those areas. However, in the Tumalo Canal ACEC, ODOT identified a locality having high quality rock with an estimated reserve of over 1 million cubic yards. If comparable alternative source(s) are not found, there could be effects on the costs, longevity, and taxpayer benefit of road construction and maintenance projects in and around the Cline Buttes area. Whether these effects occur is unknown because the quality, reserves, and economic viability of some other prospective sites in the Cline Buttes area have not been thoroughly evaluated.

Mineral material mining effects on residents and recreational users such as dust, asphalt batching odor, and noise would be mitigated by buffer zones (closed to mineral material site development) at least 1/8 mile wide surrounding residentially zoned areas and designated recreation sites[5]. Thus, the potential mining effects on residents and recreational users would be expected to be somewhat less than in Alternative 1. The effectiveness of the buffer zones would depend on wind direction. Buffer zones located

[5] Designated recreation sites that depend upon or exist in mineral material sites generally would not be considered to be in conflict with mining operations for the purposes of setting up a buffer zone.

upwind from a residential or recreation area would be less effective at mitigating dust and asphalt batching odor than buffer zones located downwind.

Mining-related dust, odors, and noise from mineral material sites would be mitigated by one or more discretionary stipulations that could prohibit mining activities on legal holidays and restrict the hours of operation and hours when blasting is allowed. Assuming operator compliance, mining operations including blasting and truck traffic would be less likely to affect residents and recreational users at night, early in the morning, or on legal holidays.

The effects of mining-related truck traffic on residents and recreational users would have additional mitigation measures in alternatives that allow no more than a moderate conflict with residents and/or recreation. Under low to moderate conflict scenarios, mining-related truck traffic would not cross-designated recreation trails or use roads under BLM jurisdiction that feed into residentially zoned areas.

Existing regulations require ground-disturbances resulting from the mining of locatable minerals and mineral leasing to be reclaimed. Alternatives 2-7 extend the reclamation requirements to common variety mineral materials (saleable minerals) as authorized in 43 CFR 3601.40. The success and effectiveness of reclamation is site-specific and depends on factors such as geology, geochemistry of waste rock, topography, funding from reclamation bonds, operator compliance, and the type, size, and scale of operations. No reclamation effort can mitigate 100 percent of the ground-disturbing effects of mining. However, reclamation can substantially reduce the visual and environmental effects resulting from a mining operation. Because the location and condition of future mining sites under this plan are unknown, the true effectiveness of the reclamation requirements cannot be determined.

All of the mitigation measures would act to reduce mining conflicts with residents, recreation, and natural resource management objectives. These measures would likely lessen the effects of mining on other land uses and values. However, the mining industry would have less BLM-administered land available for mining and would face more obligations to protect special values and reduce conflicts.

Effects of Alternative 2

The environmental effects related to the development of mineral material sites would potentially occur within 349,199 acres open to that use. Alternative 2 is the least restrictive of the action alternatives and would allocate the largest number of acres as open to mineral material sales and have the least number of acres with restrictions. There would be no avoidance or exclusion areas specific to this alternative.

This alternative would designate the smallest buffer (1/8 mile) of the action alternatives around residentially zoned areas and designated recreation sites. Thus, mining would have a relatively high potential for effects to residents and recreational users under this alternative.

Effects of Alternative 3

The environmental effects related to the development of mineral material sites would potentially occur within 347,080 acres open to that use. This alternative would allocate the same number of acres open to mineral material sales as Alternative 6, but would have more acres with restrictions. Within these open lands, the 31,011-acre Juniper Woodlands ACEC and the 4,200-acre Alfalfa Market Road ACEC would be designated as avoidance areas. The 2,119-acre Smith Rock ACEC would be an exclusion area. No known economically feasible high-quality mineral material deposits are known within the Alfalfa Market Road or Smith Rock ACECs so the effects of these designations would

likely be minor. However, the Juniper Woodlands ACEC would cover much of the Cline Buttes area identified by ODOT (1999) as being highly favorable for mineral material development. The restrictions in this ACEC could require ODOT to use alternative sources and there could be some effects on the costs, longevity, and taxpayer benefit of road construction and maintenance projects in and around the Cline Buttes area.

Mining would have the same effects on residents and recreational users as in Alternative 2 due to the 1/8-mile buffer around residentially zoned areas and designated recreation sites.

Effects of Alternative 4

The environmental effects related to the development of mineral material sites would potentially occur within 335,772 acres open to that use. This alternative would allocate the second least number of acres open to mineral material sales. Within these open lands, the 4,200-acre Alfalfa Market Road ACEC, the 6,756-acre Juniper Woodlands ACEC and the 16,257-acre Sage Grouse ACEC would be designated as avoidance areas. No known mineral material deposits occur in these areas so the effects on the mining industry would likely be small.

The effects of mining operations on recreational users would be minimal due to the 1/2-mile buffer closed to mineral material sales around designated recreation sites. Effects from mining on residents would be moderate as compared to Alternatives 2 and 3 because of the 1/4 mile buffer zone around residentially zoned areas.

This alternative would require mineral material site applicants to use alternative sources of mineral materials when available within 30 miles of the construction site or commercial distribution center instead of opening up new sources on BLM-administered public land. Due to this requirement, the effects on the costs, longevity, and taxpayer benefit of road construction and maintenance projects planning area-wide would likely be greatest under this alternative.

Effects of Alternative 5

The environmental effects related to the development of mineral material sites would potentially occur within 311,799 acres open to that use. This alternative is the most restrictive of all alternatives by allocating the least number of acres open to mineral material sales and having the second highest number of acres with restrictions. Within these open lands, the 15,217-acre Peck's Milkvetch ACEC would be designated as an avoidance area. This ACEC covers the southwest part of the Cline Buttes area identified by ODOT (1999) as being highly favorable for mineral material development. The restrictions in this ACEC could require ODOT to use alternative sources and there could be effects on the costs, longevity, and taxpayer benefit of road construction and maintenance projects in and around the Cline Buttes area. However, much less of the Cline Buttes area would fall under avoidance area designation than in Alternative 3.

Adverse effects from mining on residents would be minimal because of the 1/2-mile buffer closed to mineral material site development around residentially zoned areas. Mining would have relatively minor effects on recreation in parts of the planning area defined as "urban" and potentially larger effects in areas defined as "rural" due to buffer zones of 1/2 and 1/8 mile respectively.

Effects of Alternative 6

The environmental effects related to the development of mineral material sites would potentially occur within 347,080 acres open to that use. This alternative would allocate the same number of acres open to mineral material sales and would have the same

ACECs with exclusion area designation as Alternative 3 and has the same ACECs with avoidance area designation as Alternative 5.

Mining would have the same effects on residents as in Alternatives 2 and 3 because of the 1/8-mile buffer closed to mineral material development around residential areas. However, mining would have relatively minor effects on recreation in parts of the planning area defined as "rural" and potentially larger effects in areas defined as "urban" due to buffer zones of 1/2 and 1/8 mile respectively.

Effects of Alternative 7

The environmental effects related to the development of mineral material sites would potentially occur within 349,199 acres open to that use. The effects of Alternative 7 would be the same as those of Alternative 6 except that the Smith Rock ACEC would not be designated and the Peck's Milkvetch ACEC expansion would be about 118 acres smaller.

Cumulative Effects

Site-specific and/or quantitative analyses of cumulative effects are not possible due to the uncertainty of when and where mining operations would be authorized within lands open to that use. However, the cumulative effects of land allocations open to mining can be discussed in general terms.

The allocation of lands open for mineral uses would likely lead to at least a few mining operations during the life of this plan. The effects of mining including but not limited to ground disturbance, erosion, dust, noise, truck traffic, the spread of noxious weeds and/or conflicts with residents, recreation and natural resources would add to similar effects resulting from other uses of adjacent lands. Other past, present, and future uses that would contribute cumulatively to some or all of the effects of mining operations include but are not limited to grazing, utility construction and maintenance, rights-of-way, motorized use (including OHV), recreation, adjacent private land uses, and other mining operations.

The reclamation requirements and the designation of avoidance and exclusion areas in this plan would cumulatively add to present and future restrictions on mining. This plan would carry forward and add to the restrictions provided in the B/LP RMP. Future decisions may add further restrictions on mining in the planning area.

Rockhounding

Summary

The allocation of lands open to rockhounding would provide for the collection of mineral specimens, semiprecious gemstones, common invertebrate fossils and petrified wood. Indirect effects including the permanent removal of rock materials, ground disturbance, damage to vegetation, contributions to the spread of noxious weeds, off-road motorized use, human waste, and littering would likely occur. However, these effects cannot be quantified owing to the lack of data on use levels and the potential for rockhounding in localities not known to the BLM. Recreational rock collecting opportunities would also contribute to local tourism, provide spending for accommodations and generate business for local rock shops.

Acreages available for rockhounding vary by alternative and are shown in Table 4-49. Alternative 1 would have the most acreage available for rockhounding and would designate five collecting sites (Map 13 in the Brothers/La Pine RMP, 1989). Alternative 3 would have the least number of acres available and Alternatives 2-7 would designate three rockhounding sites (FSEIS Map 1). The two rockhounding sites that

would be de-designated in Alternatives 2-7 would no longer be managed specifically for rockhounding but would still be open to collecting. The exclusion areas (areas that would be closed to rockhounding) generally do not have any rock materials of rockhounding interest and a notable loss of collecting opportunities is therefore not expected in any alternative.

The well-known North Ochoco Reservoir and Eagle Rock rockhounding sites (FSEIS Map 1) would probably receive most of the rockhounding use during the life of this plan. These sites have been developed with mechanized equipment and/or explosives at various times in the past when they were held under mining claims. These actions created relatively large ground disturbances from quarry-scale removal of rock. Continued use of these sites by rockhounds with hand tools is not expected to notably add to the existing ground disturbances. Other less known or soon-to-be discovered sites might be impacted with new ground disturbances and the indirect effects described above.

The rock materials of rockhounding interest within the planning area are common throughout the U.S. and the world. Chalcedony is a general term for varieties of cryptocrystalline quartz including agate, onyx, bloodstone, flint, chert, jasper, and petrified wood. All 50 states produce at least some type of chalcedony (USDI Geological Survey, 2002). States with notable localities and types of chalcedony include Alaska, Arizona, California, Colorado, Florida, Idaho, Montana, New Mexico, Oregon, South Dakota, Tennessee, Texas, Washington, Wyoming and Utah. Owing to the overall abundance of chalcedony, the recreational removal of chalcedony materials from BLM-administered lands within the planning area is expected to have a negligible effect on this resource in terms of quantity.

The John Day and Clarno formations (see geology discussion) represent part of the most complete record of Tertiary plant and animal populations in the world and preserve remarkable evidence of North American climate change (Fremd *et al.*, 1994). Petrified wood and botanical fossils from the Clarno and John Day formations are present in various localities that are open to rockhounding. Due to the scientific importance of these formations, the recreational collection of petrified wood and botanical fossils could have effects on the scientific value of some localities.

General Relationships

Based on the promotion by individuals, groups, internet sites, rock shops, publications and the media, it is expected that traditional rockhounding sites on BLM-administered lands within Crook County will remain popular and continue to be used. Sporadic collecting of petrified wood, semiprecious gemstones, and common invertebrate fossils from smaller isolated deposits is also expected to occur.

Table 4-49 Acres Available for Rockhounding

Alternative	Acres Available for Rockhounding
1	401,889
2	366,928
3	331,717
4	355,972
5	355,784
6	355,784
7	356,774

The North Ochoco Reservoir, Eagle Rock, and the part of the Fischer Canyon site east of Hwy 27 would continue to be managed for rockhounding uses in all alternatives.

Due to the potential existence of rockhounding sites unknown to the BLM, the potential discovery and subsequent use of new sites in the future, and the lack of data on the frequency of use of known sites, the effects of continuing to allow rockhounding within the planning area cannot be quantified. Therefore, the effects related to rockhounding are discussed qualitatively.

The direct effects of the allocation of lands open to rockhounding would be the availability of petrified wood and semiprecious gemstones on those lands for collection. Indirect effects would include the permanent removal of rock materials, ground disturbance, damage to vegetation, contributions to the spread of noxious weeds, off-road motorized use, human waste and/or littering would likely occur. These effects would most likely occur on and around the two well-known rockhounding sites in the planning area, North Ochoco Reservoir and Eagle Rock. However, less important deposits of petrified wood and semi-precious gemstones also occur in isolated deposits throughout the planning area east of Powell Butte. Such areas could be affected to various degrees contingent upon discovery and how popular they become.

Indirect economic effects would also occur from the availability of lands for rockhounding. Recreational rock collecting opportunities would contribute to local tourism, provide spending for accommodations and generate business for local rock shops. Rock collectors could also make important scientific discoveries in the field.

The designation of rockhounding exclusion areas would be expected to have minimal effects on recreational rock collecting, primarily because there are generally few or no materials of rockhounding interest in any of exclusion or avoidance areas. None of the three well-known rockhounding sites within the planning area would fall within any exclusion or avoidance areas under any alternative.

Common to all alternatives, the 609-acre Powell Butte RNA and the 510-acre Horse Ridge RNA would continue to be closed to rockhounding (exclusion areas). The Horse Ridge RNA is designated in an area underlain by non-mineralized basalt flows and is unlikely to have any rock materials of interest to rockhounds. The Powell Butte RNA is underlain by rhyolite flows in an area with a known geothermal heat anomaly and therefore may have some quartz and/or chalcedony that are not available for collection.

Analysis of the Alternatives

Effects of Alternative 1

Approximately 401,889 acres would be available for rockhounding. The effects of Alternative 1 would be the same as those Common to All Alternatives.

Effects Common to Alternatives 2-7

The Wagon Roads ACEC, Peck's Milkvetch ACEC, Badlands WSA, and the area around the historic Tumalo Canals would be closed to rockhounding. All of these areas are underlain by non-mineralized basalt flows and are unlikely to have any rock materials of interest to rockhounds. Thus, the closure of these areas is not expected to result in a notable loss of collecting opportunities. The discontinuance of managing the westernmost part of the Fischer Canyon site for rockhounding would lessen the potential for the loss of scientifically important paleontological resources.

There would be mitigation measures to minimize damage to the environment and hazards to health and safety. Rock collectors would not be allowed to dig in stream

channels, undermine trees, dig non-vertical holes so as to create tunnels or a overhangs, or dig holes with vertical walls exceeding four feet in height. Walls with a height greater than four feet would have to be sloped to an angle not greater than 45 degrees from horizontal. On all BLM-administered lands outside of the three designated rock collecting areas (Eagle Rock, North Ochoco Reservoir and Fischer Canyon), all holes would be required to be filled in by the rockhounds that create them.

The restrictions on rockhounding would likely reduce damage to watershed and vegetative resources and reduce the hazards associated with rockhounding. These restrictions would also result in the loss of some collecting opportunities because rock materials buried in stream channels and underneath trees would not be legally obtainable. The effectiveness of these mitigation measures depends on public awareness, compliance, and enforceability. These factors are not known or predictable so the true effectiveness cannot be determined prior to implementation.

Commercial use permits would generally not be issued for areas within the boundaries of designated rockhounding sites; rock materials from the Eagle Rock, Fischer Canyon, and North Ochoco Reservoir sites generally would not be legally available for commercial resale. This is expected to provide more opportunities for recreational or hobby collecting of rock materials but there would be a potential loss of commercial use opportunities. Any loss of commercial use opportunities would be buffered by the availability of rock materials from privately owned pay-to-collect sites and the availability of commercial use permits for BLM-administered lands outside the boundaries of designated rockhounding areas.

Effects of Alternatives 2-7

In Alternative 2, approximately 366,928 acres would be available for rockhounding. No additional areas would be closed to rockhounding, so the effects of Alternative 2 would be the same as those Common to Alternatives 2-7.

Approximately 331,717 acres would be available for rockhounding in Alternative 3. The Juniper Woodlands ACEC and the Alfalfa Market Road ACEC would be closed to rockhounding. Both ACECs are underlain by non-mineralized basalt flows and are unlikely to have any rock materials of interest to rockhounds. Thus, the closure of these areas is not expected to result in a notable loss of collecting opportunities. The Smith Rock ACEC would be restricted to surface collection only. The areas around Smith Rock are known to have minor amounts of mineralization and petrified wood so an unknown (but likely small) quantity of semiprecious gemstones hidden underground would not be legally accessible for collecting.

Alternative 4 would make approximately 355,972 acres would be available for rockhounding. The Juniper Woodlands ACEC (closed to rockhounding) would be smaller than it would be in Alternative 3 but the Alfalfa Market Road ACEC would be the same. The effects of these ACEC designations on rockhounding would be the same as in Alternative 3. Rockhounding would be limited to surface collection only in the Sage Grouse ACEC. The Sage Grouse ACEC is underlain by volcanic ash and basalt flows and is not likely to have any rock materials of interest to rockhounds.

Approximately 355,784 acres would be available for rockhounding in Alternative 5. The existing Peck's Milkvetch ACEC would be expanded to include an approximately 7,071-acre area southwest of Cline Buttes. The closure to rockhounding would apply to all of the ACEC including the expansion area. All of the ACEC (including the expansion) is underlain by non-mineralized basalt and a notable loss of rockhounding opportunities is therefore not expected.

Alternative 6 would have the same acreage available for rockhounding as in Alternative 5. However, 2,119 acres designated as the Smith Rock ACEC would be restricted to surface collection only. The effects of Alternative 6 would be the same as those of Alternative 5 except that the Smith Rock ACEC designation would have the same effects as those of Alternative 3.

The preferred Alternative, Alternative 7, would make approximately 356,774 acres available for rockhounding. This is the same as Alternative 5 except that the expansion of the Peck's Milkvetch ACEC would be about 819 acres smaller. Otherwise, the effects of Alternative 7 would be the same as those in Alternative 5.

Cumulative Effects

The ground-disturbing effects of rockhounding would cumulatively add to similar effects resulting from other past, present, and future land uses and activities. These include but are not limited to ground disturbances from mining operations, grazing, utility corridors, development of rights-of-ways, adjacent private land uses and developments, and recreation including motorized uses such as OHVs.

Decorative Stone

Summary

The direct effect of allocating lands open to decorative stone collecting[6] is the availability of these materials for collection. Indirect effects including the permanent removal of rock materials, ground disturbance, damage to vegetation, contributions to the spread of noxious weeds, off-road motorized use, human waste and littering would likely occur. These effects cannot be quantified owing to the lack of data on the frequency of use and the geographic distribution of decorative stone collection. The availability of decorative stone would provide low-cost opportunities for the general public to acquire decorative stone. An unquantifiable loss of sales by commercial distributors of decorative stone would likely occur.

All of the decorative stone exclusion areas have one or more decorative stone varieties but most of these are not unique or highly desirable. Generally, all types of decorative stone found in the exclusion areas can be found elsewhere in the planning area where collecting would be allowed. It is expected that the exclusion of these areas would have a negligible effect on collecting opportunities for decorative stone.

The acreages available for decorative stone collection are the same as those for rockhounding except for Alternative 1 (see Table 4-49). In Alternative 1, 372,344 acres are available for decorative stone collection, which is about 30,000 fewer acres than are available for rockhounding in that alternative.

General Relationships

The high commercial prices of decorative stone are expected to continue to encourage the public to collect decorative stone from BLM-administered lands in the planning area. Demand for decorative stone is expected to increase as the population grows and more homes and businesses are landscaped.

[6] The collection of mineral materials for decorative stone, landscaping, or other similar uses would not be considered rockhounding. Rocks considered to be decorative stone would include but not be limited to basalt, andesite, rhyolite, tuff, pumice, and cinder. Specific forms of these rock types include but are not limited to gravel, rounded river cobbles, basalt columns, flagstone, stepping stones, and boulders. Mineral specimens, semi-precious gemstones, common invertebrate fossils, and petrified wood are not considered to be decorative stone for the purposes of this plan (see Rockhounding).

The effects related to decorative stone collection are discussed qualitatively, since there is little data on the frequency and distribution of decorative stone collection, and the effects of continuing to allow decorative stone collection cannot be quantified.

The direct effect of land allocations open to decorative stone collection would be the availability of these materials for collection. Indirect effects including the permanent removal of rock materials, ground disturbance, damage to vegetation, contributions to the spread of noxious weeds, off-road motorized use, human waste and/or littering would likely occur. The magnitude of these effects would likely be greatest on BLM-administered lands close to major population centers and residentially zoned areas.

The availability of decorative stone from public lands would provide low-cost opportunities for the public to obtain stone for use in personal landscaping and other applications. At least some decorative stone collection from BLM-administered lands would represent a loss of sales by commercial distributors of decorative stone. Low income families would probably not purchase decorative stone as an alternative to collecting from BLM-administered lands whereas higher income families might.

All of the decorative stone exclusion areas have one or more decorative stone varieties but most are not unique or highly desirable. Generally, all types of decorative stone found in the exclusion areas can be found elsewhere in the planning area where collecting would be allowed. It is expected that the exclusion of these areas would have a negligible effect on collecting opportunities for decorative stone.

Common to all alternatives, the Powell Butte RNA, the Horse Ridge RNA and the 29,545-acre Badlands WSA would continue to be closed to decorative stone collection (exclusion areas). No unique or highly desirable types of decorative stone are known to occur in either RNA. In the Badlands WSA, an extensive deposit of “ropy” or “slab” lava would continue to be unavailable for collection.

Analysis of the Alternatives

Effects of Alternative 1

Approximately 372,344 acres would be available for decorative stone collection. Under Alternative 1, the collection of decorative stone would continue to occur under OR/WA BLM State Office guidelines of 250 lbs per day with no annual limit. Rock outcrops would continue to be permanently defaced by removal of rocks, particularly in areas near major population centers and residentially zoned areas.

Effects Common to Alternatives 2-7

The Tumalo Canal ACEC, the Wagon Roads ACEC, and the existing Peck’s Milkvetch ACEC would be closed to decorative stone collection. None of these areas is known to have unique or highly desirable forms of decorative stone so these closures are expected to have a negligible effect on collecting opportunities.

Common to Alternatives 2-7, collection of decorative stone would be limited to 1 cubic yard/ton per household per year. Only loose rocks on soil (float) would available for collection; digging would not be allowed and collection would not be allowed on rock outcrops. These regulations would continue to provide for decorative stone collection opportunities but in lesser amounts than Alternative 1. It is expected that damage to the natural appearance of rock outcrops would be reduced and that the collection limits would provide more people with opportunities to collect decorative stone in the future.

The limits on decorative stone collection would remain in effect until BLM designates common use area(s) in the planning area. The effects of each common use area designation would be analyzed in a site-specific management plan.

Effects of Alternatives 2-7

The acreages available in each of the action alternatives are the same as those for rockhounding. The exclusion areas include the Juniper Woodlands ACEC (Alternatives 3 and 4), the Alfalfa Market Road ACEC (Alternatives 3 and 4), and the expanded Peck's Milkvetch ACEC (Alternatives 5, 6, and 7). No unique or highly desirable types of decorative stone are known to occur in what would be the Juniper Woodlands or expanded Peck's Milkvetch ACECs. The area that would be designated as the Alfalfa Market Road ACEC may have ropy or slab lava similar to that found in the Badlands WSA. As previously mentioned, the designation of these exclusion areas is expected to have minimal effects on decorative stone collecting due of the abundance of decorative stone available elsewhere in the planning area.

Cumulative Effects

The ground-disturbing effects of decorative stone collection would cumulatively add to similar effects resulting from other past, present, and future land uses and activities. These include but are not limited to ground disturbances from mining operations, grazing, utility corridors, development of rights-of-ways, adjacent private land uses and development.

Military

Summary

It is anticipated that under each alternative, military training would continue on BLM-administered lands. However, under Alternative 1, the No Action Alternative, military training would continue under a series of limited-duration (three year) permits. Alternative 1 would limit the ability of the military to make long term plans for use of the training area and would reduce the ability of the OMD to receive funding for infrastructure.

Each alternative except Alternatives 3 and 4 would provide sufficient lands to meet the basic military mission. (See Table 4-50 below, FEIS Map 6: Land Ownership and Military Land use – Alternative 7, and Maps 35 and 36 from the Draft Management Plan and EIS). Only Alternatives 6 and 7 (Proposed Management) would provide sufficient area for simultaneous training exercises and occasional larger scale training exercises.

Table 4-50 Land Available for Military Use (Acres / %)

Area Type	Alternative						
	1	2	3	4	5	6	7
Core Area	29,744 / 7%	36,397 / 9%	21,207 / 5%	26,194 / 6%	29,760 / 7%	29,741 / 8%	28,818 / 7%
Extended Area	0	0	0	0	0	25,924 / 6%	15,167 / 4%
Total Area	29,744 / 7%	36,397 / 9%	21,207 / 5%	26,194 / 6%	29,760 / 7%	55,665 / 14%	43,985 / 11%

Each alternative would share the same terms and conditions and would permit activities needed to meet the military training mission.

Due to the amount and location of allocated land coupled with the amount, type, and timing of permitted training, Alternative 7 would provide a better mix of available lands and opportunities to engage in tracked and wheeled vehicle training and infantry training than any other alternative. Consequently Alternative 7 would enable the Oregon Military Department to meet its training mission more effectively than any of the other alternatives and would contribute to public health and safety by contributing to military preparedness and national security.

The Oregon Department of State Lands has provided the BLM a list of lands it is considering for acquisition. While outside the scope of this plan, such acquisition could reduce the available core training area. There are two possible consequences if this acquisition were to occur:

1. The relocation of some training activities to new locations within the training area.
2. A need to add to the core training area.

General Relationships

The overall goal for military use within the planning area is to achieve the training mission. Three objectives (note that objectives 1 and 2 below are combined in the Proposed Management Plan) must be achieved to meet that goal.

1. A long term commitment to make lands available for military training.
2. Sufficient lands available to provide needed training opportunities
3. Terms and conditions which permit the training activities needed to achieve the training mission

Meeting the first objective would enable the military to make long term plans and to create infrastructure on withdrawn lands (dedicated to the exclusive use of the military) to support and enhance training activities.

The second objective must be met to provide sufficient area for diverse training activities while avoiding long term impacts to the ecosystem associated with repeated use in a restricted area. Sufficient area for training permits intermittent use and periods of rest and rehabilitation for lands used by the military.

The third objective is necessary to ensure that military needs can be met while also meeting BLM resource objectives on lands used by the military.

Under each alternative, military training would be permitted to occur. However, the alternatives vary in how well each would meet the needs of the Oregon Military Department. Most existing terms and conditions and the various management plans and environmental documentation developed by the military would be incorporated into all alternatives. Consequently the military can be assured of conditions under which they can conduct training activities. The terms and conditions provide for needed flexibility to permit training if changes in conditions or needs were to occur.

Analysis of the Alternatives

Effects of Alternative 1

Continuing existing management would involve continuing the practice of authorizing military use under a series of limited duration (3 year) permits. As a result it is unlikely

that congress would provide funding for the development of infrastructure needed to meet the full potential of the training area.

The land allocated for military training would be the same as is currently permitted. However, development of private lands (including the Pronghorn Destination Resort), and roads, powerlines, an ACEC, and a canal limit the usability of some portions of the existing training area. As a result, under the existing allocations of land for military use the military has chosen not to use portions of lands allocated for military use due to risk of disturbing adjacent landowners and the risk of conflicts with increasing numbers of users resulting from increased numbers of people living adjacent to the training area.

It is likely that the terms and conditions of permitted use would be similar to existing terms and conditions with only minor adjustments made in the future. As a consequence, with the exception of the circumstances described above it is likely that the military would be able to achieve its basic training mission but would not be capable of meeting the need for simultaneous training exercises (separate training exercises for two or more units) or the occasional larger, multi-unit training exercise.

Effects Common to Alternatives 2-7

By authorizing a long term commitment for military training on BLM-administered lands, each of these alternatives would be more likely than Alternative 1 to result in additional funding from Congress for infrastructure that would support and enhance training opportunities. Each of the alternatives would also include the formal adoption of important terms and conditions of the existing permit, including some new terms and conditions, and formally recognize the environmental documentation completed by the military in support of its authorized training activities. As a consequence, except for alternatives with an inadequate land base for training, the military could meet its training objectives on BLM-administered lands.

Effects of Alternative 2

In addition to the consequences of described for Common to All Alternatives and Common to Alternatives 2-7, Alternative 2 would have some additional consequences. First, by adding a training area to the north of Highway 126, this alternative provides additional area for training that can substitute for the area west of the North Unit Canal voluntarily not used by the military. As a result, use of the area north of Highway 126 would begin while use west of the North Unit Canal would diminish. This alternative would provide an opportunity to spread training over a broader area, not concentrate uses, and provide more time for rehabilitative efforts to be successful than the area currently used by the military. Though providing a larger area than Alternative 1 it is not certain that Alternative 2 could meet the occasional need for simultaneous training exercises or the occasional larger, multi-unit training exercise.

Effects of Alternative 3

In addition to the consequences described for Common to All Alternatives and Common to Alternatives 2-7, Alternative 3 would have some additional consequences. Because fewer acres would be available compared to any other alternative for the same amount of training, portions of the training area would be used more often per year than any other alternative. Consequently, rehabilitation efforts would be more intensive and concentrated in a smaller area. Simultaneous training exercises as well as larger training exercises are least likely to occur under this alternative. As a result of the above probabilities this alternative is unlikely to meet the needs of the military.

Effects of Alternative 4

Though containing almost 25 percent more land than Alternative 3, the amount of training area available would have the same consequences as Alternative 3 and would not meet the needs of the military.

Effects of Alternative 5

Alternative 5 would have exactly the same consequences for military training as Alternative 2. The only difference between the two alternatives is that Alternative 5 formally excludes from allocation for military training an area that, under Alternative 2, is allocated for military use but the military chooses not to use.

Effects of Alternative 6

In addition to the consequences of described for Common to All Alternatives and Common to Alternatives 2-7, Alternative 6 would have some additional consequences. In Alternative 6 the permanent training area is the same as Alternative 2 with the addition of three areas intended to be used by the military on a rotational basis. It is unlikely that the "rotational" concept would work as conceived since the OMD has indicated that Area 1, the Steamboat Rock area, is not suitable for military training. However the other areas, Area 2 and Area 3 have been identified as suitable for military use and would serve to disperse use from the core training area and would provide adequate space for both simultaneous training exercises and for larger scale training exercises.

Employing Areas 2 and 3 for military training would decrease uses in the core training areas. Military personnel would have a greater variety of areas in which to train, improving the training experience. BLM and the Military estimate that training would occur about five to seven days per year in areas 2 and 3. Training in core training area would likely be reduced to 25 days on average.

Effects of Alternative 7

Alternative 7 is the same effects on military training as Alternative 6 except that Core Area E would be modified by expansion to the east and south and by deleting a 40-acre parcel that was formerly the southeast corner of the training area. In addition an area the OMD has indicated as not suitable for military training (Area 1) would be dropped from lands proposed for allocation for military uses. As a result, the "rotational areas" concept in Alternative 6 would be replaced with the characterization of Areas 2 and 3 as satellite areas that extend the available training area beyond the core area. As a result of these changes, Alternative 7 more closely matches lands allocated for military use to those lands needed and/or actually used by the military more precisely than any other alternative.

Cumulative Effects

Because of the areas selected for military use, the terms and conditions of military use, and the nature of the guidance for resolving other issues within this plan there are no additional constraints within this plan that would prevent any alternative from achieving the objectives for military use. There is, however, a reasonably foreseeable future action that is outside the scope of this plan that could affect military training within the planning area. The Oregon Department of State Lands (DSL) has presented a list of lands to the BLM that it is considering for acquisition as "in lieu" (see Chapter 2, Common to 2-7 discussion for Land Ownership for a description of this process) lands from the federal government. If certain of these lands were acquired by the State of Oregon and then sold to private interests, some lands allocated for military use could be directly lost from the training base.

In addition to the loss of lands allocated for military training resulting from transfer of ownership, the intrusion of private lands into the training area would have the effect of moving the "buffer areas" with restrictions on the type of training activity into the heart of what is identified as parts A, B, and D (depending on the alternative) of the core training area. It is highly likely that existing training locations and/or procedures would have to be adjusted if changes in land ownership were to occur.

Because Alternatives 6 and 7 (proposed management plan) have additional lands beyond the core area available for training, these alternatives are most likely to remain viable if significant transfer of land ownership were to occur. Given the limited land base available in Alternatives 3 and 4, the possibility of transfer of land ownership would magnify the problems associated with meeting the goal for military training under these alternatives.

In addition to lands adjacent to the military training area another parcel on DSL's acquisition list is the Grizzly Mountain Communication Site. If ownership of this land were transferred, potential changes in cost structure and band frequencies permitted at the site could make the location of OMD's radio repeater problematic. As a result, there is a risk of interruption of radio communication capabilities and of increased costs of maintaining access to the current site or relocating the repeater to a new site.

Visual Resources

Summary

Decisions within the scope of the Upper Deschutes Resource Management Plan that may directly or indirectly affect visual or scenic quality include the allocations, objectives, and guidelines for travel management, managing vegetation, fire and fuels treatment, rights-of-way and transportation, and wildlife habitat restoration. In general, visual resource impacts are evaluated at a project specific scale by considering the degree of change or contrast created with the characteristic landscape. Activities that cause the most contrast and are the most noticeable to the viewer are generally considered to have the greatest effect on scenic quality. Most of the effects described here are described in terms of potential for effects because many of the potential activities described below are likely to be implemented during the life of the plan, but are not specifically analyzed or authorized in the FEIS/PRMP.

General Relationships

Some of the considerations used in evaluating visual impacts of the alternatives include:

- There are different levels of concern about scenic quality depending on the intrinsic qualities of the landscape being viewed, the expectations of the viewer, and the conditions under which the landscape is seen (e.g., the distance of view).

- High quality scenery especially that related to natural-appearing landscapes enhances people's lives and benefits society.

- Planning area-wide, existing scenic quality is a function of visual diversity. The major components of scenic quality are prominence or uniqueness of landforms, presence of water as part of the landscape view, and presence of adjacent scenery (outside BLM jurisdiction) that enhances visual quality. For a more detailed description of the criteria used in developing Visual Resource Management (VRM) Classes, see Appendix H, Visual Resource Inventory Process.

Many of the potential effects to scenic quality are based on the assumptions that the recreation goals in the action Alternatives (2-7) are implemented, and that visitors to BLM-administered lands will generally have equal or higher expectations for scenic quality than at present. While the management standards for visual quality (i.e., Visual Resource Management Classes) are the same throughout Alternatives 2-7, even when VRM Classes are met during management activities, there will be some impacts to scenic quality, particularly for visitors to, or residents living next to, BLM-administered lands. These impacts may include changes in vegetative patterns, species type, or residue from vegetative treatment. These changes may reduce scenic quality when seen in the immediate foreground (1/4 mile or less).

An additional consideration is that project specific mitigation to address visual quality concerns over much of the planning area will be, in part, dependent on the designation of road and trail systems occurring before large scale vegetative treatments (mechanical treatments, thinning, prescribed fire, WUI treatments) are undertaken. Without a clear understanding of the transportation system, it will be unlikely that mitigation can be designed into projects to reduce or avoid both short and long-term visual impacts to viewers on these roads and trails. For the purposes of this analysis, it is assumed that most of the vegetative treatments will occur prior to the final establishment of designated road and trail systems; thus, opportunities for project specific mitigation might be low.

The evaluation of visual impacts of alternatives is also based on the assumption that for many viewers, vegetative conditions that do not represent a historic range of variability will appear more "natural" than managed conditions that mimic natural ecological processes and move toward a historic range of variability. Visitors and residents may view the current vegetative condition of juniper forests to be normal. The transition from juniper stands to shrub-steppe vegetation or to a fire influenced vegetative condition, while more in keeping with historic conditions, may be viewed as more unnatural, especially when accompanied by obvious human elements such as stumps and brush piles.

The analysis is also based on the assumption that fuels reduction and fire hazard treatments (WUI treatments) would occur both in Alternative 1 and Alternatives 2-7, at nearly the same level, based on current BLM policy direction.

Given the high growth and development rates throughout much of the planning area, it is assumed that BLM–administered lands will increase in importance as an open space backdrop to a developing area. As stated in the AMS, rural, agricultural, and ranchland play a role in defining the area's character and providing pastoral, scenic views. However, as the area continues to grow some of this land will become more densely developed. For the purposes of this analysis, transfer or sale of BLM-administered land and subsequent development is considered a negative effect on the area's visual resources.

Under all action alternatives, the assumption is that management activities will meet VRM Classes, and that opportunities exist to meet ecosystem management goals while avoiding highly apparent contrasts with the characteristic landscape. For all alternatives, VRM Classes provide a baseline set of management objectives. Regardless of what VRM Class designations are applied, all alternatives provide some meaningful measure to apply BLM's contrast rating methodology to assess impacts to visual resources at a project specific level for all surface-disturbing activities.

The surface disturbing activities that may affect scenic quality in the planning area include vegetation clearing, burning, WUI treatments, road and trail construction, and utility line right-of-way (ROW) development or upgrades. These activities impact

visual resources by changing vegetative patterns, species composition, landform shape, texture, or color, or by introducing non-natural features that provide contrast with the surrounding landscape character.

The severity of an adverse visual effect depends on a variety of factors, including the size of a management action, the location and design of roads and trails, the treatment of residue or slash from vegetative harvests or mechanical treatments, and the overall visibility of disturbed areas. In some cases, vegetative clearing can improve visual quality by opening pleasing views, or by softening or blending of contrasting vegetative boundaries caused by development or past management practices, particularly on steep slopes or prominent landforms.

Analysis of the Alternatives

Visual Resource Management Classes

All alternatives would manage the Badlands and Steelhead Falls WSAs and the Horse Ridge RNA for the greatest emphasis on scenic quality (VRM Class 1). Alternative 1 would manage most of the planning area as VRM Class 3 and 4, with the North Millican, Millican Plateau, and Skeleton Fire areas being managed for a relatively low concern for visual quality (VRM Class 4). The area surrounding Prineville Reservoir, BLM-administered lands atop Powell Buttes, and isolated parcels surrounding Prineville would be managed for a higher visual quality standard (VRM Class 2).

The major differences in management direction between Alternative 1 and the action alternatives is the movement away from an overall VRM Class 3 applied to the western half of the planning area. While Alternative 1 applies a moderate VRM Class 3 to most BLM-administered lands west of the Powell Butte Highway, Alternatives 2-7 provide a higher scenic quality standard (VRM Class 2) for portions of this area with special characteristics (i.e., buttes that form community backdrops, dry canyons, etc.), while also dropping overall Class 3 rating to a lower standard (VRM Class 4) for most of the flatter portions of this area that are not visible from Key Observation Points.

For the eastern portion of the planning area, the action alternatives raise the scenic quality standard from VRM Class 4 to Class 3 for areas such as the Smith Canyon and West Butte areas, particularly to reflect views from the upgraded Millican-West Butte Road. The viewshed of Prineville Reservoir retains the existing high standard for scenic quality (VRM Class 2), although the action alternatives place this designation only on the viewshed as seen from the reservoir surface, while Alternative 1 places this standard on a much larger area not visible from the reservoir itself.

Table 4-51 shows the general VRM Classes apply to certain areas. The predominant VRM Classes are listed for each area, with the most prevalent Class being listed first.

Vegetation and Wildlife Habitat Restoration

Alternative 1 has the least potential impact on visual quality based on vegetative and wildlife habitat restoration. This alternative calls for approximately 71,000 acres (17.5 percent) of the planning area to be treated (thinned, prescribed fire, mechanical treatment) over a 15-year period. In contrast, Alternatives 2, 4, and 5 would more than double this acreage to about 170,000 acres (approximately 40 percent) of the planning area over a 15 year period. While the opportunity to mitigate impacts to scenic resources would be available for moderate to long distance views in most places, there would still be relatively widespread potential for visual impacts for adjacent landowners and public land visitors due to these treatments, because of the introduction of non-natural appearing conditions such as stumps, fallen trees, brush piles, scattered slash, burn piles etc. Alternatives 3, 5, 6 and 7 have the highest potential to cause impact to visual

resources, as the treatment acres increase to 230,250 acres (57 percent) of the planning area over a 15-year period. Again, while the opportunity to mitigate VRM Classes for moderate to long-distance views would be available (and in many cases these treatments may increase visual quality through increased diversity or opening up views), there would be impacts to both residents and public land visitors due to the scale of these treatments and the resulting changes from a natural appearing setting to an intensively managed setting when viewed close up. Opportunities for mitigating these impacts are limited due to the lack of final designated road and trail systems throughout most of the planning area. However, if project planning for vegetative treatments are done at the same time as road and trail planning, there would be greater opportunity to address project specific visual resource concerns.

Roads and trails

Alternative 1 leaves much of the planning area open to cross-country vehicle travel and does not provide some basis for reduction of road density and braided road and trail networks. In Alternatives 2-7, the movement toward fewer and more highly managed access points and development of a designated road network would improve visual quality throughout the planning area. Many areas currently have upward of 50 separate motorized access roads and currently contain extensive road networks up to 8 or more miles of road per square mile. The change from dense, confusing, and braided road networks to a more managed condition that is somewhat natural-appearing would provide an increase in visual quality for all areas, regardless of VRM Class designations. Alternatives 2-7 also provide direction for obliterating and rehabilitating hillclimbs in highly visible locations such as Horse Ridge, Cline Buttes, and Steamboat Rock.

Table 4-51 VRM Classes by Geographic Area and Alternative

	Alternative 1	Alternatives 2-7
Badlands WSA	Class 1	VRM Class 1
Bend-Redmond	Class 3	VRM Class 4
Cline Buttes	Class 3	VRM Class 2, 4
Horse Ridge	Class 2,3, 4	VRM Class 2,3,4
La Pine	[1]	VRM Class 4,3
Mayfield	Class 3	Class 3
Millican Plateau	Class 4,3,2[2]	Class 4,3,2[2]
North Millican	Class 4,3	Class 3,4
Northwest	Class 3	Class 4
Prineville	Class 2	Class 4
Prineville Reservoir	Class 2,3	Class 2,4,3
Smith Rock	Class 2	Class 2
South Millican	Class 3, 4	Class 4
Steamboat Rock	Class 3,2	Class 4,2
Steelhead Falls WSA	Class 1	Class 1
Horse Ridge RNA/ACEC	Class 1[3]	Class 1[3]

[1] No specific VRM Class designations were made for the La Pine area in the Brothers/La Pine RMP. The B/LP identified the immediate foreground view from State Highways 97 and 31 and from State Recreation Road as having "high or sensitive visual qualities" – which may correspond to VRM Class 3 areas. The majority of BLM administered lands outside these road corridors was not identified as a visual resource concern – which may correspond to VRM Class 4.
[2] Both alternatives place the majority of the area as Class 4, with the Lower Crooked River corridor as Class 2. Alternative 1 identifies the western part of Millican Plateau as Class 3, while Alternatives 2-7 identify the foreground view of Millican/West Butte Road as Class 3 instead.
[3] Horse Ridge RNA/ACEC is part of the Horse Ridge geographic area. It is shown separately on this table to illustrate that its VRM Class is common to all alternatives.

Wildland Urban Interface Treatments

Wildland Urban Interface (WUI) treatments would have about the same level of potential effects on visual resources for all alternatives. These impacts would be greatest for public land visitors and adjacent residents who have an immediate, close range view of treated areas. In some cases, the WUI treatments may improve visual quality by opening up views or reducing the contrast between heavily wooded BLM and adjacent private land that is thinned or cleared. The greatest potential for visual effects from WUI treatments would occur in locations where the thinning or clearing would highlight the linear nature of the BLM-private boundary, especially when visible on prominent landforms that form community backdrops. These potential impacts are greatest in VRM Class 2 and 3 areas that are highly visible due to prominence of landforms or high degree of recreation use. These areas would include portions of the Smith Rock area, canyon and upper slope portions of Cline Buttes, areas surrounding the Wagon Roads ACEC, Powell Butte, portions of West Butte, and portions of the viewshed of Prineville Reservoir. WUI vegetation treatments in these areas would be assessed a project-level scale to ensure that VRM Classes are met and in many of these cases, careful project design may minimize the visual effect of these WUI treatments.

In all alternatives, WUI treatments have the potential to significantly affect the visual resources associated with VRM Class 1 areas (i.e., WSAs). In particular, the Steelhead Falls WSA is located in a WUI zone. In this case, it is assumed that the VRM Class 1 standard will be met and WUI treatments in this area may be replaced with hazard reductions on private lands instead.

Land Tenure/Community Expansion Lands

Land tenure designation Z-3 and Community Expansion lands are the two planning designations that provide conditions for the most likely sale or disposal of BLM-administered lands. When the acreage of these two designations is combined, Alternatives 1 and 2 have the highest potential for loss of open space lands through disposal of Z-3 or development of Community Expansion lands (see Table 4-52). Alternatives 3 and 6 have relatively small amounts of BLM-administered land intended for disposal and the Community Expansion lands for these alternatives have stipulations that require their use as parkland/open space. Alternative 7 retains the same type of stipulation as 3 and 7 but for a smaller area only located along State Highway 97 between Bend and Redmond.

The actual disposition of Z-3 lands is based on many variables and it is unclear how many, if any, of these lands would actually be disposed of over the period the FEIS/PRMP applies. Most of the Z-3 lands, as well as the Community Expansion lands, are located in areas that do not have high scenic quality; however, they would generally represent a change in character from naturally appearing open space to development if disposed of.

Table 4-52 Z-3 and Community Expansion Lands (acres) by Alternative.

	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Z-3	15,422	12,639	7,456	9,669	7,821	13,789	15,186
Community Expansion	5,617	7,592	3,121	8,512	5,776	5,115	3,612
Total	21,039	20,231	10,577	18,181	13,597	18,904	18,798

Although Alternatives 3, 5, 6, and 7 provide for the least potential transfer of BLM-administered lands, Alternatives 3, 6, and 7 represent the greatest potential for change in vegetation types and active vegetative treatments (see Vegetation and Wildlife Habitat Restoration, above). The scale of the possible vegetative treatments makes them a greater potential factor in visual quality than the land ownership designations.

Cumulative Effects

As stated in the assumptions section of this assessment, the population growth and increased development in the planning area will likely both increase the sensitivity of the public regarding visual quality and increase the importance of BLM-administered lands as an open space backdrop to local communities. The increased recreational use of BLM-administered lands through the implementation of the FEIS/PRMP will also increase the sensitivity of the public toward the visual quality of BLM-administered lands.

Recreation

Summary

The recreation analysis compares the relative acreages of lands with different travel management designations, and different management strategies for separating trail user groups. Generally, all action alternatives would reduce the acreage of land available for OHV use, and in particular, do away with opportunities for cross-country vehicle travel off designated routes. Additionally, most action alternatives would also provide specific direction for creation of non-motorized trail systems in many areas, including Prineville Reservoir, Horse Ridge, the Skeleton Fire area and the Tumalo area. In anticipation of a large increase in designated road and trail systems that attract public use, the plan would call for group use and commercial use thresholds in many areas.

Alternative 1 would provide a limited diversity of recreation opportunities, managing the planning area as an extensive recreation management area with few provisions made for specific recreation settings. With the exception of Cline Buttes, Millican Valley, and both WSAs, recreation use would be self-directed, with little, if any, information or facilities (including designated roads and trails) provided. In general, no provisions would be made to reduce conflicts other than a reactive, case by case response.

In Alternative 1, the quality of recreation opportunities would be low for non-motorized trail users, since no direction for development of these trails exist, and no provisions for separating this use from motorized trail use occurs. The quality of motorized recreation experience would be limited by increased crowding in the Millican Plateau area, particularly in the winter when all other designated OHV trails on BLM-administered lands are closed and conditions at East Fort Rock and many other USFS managed OHV areas are poor. In general, the ability of BLM-administered lands to provide year-round trail opportunities (motorized and non-motorized) when coupled with trails on USFS lands is poor.

All action alternatives (2-7) would provide a greater diversity of recreation opportunities and separation of different user types than Alternative 1. All action alternatives would eliminate the large scale, Open travel management designations contained in Alternative 1. If these designated travel systems were implemented throughout the planning area, there would be a major shift from the current recreation setting where visitors can explore and create their own opportunities with little management controls. This would change longstanding uses, perceptions and “traditional” use in the planning area, and thus represent a major increase in management costs and communication needs for the BLM. If implemented, all alternatives would provide an increase in the diversity and quality of recreation opportunities in the planning area.

Alternative 2 would provide for some separation of recreational user types, although at a lower level than the other action alternatives. Areas managed specifically for non-motorized use opportunities are relatively small, and relate more towards interpretive opportunities or special resource concerns rather than provision of non-motorized trails. In general, Alternative 2 provides a high degree of access, and responds well to the demand for road and trail access during the winter season, when recreational use in many areas is high. This alternative does not provide a high degree of diversity of recreation opportunities, and in areas that already receive high levels of use (e.g., Cline Buttes), may create a management setting resulting in increased conflicts both between recreational users and between public land visitors and adjacent landowners.

Alternative 2 would provide a high amount of quality opportunities for motorized trail users; however, depending on how heavily areas become used, the opportunities for non-motorized trail use in these areas could be poor due to user conflicts.

Alternative 3 would provide for a more diverse set of recreation opportunities than Alternatives 1, 2, and 4 – with greater separation of users and more marked differences in how geographic areas would be managed for recreation (mainly road and trail use). The combination of year-round or seasonal closures to motorized trail use east of Bend (Badlands, Horse Ridge, South Millican, North Millican, Mayfield) and separation of motorized vs. non-motorized uses on different trails in Cline Buttes and Steamboat Rock would tend to reduce motorized trail riding opportunities greater than other alternatives and increase the motorized trail use in areas where BLM would be required to maintain and enforce separate uses on trails within an area.

Alternative 3 would provide low quality OHV riding opportunities by providing riding opportunities in North Millican only three months out of the eight months best suited for riding in this area. Alternative 3 would move riding opportunities to flatter, less scenic, and less challenging areas that, generally, have more social conflicts and less ability to disperse riders through effective trail design.

Alternative 4 would provide more diversity of recreation settings than Alternative 1 or 2, but less than the remaining action alternatives. Alternative 4 would rely most heavily on restricting motorized use to roads in the same areas where non-motorized trails would be provided. While there would be an increase in non-motorized trail emphasis for the planning area compared to Alternatives 1 and 2, there would be few areas managed exclusively for non-motorized use. Areas that would be placed under some type of restriction to motorized trail use would generally be on outlying areas, thus this alternative could have more social impacts and conflicts between public land visitors and adjacent landowners.

Alternative 5 would provide a relatively high diversity of recreation opportunities, with some areas that would be managed exclusively for non-motorized use, some areas would be managed for shared use trails, and other areas would be managed for motorized use on roads while developing separate non-motorized trails. This alternative would place an intensive, higher cost recreation management strategy on the Bend-Redmond block than all other alternatives. Although the seasonal closures in North and South Millican would allow for a small amount of wintertime use, this alternative would still represent a shift in motorized use to Millican Plateau and Cline Buttes.

Alternative 6 would close the largest percentage of the planning area to motorized use during the winter. This would affect motorized recreation activities the greatest, although there would be less access for many different types of recreation. Alternative 6 would provide for a high diversity of recreation settings, with areas that would be managed exclusively for non-motorized trail use, a mix of uses, or as shared use areas. The majority of the acreage that would be closed to motorized use would occur east of Bend, comprised of the Badlands WSA, Horse Ridge, and the Smith Canyon/Dry River Canyon

areas. This management strategy would provide non-motorized recreation opportunities relatively close to Bend, which would be a particular benefit in the wintertime. However, Alternative 6 would not provide these types of recreation opportunities close to Redmond. The management strategy for Cline Buttes would require a high commitment of planning, engineering, education, and enforcement resources by the BLM.

Alternative 7 would provide a diverse set of recreation opportunities, providing a range of exclusive non-motorized use areas scattered throughout the planning area. Other areas such as the Skeleton Fire area and Mayfield area would be managed for non-motorized trail use, while allowing motorized use on roads in these areas. Large blocks of land (Bend-Redmond, Millican) would be managed for shared use (motorized trail systems). The management strategy for Cline Buttes would require a high commitment of planning, engineering, education, and enforcement resources by the BLM, more so than all other alternatives.

General Relationships

Recreation opportunities on BLM-administered lands would be affected by many different factors and decisions in the FEIS/PRMP. Plan decisions that could directly affect recreation include the recreation allocations made in the plan, including travel management designations, goals and objectives for motorized and non-motorized trail development, and decisions made on how group use and special recreation permits would be authorized and managed. Plan decisions on designation of ACECs, transportation management, wildlife habitat management or restoration, could also have a direct effect on recreation opportunities. Other actions proposed in the plan would have an important, but indirect effect on recreation opportunities. These indirect effects would include designation of most of the planning area as a Special Recreation Management Area (SRMA), use of R&PP leases to provide recreation opportunities, and plan goals for education, interpretation and partnerships.

The discussion of direct, indirect, and cumulative effects of the various alternatives on recreation opportunities are based on many assumptions concerning BLM's management ability, traditional role as a recreation provider, the availability or capability of other recreation providers in the region, population growth, and demographic changes. Implicit in the above plan direction is the assumption that the BLM will take an active recreation and transportation system management role throughout the entire planning area. The analysis assumes that area-specific planning will not take place throughout the entire planning area, and that the interim system of existing roads and trails may continue to be the only guidance available to the public in most areas for a period of 2 to 5 years, and in some areas over the life of the plan.

The alternatives were developed based partially on the following assumptions, which are also considered in the analysis of effects:

1. Recreation demand will increasingly mirror community needs and organization. Requests for event and commercial recreation permits will increase as more community groups, clubs, and commercial and educational organizations rely on BLM managed lands that offer easy access on a daily basis. The increase in permits will increase with the development of designated road and trail systems that are promoted to the public.

2. All types of recreation use will increase over the length of the planning period. Winter trail use will continue to be a critical demand in the planning area, for both motorized and non-motorized use.

3. The long-term success of recreation management goals is dependent upon completion of area-specific recreation plans for many areas such as Millican Valley, Cline Buttes, Steamboat Rock, Mayfield, etc. Without completion of area-specific plans, recreation

opportunities in these areas will be limited, the quality of recreation facilities will be low, and user conflicts will likely increase.

4. Implementation of recreation management goals would be done in a phased approach, with some areas receiving further subsequent planning and stronger implementation efforts than others. Some areas will receive little, if any, management attention. BLM staff and resources will be challenged to provide intensive management for many geographic areas simultaneously. Currently, recreation management emphasis is placed on the Millican Valley OHV area and the Badlands and Steelhead Falls WSAs. Plan direction for intensive management of many other areas will be extremely difficult to implement.

5. BLM will increasingly be placed in a transition role as a recreation provider, with resources oriented toward wildland recreation during a period of increasing demands for highly managed, more developed recreation settings. The demand for R&PP leases of BLM-administered lands to provide for community recreation facilities will increase as the region's population continues to grow.

6. Providing managed access and designated road and trail systems will provide higher quality recreation opportunities for statewide or larger user populations; however, this potential increase in quality is dependent on engineering and maintenance levels. Poorly done or inadequate facility design or access management will create additional user created roads and trails as visitors bypass closures or poorly maintained roads/trails to maintain historic access or behaviors.

7. Declining disposable leisure time among those still in the workforce may create and increase demand for recreation activities closer to home.

8. The demand for motorized trail opportunities is particularly dependent on large blocks of land that offer all day riding or weekend long riding opportunities while avoiding crowded conditions. User satisfaction increases with an increase in trail miles and the number of loop opportunities, because it offers the ability for more riders to use the trail system at one time without encountering each other.

9. Reductions in longer OHV riding experiences (areas with all day riding opportunities or the opportunity to ride different trail loops over a weekend) will either increase crowding at other designated systems such as East Fort Rock, or during periods when other areas are not available in good riding condition, OHV enthusiasts will likely move further east of the planning area (into areas designated as Open) or use areas designated for motorized use on roads only. Over the length of the FEIS/PRMP, as demand for motorized trail opportunities increase, this out-migration will increase. Over the length of the FEIS/PRMP, the Open designation on BLM-administered lands east of the planning area will continue. Further clarification of travel routes will likely occur first on USFS lands region-wide, increasing the demands on BLM-administered lands both within and outside the planning area.

10. The management of areas with separate trails systems for motorized and non-motorized users will require a higher level of management intensity, and given the lack of recreation resources, will continue to have a high degree of user conflicts and lower quality of recreation experience. In areas designated as "Roads Only" or Non-motorized Recreation Emphasis", motorized use may occur both on roads and trails, resulting in user conflicts. In areas where the road system does provide longer loops or scenic drives, OHV use may exceed the BLM's ability to maintain the roads for standard vehicle use, resulting in user conflicts, erosion, and creation of additional roads as full-size vehicles drive cross-country to avoid bad road conditions. There is ample evidence that this is currently happening, the designation of areas as "Roads Only" will exacerbate this trend.

11. Although large blocks of land are important for providing motorized trail opportunities, there is also a need for motorized trail opportunities relatively close to urban areas. These areas may need more intensive management than areas further away from urban growth boundaries.

12. Areas that offer topographic variety offer better quality trail use opportunities for the majority of trail users than predominantly flat areas. Areas that offer a variety of vegetation types, with some degree of shade provided by trees, offer better quality trail use opportunities than areas with uniform vegetation and little or no shade. Areas that are unfragmented by paved roads, major subdivisions, railroad lines, or other barriers provide better trail opportunities for most users. For the existing Millican Valley OHV Area, the quality of OHV opportunities is described as follows:

A. (High Quality) North Millican area – due to topography, vegetation, the presence of all three difficulty (easiest, more difficult, most difficult), and dispersal of riders.
B. (Moderate Quality) Millican Plateau – less topographical relief, no "most difficult" trails, generally crowded conditions
C. (Lower Quality) South Millican – sandy soils, less topographical relief, more roads than trails

13. The planning area will continue to be a destination for motorized trail use, with many visitors coming from the western portion of the state or from more distant locations to use designated trail systems.

14. The designation of identifiable management areas based on public land blocks, major topographic features or major road boundaries will result in more effective plan implementation and public understanding of regulations than boundaries based on indistinct, unrecognizable management boundaries (e.g., section lines).

15. The road system in all areas designated as "Limited" will be revised to provide recreational and administrative access. Local roads to be used as part of the designated system will be identified through area-specific planning. Local road closures would generally not be done outside of an overall area-wide planning effort.

16. The need for non-motorized trails will continue to increase, particularly trail opportunities relatively close to urban or residential areas and winter season use. As the popularity of these areas increases, user conflicts (between and among recreation user groups) will likely result in recreationists either creating new trail opportunities in these areas or moving to less used, more outlying areas. Designation of non-motorized trails will increase visitation and use of certain areas by increasing awareness of their existence to a larger, audience. Areas that currently receive moderate levels of use (e.g., Horse Ridge and Cline Buttes) will experience much higher visitation once designated trails are provided. BLM-administered lands that provide trails links to existing high use recreation areas (e.g., state parks or Wild and Scenic Rivers) will also receive much higher levels of use once designated trails are provided.

17. The Badlands and Steelhead Falls WSAs will increase in popularity. Until Congressional decisions are made on wilderness designation for these areas, the interim management policy leaves BLM with little ability to revise or create a well functioning road/trail system in these areas.

18. Alternatives with an increased emphasis on vegetation manipulation, particularly on mechanical vegetation treatments, will likely reduce recreation quality, at least over the short-term, due to changes in visual character or removal of juniper trees, which provide screening and shade, help define trails, etc.

19. Diversity of recreation opportunities is dependent upon the BLM and its partners to provide facilities, services, and active resource and social management. Without active

recreation management including specially-designated use areas, designated trails, and public information on road and trail systems, the resulting recreation setting will offer a high degree of freedom of choice, but will also result in limited opportunities for many types of recreation. Without active recreation management, most BLM managed lands in the urban interface will be defined by a dense network of undesignated, user-created roads and trails, impacted natural and cultural resources, and a degraded social experience unpopular with many legitimate recreation users, even to the point of displacing some users. There is evidence to show this is already happening in some places within the planning area.

Analysis of the Alternatives

Effects of Alternative 1

Special Recreation Area Designations

Alternative 1 treats the planning area as an Extensive Recreation Management Area (ERMA), with relatively few controls or regulations on recreation use, when compared with Alternatives 2-7. No Special Recreation Management areas would be identified and the planning area would not have a specific identity as a high use recreation area. Lacking this identity, the ability to communicate management strategies or garner additional funds to implement the plan would be less than Alternatives 2-7.

Travel Management/Recreation Emphasis Designations

For alternative 1, the majority of the planning area is open year-round to motorized use (approx. 81 percent). Approximately 25 percent of this travel management designation is managed for motorized vehicle use on existing roads and trails, while about 32 percent is managed for vehicle use on designated roads and trails (mainly in the Millican Valley OHV area). Seasonal Closures to motorized use include winter/early spring motorized closures of South Millican and North Millican OHV areas. Most of the planning area is not managed to separate different types of recreational users or provide trail opportunities specifically for non-motorized uses. About 78 percent of the planning area is managed for multiple use (motorized and non-motorized) on the same system of existing or designated roads and trails.

Alternative 1 does allow the greatest degree of user conflicts and conflicts between recreationists and adjacent landowners. The majority of the acreage that is designated Open (i.e., cross-country travel allowed) is located in the most urban and densely developed portions of the planning area (Steamboat Rock, Bend-Redmond, La Pine, and a portion of Cline Buttes). Management of motorized use either by seasonal closures or development of designated route systems is primarily in response to wildlife or other ecosystem needs, not social conflicts.

The Millican Valley OHV trail system is the only recognizable and managed trail system on BLM-administered lands in the planning area. Most out-of-area OHV users go to the Millican Plateau area (open year round) and to a much lesser degree, to Cline Buttes (which lacks a designated trail system). Outside the Millican Valley area, the lack of designated, signed or maintained trails will lead to user creation of trails, user conflicts, resource damage, trespass, and a general lack of knowledge about recreation opportunities on BLM managed lands, particularly for out of area visitors. Approximately 75 percent of the designated trail system acreage in Millican Valley is closed during the winter and early spring months when trail use on BLM managed lands is most popular – which may result in concentrated use in areas without clearly designated trail systems such as Millican Plateau and Cline Buttes.

Nearly all of the La Pine area is treated as an Extensive Recreation Management Area, with few controls or management of recreation use. With the exception of the Rosland OHV play area, and a small closure area near La Pine State Park, the entire area is designated "Open", with cross-country travel by motorized vehicles allowed. The Rosland OHV play area and surrounding area are managed for motorized use on designated trails and in the play area.

Little, if any, of the planning area receives intensive recreation management resources (an area with motorized and non-motorized uses separated on different road or trail systems). While this means that management costs are relatively low compared to other alternatives, it also means the diversity and quality of recreation opportunities is lower.

Thirteen percent of the planning area is seasonally closed to motorized use, while only 1.6 percent is closed year-round to motorized use.

The recreation characteristics of Alternative 1 are displayed in Table 4-53.

Motorized Use (Roads and Trails)

Alternative 1 allows a high degree of user choice and flexibility for motorized recreation; however, a large portion of the Millican Valley OHV trail system would not be available for motorized trail use during the winter when the use demand is highest. Of the three areas in the Millican Valley OHV area (South Millican, North Millican, and Millican Plateau), the highest quality riding is available in North Millican, followed by Millican Plateau, and South Millican. The best riding conditions in North Millican occur from October to May. Under this alternative, only three months (May, October, and November) are available for OHV trail use in North Millican when conditions offer a quality recreation experience (lack of dust and soft trails). Alternative 1 also limits the combined use of North and South Millican areas to only two months during good riding conditions. While the East Fort Rock system does supply riding opportunities during these periods, during the months of December, January and February the conditions at East Fort Rock are generally poor, and with both North Millican and South Millican areas closed, this puts a heavy concentration of riders in the Millican Plateau area. The result is poor riding conditions and increasing safety issues in Millican Plateau.

The only other area where a designated trail system is proposed is Cline Buttes, and this alternative offers the highest degree of flexibility for development of a motorized trail system in this area. If the seasonal restrictions are successfully implemented for this alternative, use levels in Cline Buttes may continue to increase at a faster rate than for those alternatives where North Millican is open in the winter (i.e., Alternatives 2, 4, 7 and to some extent, 5). For much of the remainder of the planning area (La Pine, Bend-Redmond, Prineville Reservoir, etc.) the lack of designated roads and trails would provide opportunities for exploration, but no understandable, consistent, and maintained motorized recreation opportunities that can be communicated/promoted to the public.

For general, motorized access that supports a variety of recreation uses (i.e., sightseeing, rockhounding, target shooting, etc.), Alternative 1 provides a high degree of access and user choice, since more the planning area is Open to cross-country travel or travel on existing roads than in any other alternative. No direction would be provided to reduce redundant access points or upgrade parking/trailhead areas outside of the Millican Valley OHV area. The lack of road and access management strategies would likely result in increased road densities and poor recreation opportunities due to dumping, confusing road networks, and general unmanaged appearance of many areas. Motorized access in the Badlands WSA would remain at approximately 7.6 miles of routes open year-round, with an additional 12.9 miles of route available seasonally (See Table 4-54).

While many miles of undesignated roads and trails would remain available to the public, these routes would generally provide a low quality recreation experience (un-maintained and confusing networks) and not serve a very large user base. Currently, road and trail densities for the various geographic areas in the planning area range from a low of about 2 miles per square mile in some areas near Prineville Reservoir to over 8 miles per square mile in the Steamboat Rock area. Many popular use areas without designated trail systems (such as Cline Buttes) contain over 4 miles per square mile of roads and trails. In contrast, BLM's designated trail systems in Millican Valley generally contain about 3 to 4 miles per square mile of roads and trails. For Alternative 1, while opportunities for exploration and use of dense road and trail networks are available, these systems would tend to promote private land trespass, user conflicts, and be a confusing system that would not provide easy opportunities for out-of-area visitors or for timely review and issuance of permits for special events or commercial use.

Non-Motorized Use (Roads and Trails)

Opportunities would be the most limited under this alternative. No specific direction for development of non-motorized trails would exist. The effects on non-motorized trail users would be similar to the effect on motorized trail users – without mapped, understandable, designated trail systems, the ability for many people (particularly infrequent or out of area visitors) to participate in trail use activities on BLM administered lands would be lower than Alternatives 2-7. No direction for separation of motorized and non-motorized trail use would exist. In general, user conflicts would continue and possibly increase as more recreationists use the same designated or user created trail systems.

Alternative 1 does provide some opportunities for non-motorized trail use in the Steelhead Falls and Badlands WSA, and on designated trails in the Millican Valley OHV area. However, trails in Steelhead Falls WSA are relatively short in length, and are ill-defined and generally not maintained. Under this alternative about 28 miles of routes in the Badlands WSA are available for exclusive non-motorized use year-round. More miles of exclusive non-motorized routes are available when routes 5, 6, and 7 are closed to motor vehicles from December 1 to April 30. The designated trail system in North Millican and South Millican areas are open to non-motorized use, and in the winter/early spring, these trails are available to non-motorized, non-mechanized use exclusively. However, these trails are not designed specifically for non-motorized use. Alternative 1 does close these trails to mountain bikes during the winter/early spring, which represents a fairly large closure area close to Bend. Although this restriction has not been widely enforced or publicized in the past, if it was widely recognized, it may tend to increase use in the adjacent Horse Ridge and Badlands WSA areas, as well as on undesignated trails at Cline Buttes.

Rock Climbing

No specific management would be applied to rockclimbing in the popular use area adjacent to Smith Rock State Park (BLM-administered lands along the Crooked River and crags located north and east of the State Park). In addition, the Sisters Bouldering Area would not be identified or managed specifically for climbing use unlike the action alternatives. Under Alternative 1, Pictograph (Stout) Cave would be closed to all visitation, eliminating caving and rock climbing activities at this location (See Caving section, below).

Interpretive/Educational Use

With the exception of the existing Wagon Roads ACEC, no areas would be designated or managed specifically for interpretive use. The lack of separated uses and non-motorized use areas managed primarily for hiking use may reduce the opportunities for interpretive use more than all other alternatives.

Table 4-53 Recreation Characteristics of the Alternatives[1]

Recreation Management Emphasis	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7
Multiple Use with Shared Facilities	315,894(78)	311,975(77)	157,467(39)	269,010(67)	210,730(52)	165,674(41)	153,081(38)
Multiple Use with Separate Facilities	0	0	29,086(7)	0	40,856(10)	31,020(7.7)	27,196(6.7)
Emphasis on Non-Motorized Use	42(0.01)	58,532(15)	65,497(16)	92,081(22.9)	86,214(21)	69,392(17)	87,367(22)
Exclusive Non-motorized use management	11,111(2.7)	25,699(6.4)	81,619(20.3)	24,316(6.0)	54,548(14)	83,804(21)	87,832(22)
Roads Only, low recreation emphasis	75,960(19)	5,273(1.3)	67,930(16.8)	15,747(3.9)	9,954(2.5)	51,548(13)	47,428(12)
Non-Recreation Emphasis		1,524(0.4)	1,404(0.3)	1,564(.4)	405(0.1)	1,564(.4)	1,563(.4)
Travel Management Designation	**Alt. 1**	**Alt. 2**	**Alt. 3**	**Alt. 4**	**Alt. 5**	**Alt. 6**	**Alt. 7**
Designated Open[2]	153,664(38)	0	0	0	0	0	0
Designated Closed	6,554(1.6)	20,336(5)	75,960(19)	23,473(5.8)	48,016(11.9)	78,429(20)	91,755(23)
Limited to designated roads only year-round	80,517(20)	89,050(22)	111,298(28)	98,333(24)	92,447(23)	68,871(17)	83,230(21)
Limited to designated roads only – closed seasonally	0	396(0.1)	11,329(2.8)	41,015(10)	41,375(10.3)	51,394(13)	49,203(12)
Limited to designated roads + trails year-round	0	282,025(70)	101,937(25)	211,370(52)	154,738(38)	136,583(34)	157,724(39)
Limited to designated roads + trails - closed seasonally	47,146(12)	11,196(2.8)	77,804(19)	24,080(6)	66,426(17)	62,534(16)	17,685(4.4)
Limited to existing roads + trails year-round	95,065(24)	0	0	0	0	0	0
Limited to existing roads + trails - closed seasonally	4,651(1)	0	0	0	0	0	0
Closed at specified snow depth	15,399(3.8)	0	19,847(4.9)	0	0	0	0
Limited to type of vehicle	0	0	0	4,731(1.2)	0	5,191(1.3)	4,868(1.2)
Seasonal Use Restrictions	**Alt. 1**	**Alt. 2**	**Alt. 3**	**Alt. 4**	**Alt. 5**	**Alt. 6**	**Alt. 7**
Open Year-Round[3]	329,259(82)	371,074(92)	218,102(54)	314,434(78)	247,185(61)	210,646(52)	245,822(61)
Closed Year-Round	6,554(1.6)	20,336(5)	75,960(19)	23,473(5.8)	48,016(12)	78,429(20)	91,577(23)
Closed December 1 through March 15	0	396(0.1)	0	0	0	0	0
Closed December 1 through March 31	0	11,196(2.8)	5,428(1.3)	11,237(2.8)	11,237(2.8)	5,428(1.3)	5,872(1.4)
Closed December 1 through April 15	4,624(1.1)	0	0	0	0	0	0
Closed December 1 through April 30	33,647(8.3)	0	65,647(16)	32,713(8.1)	0	90,445(22)	42,935(11)
Closed December 1 through July 31	13,525(3.4)	0	17,661(4.4)	0	0	0	17,685(4.4)
Closed December 15 through March 15			396(0.1)	0	396(0.1)	396(0.1)	396(.09)
Closed January 1 through April 30	0	0	0	21,144(5.2)	48,769(12)	0	0
Closed February 15 to July 31	0	0	0	0	17,657(4.4)	0	0
Closed march 15 to September 15	0	0	0	0	0	17,658(4.4)	0
Closed July 15 to December 15	0	0	0	0	29,742(7.4)	0	0

[1]These figures are represented in acres and percent and most figures are rounded to whole numbers.
[2] Open Designation – BLM designates areas as "Open" for intensive OHV use where there are no compelling resource protection needs, user conflicts, or public safety issues to warrant limiting cross-country vehicle travel.
[3] Open Year-round (Seasonal Classification) – any area that is open to motorized vehicle use year-round either as an open area with cross-country travel permitted; an area limited to designated roads, trails, or both; or an area limited to specific vehicle types.

Table 4-54 Badlands WSA Travel Management by Alternative[1]

Travel Management Types	Alternative[2]						
	1	2	3	4	5	6	7
Motorized routes available Year-round	7.6	23.4	0	0	0	0	0
Motorized routes available seasonally	12.9	0	0	23.4	17.7[3]	0	0
Non-motorized routes available year-round	28.3	25.4	49	25.4	31.1	49	49
Mechanized routes available year-round	49	49	49	49	49	0	49

[1] Figures are expressed in miles.
[2] For all alternatives, the approximately 49 miles of inventoried routes would be available for non-motorized, non-mechanized use year-round
[3] For Alternative 5, motorized routes available seasonally would also be available for game retrieval (as part of a legal hunt) during the closure period.

Caving/Cave Dependent Recreation

In addition to the cave management measures outlined in Common to Alternatives 2-7 below, the following effects to cave-related recreation occur for Alternative 1: Pictograph Cave would be closed to all visitors. The opportunity for caving would be reduced somewhat on BLM-administered lands, since Pictograph Cave is one of the larger caves in the planning area. However, there would still be opportunities for caving elsewhere on BLM-administered land and at the lava tubes on USFS, Deschutes National Forest lands. Opportunities for sport climbing at Pictograph Cave would be eliminated under this alternative.

Special Recreation Permits/Group Uses

Alternative 1 does not place any specific limits on SRPs, either for commercial, competitive, or organized group events. However, the lack of designated roads and trails throughout most of the planning area under this alternative would make authorization of special recreation permits for both motorized and non-motorized use difficult. The one area relatively close to Bend with designated trails (North and South Millican) would be closed to trail dependent events during the winter. Of the eight month period when Millican Valley riding conditions are best, only three months (October, November, and May) would be available. This limitation increases if event use requires use of both South Millican and North Millican areas, which are concurrently available for events for only a 2 month period each year. The lack of SRP opportunities for trail activities on BLM would shift this use to the Millican Plateau area or USFS managed areas that do not receive heavy snowfall and to BLM managed lands further east of the planning area. Of all alternatives, Alternative 1 has the smallest acreage available for designated trails in Millican Plateau. Thus alternative 1 has the lowest opportunities for motorized events of all alternatives. The lack of SRP opportunities would also tend to increase the illegal commercial and group event activities currently taking place on BLM-administered lands. Areas of high interest for these uses, based on past requests (e.g., Badlands WSA, Steelhead Falls WSA, Millican OHV area, and Cline Buttes) would continue to have the following impediments: 1) Interim Management Policy requires an EA for SRP authorizations in the Badlands and Steelhead Falls WSA, and BLM generally lacks sufficient staff to do these EAs, and 2) The North Millican area is closed to events during the winter, when demand is heaviest. Cline Buttes currently does not have a designated trail system or parking/staging areas. In the Cline Buttes area, at least for the short term (3 to 5 years), the processing of trail use permits would be difficult, if not impossible due to the lack of designated trails that have received NEPA clearance.

Military Use

Due to the large amount of acreage designated Open in Alternative 1, the use of the Bend-Redmond block for OHV opportunities may not be as great as other alternatives. Since Alternative 1 does not call for designated road and trail systems in the Bend-Redmond block, while the recreational is unmanaged, it is relatively low in numbers and conflicts with OMD use, at least over the short-term, may be relatively low.

Alternative 1 does not provide additional training areas (i.e., Steamboat Rock and Millican Plateau) for the OMD. While potential conflicts with recreation use in these areas would be avoided, the BLM would lose any partnership opportunities with OMD to improve resource and recreation conditions in these areas. The lack of these partnership opportunities may have a long-term negative effect on recreation, as the management costs of these areas continue to rise with the region's population growth.

Wildlife

Wildlife management prescriptions in Alternative 1 result in the seasonal closure of the North Millican and South Millican areas, as well as closure of certain routes within the Badlands WSA. The closure of the North Millican area from December 1 to April 30 restricts the use of approximately 61 miles of designated trails during the period of highest demand for motorized trail use in the planning area. About 48 miles of designated trails remain open in Millican Plateau during this closure, as well as additional trail miles in the portion of Millican Plateau that is limited to existing routes. However, the reduction in overall miles of designated and maintained trails is a negative effect on motorized trail use, particularly for those riders coming from out of area, who do not have the time to discover appropriate and useable trail loops in the unmanaged, undesignated portion of Millican Plateau. The seasonal restrictions in North and South Millican and subsequent displacement of riders to Millican Plateau reduces the quality of riding opportunities through a reduction in technically challenging trail miles, more crowded conditions, and less varied and scenic terrain.

Like other alternatives that seasonally close all or a portion of the North Millican Area (Alternatives 3, 4, 5, and 6), there may be a positive effect on non-motorized recreation, as the designated trail system would be open to this use during the closure period for motorized use. In general, the high use period for non-motorized uses is also during the late fall, winter period. To some extent, the lack of facilities specifically for non-motorized users or lack of trails engineered specifically for their use (e.g., technical single-track for mountain bikes), limits the benefit of this exclusively, non-motorized use period.

The closure period for motorized use in South Millican results in greater effects to motorized recreation, since the trails (about 12 to 14 miles) would be closed for all but 4 months of the year. Generally, two of these months occur during conditions that do not provide quality riding opportunities. The benefit of this closure to non-motorized uses is somewhat limited, as non-motorized use tends to occur more regularly in the areas surrounding the South Millican OHV area (e.g., Horse Ridge). The seasonal restrictions in North and South Millican and subsequent displacement of riders to Millican Plateau reduces the quality of ridging opportunities through a reduction in technically challenging trail miles, more crowded conditions, and less varied scenic terrain.

Several other seasonal closures occur in Alternative 1, including winter closures at the Tumalo block and north of Prineville Reservoir. These areas do not have designated trail systems for any users, and thus may not represent a major effect on existing recreation use. However, these closures have restricted access for non-motorized users since often; no provisions for access around locked gates are made.

Effects Common to Alternatives 2-7

Special Recreation Area Designations

All action alternatives provide a greater identity for the planning area by designating most of the area as a Special Recreation Management Area (SRMA). The SRMA and its different geographic areas are shown in FEIS Map 1, FEIS/PRMP Planning Area. For all action alternatives, SRMA designation may increase the awareness of the management needs and recreation opportunities in the planning area, and increase the ability for BLM to partner with community groups and other organizations.

Travel Management/Recreation Emphasis Designations

The common themes throughout all action alternatives are a planning area-wide change in travel management from large areas being designated as Open or as Limited to Existing road and/or trails to areas designated as Limited to designated roads and trails where these uses are provided for. This would change the overall management emphasis of BLM managed lands in the planning area in a fundamental way, removing the emphasis on exploration, user choice, and self-creation of recreation opportunities. In effect, the combination of management decisions in all action alternatives changes the recreation opportunities from those in a an Extensive Recreation Management Area (ERMA) with a more intensively managed recreation experience, with greater definition of available opportunities, regulations, and different recreation settings.

Alternatives 2-7 place an emphasis on development of road and trail systems that replace the user created or historic system of roads/trails that do not provide loops and often dead-end at private land boundaries. Concurrent with this direction, there is an overall direction to reduce the number of redundant road access points, and provide well placed access points that minimize conflicts with adjacent land owners. All alternatives would close parking areas, trailheads and staging areas to overnight use unless otherwise designated and posted. This measure would help reduce conflicts with adjacent landowners and reduce the amount of illegal occupancy, particularly for alternatives that close areas to motorized vehicle use near communities.

If these travel management/engineering solutions are implemented, some degree of user choice, exploration, and self-reliance would decrease as the entire area moves toward a designated road and trail system. However, there would be some increase in quality and availability as people from out of area or infrequent visitors can use mapped, designated and signed transportation systems. Further, the quality of recreation experiences would improve with the development of designated road and trail systems by allowing for a broader range of difficulty levels, and provision of specific types of trail opportunities, such as technical four-wheel drive routes or mountain bike trails.

If these travel management/engineering solutions are implemented, there would be a reduction in conflicts in many areas, and likely an increase in recreation quality, as the road system could be designed to provide loops, remove confusing braided road networks, and avoid dead-end roads and minimize conflicts with adjacent property owners. However, given the amount of acreage identified for designated road and trail systems, it is likely that in the short term, many areas will not undergo specific road and trail planning and will either remain as unmanaged travel networks or have interim systems implemented that do not offer quality recreation experiences due to a lack of quality road/trail facilities/alignments or just an overall shortage of road/trail miles contained in interim systems (which will likely rely heavily on roads versus trails). Areas that do not currently contain designated travel systems, but have a high level of existing motorized recreation use will likely see reductions in motorized trail opportunities over

the short-term for all alternatives, until area specific recreation management plans are prepared. Of all the geographic areas in the FEIS/PRMP area, the effects to motorized use in Cline Buttes would likely be the greatest.

Motorized Use (Roads and Trails)

See Travel Management section, above, for direction.

Non-Motorized Use (Roads and Trails)

All action alternatives call for an increase in non-motorized trail development. Although the alternatives vary in the amount of acreage devoted to this use, either exclusively or in combination with motorized trail or road use, every action alternative increases the non-motorized trail emphasis from the current situation (i.e., no emphasis). All action alternatives call for BLM to provide travel and access maps, to designate river access points (providing managed, maintained parking areas and trails where legal access exists to rivers, particularly the Middle Deschutes). This measure would reduce effects to river corridors from unmanaged trail use and provide additional opportunities for hiking, wildlife observation, fishing, and other recreation uses. Some additional conflicts with adjacent landowners may occur due to designation and improvement of access points, as some access points may increase in popularity. To mitigate this, the FEIS/PRMP does call for locating designated parking areas/trailheads away from private lands to the extent feasible.

All action alternatives identify the North Unit Main Canal as a potential regional trail and direct BLM to work with other agencies and local governments to explore this opportunity where the canal bisects the Bend-Redmond area. This trail could form an important recreation component for the area, serving a Statewide Comprehensive Outdoor Recreation Plan identified need for regional trails, particularly for trail use during the wintertime. However, given the canal's management by BOR, designation of this canal as a regional trail is outside the scope of this plan or BLM's authority.

All action alternatives call for management of the Skeleton Fire/Horse Ridge area specifically for non-motorized trail development. All of the alternatives call for provision of non-motorized trail development around Prineville Reservoir. For all action alternatives, the Dry River Canyon would be managed as a non-motorized trail and the base of the canyon would be managed to provide designated parking and to eliminate the braided road network and user created campsites throughout the area.

All action alternatives identify needs for developed and designated access points, trailheads, etc. and establish goals for providing day use facilities (picnic tables, trash containers, restrooms, at these as necessary). In addition, Alternatives 2-7 close these areas to overnight use, except where specifically designated for such use. Depending on the level to which these facilities are developed, there would be an increase in the diversity and quality of recreation opportunities. In areas where these types of improvements are made, visitors would see a managed area as an entry statement instead of the widespread current condition of braided roads, dumped garbage and abandoned automobiles.

Interpretive Use

All action alternatives would designate several additional areas for interpretive use, including an enlarged Wagon Roads ACEC, and a Tumalo Canal ACEC (or equivalent for alternatives that designate larger ACECs throughout the Cline Buttes block). These areas would be managed specifically for interpretive use, and would be identifiable areas

that could conceivably get a large amount of hiking, sightseeing and interpretive use. All action alternatives would close the Redmond Caves parcel to motorized use, and provide conditions that foster interpretive/educational use.

Special Recreation Permits/Group Uses

Although not specifically a Special Recreation/Group Use guideline, if the plan direction for additional designated trails is implemented, there would be an increase in the ability to issue Special Recreation Permits for trail rides and other trail dependent events. A greater diversity of designated trails, particularly in areas of steady use over the past 10 years, would allow for easier review and authorization compared to requests to use non designated trails.

No new annual special recreation permits for trail use (except foot traffic/hiking) would be issued unless such use was authorized on designated trails that are part of BLM's transportation system. Over the short term, this would reduce the number and range of commercial use opportunities. This policy may also serve to move this use to the few areas that have existing designated trail systems. However, this would also provide an impetus for trail designation in areas that currently do not have any identifiable trail systems.

Over the long-term, as more designated trails (both motorized and non-motorized) are developed, it is likely that this policy would direct annual recreation permits to larger areas with substantial trail systems. Smaller commercial operations and commercial operators that are tied to a specific location (e.g., small guest ranches) would have a harder time gaining permits if they are located adjacent to BLM managed lands that do not have designated trails and lack the ability to shuttle clients to larger BLM areas with designated trails. However, existing permittees would be allowed to continue their use as designated trail systems are implemented in an area of their use. The establishment of designated trail systems may increase the use of these areas, and increase conflicts between commercial and non-commercial trail users; however future SRP's may limit use numbers, group sizes or times of operation to reduce conflicts.

All action alternatives provide general policy for management of group use and SRPs, in many cases applying specific group use, special recreation event, or commercial use stipulations for Special Management Areas such as ACECs, RNAs, etc. These restrictions generally limit recreation use to activities that do not impair the values for which an area has been designated. Therefore, for all alternatives there is an increase in the acreage that is closed to motor vehicle use, firearm discharge, campfires, etc. in order to provide opportunities for interpretation, hiking, etc. Generally, these limitations are applied to relatively small areas, and while they would result in a loss of certain recreation opportunities, if implemented successfully, these areas would offer other, new recreation opportunities such as interpretation, group use, nature study, etc.

All action alternatives provide for increased oversight of organized (non-commercial) group use. All organized groups of over 20 people would require a permit for activities on BLM-administered land. For WSAs, group use of over 12 people would require a permit. This policy would remove the present uncertainty about when/if a permit is needed for group use. If this policy is effectively communicated to the public, it would result in fewer user conflicts, conflicts between public land users and adjacent landowners, and conflicts with permittees. There is no limit set on the overall number of group use permits allocated; however, there may be a reduction in organized group events due to the time it would take the BLM to review and issue permits. As stated above, the movement towards a greater diversity of designated trail systems in the planning area would likely make permit review and authorization much easier.

Rock Climbing

Alternatives 2-7 would specifically identify climbing as a management emphasis for the parcel in Fremont Canyon identified as the Sisters Bouldering (a.k.a. Sisters Climbing) area. The area would be managed to limit motorized travel to a designated access road and parking area. The management of the area would focus on day use activities in order to maintain the natural setting of the site and minimize conflicts with adjacent landowners.

Special Management Areas

All action alternatives call for specific closures or limitation on certain uses, particularly in Special Management Areas such as WSAs, ACECs, and RNAs. Some of these area or site-specific restrictions include limitations on recreational use of smaller parcels (e.g., 40 acre parcels) in developed areas. In many cases, the Special Management Areas that are common to all action alternatives are relatively small, and while they would represent a loss of certain opportunities such as motorized recreation, overnight camping, campfires, target shooting, paintball use, rockhounding, geocaching, etc, given the small scale of these areas in relation to the availability of opportunities elsewhere on BLM managed lands, the total effect would be minor.

For all action alternatives, the designation of ACECs would provide new recreation opportunities for interpretation and education activities.

Under all action alternatives, mountain bike use on existing trails within the Horse Ridge RNA would not be allowed. This would fragment part of an existing trail system that has generally been in use over the past decade, and likely would result in the need for and/ or creation of new trails to skirt the boundaries of the RNA.

Caving/Cave Dependent Recreation

Management policy for significant caves and caves nominated for significance are contained in the provisions of the Federal Cave Resources Protection Act and existing BLM regulations. These are incorporated by reference in the RMP. Additional cave management policy for all action alternatives include limitation on the size of groups allowed in caves. This restriction may limit future educational/commercial use in caves. All alternatives close Significant/Nominated Caves would be closed to geocaching (i.e., the leaving of cache items). This limitation would represent a fairly small restriction on this use, since even with other restrictions on geocaching (closure of ACECs, RNAs, and WSAs) the majority of the planning area would remain open to this use. In any case, the use of the above mentioned areas for virtual geocaching (where items are not left) would remain.

Fuels/WUI Treatments

For all action alternatives, the fuels treatment measures proposed for WUI zones may increase conflicts between recreationists and adjacent landowners, since buffering/ screening vegetation along property lines will be removed. The mowing of areas adjacent to private property may result in increased levels of motorized and nonmotorized travel along these mowed areas, since they would offer a path of least resistance. There would likely be a corresponding increase in user conflicts due to noise, dust, trespass, perceived safety issues related to firearm discharge, etc. WUI treatments may also increase the number and dispersal of motorized access points, as adjacent residents use the WUI mowed area as an ingress/egress for their property. The issuance of permits for wood product collection in these areas may also increase the incident of unauthorized motorized use in these areas over time, as people continue to collect/ harvest wood products both with and without permits.

Wildlife and Wildlife Habitat Management

The emphasis on primary wildlife habitat effectiveness (70 percent) in many areas designated for non-motorized trail use emphasis (e.g., Tumalo, Northwest, Smith Rock, Prineville Reservoir, Horse Ridge/Skeleton Fire) may limit extensive development of trail systems for non-motorized use. However, the long-term effect of this direction is uncertain, since the RMP does not identify specific trail alignments or non-motorized trail density standards. In general, these areas would be managed for year-round trail use that have workable trail systems and will provide a higher quality trail experience for a larger segment of the population than the existing undesignated trails.

Vegetation management under all alternatives may impact trail use by opening up areas and removing vegetation that helps block undesired access points or screens views of trails from nearby roads. The removal of screening vegetation may also increase the likelihood that trail users will shortcut winding trails and create braided trail networks. However, vegetation management guidelines in the plan do provide for retention of junipers in trail use areas to promote a workable trail system. Trail guidelines also provide that vegetation management activities do not create safety hazards for trail users.

Public Health and Safety Designations

Closures of areas to target shooting may increase recreation quality for other users (see Public Health and Safety section). In addition, the closure of parking areas, trailheads, etc. to overnight use may reduce user conflicts and conflicts with adjacent landowners somewhat.

Effects of Alternative 2

Special Recreation Area Designations

Same as Common to Alternatives 2-7

Travel Management/Recreation Emphasis Designations

Alternative 2 emphasizes the use of shared road and trail facilities for all users, to a much greater degree than all other action alternatives and the no-action alternative. Approximately 77 percent of the planning area is managed for multiple use on shared facilities in Alternative 2. If fully implemented, this alternative would provide the greatest opportunities for regional/out-of-area OHV visitation by providing the greatest acreage if designated road and trail systems.

The only large area where trails are developed for non-motorized use is the Skeleton Fire and Horse Ridge areas, although some routes in the Badlands WSA are managed for non-motorized use only. Many small parcels of BLM managed land are closed to motorized use; however, this alternative closes the least amount of land to motorized use (approximately 5 percent). The largest single area designated closed to motorized use would be the Smith Rock parcel of BLM managed land. Alternative 2 also provides the greatest opportunity for unrestricted year-round access to public lands, with approximately 92 percent of the area open year-round. Seasonal closures are generally limited only to the Northwest and Tumalo blocks of BLM managed land. Motorized recreation opportunities are spread throughout the planning area, with Millican Valley, the Bend-Redmond block, and Cline Buttes all being managed for motorized use on designated trail systems. Management of the Bend-Redmond block would change from "Open" to a designated system. Management of the Cline Buttes block would change from limited to "Existing" roads and trails to a specific designated trail system.

The La Pine area would receive more active recreation management than the current direction, with most of the area changing from an Open designation to a network of designated roads and trails. The northern 1/3 of the area (near La Pine State Park) would be managed for motorized use on designated roads only.

Areas that receive the most intensive, high-cost management resources (areas with motorized and non-motorized uses separated on different road or trail systems) comprise about 14.5 percent of the planning area.

2.8 percent of the planning area is seasonally closed to motorized use, while only 5 percent is closed year-round to motorized use. Specific effects to recreational activities are described below:

Motorized Use (Roads and Trails)

Alternative 2 would provide the highest amount of recreation opportunities for motorized use of all alternatives, with approximately 92 percent of the planning area open to motorized use on designated road and/or trails year-round. Alternative 2 does represent a large difference from Alternative 1 in management of motorized use. While Alternative 1 allows cross-country motorized use on 38 percent of the planning area, Alternative 2 does not provide for any cross-country use (i.e., areas designated as Open). Along with all other action alternatives, the shift from Open to designated travel systems over a large portion of the planning area will require much more intensive BLM management, including road and trail rehabilitation, maintenance, closing unneeded roads/trails, and new road/trail construction.

Under Alternative 2, very few areas would be managed for separate motorized and non-motorized trail systems, and all users would be expected to share the same system. Motorized recreation opportunities would be greatest in the Millican Valley OHV area, since this area has a history of use and an existing system that could be revised relatively easily to respond to the paving of West Butte Road. The quality of the riding opportunities would be relatively high, as the entire Millican Valley OHV area would be open during the winter/early spring period of good riding conditions. With more miles of trails in a large area, riders would be spread out and experience fewer encounters and conflicts during a day of riding. The increase in the size of the OHV area in Millican Plateau would also provide for more diversity of trails in this area, including the possibility of technical four-wheel drive routes.

Nearly all of Cline Buttes and the Bend-Redmond block would be available for designation of shared use trails (for motorized and non-motorized use). These areas would provide relatively high quality OHV opportunities, particularly for Cline Buttes, where the size of the area and the topography could result in a days worth of high quality riding opportunities. Like Alternative 4, this alternative does provide some motorized trail opportunities north of Prineville Reservoir (which are lacking in all other alternatives).

For general, motorized access that supports a variety of recreation uses (i.e., sightseeing, rockhounding, target shooting, etc.), Alternative 2 provides the second highest degree of access and user choice (Alternative 1 provides the greatest), since more the planning area is managed for designated roads and trails available year-round. Alternative 2 provides the greatest degree of motorized recreation opportunities in the Badlands, with about 23 miles of inventoried routes available for motorized use (See Table 4-54). While the high degree of access may be considered a positive effect for hunting activities, Alternative 2 would also represent a less diverse set of hunting opportunities, as there would be fewer areas with restricted access and primitive hunting opportunities than Alternative 1 and most of the action alternatives.

The size and location of Closed areas would have the least effect on motorized recreation use compared to Alternatives 3-7. In general, the areas designated Closed to motor vehicles in Alternative 2 are small, isolated blocks in urban settings or those that generally do not offer high quality motorized trail experiences.

Non-Motorized Use (Roads and Trails)

Alternative 2 provide the least amount of acreage specifically allocated for non-motorized recreation. While trails would be available in many areas for non-motorized use (such as Cline Buttes, Mayfield, Steamboat Rock, Prineville Reservoir, etc.) these trails would be shared use trails and depending on the level and types of use, may result in user conflicts between motorized and non-motorized recreationists to the point where the experience is degraded for all users.

While Alternative 2 provides the least amount of acreage specifically for non-motorized trail use of all the action alternatives, it does provide direction for a small increase over Alternative 1 in areas managed for non-motorized trail designations. These areas include the Skeleton Fire and Horse Ridge areas, the area south of Alfalfa Market Road, the Northwest and Tumalo Blocks, and the Taylor Butte area at Prineville Reservoir. Management of these areas all provide for small amounts of motorized access on roads; however, the amount of roads would generally be limited to a few main roads and the recreation emphasis would be on providing a workable trail system. Unlike Alternatives 3-7, there would be no large areas designated for exclusive non-motorized use, and opportunities for non-motorized trail use in areas of quiet and solitude would be the most limited among the action alternatives. Given this alternatives reliance on providing non-motorized trails in areas with motorized road access, there would be a relatively high degree of management intensity through signage, maps and patrols to maintain separation of users between road and trail use.

Special Recreation Permits/Group Uses

The provision of non-motorized designated trails in some areas would allow for greater ease in issuing special recreation permits for trail dependent uses, including commercial, competitive and group use. This benefit would likely be greatest in the Skeleton Fire and Horse Ridge areas, where trails would be provided exclusively for non-motorized use and where demand currently is relatively high. The demand for special recreation permits for non-motorized trail events is also high in Cline Buttes and likely will increase in the Bend-Redmond and Millican Plateau or Mayfield areas with the development of new resorts. In the case of the Cline Buttes area, Alternative 2 may require the temporary closure of trails to certain users (e.g., motorized) during special events to provide for visitor safety.

There would be few, if any, restrictions on the management of motorized events. The seasonal closure to events in Millican Valley would not occur.

Rock Climbing

Rock climbing opportunities would be managed similar to most of the other action alternatives. No specific management guidelines would be provided for management of climbing routes adjacent to Smith Rock State Park, other than an emphasis on rehabilitation, stabilization, and consolidation of climbing area access trails. The Sisters Climbing area would be managed for climbing opportunities specifically. Establishment of sport routes in Pictograph Cave would be allowed, which would provide a somewhat unique climbing opportunity regionally (see also Caving/Cave Dependant Recreation, below).

Interpretive Use

As with the other action alternatives, several additional areas would be designated for interpretive use, including an enlarged Wagon Roads ACEC, and a Tumalo Canal ACEC. These areas would be managed specifically for interpretive use, and would be identifiable areas that could conceivably get a large amount of hiking, sightseeing and interpretive use.

Caving/Cave Dependent Recreation

Pictograph (Stout) Cave would remain specifically available for the installation of sport climbing routes in areas not posted as closed to this activity. It is uncertain how much climbing would be affected under this alternative, since it is reasonable to assume that many areas of past route development occur in locations of cultural resources and would be closed to route development. Although the difficulty of these routes may limit visitation somewhat, the fact that Pictograph (Stout) Cave would be the only cave open to sport climbing (bolt protected routes) in the Arnold Lava Tube system would tend to increase visitation over time. Pictograph (Stout) Cave would be closed seasonally to all visitors, which would reduce cave recreation opportunities on BLM managed land somewhat; since Pictograph Cave is one of the larger caves located on BLM managed lands. However, there would still be opportunities for caving on BLM managed land and at the lava tubes more prevalent on USFS, DNF lands.

Military Use

Since the entire Millican Valley area and Cline Buttes would be available for motorized trail development, the use of the Bend-Redmond block for motorized trail use may not be as great as other alternatives (that place restrictions in Cline Buttes or Millican). Therefore, conflicts between OMD use and recreation may be fewer than most other alternatives.

Alternative 2 does not provide additional training areas (i.e., Steamboat Rock and Millican) for the OMD. While potential conflicts with recreation use in these areas would be avoided, the BLM would lose any partnership opportunities with OMD to improve resource and recreation conditions in these areas. The lack of these partnership opportunities may have a long-term negative effect on recreation, as the management costs of these areas continue to rise with the region's population growth.

Wildlife/Wildlife Habitat Management

Wildlife management goals in Alternative 2 provide the least restrictions for public access and recreation among the action alternatives. The emphasis on current distribution of source habitats and relatively low (compared to other action alternatives) acreage with primary wildlife management emphasis provide the most flexibility for a wider range of recreation opportunities or an increased emphasis on year-round access. While Alternative 2 would provide direction for restoration of sage grouse habitat by thinning/cutting juniper to increase sagebrush steppe plant communities, there would be more flexibility to retain juniper to define trails and meet other needs than in Alternatives 3 and 5. Very few areas would be closed seasonally to motorized use (i.e., only the Tumalo and Northwest blocks). While this provides better conditions for recreational access to a wide range of visitors, there are fewer opportunities for non-motorized use on trails or areas reserved solely for this use (see non-motorized effect section, above).

Effects of Alternative 3

Special Recreation Area Designations

Same as Common to Alternatives 2-7

Travel Management/Recreation Emphasis Designations

The recreation emphasis varies by area in Alternative 3. The largest percentage (39 percent) of the planning area is still managed for multiple use on shared road and trail facilities (the Bend-Redmond block and Millican Valley). About 20 percent of the area is managed exclusively for non-motorized recreation use (a portion of Cline Buttes, Badlands WSA, Alfalfa ACEC, Tumalo block, and the lower Crooked River), while about 16 percent of the area is managed with an emphasis on motorized use only on roads, with trails provided for non-motorized use (Mayfield, Horse Ridge, and Skeleton Fire areas). The largest blocks of land closed to motor vehicles and managed for non-motorized trail use include the Badlands WSA and an area on both sides of the Chimney Rock segment of the lower Crooked River. Cline Buttes and Steamboat Rock blocks require intensive management for multiple uses on separated road or trail systems. About 18 percent of the area is Closed to motorized use year-round; only Alternative 6 closed more acreage. About 22 percent of the area has seasonal restrictions on motorized use, which is about in the middle of the range of alternatives; however, this alternative does close an additional portion of Millican Valley under heavier snow conditions. During seasonal closure periods in the Millican Valley, motorized use would be managed on designated trails in the Millican Plateau, as well as in the Bend-Redmond block and on separate trail systems in a portion of Cline Buttes.

In the La Pine area, Alternative 3 would represent a major change in management emphasis compared to the current Open designation. Most BLM-administered lands in La Pine would be closed to motorized trail use, except for the area between the Rosland OHV play area and the Deschutes National Forest. Small isolated parcels would be Closed to all motorized use.

Areas that receive the most intensive, high-cost management resources (an area with motorized and non-motorized uses separated on different road or trail systems) comprise a fairly high 23 percent of the planning area.

22 percent of the planning area is seasonally closed to motorized use, while 18 percent is closed year-round to motorized use.

Specific effects to recreational activities are described below:

Motorized Use (Roads and Trails)

Alternative 3 provides fewer motorized trail opportunities than Alternatives 1, 2, 4, and 7. During winter periods with heavy snowfall, the closed area in Millican Valley would increase to include Millican Plateau south of Reservoir Road. Given the acreage closed year-round to motorized use in Cline Buttes and this alternative's emphasis on allowing motorized use mainly on roads in Cline Buttes, this area would not be able to offset the seasonal closures in Millican Valley as well as most other alternatives. Management of Cline Buttes, coupled with seasonal restrictions in South Millican, North Millican, and possible snow closures in a portion of Millican Plateau would place the highest amount of use pressure of all alternatives on trails in the Bend-Redmond block or on USFS managed OHV areas. However, the winter period from November through the end of February does not provide the best, most consistent riding conditions in many USFS riding areas, including East Fort Rock. In addition, the reliance on the flatter areas such as Bend/Redmond instead of North Millican would greatly reduce the quality of riding

opportunities. There would also be a tendency for motorized use to increase on BLM managed lands east of the planning area, as recreationists use roads and trails in this area to create longer distance riding opportunities for themselves. Given the conditions of other OHV use areas and the likely short-term lack of a quality designated trial system in the Bend/Redmond block, this alternative would result in the greatest amount of crowding in the Millican Plateau area, although as with all action alternatives, there would be an increase in trails in this area and an increase in the quality of the riding experience as the existing non-designated system is developed into a useable, designated system. During the winter, Alternative 3 would likely result in the relatively heavy motorized use levels in Cline Buttes, higher than most alternatives, but likely slightly lower than Alternative 5.

For Alternative 3, the size and dispersal of Closed areas would have a moderate effect on motorized recreation use, compared with the other alternatives. Blocks of land in Cline Buttes, south of Alfalfa Market Road, adjacent to Prineville Reservoir and throughout La Pine that currently are open to cross-country travel and well-used for motorized recreation would be closed to this use altogether. Unlike Alternative 2, these blocks are relatively large. While the Tumalo block is also closed to motorized use, the area is currently seasonally closed, and does not receive consistent high levels of motorized use, so the effect of closing this area would be less than the areas described above. The location and dispersal of motorized trail use areas would provide opportunities for trail use close to Bend, Redmond and Prineville, but less easily accessible opportunities west of Redmond, at La Pine, and near Prineville Reservoir. Whereas most of the La Pine area is currently designated as Open to cross-country OHV use, in Alternative 3, almost all BLM-administered land would be off-limits to motorized trail development. This would concentrate use in a small area of designated trails adjacent to the Rosland OHV area, likely increasing user conflicts among OHV users. The lack of OHV opportunities in La Pine may increase the use of the East Fort Rock trail system on the Deschutes National Forest, or increase the use of USFS managed lands adjacent to La Pine.

For general, motorized access that supports a variety of recreation uses (i.e., sightseeing, rockhounding, target shooting, etc.), Alternative 3 provides the lowest degree of access and user choice, since more the planning area is either closed to motorized use, or closed to motorized use seasonally. This alternative provides the least amount of motorized recreation opportunities in the Badlands WSA, with no routes being open to motorized use at any time (See Table 4-54). Alternative 3 would represent a diverse set of hunting opportunities, as there would be more areas with restricted access and primitive hunting opportunities than Alternative 1, 2, 4, and 5. The seasonal and year-round closures in Alternative 3 would pose some difficulties for some hunting access, particularly for game retrieval.

Non-Motorized Use (Roads and Trails)

Alternative 3 provides more opportunities for non-motorized trail use than Alternatives 1, 2, 4, 5, and 7. Relatively large areas would be available for development of non-motorized trails, such as Mayfield, Tumalo, all of Cline Buttes, the Horse Ridge/Skeleton Fire area, and most of the area surrounding Prineville Reservoir. Many of these areas would represent high intensity recreation management settings, with BLM's role in separating users on different road or trail systems requiring major investments in the recreation program for the Prineville District. The Badlands WSA would be closed to motorized and mechanized use, and while the area would continue to be popular for hiking and horseback riding, the layout of the route system defined by wilderness inventory would continue to limit the usefulness of the area for many trail dependent activities.

Like alternative 1, the seasonal trail closures in South Millican and North Millican areas could conceivably supply opportunities for non-motorized trail use in a setting

that avoids user conflicts. Alternative 3 provides the highest degree of non-motorized trail emphasis in the area east of Bend, particularly in the winter/early spring. During this period, the Mayfield Area, Badlands WSA, Skeleton Fire area, Horse Ridge, South Millican, and North Millican would be available only for non-motorized trail use. Under this alternative, larger areas that could support well laid out non-motorized trails would include the Skeleton Fire/Horse Ridge areas, the Mayfield Area, and the Cline Buttes area between Cline Falls Highway and the Deschutes River. Mountain bike opportunities would be increased by the development of designated trail systems tailored to non-motorized users in these areas. The upper portions of Cline Buttes would continue to be a challenge in development of a designated trail system, due to the large amount of private land and corresponding lack of trail continuity. However, the opportunities in the remainder of Cline Buttes would decrease as more OHV users shift their use to this area in response to seasonal closures in North Millican, particularly during periods when other USFS managed systems offer poor riding conditions.

The location and dispersal of non-motorized trail use areas would provide opportunities for trail use close to Bend, Redmond and Prineville.

Special Recreation Permits/Group Uses

The provision of both motorized and non-motorized designated trails throughout the planning area would allow for greater ease in issuing special recreation permits for trail dependent uses, including commercial, competitive and group use. This benefit would likely be greatest for non-motorized events, given the large amount of the planning area devoted to this use, particularly in the wintertime. SRPs for motorized events would be focused on Millican Plateau. While the Bend-Redmond block would be available for this use, the fragmented nature of the area and reasonably foreseeable development may limit the area's usefulness for motorized commercial, competitive, or organized group events. Non-motorized SRP use would be accommodated year-round in the Skeleton Fire and Horse Ridge areas, where trails would be provided exclusively for non-motorized use and where demand currently is relatively high. To some extent, development of trails in these areas may take some use pressure off the Deschutes National Forest, which currently provides many more recreation permit and event permit opportunities.

Rock Climbing

Rock climbing opportunities would be managed similar to most of the other action alternatives. The Sisters Climbing area would be managed for climbing opportunities specifically. Alternative 3 would eliminate sport climbing at Pictograph Cave, at least for the short-term; until a site-specific management plan could be prepared (see also Caving/Cave Dependant Recreation, below).

Interpretive Use

As with the other action alternatives, several additional areas would be designated for interpretive use, including an enlarged Wagon Roads ACEC, and a Tumalo Canal ACEC. These areas would be managed specifically for interpretive use, and would be identifiable areas that could conceivably get a large amount of hiking, sightseeing and interpretive use. Like Alternative 7, Alternative 3 provides the greatest amount of area that could conceivably be oriented toward natural resource interpretation, particularly juniper woodlands interpretation. These areas would include the Alfalfa ACEC area south of Alfalfa Market Road and the Cline Buttes area between Cline Falls Highway and the Deschutes River, which would be managed exclusively for non-motorized recreation.

Caving/Cave Dependent Recreation

All Significant Caves and caves currently nominated for Significance under the FCRPA would be closed to all visitation until cave management plans are prepared. The effects to recreational use would likely be greatest at Pictograph Cave and Redmond Caves, because these are the most well known caves on BLM managed lands in the planning area. The closure of Redmond Caves would require significant management resources, as these caves are easily accessible and located in an urban setting. The closure of Pictograph Cave would generally continue the existing management direction. Under this management, the opportunity for sport climbing (bolt protected, technical routes) would essentially be eliminated in the Arnold Lava Tube system both on USFS and BLM managed lands, although bouldering opportunities would remain in some USFS caves. Alternative 3 does allow for interpretive use of Pictograph (Stout) Cave under SRP provisions contained in Common to Alternatives 2-7.

Military Use

Under this alternative, OMD's permitted use area would be relatively small, and concentrated in the Bend-Redmond block. The combination of this military use alternative and travel management restrictions in Cline Buttes and North/South Millican may result in higher levels of conflict between OMD and recreational use in the Bend-Redmond block than other alternatives.

Alternative 3 does not provide additional training areas (i.e., Steamboat Rock and Millican) for the OMD. While potential conflicts with recreation use in these areas would be avoided, the BLM would lose any partnership opportunities with OMD to improve resource and recreation conditions in these areas. The lack of these partnership opportunities may have a long-term negative effect on recreation, as the management costs of these areas continue to rise with the region's population growth.

Wildlife and Wildlife Habitat Management

Wildlife management goals in Alternative 3 would provide greater restrictions for public access and recreation than all other alternatives. The emphasis on historic distribution of source habitats and highest (compared to all other alternatives) acreage with primary wildlife management emphasis would result in greater acreages closed to motorized recreation during the winter. While all action alternatives call for restoration of sage grouse habitat by thinning/cutting juniper to increase sagebrush-steppe plant communities, there would be less flexibility to retain juniper to define trails and meet other needs than in Alternatives 1, 2, 4, 5, and 7.

A major component of the existing Millican Valley OHV trail system would be closed during the winter. Although this could provide benefits to wildlife, the result could be increased crowding on trails in Millican Plateau or other areas (see Recreation, Motorized Use, above). Restrictions on motorized use to achieve wildlife management objectives would provide an opportunity to provide non-motorized trails in some areas. However, as noted previously in the Common to Alternatives 2-7 section, the design and implementation of non-motorized trails (done in subsequent area or project specific planning) in these areas could be limited by the primary wildlife management emphasis designation made in the FEIS/PRMP.

Effects of Alternative 4

Special Recreation Area Designations

Same as Common to Alternatives 2-7

Travel Management/Recreation Emphasis Designations

Alternative 4 would provide a mix of recreation opportunities, but would close relatively few areas to all motorized use and instead would rely more on limiting motorized use to roads in areas where non-motorized trails would be provided. Approximately 67 percent of the planning area would still be managed for multiple uses on a shared system of roads and trails (including most of Cline Buttes, Bend-Redmond, and Millican Valley). Areas that would allow motorized use on designated roads only (23 percent), while emphasizing non-motorized recreation on designated trails would include the Northwest (Squaw Creek), Tumalo, Maston Allotment, Alfalfa ACEC, Badlands, Skeleton Fire, Horse Ridge, South Millican, and areas south of Prineville Reservoir. Seasonal closures to motorized use would occur in the Northwest (Squaw Creek), Tumalo, Badlands, and Highway areas. The West Butte Road would form the boundary between different seasons of use in Millican Valley. The largest closed area managed exclusively for non-motorized trail use would be an area north of Prineville Reservoir and east of the Crooked River, which would include trail connections between the Wild and Scenic River corridor and Prineville State Park. The North Millican area west of WestButte Road would be open a month later each season, allowing for riding opportunities in December. The area east of West Butte Road would be open year-round. However, under this alternative, the South Millican area would be closed to motorized trail use.

The La Pine area would receive more active recreation management that the current direction, with most of the area changing from an Open designation to a network of designated roads and trails. The northern 1/3 of the area (near La Pine State Park) would be managed for motorized use on designated roads only.

Areas that would receive the most intensive, high-cost management resources (areas with motorized and non-motorized uses separated on different road or trail systems) comprise about 23 percent of the planning area. These areas include the Skeleton Fire area, Horse Ridge, South Millican, the Maston allotment in Cline Buttes, the Northwest (Squaw Creek), and Tumalo areas. Most of these are areas that would limit motorized use to roads and would provide trails for non-motorized use, which could be slightly less difficult to manage than separate trail systems for each user type as proposed in Alternatives 3, 5, and 6.

Sixteen percent of the planning area would be seasonally closed to motorized use, while about 6 percent would be closed year-round to motorized use.

Specific effects to recreational activities are described below:

Motorized Use (Roads and Trails)

Alternative 4 is similar to Alternative 2 in that it would provide for a high degree of motorized access and designated motorized trail opportunities throughout the planning area. While Alternative 4 would provide less motorized recreation opportunities than Alternative 2, it would provide more than any of the other action alternatives. Unlike Alternative 2, several areas would be closed seasonally to motorized use, including the Badlands WSA and a portion of the North Millican area located between State Highway 20 West Butte Road and the southern Badlands WSA boundary. Additionally the entire South Millican OHV area would be closed to motorized trail use, resulting in a loss of about 12 miles of trails and approximately 29 miles of road use opportunities. However,

Alternative 4 would provide direction for increasing trail mileage in North Millican and the Millican Plateau areas. Additionally, the loss of trail miles in South Millican could be also somewhat offset by an increase in motorized trail emphasis in the Cline Buttes area over Alternatives 3, 6 and 7. As with Alternative 2, this alternative would provide some motorized trail opportunities north of Prineville Reservoir, in an area where residents do not have easy access to the Millican Valley OHV trail system.

Of all the alternatives, Alternative 4 is the only one that would separate management strategies for North Millican based on the location of the Millican/West Butte Road. The implementation of this seasonal closure would be relatively easier than most seasonal closures for this area in other alternatives, because it is based on an easily recognizable boundary, and applied at the relatively few grade separated crossings that will likely be built during the Millican/West Butte Road project. The retention of winter use in a portion of North Millican and an increase in the acreage available for OHV trails in Millican Plateau would retain the area's viability as an OHV trail system. However, the closure of a portion of North Millican and all of South Millican would reduce the availability of riding opportunities overall and increase crowding, particularly during the winter.

Alternative 4 would provide for greater motorized trail development in La Pine, concentrating non-motorized trail emphasis near La Pine State Park. Alternative 4 would be less likely to increase motorized trail use on adjacent USFS land than Alternatives 3, 5, 6, and 7 – which all place greater restrictions on this use on BLM-administered lands. Alternative 4 would increase the likelihood for user conflicts, particularly between recreationists and adjacent landowners (see also Fuels/WUI Treatments, Common to Alternatives 2-7).

For general, motorized access that supports a variety of recreation uses (i.e., sightseeing, rockhounding, target shooting, etc.), Alternative 4 would provide a relatively high degree of access and user choice, since motorized use would be managed for a road emphasis in many areas (i.e., no motorized trails) instead of closing areas to all motorized use. Approximately half (23.4 miles) of the routes in the Badlands WSA would be open to motorized use seasonally (See Table 4-54).

Non-Motorized Use (Roads and Trails)

Like Alternative 2, this alternative would provide relatively few areas for exclusive, non-motorized use. Instead, Alternative 4 would rely on managing certain areas for non-motorized trail use, while keeping these areas open to motorized use on roads only. These areas would include the Horse Ridge/Skeleton Fire areas, Cline Buttes between Cline Falls Highway and the Deschutes River, the area south of Prineville Reservoir, and the Northwest and Tumalo blocks.

Alternative 4 would provide an increase in non-motorized trail emphasis over the current planning paradigm; however, the dispersal and extent of these areas might not serve the demand as well as other alternatives, particularly for areas of natural solitude and quiet that would be managed exclusively for non-motorized trail use. However, since winter season trail use is an important demand, Alternative 4 would provide high quality non-motorized trail opportunities in the relatively large block of land available to non-motorized road and trail use from January through April 30. This area would include the Badlands WSA, North Millican west of West Butte Road, and the Skeleton Fire/Horse Ridge area (South Millican would be non-motorized trail use year round). Although some motorized use would occur on non-BLM roads in areas, this area would provide non-motorized recreation opportunities seasonally. Since the overall management strategy of Alternative 4 would be to provide non-motorized trail use in the winter while keeping motor vehicles limited to roads, it would be highly dependent on the BLM to actively manage, patrol, and enforce this separation of users.

Special Recreation Permits/Group Uses

The provision of both motorized and non-motorized designated trails throughout the planning area would allow for greater ease in issuing special recreation permits for trail dependent uses, including commercial, competitive and group use. This benefit would likely be greatest for motorized events, given the large amount of the planning area devoted to this use year-round. Given this focus, this alternative could create management issues and user conflicts as trails in some areas might be closed to motorized use during non-motorized events. SRPs for motorized events would be focused on the North Millican and Millican Plateau areas. While the Bend-Redmond and Mayfield blocks would be available for this use, the fragmented nature of the area and reasonably foreseeable development could limit the area's usefulness for motorized commercial, competitive, or organized group events. Non-motorized SRP use would be accommodated year-round in the Skeleton Fire and Horse Ridge areas, where trails would be provided exclusively for non-motorized use and where demand currently is relatively high. To some extent, development of trails in these areas could take some use pressure off the Deschutes National Forest, which currently provides many more recreation permit and event permit opportunities. The demand for special recreation permits for non-motorized trail events is also high in Cline Buttes and likely would increase in the Bend-Redmond and Millican Plateau or Mayfield areas with the development of new resorts.

Rock Climbing

Rock climbing opportunities would be managed similar to most of the other action alternatives. The Sisters Climbing area would be managed for climbing opportunities specifically. Pictograph (Stout) Cave would remain available for the installation of sport climbing routes with few, if any, restrictions. Although the difficulty of these routes could limit visitation somewhat, the fact that Pictograph (Stout) Cave would be the only cave open to sport climbing in the Arnold Lava Tube system would tend to increase visitation over time (see also Caving/Cave Dependant Recreation, below).

Interpretive Use

This alternative would provide similar opportunities for interpretive services as Alternative 3. As with the other action alternatives, several additional areas would be designated for interpretive use, including an enlarged Wagon Roads ACEC, and a Tumalo Canal ACEC. These areas would be managed specifically for interpretive use, and would be identifiable areas that could conceivably get a large amount of hiking, sightseeing and interpretive use. Like Alternative 7, Alternative 3 would provide the greatest amount of area that could conceivably be oriented toward natural resource interpretation, particularly juniper woodlands interpretation. These areas would include the Alfalfa ACEC area south of Alfalfa Market Road and the Cline Buttes area between Cline Falls Highway and the Deschutes River, which would be managed with an emphasis on non-motorized recreation.

Caving/Cave Dependant Recreation

Pictograph (Stout) Cave would remain specifically available for the installation of sport climbing routes, with little or no management direction. Although the difficulty of these routes could limit visitation somewhat, the fact that Pictograph (Stout) Cave would be the only cave open to sport climbing (bolt protected routes) in the Arnold Lava Tube system would tend to increase visitation over time. Pictograph (Stout) Cave would be closed seasonally to all visitors, which would reduce cave recreation opportunities on BLM managed land somewhat; since Pictograph (Stout) Cave is one of the larger

caves located on BLM managed lands. However, there would still be opportunities for caving on BLM managed land and at the lava tubes more prevalent on USFS, Deschutes National Forest lands.

WUI/Fuels Management

The combination of WUI treatments and emphasis on designated road and trail systems for motorized use (with or without seasonal closures) throughout the planning area could tend to increase conflicts between recreation use and adjacent landowners. Areas with a heavy concentration of WUI treatments (e.g., La Pine) and those managed with seasonal closures would present particular difficulties, as the boundary between BLM and private lands would be cleared and more accessible, and communication and enforcement of seasonal closures would become more difficult.

Military Use

OMD's permitted use area would include the Bend-Redmond block and a portion of the Mayfield block. Alternative 4 would provide relatively good seasonal access and trail system acreage in the Millican Valley area (notwithstanding the closure of all motorized trails in South Millican) and in Cline Buttes, so the level of use in the Bend-Redmond block could be lower than some other alternatives and the conflicts between OMD's use and trail use could be less pronounced.

Alternative 4, like Alternatives 1, 2, and 3, would not provide new areas for OMD training (e.g., Steamboat Rock, Millican Plateau). While potential conflicts with recreation use in these areas would be avoided, the BLM would lose any partnership opportunities with OMD to improve resource and recreation conditions in these areas. The lack of these partnership opportunities could have a long-term negative effect on recreation, as the management costs of these areas continue to rise with the region's population growth.

Wildlife and Wildlife Habitat Management

Wildlife management goals in Alternative 4 would provide a moderate level of restrictions for public access and recreation among the action alternatives. The emphasis on current distribution of source habitats and moderate (compared to other action alternatives) acreage with primary wildlife management emphasis would provides some flexibility for a wider range of recreation opportunities. In particular, this alternative would allow for greater levels of road access that would support a variety of dispersed recreational use (camping, hunting, rockhounding, etc.) than alternatives that have greater acreage of year-round closures.

While Alternative 4 would provide direction for restoration of sage grouse habitat by thinning/cutting juniper to increase sagebrush-steppe plant communities, there would be more flexibility to retain juniper to define trails and meet other needs than Alternatives 3 and 6.

Effects of Alternative 5

Special Recreation Area Designations

Same as Common to Alternatives 2-7

Travel Management/Recreation Emphasis Designations

Alternative 5 would provide a relatively high mixture of different recreation opportunities and varying management strategies/intensities. About 50 percent of the planning area would still be managed for multiple use, primarily on shared roads and

trails (Millican Valley and 3/4 of Cline Buttes). About 20 percent of the planning area would be managed for motorized use on roads only, while providing non-motorized trail opportunities. These areas would include the Northwest (Squaw Creek), Tumalo, Mayfield, Skeleton Fire areas; and the area south of Prineville Reservoir. A moderate amount of the planning area (approximately 12 percent) would be closed to motorized use and managed exclusively for non-motorized trail use. These areas would include Horse Ridge, the Maston Allotment in Cline Buttes, the Steamboat Rock parcel, and a large area on both sides of the Chimney Rock segment of the lower Crooked River. The Bend-Redmond area would be intensively managed for multiple uses on separate trail systems. The North Millican area would be open for OHV use a month later to allow for riding opportunities in December.

The La Pine area would receive more active recreation management that the current direction, with most of the area changing from an Open designation to a network of designated roads and trails. The northern 1/3 of the area (near La Pine State Park) would be managed for motorized use on designated roads only.

Areas that would receive the most intensive, high-cost management resources (areas with motorized and non-motorized uses separated on different road or trail systems) comprise about 31 percent of the planning area, the highest of all alternatives. These areas would include the Bend-Redmond area, the Mayfield area, a portion of Cline Buttes, and the Skeleton Fire area.

Of the planning area 26.7 percent, would be seasonally closed to motorized use (Badlands WSA, North and South Millican), while about 12 percent would be closed year-round to motorized use.

Specific effects to recreational activities are described below.

Motorized Use

Alternative 5 would close North Millican seasonally to motorized use; however, this closure would start a month later than the current seasonal closure, and would provide for an extra month of riding opportunities over Alternatives 1 and 3. Motorized use opportunities in the South Millican Area would also be improved since the seasonal closure in Alternative 5 would allow for approximately 2 1/2 months additional riding opportunities (including some winter use) over Alternatives 1 and 3.

However, given the seasonal closure in North Millican, the closure of the eastern portion of Millican Plateau, and the direction to develop a less comprehensive motorized trail system in the Bend-Redmond area, this alternative would have the potential to increase the use pressure for motorized trail use in the Cline Buttes area. Management direction in Cline Buttes would allow development of a motorized trail system, with fewer opportunities than Alternatives 1, 2 and 4, but more than Alternatives 6 and 7. During the winter, Alternative 5 might result in the heaviest motorized use levels in Cline Buttes of all alternatives.

For Alternative 5, the size and dispersal of Closed areas would have a moderate effect on motorized recreation use, compared to all other action alternatives. Areas closed to motorized use year-round in this alternative would not currently contain designated trails, and are generally small in size and not a regional draw for motorized recreation. Alternative 5 would close the Steamboat Rock to motorized use (except for the emergency access road into Crooked River Ranch). This measure would provide recreation opportunities for non-motorized trail use close to Redmond, would reduce conflicts with adjacent subdivisions, and would create the most realistic solution to the chronic dumping problems experienced in the Steamboat Rock area.

For general, motorized access that would support a variety of recreation uses (i.e., sightseeing, rockhounding, target shooting, etc.), Alternative 5 would provide a moderate degree of access and user choice. The majority of the planning area would be open to motorized use on designated roads or designated roads and trails, with seasonal restrictions applying mostly in the more rural, eastern portions of the planning area. Motorized access in the Badlands WSA would fall in about the middle range of alternatives, with no routes being open year-round, and slightly less than half the inventoried routes (17.7 miles) open seasonally (See Table 4-54). During the motorized use closure period, motor vehicle use on designated, inventoried routes would be allowed for legal game retrieval purposes. This provision would provide for easier use of the area by hunters.

Non-Motorized Use

Alternative 5 would provide direction for provision of non-motorized trails in the Skeleton Fire/Horse Ridge area, in portions of Cline Buttes, Mayfield Area, in areas around Prineville Reservoir, in the Steamboat Rock area, and in the Bend-Redmond area. Along with alternative 3 and 6, this alternative would provide a relatively high amount of non-motorized trail emphasis over the planning area. These opportunities would be dispersed throughout the planning area. The Skeleton Fire/Horse Ridge, Mayfield, and Bend-Redmond areas would offer opportunities close to Bend. Portions of Cline Buttes, the Steamboat Rock area and the Bend-Redmond area would provide opportunities close to Redmond. The Chimney Rock area north of Prineville Reservoir would offer these opportunities close to Prineville.

The seasonal closures to motorized use in South Millican (Closed February 15 through July 31), North Millican (Closed January 1 through April 30), and the Badlands WSA (Closed July 15 through December 15) would provide seasonal separation of motorized and non-motorized uses. During these periods, trails in these areas would be exclusively available to non-motorized use (although the Badlands would remain closed to mountain bike use year-round).

In comparison to Alternatives 3 and 7, Alternative 5 would offer fewer opportunities for non-motorized trail use in areas managed exclusively for this use. Longer trail systems for non-motorized use would be created in the Bend-Redmond block – this direction is unique among all the alternatives. The management of the Bend-Redmond area could allow for development of interpretive trails along the roads in the Wagon Roads ACEC that connect to other non-motorized trails in the area. The actual management of the Bend-Redmond area would be fairly intensive, since BLM would be charged with separating different trail users (i.e., motorized and non-motorized) on separate trail systems.

Rock Climbing

Rock climbing opportunities would be managed similarly to most of the other action alternatives. The Sisters Climbing area would be managed for climbing opportunities specifically. Sport route climbing opportunities in Pictograph (Stout) Cave would be eliminated (see Caving and Cave Dependent Recreation section and Cumulative Impacts section)

Special Recreation Permits/Group Uses

The provision of both motorized and non-motorized designated trails throughout the planning area would allow for greater ease in issuing special recreation permits for trail dependent uses, including commercial, competitive and group use. While the Bend-Redmond and Mayfield areas would be available for this use, the fragmented nature of the area and reasonably foreseeable development might limit the area's usefulness

for motorized commercial, competitive, or organized group events. Non-motorized SRP use would be accommodated year-round in the Skeleton Fire/Horse Ridge, Smith Rock and portions of Cline Buttes areas, where trails would be provided exclusively for non-motorized use and where demand currently is relatively high. To some extent, development of trails in these areas could take some use pressure off the Deschutes National Forest, which currently provides many more recreation permit and event permit opportunities. Alternative 5 would create additional opportunities for non-motorized SRP use, including use of areas such as the Bend-Redmond block and the area along the Chimney Rock segment of the Lower Crooked Wild and Scenic River. Although these areas are not currently in high demand for SRP authorizations, the development of trails in these areas would likely increase applications for outfitter/guide use.

Interpretive Use

This alternative would provide similar opportunities for interpretive services as Alternative 3 and 7. As with the other action alternatives, several additional areas would be designated for interpretive use, including an enlarged Wagon Roads ACEC, and a Tumalo Canal ACEC. These areas would be managed specifically for interpretive use, and would be identifiable areas that could conceivably get a large amount of hiking, sightseeing and interpretive use. Like Alternative 6, Alternative 5 would provide fewer areas than Alternatives 3 and 7 for non-motorized use that also are designated ACECs and could conceivably be oriented toward natural resource interpretation, particularly juniper woodlands interpretation. The travel management applied to the Bend-Redmond block would provide conditions most conducive to development of an interpretive trail system using historic roads and the north unit canal, although this use would not be precluded in any other alternative.

Caving/Cave Dependant Recreation

Under this alternative, Pictograph (Stout) Cave would be closed to installation of bolted routes; therefore, the opportunity for sport climbing (bolt protected, technical routes) would essentially be eliminated in the Arnold Lava Tube system both on USFS and BLM managed lands, although bouldering opportunities would remain in some caves. Visitation to Pictograph (Stout) Cave would be closed seasonally (from October 15 to May 1) annually. This would reduce caving opportunities on BLM managed lands somewhat; since Pictograph (Stout) Cave is one of the larger caves located on BLM managed lands. However, there would still be opportunities for caving on BLM managed land and at the lava tubes more prevalent on USFS, Deschutes National Forest lands.

Military Use

The OMD would be authorized to use an area in the Bend-Redmond area and a portion of the Mayfield area. The provision of both motorized and non-motorized trails in the Bend-Redmond area assumes a fairly high level of management intensity, which if implemented, might reduce conflicts between OMD use and recreation.

Alternative 5 would not provide additional training areas (i.e., Steamboat Rock and Millican) for the OMD. While potential conflicts with recreation use in these areas would be avoided, the BLM would lose any partnership opportunities with OMD to improve resource and recreation conditions in these areas. The lack of these partnership opportunities could have a long-term negative effect on recreation, as the management costs of these areas continue to rise with the region's population growth.

Wildlife and Wildlife Habitat Management

Alternative 5 would identify fewer areas as primary wildlife emphasis than Alternatives 3, 4, 6, and 7, but more than Alternatives 1 and 2. Wildlife management goals in

Alternative 5 would provide a moderate level of restrictions for public access and recreation among the action alternatives. The emphasis on current distribution of source habitats and moderate (compared to other action alternatives) acreage with primary wildlife management emphasis would provide some flexibility for a wider range of recreation opportunities.

While Alternative 5 would provide direction for restoration of sage grouse habitat by thinning/cutting juniper to increase sagebrush steppe plant communities, there would be more flexibility to retain juniper to define trails and meet other needs than Alternatives 3 and 6.

Effects of Alternative 6

Special Recreation Area Designations

Same as Common to Alternatives 2-7.

Travel Management/Recreation Emphasis Designations

Like Alternative 5, this alternative would provide a relatively high mixture of different recreation opportunities and varying management strategies/intensities. As compared to Alternative 5, a slightly smaller portion (40 percent) of the planning area would still be managed for multiple use primarily on shared roads and trails (Millican Valley and Bend-Redmond areas). A slightly smaller portion (17 percent) of the planning area would be managed for motorized use on roads only, while providing non-motorized trail opportunities. These areas would include the Northwest (Squaw Creek), Steamboat Rock parcel, and Skeleton Fire areas; and the area south of Prineville Reservoir. Alternative 6 would close the highest percentage of the area to motorized use year-round (19.5 percent), and most of these areas would be managed for non-motorized trail use. Unlike all other alternatives, one large block of land including the Badlands WSA, a portion of the North Millican OHV area, and Horse Ridge would be closed to motorized use year-round. This alternative also proposes the most intensive and high cost management strategy for Cline Buttes, essentially limiting motorized travel to designated roads while providing designated trails for non-motorized users. The North Millican area would be closed during the winter and early spring, resulting in increased use of Millican Plateau, Bend-Redmond, and Mayfield areas for OHV use.

Alternative 6 represents the largest shift in management emphasis for the La Pine area. Like Alternative 3, the entire area surrounding La Pine would be closed to motorized trail use. Further, in this alternative, the southern half of the area would be closed to all motorized use (roads and trails) seasonally. The corridor connecting the Rosland OHV play area to the Deschutes National Forest would be retained for year-round OHV use. Areas that receive the most intensive, high-cost management resources (areas with motorized and non-motorized uses separated on different road or trail systems) would comprise about 22 percent of the planning area. These include the entire Cline Buttes block, the Steamboat Rock parcel, and the Skeleton Fire area. All these areas currently receive relatively high levels of use that would be expected to increase.

Twenty eight percent of the planning area would be seasonally closed to motorized use, while close to 20 percent would be closed year-round to motorized use.

Specific effects to recreational activities are described below.

Motorized Use

Alternative 6 would provide the least amount of acreage for motorized trail recreation of all alternatives, particularly during the winter, when approximately 43 percent of the

planning area would be closed to motorized use. The use of the existing Millican Valley OHV area would be compromised somewhat by the designation of 5,000 acres in North Millican as Closed year-round to motor vehicles. In addition, the seasonal closure applied to the remainder of the North Millican area would increase the closed period by 2 months over the current (Alternative 1) condition. Under this alternative, North Millican would only provide 3 months of good riding conditions. While South Millican would be open during a 7 month period of good riding conditions, the benefit of this area would be very low, since it would not be open at the same time as North Millican. As a stand alone area, South Millican is too small to offer high quality riding opportunities. The effect of these travel management decisions on motorized recreation would be to move more use into a smaller area of trails in Millican Plateau or to the Bend-Redmond or Cline Buttes areas, or further east on BLM managed lands outside the planning area. To some extent, use would be displaced to the East Fort Rock trail system on the DNF during mild winters. This alternative would likely have the greatest effect on user conflicts and management intensity at Cline Buttes, which under this alternative would have motorized use restricted to a fairly limited travel network that emphasizes roads over trails. BLM would be charged with maintaining motorized use on a relatively small system and keeping the designated non-motorized trail system in the same area reserved for this use.

The Bend-Redmond area would remain available for motorized trail development; however, the fragmentation of this area by canals, ACEC roads, paved public roads, and likelihood of adjacent development would affect the ability for BLM to create a motorized trail system that offered high quality recreation experiences and enough trails for an entire day of riding.

For general, motorized access that supports a variety of recreation uses (i.e., sightseeing, rockhounding, target shooting, etc.), Alternative 6 would provide a lower degree of access and user choice than all action alternatives except Alternative 7, since more of the planning area would either be Closed to motorized use or Closed seasonally to motorized use. In addition, the direction to provide both motorized and non-motorized trails in Cline Buttes would likely result in fewer roads available for general public use. Motorized access in the Badlands WSA and a portion of the North Millican area would not be available at any time.

Non-Motorized Use

Alternative 6 would create a large block of land for exclusive motorized use comprised of the Badlands WSA, Horse Ridge, and a 5,000 acre area including Smith Canyon and Dry River Canyon. The combination of Badlands and the Smith Canyon/Dry Canyon area would provide opportunities for all day or weekend hike trips using inventoried routes in the Badlands and roads or future designated trails in the Smith Canyon/Dry River Canyon area and the Horse Ridge/Skeleton Fire area. The use of this entire area for non-motorized trails would be somewhat limited by State Highway 20, which bisects these areas; however, some hikers and mountain bicyclists currently cross the highway to complete loops using Horse Ridge and Dry River Canyon. During the winter, exclusive non-motorized opportunities would increase greatly. The addition of North Millican during the seasonally closed period, when combined with Horse Ridge, Badlands, and other closures, would create the largest single block of non-motorized winter trail use of all alternatives.

While the Badlands/Smith Canyon and Horse Ridge areas would be highly visible and heavily used non-motorized recreation areas, the opportunities for non-motorized use in areas of solitude and natural quiet would be somewhat limited elsewhere in the planning area. Most of the more urban areas of land would be managed for motorized use on roads or on roads and trails. While Cline Buttes is managed for non-motorized trail use, the use of roads in this area by motorized vehicles would tend to create a very intensive management scenario. Under the seasonal and year-round motorized closures

elsewhere in this alternative, the likelihood of separating users in Cline Buttes by limiting motorized use to roads would be low.

Alternative 6 would be the only alternative to close the 32,221-acre Badlands WSA to mechanized use. This would close a fairly large area (8 percent of the planning area) to mountain bike use and use of horse-drawn carts. Both these activities take place in the Badlands, although the layout of the inventoried routes in the Badlands do not offer much variety in terms of route loops or challenging mountain bike opportunities. The combined closure of the Badlands to motorized vehicles and mechanized use (including game carts) would make it more difficult and strenuous to hunt. Some hunting use may be displaced.

Special Recreation Permits/Group Uses

The provision of both motorized and non-motorized designated trails throughout the planning area would allow greater ease in issuing special recreation permits for trail dependent uses, including commercial, competitive and group use. While the Bend-Redmond and Mayfield areas would be available for this use, the fragmented nature of the area and reasonably foreseeable development could limit the area's usefulness for motorized commercial, competitive, or organized group events. Non-motorized SRP use would be accommodated year-round in the Skeleton Fire/Horse Ridge, Smith Rock, Cline Buttes, Tumalo, and Crooked River/Chimney Rock areas, where trails would be provided exclusively for non-motorized use. To some extent, development of trails in these areas might take some use pressure off the Deschutes National Forest, which currently provides many more recreation permit and event permit opportunities.

Alternative 6 would create additional opportunities for non-motorized SRP use, including use of areas such as the area along the Chimney Rock segment of the Lower Crooked Wild and Scenic River and the Smith Canyon/Dry River Canyon areas. Although these areas are not currently in high demand for SRP authorizations, the development of trails in these areas would likely increase applications for outfitter/guide use. The issuance of SRPs for trail use that includes both the Smith Canyon/Dry River Canyon and the Badlands WSA would require an EA (based on IMP requirements). This could preclude full use of the potential trail opportunities in this area by outfitter/guides or organized groups.

Rock Climbing

The effects on rock climbing would be the same as Alternative 5.

Interpretive Use

As with the other action alternatives, several additional areas would be designated for interpretive use, including an enlarged Wagon Roads ACEC, and a Tumalo Canal ACEC. These areas would be managed specifically for interpretive use, and would be identifiable areas that could conceivably get a large amount of hiking, sightseeing and interpretive use. Like Alternative 5, Alternative 6 provides fewer areas than Alternatives 3 and 7 for non-motorized use that also are designated ACECs and may conceivably be oriented toward natural resource interpretation, particularly juniper woodlands interpretation.

Caving/Cave Dependant Recreation

The effects on caving/cave dependent recreation would be the same as Alternative 5.

Military Use

Alternative 6 would authorize the OMD to use the largest and greatest range of lands of all the alternatives. These would include the Bend-Redmond block, a portion of the Mayfield area, Steamboat Rock area, and a portion of Millican Plateau. The combination of seasonal or year-round closures in North and South Millican, and the management strategy in Cline Buttes, would put an increased emphasis on motorized trail use in the Bend-Redmond area. This may result in some conflicts with OMD's use of their training area.

Alternative 6 would provide additional training areas (i.e., Steamboat Rock and Millican) for the OMD. While potential conflicts with recreation use in these areas could occur in these areas, given the infrequent, rotational schedule of use for these areas, most conflicts could be avoided. The opportunity for the BLM to partner with the OMD in these areas might have long-term benefits to recreational use of these areas that outweigh any short-term effects of specific OMD training exercises.

Wildlife and Wildlife Habitat Management

Wildlife management goals in Alternative 6 would provide slightly less restrictions for public access and recreation than Alternatives 3 and 7, but more than all other alternatives. The emphasis on historic distribution of source habitats and relatively high (compared to all other alternatives) acreage with primary wildlife management emphasis would result in greater acreages closed to motorized recreation during the winter or year-round. While all action alternatives would call for restoration of sage grouse habitat by thinning/cutting juniper to increase sagebrush steppe plant communities, there would be less flexibility to retain juniper to define trails and meet other needs than in Alternatives 1, 2, 4, 5, and 7.

A major component of the existing Millican Valley OHV trail system would be closed during the winter (along with a portion closed year-round). Although this might provide benefits to wildlife, the result could be increased crowding on trails in Millican Plateau or other areas. Restrictions on motorized use to achieve wildlife management objectives would provide an opportunity to provide non-motorized trails in some areas. However, as noted previously in the Common to Alternatives 2-7 section, the design and implementation of non-motorized trails (done in subsequent area or project specific planning) in these areas could be limited by the primary wildlife management emphasis designation made in the FEIS/PRMP.

Effects of Alternative 7

Special Recreation Area Designations

Same as Common to Alternatives 2-7

Travel Management/Recreation Emphasis Designations

Alternative 7 differs from Alternative 6 in that it would provide winter OHV trail riding opportunities in the North Millican area, albeit on a greatly reduced trail system. Like Alternatives 5 and 6, this alternative would provide a relatively high mixture of different recreation opportunities and varying management strategies/intensities. As compared to Alternative 6, a slightly smaller portion (37 percent) of the planning area would still be managed for multiple use primarily on shared roads and trails (Millican Valley and Bend-Redmond areas). The reduction would be a result of the Mayfield block's management changing to a non-motorized recreation emphasis. Alternatives 6 and 7 provide about the same amount of lands managed for motorized use on roads only, while providing non-motorized trail opportunities. These areas would include the Northwest (Squaw

Creek), and Skeleton Fire areas; and the area south of Prineville Reservoir. Alternative 6 closes the highest percentage of the area to motorized use year-round (19.5 percent) of any alternative. While most of these areas would be managed for non-motorized trail use, with the exception of the Badlands, these areas are relatively small and would not allow very lengthy trail systems for mountain bikes or horses. This alternative proposes one of the most intensive and high cost management strategy for Cline Buttes, providing separate trails and/or separate areas for motorized and non-motorized trail users. Motorized use is concentrated in the middle and north portion of the Cline Buttes block, and will likely result in increased conflicts between recreational visitors and private landowners. Like many other alternatives, the Steamboat Rock management strategy is also extremely management intensive. No opportunities for motorized use exist surrounding a broad area around Prineville Reservoir.

Alternative 7 represents a large shift in management emphasis for the La Pine area. Like Alternative 3, the entire area surrounding La Pine would be closed to motorized trail use. The corridor connecting the Rosland OHV play area to the Deschutes National Forest would be retained for year-round OHV use.

Alternative 7 has slightly less land closed seasonally than Alternative 6, due to North Millican being open year-round due to a greatly reduced year-round and seasonally restricted trail density. However, approximately 10.5 percent of the planning area is closed seasonally during the winter, and 23 percent is closed year-round. This results in approximately 34 percent of the planning area being closed to motorized use during the winter. To a large degree, these closures are in outlying areas where BLM management is limited or non-existent.

Areas that receive the most intensive, high-cost management resources (areas with motorized and non-motorized uses separated on different road or trail systems) comprise about 30 percent of the planning area, one of the highest of all alternatives. These include most of the entire Cline Buttes block, the Steamboat Rock parcel, the Mayfield block, the area surrounding Prineville Reservoir, and the Skeleton Fire area. All these areas currently receive relatively high levels of use that are expected to increase.

Specific effects to recreational activities are described below:

Motorized Use (Roads and Trails)

Alternative 7 would provide more opportunities for motorized trail use than Alternatives 6, 3, and 5, but less than Alternative 1, 2, and 4. While this alternative would keep the North Millican area open year-round for motorized recreation, it calls for a reduction in trail density and the number of trail loops – to achieve large unfragmented blocks and reduce conflicts with wildlife. Dispersal of users to minimize these effects would be dependent on trail connections to South Millican and Millican Plateau. Since only 2 months of quality riding opportunities exist in South Millican under this alternative, it is likely to result in increased crowding in Millican Plateau. The final trail system in North Millican could contain seasonally closed portions or areas that result in a concentration of users, increased user conflicts and safety issues. The overall use of the area would thus be dependent on workable links to the Millican Plateau and South Millican areas, since the trail system would have fewer miles and disperse users less than the present system. Since a portion of North Millican would be open year-round, this alternative allows for a large area to support OHV opportunities relatively close to Bend, Redmond, and Prineville when conditions at East Fort Rock or other USFS managed systems are poor. The importance of this use is greatest during the winter - from November through February.

Given the need to redesign the trail system to achieve unfragmented blocks and create a system that can be reduced in scale seasonally, there is an opportunity to provide better

designed trails that offer more technical riding, than the more straight, higher speed trails than currently exist. However, the limitation of the trail system to a select portion of North Millican during the winter may reduce the quality of the recreation opportunity, particularly if the winter trails are concentrated in flatter portions of North Millican.

Like all action alternatives, the Dry River Canyon would remain as a non-motorized trail. While this alternative would reduce the quality of riding opportunities by decreasing trail miles and eliminating many options for riders to choose different loops and thus disperse use and reduce conflicts, the use of this area during the winter and early spring would provide OHV opportunities when there is a highest demand. As with Alternatives 2, 4, and to a lesser extent, 5 (which allows use in December), the ability for riders to use the North Millican area may reduce the demand for other BLM managed lands in the planning area or to the east.

Two other areas would be managed for motorized trail use in this alternative, the Bend-Redmond area, and a portion of Cline Buttes. For Cline Buttes, there would be reduction in trail miles over the current, unmanaged situation. OHV trails would be provided in the area between Barr Road and Fryrear Road and the area north of State Highway 126. However, the dry canyon complex in the western portion of the area would be closed to motorized trails, as would the area between Cline Falls Highway and the Deschutes River (the area east of Barr Road would generally not have many motorized trails, although the area is not explicitly closed to this use). Additionally, the creation of a designated trail system would be done to emphasize conflicts with private property. All these measures would contribute to a reduction in trail miles available and likely result in a highly intensive management scenario. The provision of motorized trails in the central portion of Cline Buttes may also increase conflicts, as the available miles of trail system would be reduced and more encounters between recreationists would occur. If use levels increase over time, it is possible that the motorized trail system would become crowded enough where visitors begin to select other areas to ride that offer better opportunities. In addition, the concentration of trails in the center portion of the area may increase conflicts with residents, although routing of trails to minimize conflicts with private landowners would be done.

Similar constraints would occur in the Bend-Redmond area, although this area is less affected by private land development. As with all action alternatives, both the Bend-Redmond and Cline Falls areas would generally only provide shorter riding opportunities close to the urban area when compared to the larger Millican Valley area. Dispersal of users to minimize these effects would be dependent on trail connections to South Millican and Millican Plateau. Since only two months of quality riding opportunities exist in South Millican under this alternative, it is likely to result in increased crowding in Millican Plateau.

The Steamboat Rock area would provide for shorter motorized trail opportunities. This area may provide riding opportunities close to Redmond, but may not draw a larger, regional visitation.

Under this alternative, there would be some limited motorized trail opportunities on BLM managed lands between Prineville and Prineville Reservoir. These opportunities would help serve local needs, but not provide for dispersal of riders region-wide or serve an out-of-are user base.

For general, motorized access that supports a variety of recreation uses (i.e., sightseeing, rockhounding, target shooting, etc.), Alternative 7 provides a relatively low degree of access and user choice, since more of the planning area is either closed to motorized use or closed seasonally to motorized use. In addition, the direction to provide both

motorized and non-motorized trails in Cline Buttes would likely result in fewer roads available for general public use. Motorized access in the Badlands WSA would not be available at any time (See Table 4-54).

Unlike any of the other action alternatives, Alternative 7 would decrease the number of roads in the North Millican area drastically in favor of designated trails. The reduction in roads in this area would affect general motorized access for a variety of recreationists, including sightseers, hunters, rockhounds, etc.

Alternative 7 provides a low level of motorized trail riding opportunities compared to Alternatives 1, 2, and 4. Alternative 7 does provide slightly more acreage for motorized trail use than Alternative 6.

Non-Motorized Use (Roads and Trails)

Alternative 7 would provide an increase in non-motorized trail opportunities, with about the same level of opportunities as Alternatives 6 and 3. Mechanized use would be allowed in the Badlands WSA, in contrast to Alternative 6, which does not allow these uses. However, the usefulness of the trail system in North Millican for non-motorized uses would be more limited in Alternative 7 than any other alternative, since these trails would be designed for very large loops that would not provide as high a quality mountain biking, hiking or equestrian conditions (see also SRP section). In addition, alternative 7 calls for the OHV trail system in North Millican to be closed to mountain bikes during the same period and area that any seasonal restrictions are made to OHVs. These trails or areas would be available for hiking and equestrian uses, and would represent some non-motorized recreation opportunities. Management of the Tumalo block, Skeleton Fire/Horse Ridge area, Mayfield area, areas surrounding La Pine State Park, and areas surrounding Prineville Reservoir would all offer non-motorized trail opportunities. Certain portions of Cline Buttes would emphasize non-motorized trails, such as the Dry Canyon complex in the western portion of Cline Buttes, and the area east of Barr Road. Alternative 7 specifically retains BLM administered lands in the north and east portions of the buttes (between Barr Road and Cline Falls Highway). The retention of these lands (Z-1) land tenure maintains an opportunity for trail routes around the Buttes and connection of the existing mountain bike use area with other areas of BLM-administered land in Cline Buttes. As with other alternatives or areas that separate different types of trail users on different trails or areas within a geographic area, this alternative presents very high management challenges for the BLM. Opportunities to manage non-motorized trail use on separate systems would be explored in subsequent area management plans.

Similar to alternatives 3, 5, and 6, this alternative would apply a non-motorized emphasis for recreation on all lands surrounding Prineville Reservoir. Like alternatives 3, 5, and 6, this would increase consistency with the recreation management goals of Prineville Reservoir State Park and the overall management goals of the Bureau of Reclamation.

The seasonal closure of a portion of the OHV trail system in North Millican to mountain bikes may concentrate mountain bike use to other areas such as Horse Ridge, West Butte and Cline Buttes. While some OHV trails would be open in North Millican during the winter, the extent of this trail system may not be enough to disperse users and reduce conflicts between OHV's and mountain bicyclists.

Special Recreation Permits/Group Uses

As with all other action alternatives, the provision of designated trail systems throughout the planning area (as opposed to undesignated casual use networks) would increase the ability of the BLM to authorize commercial, competitive and group use. In contrast to most other alternatives, Alternative 7 does place some restrictions on special recreation

events in specific areas, either by limiting the types of events, their frequency, or the time of year permits would be granted. While these restrictions do limit the amount of special recreation permit use (mainly trail use events), they also may serve to speed up the processing of permits for events done within the confines of the RMP. Key effects of Special Recreation Event management in Alternative 7 would include:

1. Opportunities for road and trail dependent events in South Millican would not be available at any time, except for the minimum road/trail use necessary to accomplish loops using designated road and trails in the Horse Ridge area. This would eliminate use of the South Millican area for OHV events.

2. Opportunities for road and trail dependent events on the multi-use trail system in North Millican would not be available from December 1 to April 30th. While site-specific events (e.g., events at ODOT Pit or Cinder Pit play areas) could occur during this period, this restriction would place more pressure on other areas such as Millican Plateau, Bend-Redmond, Cline Buttes, or USFS managed lands for special event use. During the remainder of the year, restrictions on the number of events, and their frequency would again put demands on other areas as the BLM tries to balance the demand for trail use events with available miles of trail system. If the trail designation measures in Alternative 7 are fully implemented (provision of designated trails in Cline Buttes and the Bend/Redmond area), the effect of special event restrictions in North Millican would be minimized. However, over the short-term, Alternative 7 would significantly decrease the opportunities for motorized events. Additionally, the trail system goals (long loops and un-fragmented blocks) in North Millican would generally make this area less suitable for many (especially non-motorized) trail events, which require shorter loops.

3. The Skeleton Fire/Horse Ridge area would have a year-round limitation on the number and frequency of all road and trail dependent events. Given the emerging trend of this area receiving high levels of non-motorized trail use and the current frequency of requests for events, this alternative would require that BLM deny many requests or find other suitable locations, such as Cline Buttes or Mayfield for these activities. This limitation may also increase the requests for trail events in the Badlands WSA.

Rock Climbing

The effects on rock climbing would be the same as Alternative 5.

Interpretive Use

As with the other action alternatives, several additional areas would be designated for interpretive use, including an enlarged Wagon Roads ACEC, and a Tumalo Canal ACEC. These areas would be managed specifically for interpretive use, and would be identifiable areas that could conceivably get a large amount of hiking, sightseeing and interpretive use. Like Alternative 3, Alternative 7 provides the greatest amount of area that could conceivably be oriented toward natural resource interpretation, particularly juniper woodlands interpretation. These areas include the area south of Alfalfa Market Road and the Cline Buttes area between Cline Falls Highway and the Deschutes River, which would be managed exclusively for non-motorized recreation.

Caving/Cave Dependant Recreation Use

The effects on caving/cave dependent recreation would be the same as Alternative 5.

Military Use

Alternative 7 authorizes the OMD to use the second largest and greatest range of lands of all the alternatives. These would include the Bend-Redmond block, a portion of the Mayfield area, and a portion of Millican Plateau. Unlike Alternative 6, the greater accommodation for motorized use in North Millican and Cline Buttes may tend to place a decreased emphasis on motorized use in the Bend-Redmond block. This may result in fewer conflicts with OMD training, although as noted previously, the level of active training done throughout this area is relatively low.

Alternative 7 provides additional training areas (i.e., Millican) for the OMD. While potential conflicts with recreation use in these areas may occur in these areas, given the infrequent, rotational schedule of use for these areas, most conflicts could be avoided. The opportunity for the BLM to partner with the OMD in these areas may have long-term benefits to recreational use of these areas that outweigh any short-term effects of specific OMD training exercises.

Wildlife and Wildlife Habitat Management

The effects of wildlife management strategies for Alternative 7 are similar to Alternative 6. However, Alternative 7 does provide a slightly greater degree of flexibility by relying on low trail density and creation of unfragmented blocks to meet wildlife goals in the North Millican area instead of seasonally closing the entire area. A seasonal reduction in trail miles in North Millican may decrease the quality of recreation opportunities for motorized use, particularly if winter trail use is relegated to the flatter, less scenic and less challenging areas alongside West Butte Road and the existing powerline corridors. Alternative 7 emphasizes historic distribution of wildlife habitat and restoration of habitat, but does place more emphasis on consideration of multiple resource goals (including recreation needs) in planning and implementing habitat restoration. In the case of North Millican, Alternative 7 calls for trail design and vegetation management to be done concurrently, which would provide an opportunity to lessen impacts to trail use.

Cumulative Effects

Alternative 1

For Alternative 1, the lack of management direction for non-motorized trails, coupled with the region's population growth and increase in development adjacent to BLM-administered lands, would likely lead to an increase in user created non-motorized trails. The existing use of trails on the Deschutes National Forest for mountain biking will increase the demand for trail use on BLM-administered lands that offer fall, winter, and early spring riding opportunities. The lack of management direction for providing designated trails may lead to an increase in user created routes, particularly at locations close to Bend (Cline Buttes, Horse Ridge, and Tumalo blocks).

The demand cited above, coupled with the paving of Millican/West Butte Road that leads to easier public land access, may result in increased use of existing trails, and improvement or development of additional trails for non-motorized use in Millican Valley, particularly in challenging terrain such as at West Butte.

The current lack of management direction for developed and managed access points, coupled with the same growth factors, would likely lead to an increase in user created roads and a deterioration of existing road conditions as more people use roads that receive little or no maintenance and chose to create new routes that offer better driving conditions.

Potential increased development at Prineville Reservoir State Park may increase use levels on BLM-administered lands adjacent to State Park and BOR managed lands. Lack of recreation management goals in Alternative 1 for these lands may result in poor quality recreation opportunities, confusing trail and road access conditions, and lack of coordination between the agencies.

The regulations on rockclimbing, establishment of bolt protected (sport climbing) routes, and bouldering adopted by the USFS in the Road 18 Caves Project EA would, when combined with the closure to all use at Pictograph Cave in Alternative 1, eliminate most opportunities for sport route climbing in caves close to Bend. Some opportunities for bouldering in USFS administered caves would remain. The cumulative effect of USFS and BLM policy would reduce the diversity of climbing opportunities somewhat in Central Oregon.

Alternatives 2-7

The combination of motorized trail use and OMD use in the Bend-Redmond block may result in conflicts between these two uses, although OMD's use of this area is infrequent at most (about 14 days per year). These uses together may conflict with adjacent residential uses, both for inholdings and private lands adjacent to BLM. Future transportation projects associated with State Highway 97 and a permanent secondary access to Pronghorn Resort may result in greater fragmentation of the Bend-Redmond block and may make creation of full day motorized trail riding opportunities difficult, if not impossible.

The presence of designated trails in the North Millican/Millican Plateau areas, coupled with the paving of the Millican/West Butte Road would likely result in increased visitation to this area, and an increase in the diversity of recreation uses of this area due to the easier access for all types of vehicles. The increase in users may result in increased user conflicts as more recreationists of all types try to use the same designated trail system.

The increased population growth and cost of living in Central Oregon, the existing 14-day camping stay limit throughout the planning area, and the common travel management regulations (roads open year-round) for many areas (Cline Buttes, Bend-Redmond, Mayfield, Horse Ridge) would likely result in increasing numbers of people residing on BLM-administered lands. Although Alternatives 2-7 close some areas to overnight use, and some areas to motorized vehicle use, in general, most of the area immediately adjacent to Redmond remains open to motorized vehicles and overnight use in all alternatives. Under this condition, it is likely that there will be an increase in the current level of illegal occupancy and resulting conflicts, particularly for permittees, recreationists, and adjacent residents.

Alternative 2

The combination of year-round use in South Millican, North Millican and Millican Plateau may decrease the amount of use pressure for motorized trail activities on other BLM-administered lands in the planning area and on BLM managed lands to the east of the planning area. Although trails are specifically not designated to connect South Millican to the East Fort Rock OHV system, the use of South Millican year-round may increase the likelihood that the use of both South Millican and East Fort Rock trail systems would increase, particularly in March, April and May when riding conditions are good in both areas.

The emphasis on shared use roads and trails for this alternative, the increasing amounts of new development on inholdings or adjacent to BLM-administered lands, may increase

user conflicts among recreational visitors and between public land visitors and adjacent landowners.

Alternative 3

The regulations on rockclimbing, establishment of bolt protected routes, and bouldering adopted by the USFS in the Road 18 Caves Project EA would, when combined with the closure at Pictograph Cave, eliminate most opportunities for sport route climbing in caves close to Bend. Some bouldering opportunities would remain. This would reduce the diversity of climbing opportunities somewhat in Central Oregon.

The seasonal closures in North Millican, South Millican, and possible snow closures in Millican Plateau, combined with the management strategies in Cline Buttes, may tend to increase motorized trail use in the Bend-Redmond block or in areas not managed for this use. This alternative has the potential to increase motorized use levels on BLM administered lands to the east of the planning area.

Alternative 3 does not identify many motorized trail opportunities surrounding Prineville Reservoir. The potential for increased recreational development at Prineville Reservoir and increased residential development at Prineville Reservoir State Park (including south of the reservoir) may result in motorized trail use in areas not identified or managed for such use. Much of the area surrounding Prineville Reservoir is managed for motorized use on roads only. Considering the increased development of the area, user conflicts may occur between recreationists and others sharing a limited road system.

The paving/upgrading of Millican/West Butte Road may result in greater numbers and diversity of recreation use, particularly during the winter closure period.

Alternative 4

Alternative 4 closes the Badlands WSA and western half of North Millican to motorized use during the winter. This alternative also closes all motorized trail use in South Millican. These travel management policies and the paving of Millican/West Butte Road, would tend to increase the amount of use in the eastern half of North Millican and Millican Plateau, both for OHV use and general public access. This may increase crowding and user conflicts, particularly in the months of November through January when demand is high and other USFS managed areas may not be available or in good condition for riding.

Alternative 5

The regulations on rockclimbing, establishment of bolt protected routes, and bouldering adopted by the USFS in the Road 18 Caves Project EA would, when combined with the closure at Pictograph Cave, eliminate most opportunities for sport route climbing in caves close to Bend. Some bouldering opportunities would remain. This would reduce the diversity of climbing opportunities somewhat in Central Oregon.

The seasonal closures in North Millican and South Millican, combined with the management strategy in Mayfield and Bend-Redmond blocks, may tend to increase motorized trail use in the Cline Buttes area. This alternative has the potential to increase motorized use levels on BLM-administered lands to the east of the planning area.

Alternative 5 does not provide motorized trail opportunities surrounding Prineville Reservoir. The potential for increased recreational development at Prineville Reservoir and increased residential development at Prineville Reservoir State Park (including south of the reservoir) may result in motorized trail use in areas not identified or managed for such use. Much of the area surrounding Prineville Reservoir is managed for motorized

use on roads only. Considering the increased development of the area, user conflicts may occur between recreationists and others sharing a limited road system.

The paving/upgrading of Millican/West Butte Road may result in greater numbers and diversity of recreation use, particularly during the winter closure period. This may result in an increase in non-motorized trail use during the winter, particularly in areas with challenging terrain such as West Buttes. The use of West Butte for mountain biking, hiking, or equestrian use would provide some ability to disperse users and reduce conflicts at other popular trail use areas like Horse Ridge.

Alternative 6

The combination of travel management regulations for motorized use in the North Millican and Cline Buttes areas would likely increase the demands for motorized trail use in the Millican Plateau area, the Bend-Redmond area, USFS managed lands, and BLM-administered lands to the east of the planning area. The use pressure in the Bend-Redmond block may create some conflicts between OMD use and recreational use; however, these conflicts would likely be less than Alternative 3, because Alternative 6 provides a greater range of use areas for OMD. There would likely be greater conflicts between OMD use and recreational use in Millican Plateau for this alternative than most other action alternatives.

Alternative 7

The combination of a drastic reduction in roads open to the public (in favor of motorized trails) in North Millican, the decrease in trail density, likely seasonal closure of a portion of the motorized trail system, and the paving of West Butte/Millican Road would likely result in increased conflicts between motorized trail use and other public land visitors. The increase in access provided by a paved surface road and the lack of roads providing full-size vehicle access into the area may result in full size vehicles using the trail system or the development of user created roads in the area.

Land Ownership

Summary

Under all alternatives a core of about 191,000 acres would be zoned Z-1 (Retention) to meet BLM multiple use objectives. Land tenure under this designation could not be changed without a Resource Management Plan Amendment except under the Recreation and Public Purposes Act and similar acts. The classification Z-1 almost ensures that lands so classified will remain under BLM administration. However, this designation does not allow for use of such lands to be exchanged for private lands that would be even more highly valued. As a consequence, this classification reduces the flexibility of the BLM in meeting its management objectives. There are so few lands zoned Z-2, Z-3, and for Community Expansion Common (CE) to All alternatives that analysis of those lands is not meaningful.

Land Acquisition and Exchange

There is a significant shift of land classification away from Z-2 and Z-3 and toward Z-1 in Alternatives 2-7. Lands that are desirable for acquisition are targeted to facilitate future opportunities for funding and partnerships. Although the purposes and priorities for land acquisition vary by alternative, the same base would provide for a future land acquisition program that could be used by numerous entities. Alternatives 2-7 all would have significantly reduced flexibility for acquiring lands through exchange when compared with Alternative 1, because of the shift away from Z-2 classifications.

Alternative 7 provides Z-2 lands, but at less than half the acreage of lands desirable for acquisition. Lands identified for acquisition (see Appendix D: Withdrawal, Disposal, and Acquisition Lands) are common to Alternatives 2-7. However, acquisition of many of these parcels is limited by the pool of BLM-administered lands available for sale or exchange making acquisition of many of these parcels unlikely.

Community Expansion

Alternatives 2-7 all classify some portion of public lands as available for community expansion. Each alternative includes different configurations and stipulations associated with the designation. Alternative 4 has the greatest amount of land classified for Community Expansion, while Alternative 3 has the least. None of the alternatives classify more than 2 percent of the planning area for Community Expansion. Each alternative meets community and public land management objectives at different levels, depending upon whether stipulations on the lands include requirements for maintaining green space, as in Alternative 3, or interconnected open spaces, as in Alternative 5. Alternative 7, while it does not have the greatest amount, has few stipulations and will meet expected community needs for the next 10 – 20 years. For additional detail on community needs, see also Chapter 4 – Social and Economic Consequences.

General Relationships

BLM policy generally directs that public lands be retained in federal ownership unless disposal or acquisition of a particular parcel would better serve the national interest and the needs of state and local people, including needs for lands for the economy, community expansion, recreation areas, food, fiber, minerals, and fish and wildlife. Changes in public land ownership would be considered where consistent with public land management policy and where improved management efficiency would result.

The Taylor Grazing Act provides the framework for categorizing public lands for retention, retention with an option to exchange for lands of equal or greater value, disposal, or acquisition based on resource values, administrative considerations, and social or economic community values.

Land classifications have the potential to affect future conditions. A Z-1 designation prevents transfer of public lands through sale or exchange except in rare incidences including a future land use plan amendment or congressional action. This designation is the highest assurance that these lands would remain in public ownership. A Z-1 designation does not preclude use, lease, or transfer of public lands under the Recreation and Public Purposes Act (R&PP) and similar acts; however, often uses proposed under R&PP coincide with the values for the Z-1 designation. This designation also often limits transfer of lands to other public agencies better suited to manage specific parcels.

A Z-2 classification would only allow for exchange of public lands for private lands of equal or greater resource values. Managers often have the greatest flexibility to reconfigure undesirable ownership patterns (e.g. intermixed private and public lands) by exchanging to acquire desirable parcels. In so doing, specific funding for acquisition is not required, rather desirable private parcels are obtained through an exchange of public parcels of roughly equal value. Attaching a “local area” restriction to the Z-2 designation assures that specific geographic areas retain a net balance of public land, but reduces both the land base from which to pull together an exchange package and the likelihood that an exchange will be successful. Z-2 lands with special status species would not eligible for exchange in any alternative. Exchange or sale of lands with rights-of-way, mineral development or claims, or other encumbrances would be less likely to be exchanged or acquired than other parcels.

A Z-3 classification is applied to lands that are no longer suitable to retain in public ownership. These lands include isolated parcels, fringe parcels, parcels that no longer have resource values to retain, and parcels that no longer serve the purposes for which they were obtained. These lands can be sold directly or exchanged for more desirable private parcels. Often, however, Z-3 lands include encumbrances that preclude sale or exchange; for instance, several parcels identified as Z-3 lands include cinder pits, electrical substations, or transmission lines. It is unlikely that anyone other than the current users would be able to purchase or use these lands, given the legal status of the permits or rights-of-way.

Community Expansion is a designation where BLM recognizes the needs of communities to acquire public lands to meet growth needs. Community Expansion provides assurance to local governments that the land would not be traded to private interests and reduces the potential for communities to lose lands they have identified as critical for future economic growth and development, such as to meet state requirements for urban growth reserves. It may reduce the ability of BLM to maximize the trading value of its land if these lands would have otherwise been designated to the general pool of Z-2 or Z-3 lands because lands destined for community growth are generally in higher demand than lands with limited access or low economic value.

The Z-3 and Community Expansion lands provide a land trade base for targeted acquisition lands such as those along the river corridors, or undeveloped private parcels within larger blocks of public lands such as are in Cline Buttes, the Badlands, or the Mayfield area. Many of these areas are likely to be developed in the course of the next 10-15 years if kept in private ownership. If these private parcels are not acquired and are developed, it is likely that additional rights-of-way will be granted and management costs associated with private use and development will increase.

Analysis of the Alternatives

Effects of Alternative 1

Alternative 1 represents continuation of existing BLM management direction on lands within the planning area. The current classifications are displayed in Table 4-55 and described below. A more detailed discussion of effects of land ownership classifications on amenity values and community needs is included in Chapter 4 – Social and Economic Consequences.

Table 4-55 Public Land Classifications

ALT	Z-1, Retain		Z-2, Retain but may exchange		Total for retention, Z-1 plus Z-2		Z-3, Dispose		Community Expansion		Total for disposal, Z-3 plus Comm. Expansion	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
1	206,201	51	175,523	44	381,724	95	15,422	4	5,617	1	21,039	5
2	359,690	89	23,082	6	382,772	95	12,639	3	7,592	2	20,231	5
3	357,598	89	34,829	8	392,427	97	7,456	2	3,120	1	10,576	3
4	327,335	81	57,488	14	384,823	95	9,669	3	8,512	2	18,181	5
5	322,693	80	66,713	17	384,406	97	7,821	2	5,776	1	13,597	3
6	344,406	86	39,693	10	384,099	96	13,789	3	5,115	1	18,904	4
7	323,931	80	62,753	15	386,684	95	15,186	4	3,612	1	18,798	5

Z-1, Retain

About 51 percent of BLM-administered lands, about 206,200 acres, in the planning area would be retained. These lands would remain under BLM management and managed to meet multiple use objectives. Land tenure changes could occur without a resource management plan amendment only under provisions of the Recreation and Public Purposes Act and similar acts.

Z-2, Retain (With Option to Exchange for Parcels of Equal or Greater Resource Values)

About 175,500 acres or 44 percent, of BLM-administered lands in the planning area, would be retained. This pool of lands would provide opportunities to make exchanges so land tenure adjustments could be made to meet the objectives described in the Brothers/La Pine RMP. Since more lands are available for exchange, it is more likely for exchanges to occur under this alternative than any other. As a result it is more likely that an exchange could occur involving acquisition of lands in the La Pine area to block up BLM-administered lands to provide habitat for deer migration. Similarly exchanges could occur that would acquire lands that would block up and or connect lands in the Northwest, Steamboat Rock, and Cline Buttes areas. Other large blocks within Z-2 could be blocked up with new acquisitions. Many of these Z-2 parcels have encumbrances and other uses. As a result, many parcels would be less desirable and more difficult to exchange than parcels without encumbrances or established uses.

Z-3, Sale

About 15,422 acres or 4 percent of the planning area would be designated for transfer or disposal. All public lands designated Z-3 in this alternative qualifies under the BACA Bill. As a consequence all funds generated from the disposal of Z-3 lands from within the planning area may be returned to the district for the acquisition of lands that would meet BLM objectives.

A few parcels remain west of Highway 97 in La Pine. Various groups and agencies have expressed interest in obtaining them. These parcels are isolated and away from large blocks in public ownership. All of these parcels have the potential to be of some value. Though encumbered, the location of the encumbrances on the parcels should not interfere with the future uses of these parcels. There is a high likelihood these parcels will be offered for Sale or Exchange.

Community Expansion

About 5,617 acres or 1 percent of the BLM-administered land within the planning area would be designated for transfer or disposal to local government to accommodate community expansion and other public purposes. The designation of Community Expansion lands in Alternative 1 coincided with the needs of Redmond, Prineville, and La Pine at the time.

In La Pine the majority of the acres identified as Community Expansion have been conveyed to the community. No additional lands have been selected in this alternative. The community has provided information about future needs in this and other planning processes. This alternative does not have sufficient lands as Community Expansion to remedy the needs expressed by the community.

Opportunities for Prineville to obtain Barnes Butte (the public parcel northeast of the city) have only recently become available. During the term of this plan, it is likely that the community would request Barnes Butte to provide land for a park.

Historically, the lands south of Redmond have been of interest to the community, though not to the extent equal to the area described. Redmond requested only a portion of these public lands for the purpose of moving the golf course from its present location. Redmond is likely to identify more lands for public purposes in connection with updating its Urban Growth Boundary.

Acquisition

No parcels were identified for acquisition in the Brothers/La Pine Resource Management Plan. Identification of acquisition lands would be in response to privately initiated exchanges or as the result of subsequent identification of lands suitable for acquisition.

Cumulative Effects

The combination of Z-1 and Z-2 lands provides a base of BLM-administered land for which the attainment of multiple use objectives is the primary goal. Under Alternative 1, the total acres so identified equals 97 percent of the acres similarly zoned in Alternative 7, the alternative with the most Z-1 and Z-2 lands. This alternative has, by far, the most Z-2 lands, and though this means some land may be exchanged for lands currently possessed by different owners such acquisition parcels must meet BLM objectives and the net change in the amount of land managed by the BLM would likely be very small.

The mix of Z-2 and Z-3 lands makes the acquisition of new lands more likely than under any other alternative because the pool of lands available for sale or exchange is much larger than any other alternative. A significant loss of BLM-administered lands compared to other alternatives as a result of sales or exchanges is unlikely since the differences in the proportion of lands available for sale or for other outright disposal is five percent or less than the total BLM-administered lands under all alternatives. This proportion is further reduced by the fact that some parcels classified Z-3 would not be considered desirable for acquisition by private parties due to poor land, the inaccessibility of the land, and the fact that the logical candidates for acquiring isolated lands, the adjacent landowners, have no need to purchase the land when they control access to the land.

Effects of Alternatives 2-6

Land Acquisition and Exchange

About 260,900 acres or 65 percent of the BLM-administered lands in the planning area are designated Z-1. These lands constitute a core block of lands available to meet BLM objectives. Land tenure under this designation could not be changed without a Resource Management Plan Amendment except under the Recreation and Public Purposes Act and similar acts. The classification Z-1 almost guarantees that lands so classified will remain under BLM management. However, this designation does not allow for use of such lands to exchange for private lands that would be even more highly valued. As a consequence, this classification reduces the flexibility of the BLM in meeting its management objectives. Because this core of lands does not reflect any alternative, there are no consequences to be described.

The ranges of lands classified Z-2 and Z-3 are relatively narrow and provide from 16 to 38 percent of the number of acres of land available for sale or exchange under Alternative 1. Because of the limited pool of lands available and the limitations of some available parcels of lands suitable for exchange, it is likely that the acquisition of private lands to achieve BLM-administered land tenure adjustment objectives, other than for community expansion would occur infrequently during the life of the plan under any of Alternatives 2-6. As a consequence, the objectives described for each of the alternatives concerning land tenure adjustments for other than community expansion are not likely to be met.

Effects of Alternative 2

Community Expansion

About 7,600 acres or 2 percent of the BLM–administered lands would be designated for transfer or disposal to local government to accommodate community expansion and other public purposes.

In La Pine parcels were selected by representatives of the community and by planners from Deschutes County to match projects anticipated within the next few years. It is likely that these parcels will be transferred, though not all would occur within the next 10 to 20 years.

The area set aside for community expansion in the Redmond area is the same as in Alternative 1. This area meets (and probably exceeds) the needs described by the community. As with Alternative 1, it is reasonable to assume some of the parcels will transfer, in support of highway 97, the fairgrounds, and the airport. The outcome will be the same as in Alternative 1.

Barnes Buttes in Prineville is Z-2, but the transfer of this parcel to local government is as likely for Alternative 2 as it is for Alternative 1.

Effects of Alternative 3

Community Expansion

About 3,120 acres or 1 percent of BLM-administered lands within the planning area would be designated for transfer or disposal to local government to accommodate community expansion and other public purposes. Restricting the transfer to providing for parks, greenbelts, and open spaces would make such transfers less desirable for local communities. A similar restriction is in Alternative 6 and only along the Highway 97 corridor south of Redmond in Alternative 7.

This alternative is less likely to meet community needs because they would not provide for expected uses such as industrial land expansion. Other conditions that could affect the willingness or ability of other government agencies to acquire these lands may include:

- Lands identified as Z-3 are not quite where the communities identified;
- These lands are heavily encumbered representing diverse users;
- These lands have overlapping jurisdictional issues
- The communities of Bend and Redmond do not have jurisdiction;
- These lands have considerable non-resource uses associated with developing communities;
- Agencies with the greatest potential interests have reduced budgets; and
- Agencies with the potential interests have greater priorities elsewhere.

Along Highway 97 south of Redmond and in La Pine, these parcels are not likely to be requested by the county or communities. The park restrictions do not meet community needs. These parcels would not be transferred in this alternative.

Barnes Buttes is the same in Alternatives 1, 3, 5, 6, and 7. Future use proposed by the community is consistent with the restriction.

Effects of Alternative 4

Community Expansion

About 8,512 acres or 2 percent of BLM-administered lands in the planning area would be designated for transfer or disposal to local government to accommodate community expansion and other public purposes. Requiring development of transferred parcels to include interconnecting open spaces would reduce the likelihood of implementing such transfers because the stipulations would make some developments difficult or preclude others such as industrial land expansion.

The lands offered in the La Pine area for Community Expansion would be consistent with future needs, as expressed by the community. Because these interests involve larger tracks for open uses, the special restrictions in this alternative may be incorporated into the projects. These parcels would be requested for transfer.

The area south and east of Redmond includes a large area open to community expansion, for the purpose of compatibility with the special restriction. However, the needs of the community may be difficult to blend with the restriction. Results would be the similar to those anticipated in Alternatives 1 and 2 but more complex because of the restriction.

Effects of Alternative 5

Community Expansion

About 5,800 acres or 1 percent of BLM-administered lands within the planning area would be designated for transfer or disposal to local government to accommodate community expansion and other public purposes. As in Alternative 4, development of transferred parcels would include providing interconnecting open spaces. This would reduce the likelihood of implementing such transfers for the same reasons described for Alternative 4. No lands are made available in La Pine, so this alternative is not likely to meet expressed community needs.

Providing less land than Alternative 4 in Redmond, south of the fairgrounds and along Highway 97 would further reduce ability of the community to meet its expansion needs. With additional Z-2 lands in this alternative, the possibility of an exchange could possibly provide needed lands. This proposed land pattern, however, conflicts with the objective of Redmond and Bend to keep the communities separated.

West of Redmond in Cline Buttes community expansion would not be impaired because the emphasis for transfer would be for park or open space purposes if an agreement was to be developed.

Lands designated for community development East of Redmond would be in or adjacent to the proposed Urban Growth Boundary. It is likely that these lands could serve the community in the future, blending open space with other community needs.

Barnes Buttes is the same in Alternatives 1, 3, 5, 6, and 7. Future use proposed by the community is consistent with the restriction.

Effects of Alternative 6

Community Expansion

About 5,115 acres or one percent of the BLM-administered lands within the planning area would be designated for transfer or disposal to local government to accommodate community expansion and other public purposes. By requiring transfers to be utilized

for parks, greenbelts, open spaces, open recreation spaces, and open community infrastructure needs only this alternative reduces the probability that such a transfer will occur as described under Alternative 3. A similar restriction is in Alternative 3 and only along the Highway 97 corridor south of Redmond in Alternative 7.

In La Pine, these parcels are likely to be requested by the county or community. This use matches well with La Pine developments near the Little Deschutes River. The park restrictions do meet community needs. These parcels would be transferred in this alternative. Because of the restrictions this alternative would not provide sufficient lands to meet expressed community expansion needs. However, there are considerable Z-2 lands available to the community and the county owns lands in the area that the BLM has identified as suitable for acquisition.

Parcels east and south of Redmond are not likely to be requested by the county or community. The park restrictions do not meet community needs. These parcels would be unlikely to be transferred in this alternative. Cline Buttes is the same as Alternative 5, with a reasonable likelihood of future use as open space.

Barnes Buttes would be the same as Alternatives 1, 3, 5, 6, and 7. Future use proposed by the community is consistent with the restriction.

Effects of Alternative 7

Land Acquisition and Exchange

Alternative 7 has about the same Z-1 lands as Alternatives 4 and 5, and less than Alternatives 2, 3, and 6. The result is a larger pool of lands available for sale or exchange than with Alternatives 2, 3, and 6 and, consequently, makes it more likely that exchanges, sales, and acquisitions could be made to achieve plan objectives than those alternatives.

The lands selected as Z-2 may provide exchange options that would improve the configuration of the public land pattern. Administration should simplify and improve through exchanges for private parcels with connectivity among large parcels and to block up (fill in) larger blocks. Acquired private lands should have equal or greater resource values than the public lands exchanged into private ownership.

There is no stipulation in this alternative that requires public parcels to be exchanged for private parcels in the same vicinity. Though no locality restriction is placed on parcels selected for exchange, many of these parcels are located close to areas where private parcels for acquisition have been identified. The emphasis for exchanges will be to reconfigure the land pattern in these identified areas; consequently, the emphasis for exchange of the surrounding Z-2 parcels would be local.

The greatest opportunity for success in the exchange process is in the La Pine area because many of the desirable private parcels are isolated and distant from communities and services, and the number of owners of desirable private parcels is low. The land designated for exchange in La Pine is for the purpose of changing the current north-south land pattern to an east-west pattern that coincides with the deer-elk migration route. Actively pursuing exchanges during the duration of the Upper Deschutes EIS/RMP is necessary because the population influx projected over the next decade may severely restrict possible future exchanges making them not viable. Increasing development would widen the value discrepancy between public and private parcels.

In the northern portion of the planning area, the most viable exchange opportunities are for the private lands between the BLM-administered parcels and the Maury Mountains, USDA Forest Service. The gap between the two federal land patterns is narrow, the number of private landowners is few, and potential exchanges could improve

management of both the private and public lands; hence, exchanges that would benefit both the public and private sectors.

Widening the land bridges between the large public land blocks encircling Alfalfa is still possible, but opportunities are quickly dwindling as the large ranches are converting into subdivisions, resorts, and ranchettes. Subdivided lands, complex ownership agreements and covenants, and existing encumbrances compound and escalate the difficulties in negotiating exchanges. It is doubtful that exchanges to provide for connectivity will extend beyond the duration of the Upper Deschutes EIS/RMP. Developing private parcels and subdividing for the purpose of obtaining the greatest value per parcel will take BLM out of the market.

The possibilities for exchanges to the northwest and southwest of Cline Buttes are less likely than around Alfalfa. Cline Buttes already has a greater development potential than Alfalfa and is further along. Recent exchange opportunities for the purpose of providing corridors have been opposed by local property owners, local watchdog groups, and other agencies. It is doubtful that any of the goals for pursuing exchanges will be obtained, and the current public land pattern will remain the same.

The isolated and semi-isolated public parcels selected for exchange would be to meet resource goals, primarily in adjacent large public blocks throughout the planning area, but could also be used outside the planning area if determined for the general public good. Many of these parcels are in the middle of subdivisions, growth areas, and other non-compatible resource uses. Many of these parcels were Z-2 or Z-3 in the Brothers/La Pine RMP. It is doubtful that more than a quarter of these parcels would be exchanged, judging from exchanges and incomplete proposals over the last decade.

Although acres designated Z-2 in Alternative 7 are roughly as high as in Alternatives 4 and 5, the acres designated as Z-2 are disproportionately small (less than half as many as Alternative 1) compared to the acres selected for acquisition in this plan. Though well located to match the areas selected for acquisition, the amount of public lands made available for exchange is too small for a substantial exchange program and compared to Alternative 1, acquisition of parcels that would meet plan objectives would be much less likely or frequent.

Community Expansion

About 3,612 acres or less than one percent of BLM-administered lands would be designated for transfer or disposal to local government to accommodate community expansion and other public purposes.

The public lands selected for Community Expansion was confined to the least amount of area that would still allow for viable community/social needs. Representatives from the communities were instrumental in the selection of parcels. Their participation ensured consistency with community development plans for the city of Redmond, the community of La Pine, Deschutes County, and Crook County. It is reasonable to assume that these parcels will be requested for public purposes within the next 10-20 years.

The selection of public lands for Community Expansion also recognizes previous requests from communities and considers what agency or cooperation of agencies would best represent community values. Transferring or cooperatively developing Barnes Buttes as a local park is an example of such considerations that may occur. Barnes Buttes is the same in Alternatives 1, 3, 5, 6, and 7. Future use proposed by the community is consistent with the restriction.

The parcels in La Pine would meet the expressed needs of the community and are likely to be requested by La Pine.

A restriction is added along the Highway 97 corridor south of Redmond: The Community Expansion designation would apply only to parks, greenbelts, open spaces, open recreation spaces, and open community infrastructure needs. The same restriction is in Alternative 6 and a similar restriction is in Alternative 3. Restricting the selected public parcels in T. 16 S., R. 12 E. and R. 13 E. to parks and open space would inhibit opportunities for commercial, industrial and residential development along the Highway 97 corridor in Alternative 7; however, it also strictly limits who would be available to acquire these parcels. Qualifying agencies would be those public agencies most hampered by budget restrictions or reductions. This limits the possibility that these parcels will be transferred; however, the designation provides options in the case that a bypass for Highway 97 is developed.

The lands east of Redmond would be located outside the Urban Growth Boundary but are consistent with future growth direction, and would go into the boundary as it develops. The city is open to cooperative management of these lands. Some uses are likely to occur in the next 10 to 20 years.

The land south of the Redmond Airport and the Deschutes County Fairgrounds are in the Urban Reserve Study and would likely be requested for public uses.

Cumulative Effects

The primary potential for cumulative effects is on land acquisitions. The small pool of lands that would be available for sale or exchange to help acquire private lands is compounded by private demand for some of the same parcels. It is very likely that many, if not most, of some key parcels would be developed before an exchange or outright purchase could be completed. A prime example of this is the proposed development of a destination resort on the southeast flanks of Powell Butte. This area has been identified as an important area to acquire to link public lands to the east and west of this area for wildlife travel corridors. The small pool of BLM-administered lands and the diminishing pool of undeveloped private lands make the probability of making land tenure adjustments that would meet plan objectives quite low. As with all alternatives, the ability to make land tenure adjustments is dependent not only on the pool of BLM-administered lands available for sale or exchange but also on the availability of undeveloped private lands. The very rapid growth in the region that has spurred this plan revision makes land tenure adjustments needed to meet plan objectives more difficult because of private sector competition for the same parcels.

Overall, in an area with dynamic growth, the exchange process cannot keep pace with the private sector. Simply, it takes too long for a governmental exchange and it is more profitable for private landowners to stay in the private market. It also increases the potential value to not work with BLM, but to use the public parcels as an enticement for private sector land transactions. This further reduces the likelihood of exchanges of public parcels.

Transportation and Utilities

Summary

Each alternative represents a different configuration of lands that are either available for right-of-way project development, excluded from development or available with restrictions. Rights-of-way may include developments such as roads, electrical transmission lines, pipelines, communication towers, or similar developments. The various alternatives also provide different options for allocation of major transportation corridors, differences in the classification of collector or local roads on BLM administered lands, and differences in the design strategies for the local BLM road system on public lands.

During the period the B/LP RMP has been in effect, an average of about twenty-five new rights-of-way per year were granted in the planning area. Currently, there are approximately 742 local utility and transportation right-of-way grants in the planning area, which extend 780 miles through public land. These include right-of-way corridors and communication sites that may contain more than one project. Most rights-of-way were granted to provide access or utility service through public lands and include roads/driveways and electric/telephone service. To date, there has been no interest expressed by industry for solar or wind energy development in the planning area.

Public lands would continue to be available for rights-of-way, including potential sites for wind energy, solar energy, and communication facilities where consistent with national, state and local plans. Alternative energy site testing and monitoring activities would be considered in areas outside of Wilderness Study Areas (exclusion areas). All alternatives carry forward the policy to co-locate developments (utilities) to minimize creation of additional ROWs on public lands. The designation of additional Special Management Areas (primarily ACECs) in Alternatives 2-7 would place some restrictions on the location or ease of implementation of ROWs. These alternatives designate different types of Special Management Areas as "Avoidance" or "Exclusion" areas for new ROWs. In general, ACECs are avoidance areas, while WSAs are exclusion areas (See Glossary for a definition of these areas). The total acreage of ACECs in these alternatives range from approximately 24,000 acres (6%) of the planning area in Alternative 2 to a high of approximately 50,000 acres (12%) in Alternative 4. Alternatives 2-7 place an emphasis on mitigating the effects of new ROWs by having ROW proponents vacate or reduce unnecessary roads in the project area to minimize fragmentation of public lands. This general policy is further defined in Alternatives 2-7 to include conditions for granting a future ROW South of Redmond, which anticipates that certain Historic Roads in the Bend/Redmond block of BLM-administered land would be vacated by Deschutes County.

Transportation

Regional Transportation

Alternatives 2-7 all have transportation corridors allocated that meet regional transportation needs. The Preferred Alternative includes a potential extension of 19th Street south to a proposed interchange at the US Hwy. 97/Quarry Street intersection and then approximately another four miles to the south to the existing US 97/Deschutes-Market interchange. The alternatives differ in the layout and length of the South Redmond corridor parallel to US Highway 97. Alternative 2 provides a corridor from Yew Avenue south to Deschutes Junction. Alternative 3 provides a shorter corridor from Yew Avenue to Quarry Avenue. The remaining action alternatives (i.e., 4-7) provide for a corridor that includes links to both Quarry Avenue and then another four miles south to the existing US 97/Deschutes Market Road interchange. All action alternatives have the same corridor for rerouting of State Highway 126 at the Redmond Airport. In contrast, Alternative 1 does not identify either of these road corridors.

Local Transportation

The transportation system on BLM-administered lands is made up of Arterial, Collector and Local roads. The Arterial road designations remain the same throughout all alternatives, and include State Highways and County roads. The alternatives have different combinations of collector and local classifications. Alternatives 1 and 2 classify approximately 200 road miles as collector routes that are classified as local roads in Alternatives 3-7.

Wildlife (primary, secondary, and general) and recreation management emphases and travel management designations would establish areas for different types of motorized

vehicle use, and may limit future road densities. In Alternatives 2-7, wildlife habitat areas would be managed in terms of primary, secondary, and general emphases. In general, those areas with "primary" wildlife emphasis are likely to have fewer local roads that remain open compared to areas with general wildlife emphasis. Non-motorized categories of recreational use include recreation emphases of "non-motorized emphasis" and "non-motorized exclusive." Areas designated as non-motorized emphasis allow motorized use on roads, but not on trails. Non-motorized exclusive areas are generally closed to all motorized uses. Areas that have a non-motorized recreation emphasis and a primary wildlife emphasis may see greater reductions of local roads than areas with a multi-use shared facility recreation emphasis and a general wildlife emphasis.

The alternatives also vary in the acres of BLM administered lands with different travel management designations for motorized vehicle use (i.e., designated as Open; Limited either to roads and trails, roads only; or Closed to motor vehicles). Alternative 1 contains a relatively large percentage of lands designated as Open, which implies few concerns regarding vehicle use and less need for a designated road system. Alternatives 2-7 have different percentages of the planning area managed as Limited (i.e., with designated roads provided) or Closed (areas with less need for extensive road networks). Areas designated as limited would have some type of designated road network in them. These areas range from 95 percent of the planning area in Alternative 2, to a low of 78 percent of the planning area in Alternative 7. Alternative 7 also further reduces the road network by calling for an emphasis on trails rather than roads in about 8 percent of the planning area (North Millican area). These percentages are displayed in Table 4-53, Recreation Characteristics of the Alternatives.

General Relationships

As the population of Central Oregon grows, the need to extend transportation and utility corridors through public land continues. With additional technological improvements, certain areas may be considered for alternative energy development such as wind, solar and biomass generation. While the current contribution of renewable energy resources is relatively small, wind energy and other renewable energy generating sectors of the economy are growing in the United States. Continued growth in wind energy development is considered important in delivering larger supplies of clean, domestic power that is needed for economic growth.

Rights-of-way

The designation of ACECs results in limitations to right-of-way development for all alternatives. ACECs would be considered "avoidance areas" for location of new ROWs, and no new ROWs would be located in these areas if other reasonable alternatives exist outside of the ACEC. Approximately 20,000 acres of ACECs are carried forward common to all alternatives. This represents approximately 5.5 % of the planning area being designated as avoidance areas for ROWs.

The designation of WSAs results in limitations to right-of-way development for all alternatives. WSAs would be considered "exclusion areas" for location of new ROWs. Approximately 35,461 acres of WSAs are designated within the planning area, which represents about 9% of the total acreage being classified as an exclusion area for ROWs.

Exclusion and avoidance areas would consolidate right-of-way projects in existing corridors that are located in areas designated as available for project development. The consolidation of compatible transportation and utility projects would reduce habitat loss, degradation of resources and the fragmentation of public land ownership patterns. Major transportation and utility corridors border the Badlands Wilderness Study area and would provide for right-of-way co-location around this exclusion area, if needed.

Management direction for rights-of-way in recreation and wildlife emphasis areas influence the allowable road densities for local transportation planning and right-of-way administration. The level of management for transportation and utility systems corresponds to the prescribed management levels for wildlife (habitat effectiveness) and recreation (non-motorized emphasis and non-motorized exclusive).

The effects of wildlife and recreation emphasis areas on right-of-way projects may include additional project stipulations that require access restrictions, locked gates, and appropriate mitigation. These tasks would require additional analysis in the environmental documents as well as additional compliance efforts in right-of-way administration.

New or modified rights-of-way corridors would be provided for transportation and utility corridors, and for communication or energy sites. New alignments may be considered outside of existing corridors when no existing right-of-way designations are feasible for co-location. Project level NEPA will be required to assess the impacts of large-scale developments, and temporary small-scale facilities, such as wind feasibility monitoring studies will require individual assessments. Western Regional Corridor Study corridors would be designated.

Public lands in the planning area would continue to be available for site testing and monitoring of potential alternative energy projects to determine development feasibility.

The effects of right-of-way development may include surface disturbing activities, erosion, dust, noise, and the need for access projects. Right-of-way allocations may also create conflicts with residents of adjacent lands or onsite conflicts with resources or existing public land uses. Fences are sometimes installed along rights-of-ways to reduce vehicle access to adjacent areas, to prevent livestock on a road, or to accomplish other objectives. New fences usually require reconfiguration of pasture or allotment boundaries. Management conflicts such as illegal dumping, shooting near residential areas, vandalism, wood cutting, and surface disturbing activities (which may lead to the spread of noxious weeds), may follow right-of-way project development due to additional access points to public lands. Wind turbines and power lines could result in avian mortality including eagles and other raptors, although research efforts in recent years have mitigated these adverse impacts (Sinclair, 1999).

By issuing site and lineal rights-of-way outside of existing corridors, public land ownership patterns could become further fragmented by these new structures and access roads.

There are visual intrusions introduced on the landscape from the development of right-of-way projects. Road development and surface disturbing activities such as borrow areas and staging areas are effects of constructing major lineal or site right-of-way projects. Soil disturbance and vegetative manipulation are likely to result from construction activities. Utility poles, communication towers, wind turbines, photovoltaic cells, and other structures could have varying adverse effects on viewsheds depending on the location, size, and scale.

The designation of exclusion and avoidance areas would cumulatively add to present and future restrictions and mitigation requirements of right-of-way development on public lands. The plan carries forward the restrictions included in the B/LP RMP and adds to the standard terms and conditions required in 43 CFR 2801. Future decisions may add further requirements and/or special stipulations on project development.

Due to the low potential for wind energy development in the planning area, Visual Resource Management Class restrictions as well as wildlife and recreation concerns are not expected to have a notable adverse affect on the wind energy industry.

The Concentrating Solar Resource (CSR) in the planning area is higher than the national average. There are many areas available for solar resource development that fall outside of exclusion/avoidance areas. Generally, these locations are equally viable due to the relatively constant CSR. Due to the absence of interest in development of solar resources within the planning area and the large areas that would be available for such development, the designation of exclusion/avoidance areas and other restrictions is not expected to have a notable adverse effect on the solar energy industry.

Corridor widths for transportation and utility facilities would vary depending on the number of parallel systems. A minimum of 1,000 feet on each side of the existing centerline would consolidate multiple regional systems effectively. A system of planned corridors provides programmatic environmental review and facilitates the analysis of project routing alternatives.

The various corridors and avoidance/exclusion area allocations will guide, restrict or preclude energy facilities. Given the uncertainty over specific locations, project design and mitigation measures, project level NEPA will be required to assess impacts. Temporary small-scale facilities, such as wind feasibility monitoring studies will require individual assessments.

For the most part, existing transportation and utility corridors are situated in areas that will continue to be available in the future for right-of-way project development. There are currently 780 miles of local rights-of-way and utility corridors and 202 miles of regional corridors affecting public land in the planning area. It is likely that many future right-of- way development projects would be co-located along existing corridors. Locating an additional utility line adjacent to an existing right-of-way would allow for the use of the existing access roads and would consolidate impacts. Consolidation produces less contact between competing land uses and conserves resources by confining impacts to specific areas where they can be mitigated and managed.

Regional Transportation

ODOT predicts that it will be necessary to upgrade the standard of Hwy 126 by adding lanes and reducing the radius of curves. The Redmond Airport Master Plan describes the extension of Runway 22 for a distance of 1,500 feet. This would extend the runway protection zone north and east. The Federal Aviation Administration has mandated the establishment and protection of runway protection zones and would not allow the highway standard to be improved in the existing alignment within the runway protection zone.

Traffic congestion and the anticipated failure of the Yew Avenue interchange on Hwy 97 in south Redmond is a result of the high growth rate and increasing traffic volumes caused primarily by activities associated with the Deschutes County Fairgrounds and adjacent commercial and industrial development. The residential development in Redmond is focused in areas that are west of Hwy 97. This contributes to the number of vehicles using the interchange to access commercial, industrial and airport areas located along Hwy 97 and east of this travel corridor. The Bend-Redmond highway corridor contributes significantly to daily traffic numbers at the Yew Avenue interchange. Ultimately, Hwy 97 will require a frontage road to provide access to parcels that are directly adjacent to the expressway.

Alternative 1 corresponds to ODOT's "No-build" alternative for the Yew Avenue to Deschutes Market Road Analysis for Highway 97. For Alternative 1, solutions to the traffic congestion problems at the Yew Avenue/US 97 interchange would be assumed to come from transportation improvements that do not occur on BLM administered land.

The Oregon Department of Transportation has been involved in several studies and highway improvement projects in this area in recent years. The project known as the Glacier-Highland Avenue couplet has recently been approved by ODOT and involves the redesign of the intersection of Hwy 126 and Hwy 97. This includes the improvement of Highland Avenue and Glacier Avenue as one way routes for Hwy 126 west of Redmond. The Redmond Re-route Project is currently being designed by ODOT. It involves the northern segment of Hwy 97 extending east of downtown Redmond along Canal Blvd., from Sisters Avenue to Kingsway Road.

Local Transportation

Road use on BLM administered lands would continue to increase due to population growth and development in the region. Additional development adjacent and within (on inholdings) BLM administered lands would increase the demand for motorized access on existing roads.

The existing local road system on BLM administered lands would continue to function poorly due to poor road alignments, poor entrance and exit intersections, and the many instances of existing roads passing through or dead-ending at private property. This condition would not be resolved until area specific transportation plans are completed.

The planning area-wide shift from Open travel management designations (where cross-country vehicle use is allowed) to travel management Limited to designated roads and trails would increase the need for road maintenance, road signs, and over the length of the planning period, require investments in infrastructure and closure of non-system routes. Without these investments, the cost of managing vehicle use to designated road systems would fall on law enforcement resources.

The level of management for wildlife and recreation in the geographic areas would influence the allowable road densities for local transportation planning. The level of management will correspond to the prescribed management levels for wildlife emphasis and recreation (non-motorized emphasis and non-motorized exclusive).

The Department of the Interior has imposed a moratorium on the adjudication and formal recognition of roads that are claimed to have been established under the provisions of RS 2477. The county historical roads have not been reviewed and adjudicated by BLM and until such time as these roads are properly adjudicated, BLM will not take any action to challenge their status. Adjudication of historical roads involves a process that is independent of this plan.

Analysis of the Alternatives

Effects of Alternative 1

This Alternative would allow the greatest flexibility for the location of new ROWs, since it would generally have the fewest avoidance or exclusion areas and the least direction for direct or compensatory mitigation of the effects of new ROWs.

Regional Transportation

Alternative 1 would not specifically make transportation corridor allocations for a road alignment south of Redmond parallel to State Highway 97 or for realignment of State Highway 126 north of the Redmond Airport. The lack of these corridor allocations may pose limitations upon expected build-out within the urban growth boundary of the City of Redmond. The lack of corridor allocations may reduce the number of options for solving transportation problems through routing of new road alignments through BLM-administered lands. In general, no major improvements would be made to State

Highway 126 north of Redmond Airport while the road remains in the airport runway protection zone. Further, Alternative 1 would allow for the possibility that other land uses may be allocated for the area needed for the State Highway 126 bypass, since the area would not be identified for this use in the RMP.

While Alternative 1 would not contain specific direction for mitigation of road fragmentation by requiring the County to vacate historic roads if a ROW for the south of Redmond corridor is granted, this Alternative supports ODOT's "No-build" alternative for the Yew Avenue/US 97 analysis, and therefore would not require mitigation for a new road alignment on BLM-administered lands.

Local Transportation

Alternative 1 is the only Alternative that retains large areas with an Open travel management designation. Although Alternative 1 does not specifically mandate that transportation systems not be redesigned and designated, it does not identify goals, standards or guidelines for this either. In general, the large number of acres of Open travel management designations close to rapidly developing urban areas such as Redmond make Alternative 1 the most likely to result in increased densities of local roads.
The Open designations and the existing and future road densities would have effects on recreation, wildlife, and other resources. These are covered under the various resource assessment sections in this chapter. In general, this alternative would provide the fewest options for creation of an understandable, maintained and designated road system that responds to resource goals and reduces conflicts. Routes may be indirect, alignments narrow and public safety may be at risk. These effects would increase over time as the population and traffic volumes increase. This alternative would generally not result in the consolidation of access points.

Common to Alternatives 2-7

Management direction Common to Alternatives 2 – 7 would emphasize regional and local integrated transportation planning, provide transportation corridor allocations, and provide mechanisms to reduce the amount of redundant or unnecessary roadways. Exclusion and avoidance areas would serve to minimize conflicts between the needs for land development and the protection of important ecological areas. The differences in the transportation systems for each of these alternatives are highly dependent upon future decisions concerning the local road configuration. The two resources most likely to influence these configurations are recreation and wildlife.

New regional corridors identified by the Western Utility Group as "priority" would be designated for future use. Existing and proposed regional corridors extend through areas that are available for right-of-way project development and do not affect exclusion and avoidance areas. A system of planned local corridors provides opportunities for programmatic environmental review and facilitates the analysis of project routing alternatives.

Local jurisdictions could be asked to vacate unneeded historical roads as mitigation for granting a right-of-way in a new location. BLM would close and rehabilitate certain nondesignated roads and trails that are excess to transportation needs. Rehabilitation could include ripping and seeding road surfaces and covering treated areas with woody vegetative material and rocks to blend with adjacent areas. BLM would reduce the number of general access points to public land. BLM would designate the existing road systems to create loop routes that return to the same access point. Motorized access points not selected for designation, but required for other uses, could be limited to

authorized access through such methods as posting, barricading, or installing gates. Examples may include access roads needed by grazing operators and utility companies or local roads needed for administrative access.

For new rights-of-way that would be issued contingent upon relinquishment of a public road segment, additional County procedures that apply to vacating a public road would need to be completed.

Areas are classified as avoidance, exclusion or availability for right-of-way project development. In the existing Brothers-La Pine RMP there are six ACECs that total 24,628 acres. In Alternatives 2-7, the number of ACECs range between eight and twelve, affecting between 23,593 to 60,566 acres.

The indirect effects of exclusion or avoidance areas could possibly result in higher construction costs due to the longer distances for right-of-way projects involved with going around these areas. Also, construction schedules may be delayed for projects that extend through special wildlife habitat areas that may require seasonal access restrictions. Specific effects would be determined on a case-by-case basis.

The indirect effects of wildlife and recreation emphasis areas on right-of-way projects may include additional project stipulations that require access restrictions, locked gates, and appropriate mitigation. This would require additional analysis in environmental documents as well as additional compliance efforts in right-of-way administration.

Specific mitigation activities for a project would serve to reduce long-term impacts to natural resources in areas adjacent to right-of-way development. Restoration or rehabilitation of an area would be commensurate with the effects of a specific action. Mitigation requirements would be determined by the environmental assessment report during the processing of a right-of-way application and would correspond to the level of management emphasis and the objectives of the corresponding habitat effectiveness. Mitigation may involve the closing and rehabilitating of surplus roads, the construction/repair/relocation of fences, and efforts to restore native vegetation in the immediate vicinity of the project. The costs of mitigation would be incurred by the applicant.

Mitigation for utility structures may include bird boxes and/or nesting platforms to improve raptor safety. Impacts would be assessed in relation to wildlife emphasis areas and the corresponding management of habitat effectiveness as defined for primary, secondary and general wildlife emphasis areas. The objective of mitigation would be to preserve blocks of public land and to enhance native plant communities and wildlife habitat areas.

If it is not feasible for a new right-of-way project to collocate along an existing corridor, it will likely create a new impact in an area that is previously undisturbed and would add to the 982 miles of right-of-way that exist in the planning area. Activities would generally be confined to the immediate area affected by the project. Mitigation would provide opportunities to enhance resource values by maintaining habitat diversity.

New right-of-way projects situated outside of existing corridors are subject to the management guidelines for the respective emphasis area. In some cases, these areas coincide. Constraints may be imposed on right-of-way projects to avoid road building and reduce road and trail densities in the immediate vicinity of the project. Right-of-way project development would be designed to avoid impacting large patches of public land that provide un-fragmented habitat areas.

Regional Transportation

A transportation corridor would be allocated for the realignment of Hwy 126 east of Redmond to avoid the designated runway protection zone of Redmond airport. The effects of project development would result in providing a land allocation for the realignment of the highway when upgrading is determined to be necessary. The allocation of this corridor would preclude other non-compatible uses such as R&PP leases within the corridor. When Highway 126 is improved, the Federal Aviation Administration will require that it be relocated outside of the runway protection zone. A corridor allocation one half mile wide would be extended through public lands to provide a minimum distance and acreage necessary to comply with highway standards and the needs of Redmond Airport and State and local planning goals. The highway would be realigned to allow for increased traffic flows with a higher level of safety for motorists, and the highway right-of-way may be fenced to control access.

Effects of highway realignment would include clearing vegetation along a strip about 100 feet wide that would extend about one mile through public land. Site preparation would involve removal of surface rock and construction of the road base in compacted layers. Sight distances would be improved by removing dips and improving the grade of the road surface. The curve radius would be reduced and overall traffic safety would be enhanced. If State Highway 126 is realigned to the north through BLM administered lands and the existing roadway is retained to provide access to existing facilities and developments, then the long-term effect of this allocation would be to increase fragmentation of public lands, which in turn may negatively affect recreation opportunities and wildlife habitat.

Alternatives 2-7 all provide some form of corridor allocation for a road alignment South of Redmond and parallel to State Highway 97. To some extent, all the action alternatives would provide for at least a short-term resolution of traffic congestion at the Yew Avenue interchange and allow for continued development within the Redmond urban growth boundary. The socio-economic effects of this transportation corridor are described in the Socio-economic analysis section of this chapter. The provision of an additional road within the corridor south of Redmond would increase fragmentation of public lands and likely reduce habitat effectiveness and recreation opportunities in this area. However, Alternatives 2-7 do call for compensatory mitigation through vacation of other County Roads in the area.

Local Transportation

The greatest change between Alternative 1 and the rest of the Alternatives considered in the FEIS/PRMP is the change in management direction from Open travel management designations to the adoption of designated road networks throughout the planning area. This direction would have major effects on meeting a wide range of recreation, wildlife management and other resource goals. All action alternatives would result in between 78% (Alternative 7) and 95% (Alternative 2) of the planning area being managed for motor vehicle use on designated roads. Along with this travel management allocation, all action alternatives call for these designated transportation systems to be designed to meet a variety of resource goals and provide for an understandable system that reduces conflicts. Over the short-term, FEIS/PRMP direction would not result in substantial changes to the local road network, other than eliminating vehicle access in areas closed year-round or seasonally (See Recreation and Wildlife sections of this Chapter). However, over the long-term, all action alternatives would improve the layout of the local road system, and would likely increase the level of maintenance required to maintain a designated system.

Transportation planning would be coordinated with local, state and federal jurisdictions to avoid conflicts with multiple use management. Efficient transportation systems

would be designed through cooperative interagency planning. The system would be comprised of designated access points from major collectors or arterials, with approved approaches to major roads from the respective jurisdiction. BLM roads would be identified with markers and designed with loops to provide reasonable access to public lands. Relinquishment of unneeded historical roads would allow BLM to close the road or manage it for purposes other than transportation. Road systems will be considered for closure if problems exist such as resource damage, public safety hazards, and repeated law enforcement violations.

Vacating segments of unneeded historical roads would eliminate surplus routes, and reduce habitat loss and the fragmentation of public land ownership patterns. Closing historical roads to motorized use would serve to protect the cultural value of the road and allow for interpretation and non-motorized access. Closing and rehabilitating certain non-designated roads and trails that are excess to transportation needs would consolidate the local transportation systems, reduce maintenance costs and improve the management capabilities. Reducing the number of access points to public land would consolidate the local transportation system, reduce maintenance costs and improve management capabilities. These reductions may deter illegal uses such as dumping and wood cutting. Existing road systems would be designated to create loop routes that rely on fewer access points. Dead-end roads would be closed and rehabilitated. This would reduce maintenance costs and result in a more efficient transportation system. Certain collector roads, local roads and user created roads may be closed and rehabilitated.

Administrative access may continue to be necessary in areas where routes are closed and access points are reduced. Examples may include utility access roads, grazing access roads, or local roads needed for BLM administrative access. These access points would have gates or cattle guards installed to allow access for authorized uses and to ensure visitor safety. Excess roads that are not designated routes would be closed and rehabilitated to reduce indiscriminate uses such as illegal dumping, wood cutting, and surface disturbing activities that spread noxious weeds and cause erosion.

Signs could be installed at designated access points to convey important information about designated roads and allowable uses in the area. The approach of the access point with a major arterial would be regulated by an approach permit that would be reviewed and approved by the respective jurisdiction. Approach permits would enhance public safety for ingress and egress to public lands from major roads.

Motorized access points not selected for designation, but required for other uses, would be open for authorized users such as grazing operators, utility companies or other administrative uses. This would ensure continued access for authorized uses.

Effects of Alternative 2

Alternative 2 has the least amount of avoidance areas of all alternatives, with 23,801 acres (6%) of the planning area in ACEC status. The amount of avoidance areas and the exclusion areas common to alternatives 2-7 would make Alternative 2 the least restrictive (or comparable with Alternative 1) in terms of placement of new ROWs.

Regional Transportation

Public lands would be available for the allocation of a transportation/utility corridor from south Redmond to Deschutes Junction as a partial solution to resolve traffic problems at the Yew Avenue interchange. No corridor allocation would be made for a Quarry Avenue interchange with US 97. The county arterial from south Redmond to the Deschutes Junction Interchange on Highway 97 would alleviate some traffic congestion at the Yew Avenue interchange, but provide fewer options for upgrades of the US 97 Bend-Redmond corridor. This corridor could be considered in the future as

part of a highway bypass around Redmond. The transportation/utility corridor from south Redmond to Deschutes Junction would extend approximately 1/4 mile on each side of centerline along the Burlington Northern-Santa Fe (BNSF) railroad right-of-way. Anticipated mitigation would be for Deschutes County to vacate segments of the historic roads known as Horner road and the Powell Butte-Paulina Creek road. These road segments extend about 17 miles through public land in T.16S, R.12-13E.

A right-of-way corridor from south Redmond to Deschutes Junction would extend about four miles through public land, and equal about forty acres, if it is located adjacent and east of the railroad right-of-way. Anticipated impacts are related to constructing a major public road through an area that currently has limited public access. Impacts to wildlife populations could be expected as well as site-specific impacts associated with locating, clearing and constructing a major public road. Impacts to old-growth juniper woodland would include loss of vegetation and soil disturbance. The corridor would also add to the fragmentation of the public land ownership pattern.

If the alignment is placed west of the railroad right-of-way and east of Hwy 97, it would affect mostly private land and only extend through corners of fragmented public ownership. The jurisdiction of these fragmented corners could be transferred to ODOT through provisions of a right-of-way grant, which would reduce the administrative costs to the BLM for managing these isolated areas. An alignment on the west side of the railroad would consolidate the right-of-way between existing corridors.

Local Transportation

Alternative 2 has the greatest amount of acres allocated to designated road systems, therefore may have the greatest need for road maintenance and engineering among all alternatives. Public lands contain numerous historic roads that were presumed to be authorized under the provisions of Revised Statute 2477 and remain under local jurisdiction. In this alternative an integrated transportation system would be designed that uses existing and historic road systems including county rights-of way to a greater extent than alternatives 3 - 7. Maintenance standards of BLM administered roads would be kept at minimum levels to provide for reasonable public access. County standards determine road maintenance levels of county roads. Historic roads are not maintained or improved by county jurisdictions. Maintenance standards of BLM administered roads would be kept at minimum levels to provide for reasonable public access.

In some cases, areas that have a non-motorized recreation emphasis and a primary wildlife emphasis may see greater reductions in local roads.

Historic roads generally have a narrow alignment, meander around physical features, and have design limitations when compared to the needs of modern transportation systems. Many existing routes were originally located to serve areas that were historically significant, but may not provide efficient or direct access to accommodate the transportation needs of the present time. The use of existing historic roads as the primary component of a transportation system would be insufficient to connect destinations that are needed today. It could be necessary to reduce curves and grades, widen travel lanes, and eliminate physical limitations such as rock outcrops. The efficiency and function of the transportation system through public lands would be compromised by using existing historic road alignments. The high costs associated with road improvements within existing alignments may not be effective in solving modern transportation problems. Routes may be indirect, alignments may narrow and public safety may be at risk. These negative effects would increase over time as the population and traffic volumes increase.

The following narrative describes the management levels that would influence the allowable road densities for local transportation planning:

- Non-Motorized Recreation Emphasis Areas - includes the block of public land southeast of Bend, and south of Highway 20, extending to the Deschutes National Forest boundary; the area around Tumalo reservoir; the area northeast of Sisters; and the area south of Alfalfa Market road extending to Dodds road.
- Non-Motorized Recreation Exclusive Areas - includes the area south of Bend Airport; areas along the Deschutes and Crooked Rivers; and public lands adjacent and southeast of Tumalo Reservoir.
- Wildlife Primary Emphasis Management Areas - includes the Badlands Wilderness Study Area and the area south of Highway 20 to the National Forest boundary; the area around Tumalo Reservoir; the area northeast of Sisters and areas along the Little Deschutes River, east of La Pine State Park.

Effects of Alternative 3

Alternative 3 contains the largest amount of avoidance areas of all alternatives, with 60,081 acres (15%) of the planning area in ACEC status. The amount of avoidance areas and the exclusion areas common to all alternatives would make Alternative 3 the most restrictive in terms of placement of new ROWs. Due to the many ACECs located throughout the planning area, there may be a concentration of ROWs in other areas as new ROWs are sited outside of avoidance areas.

Regional Transportation

This alternative provides for the allocation of a transportation corridor from south Redmond to a potential Quarry Road interchange with US 97. This alternative would provide some benefits for alleviation of traffic congestion at the Yew Avenue interchange and roads in the south Redmond area; however it would provide fewer options for upgrades for the US 97 Bend-Redmond corridor. Mitigation would require Deschutes County to vacate 10 miles of historic road segments. Mitigation would require Deschutes County to vacate a two mile segment of Morrill road and an eight mile segment of the old Powell Butte - Paulina Creek road, located in T.16-17 S., R.13 E.

The allocation of a transportation corridor from 19th Street in south Redmond to Quarry road with a proposed interchange on Hwy 97 would extend through public lands for about two miles and affect about 19.4 acres.

Anticipated impacts are related to constructing a major public road through an area that currently has limited public access. Adverse impacts to wildlife populations could be expected as well as site-specific impacts associated with locating, clearing and constructing a major public road. Impacts the old-growth juniper woodland include loss of vegetation and soil disturbance. The fragmentation of the public land ownership pattern would be increased.

Road construction would create a need for mineral materials such as rock aggregate. Specification rock would be needed as well as borrow material for establishing a suitable grade. Sites on adjacent public lands may be identified as a source for mineral materials.

Local Transportation

Alternative 3 allocates the second least amount of land for Limited travel management designations (80%), so this alternative would likely provide fewer designated roads than

any alternative except Alternative 7. The following narratives describe the management levels that would influence the allowable road densities for local transportation planning:

- Non-Motorized Recreation Emphasis Areas - includes the block of public land southeast of Bend and south of Highway 20, extending to the Deschutes National Forest boundary; the area northeast of Sisters; and the area southeast of Prineville Reservoir.
- Non-Motorized Recreation Exclusive Areas - include the Badlands Wilderness Study Area, the area south of Alfalfa Market Road to Dodds Road, Cline Buttes east to the Deschutes River; a large block along the Crooked River canyon between Prineville and Bowman Dam; and public lands surrounding Tumalo Reservoir.
- Wildlife Primary Emphasis Management Areas - includes the area around the Crooked River Canyon, Prineville Reservoir and south to Millican; the Badlands Wilderness Study Area and the area south of Highway 20 to the National Forest boundary; the area around Tumalo Reservoir, the area northeast of Sisters; Cline Buttes east to the Deschutes River; and the area south of Alfalfa Market Road to Dodds Road, most of the public lands in the La Pine basin, except those east of the La Pine core area.

Effects of Alternative 4

Alternative 4 contains the 2nd highest amount of avoidance areas of all alternatives, with approximately 50,000 acres (12.5%) of the planning area in ACEC status. The amount of avoidance areas and the exclusion areas common to all alternatives would make Alternative 4 the second most restrictive in terms of placement of new ROWs. Due to the many ACECs located throughout the planning area, there may be a concentration of ROWs in other areas as new ROWs are sited outside of avoidance areas.

Regional Transportation

Alternatives 4 through 7 all provide a transportation corridor south of Redmond that has connections to both US 97 at both Quarry Avenue and Deschutes Junction. Thus, Alternative 4, 5, 6, and the preferred alternative would likely provide the greatest transportation benefit – alleviating some traffic congestion at Yew Avenue and other roads in the South Redmond area and providing the greatest options for future improvements in the corridor between Bend and Redmond.

ODOT analysis indicates that this alternative would improve current and projected traffic problems associated with the Yew avenue interchange. This is a component to the preferred alternative in the ODOT study, Yew Avenue to Deschutes Market Road Analysis for Highway 97 from MP 121.89 to MP 130.18.

As with the other action alternatives, mitigation would require Deschutes County to vacate certain roads as compensatory mitigation. Mitigation would require Deschutes County to vacate approximately 19 miles of historic road segments located in T.16-17 S., R.13 E, including Horner Road, Powell Butte - Paulina Creek Road, and Morrill Road.

This alternative would have similar indirect effects as the allocation of a transportation/ utility corridor from South Redmond to Deschutes Junction, as described in Alternatives 2 and 3.

Local Transportation

Alternative 4 calls for the 2nd highest amount of lands allocated for designated road systems. This alternative would require a fairly high degree of maintenance and engineering, as described in Common to 2-7 discussion for local roads. In some cases, areas that have a non-motorized recreation emphasis and a primary wildlife emphasis may see a greater reduction of local roads.

The following narrative describes the management levels that would influence the allowable road densities for local transportation planning:

- Non-Motorized Recreation Emphasis Areas – south of the Crooked River and the area southeast of Prineville Reservoir; the block of public land southeast of Bend and south of Highway 20, extending to the Deschutes National Forest boundary; south of Alfalfa Market Road to Dodds Road; the Tumalo Reservoir area; the area east of Cline Buttes to the Deschutes River.
- Non-Motorized Recreation Exclusive Areas - includes the corridor along the Deschutes and Crooked River canyon; the public lands on Powell Buttes; the small block of public land south of Bend Airport and east of the Powell Butte highway.
- Wildlife Primary Emphasis Management Areas - includes the area around the Crooked River Canyon, and the area southeast of Prineville Reservoir; the area around Tumalo Reservoir, the area northeast of Sisters; the public lands along the east – west corridor extending through La Pine State Park.

Effects of Alternative 5

Alternatives 5, 6, and 7 contain about the same amount of acreage of ACECs, about 30,000 acres or 7.5 % of the planning area. These alternatives would provide fewer restrictions on the location of ROWs than Alternatives 3 and 4, but more restrictions than Alternatives 1 and 2. The combination of these avoidance areas and the exclusion areas common to all alternatives would impose a moderate restriction on new ROW location.

Regional Transportation

See discussion of effects, Alternative 4.

Local Transportation

Alternative 5 calls for the 3rd highest amount of lands allocated for designated road systems. This alternative would require a fairly high degree of maintenance and engineering, as described in Common to 2-7 discussion for local roads. In some cases, areas that have a non-motorized recreation emphasis and a primary wildlife emphasis may see a greater reduction of local roads. In some cases, areas that have a non-motorized recreation emphasis and a primary wildlife emphasis may see a greater reduction of local roads.

The following narrative describes the management levels that will influence the allowable road densities for local transportation planning:

- Non-Motorized Recreation Emphasis Areas – the area northeast of Sisters; the area around Tumalo Reservoir; the area adjacent to Cline Buttes; the area between the Powell Butte Highway and Dodds Road; the area southeast of Bend and north of Golden Basin; and the area southeast of Prineville Reservoir;
- Non-Motorized Recreation Exclusive Areas - the area southeast of Bend and south of Golden Basin; the public lands on Powell Buttes; a large block along the Crooked River canyon between Prineville and Bowman Dam; the public lands between the Cline Buttes Highway and the Deschutes River; the Steamboat Rock area, the Smith Rocks area; and areas along the Crooked and Deschutes River.
- Wildlife Primary Emphasis Management Areas - includes the Badlands WSA, south to the National Forest boundary; a large block along the Crooked River canyon between Prineville and Bowman Dam; the area around Tumalo Reservoir; the area northeast of Sisters; the Steamboat Rock area, the Smith rock area; the public lands along the east – west corridor extending through La Pine State Park.

Effects of Alternative 6

The general effects on ROWs are the same as Alternative 5.

Regional Transportation

See discussion of effects, Alternative 4.

Local Transportation

Like Alternative 3, Alternative 6 calls for the second least amount of acreage allocated for designated road systems (about 80% of the planning area). This alternative would still call for a fairly high degree of road maintenance and engineering, but given the number of acres closed to motorized use, there may be fewer road maintenance and engineering needs than Alternatives 2, 4, and 5. In some cases, areas that have a non-motorized recreation emphasis and a primary wildlife emphasis may see a greater reduction of local roads.

The following narrative describes the management levels that will influence the allowable road densities for local transportation planning:

- Non-Motorized Recreation Emphasis Areas – the area southeast of Bend and north of Golden Basin; the area south of Alfalfa Market Road to Dodds Road; the area southeast of Prineville Reservoir; the area northeast of Sisters; the Steamboat Rock area; the area east of Redmond and north of Hwy 126; the public lands within the east – west corridor extending through La Pine State Park.
- Non-Motorized Recreation Exclusive Areas – includes the Badlands WSA, north Millican area, and the Horse Ridge area south of Golden Basin; the public lands on Powell Buttes; a large block along the Crooked River canyon between Prineville and Bowman Dam; the area around Tumalo Reservoir; the Smith Rock area; areas along the Crooked and Deschutes River; and many scattered, isolated parcels through out the planning area.
- Wildlife Primary Emphasis Management Areas - includes the Badlands WSA, south to the National Forest boundary; east to the North Millican area and southeast of Prineville Reservoir; a large block along the Crooked River canyon between Prineville and Bowman Dam; the area around Tumalo Reservoir; the area northeast of Sisters; the Smith Rocks area; and most of the public lands in the La Pine basin, except those east of the La Pine core area.

Effects of Alternative 7

The general effects on ROWs are the same as Alternative 5.

Regional Transportation

See discussion of effects, Alternative 4.

Local Transportation

Alternative 7 allocates the least amount of acreage to the designation of local road systems of all alternatives. Opportunities for road designation and location would be further reduced by Alternative 7 through the emphasis on trail designation in the North Millican area over the designation of roads. This direction is intended to maintain a functioning OHV trail system in the area while reducing fragmentation of wildlife habitat (See Recreation and Wildlife sections of this chapter for more detail on the effects of this management direction). While this alternative may have fewer engineering and maintenance costs for roads, these costs may shift to the maintenance and engineering

required for closures. In some cases, areas that have a non-motorized recreation emphasis and a primary wildlife emphasis may see a greater reduction of local roads.

The following narrative describes the management levels that will influence the allowable road densities for local transportation planning:

- Non-Motorized Recreation Emphasis Areas – the area southeast of Bend and north of Golden Basin; the area from the Alfalfa Market Road north to the Powell Butte Highway; the area northeast of Sisters; the area southeast of Prineville Reservoir extending south to Hwy 20 adjacent and west of Hwy 27; the northern portion of the La Pine basin.
- Non-Motorized Recreation Exclusive Areas – includes the Badlands WSA; the Horse Ridge area south of Golden Basin; the area south of Alfalfa Market Road to Dodds Road; a large block along the Crooked River canyon between Prineville and Bowman Dam; the area around Tumalo Reservoir; the area east of the Cline Falls Highway to the Deschutes River; the Smith Rocks area; areas along the Crooked and Deschutes River; the area east of Redmond, north of Hwy 126 and west of the North Unit Main Canal; and many scattered, isolated parcels through out the planning area. .
- Wildlife Primary Emphasis Management Areas - includes the area from Alfalfa Market Road south, with the Badlands WSA, to the National Forest boundary; east to the North Millican area and southeast of Prineville Reservoir; a large block along the Crooked River canyon between Prineville and Bowman Dam; the area around Tumalo Reservoir; the area northeast of Sisters; the Smith Rocks area; the area east of the Cline Falls Highway to the Deschutes River; and most of the public lands in the La Pine basin, except those east of the La Pine core area.

Cumulative Effects

Right-of-Way Corridors

The co-location of new right-of-way projects would add to the impacts of existing rights-of-way projects. The cumulative effects of existing and future projects located on BLM administered public land are combined with projects located on private, state or other federal ownerships as well.

The combination of additional development and population growth in the region, the planning area-wide direction for designation of road and trail systems, habitat effectiveness goals, and ROW avoidance/exclusion areas would have cumulative effects on ROW placement. The combination of these various factors would result in ROW decisions becoming more subject to other considerations besides cost, how best to access private lands, or how best to route a utility. Future designation of ROWs could become more subject to considerations of overall transportation system goals and involve tradeoffs to achieve resource management and recreation use goals. These tradeoffs could result in increased costs for ROW development over the length of the plan.

Regional Transportation

In all action alternatives (Alternatives 2-7), the transportation corridor allocations south of Redmond and for State Highway 126 north of the Redmond Airport, coupled with allocation of community expansion lands by the BLM, additional development and potential additional ROW requests, would likely increase the fragmentation of BLM-administered lands and affect resource values and recreation opportunities. However, given the compensatory mitigation required in these alternatives and the common management direction for a change from Open to Limited travel designations in the Bend/Redmond block, the effects of these combined actions on fragmentation may be minimal. The development of additional major roads in these areas, along with community expansion lands and additional development in Redmond would likely

increase the difficulty in managing some portions of the Bend/Redmond block for resource and recreation values, particularly for those BLM administered lands that may be located between existing and new road alignments.

Local Transportation

The cumulative effect of the change from large areas designated as Open to having designated road systems planning area-wide, along with additional development adjacent to or within (inholdings) BLM administered lands, and increased visitation to these lands, will result in increase in the road maintenance and engineering needs for the BLM if recreation, resource management and safety goals, as well as continued permitted uses are to be met.

Public Health and Safety

Summary

The public health and safety discussion in this RMP is limited to firearm discharge (both target shooting and hunting), dumping, campfires, and authorities provided to BLM law enforcement rangers. To improve document readability and increase understanding of the issues, these four topics are discussed in the public health and safety section in their entirety (e.g. recreation management related to firearm discharge, dumping, and campfires are also discussed in this section). In addition, other sections address public health and safety concerns, for example, the fuels section discusses the dangers of wildland fire related to lightning.

The effects of firearm discharge management are important in regard to public health and safety, vegetation and wildlife concerns, and recreation. The types and locations of firearm closures in the action alternatives are often related to desired recreation experiences or designated recreation emphasis for a specific area. Rapidly increasing human populations will further accentuate the need to examine the effects of firearm discharge management.

The direct and indirect effects of each alternative in regard to firearm discharge will primarily result in closures to all firearm discharge or to firearm discharge unless legally hunting. Since the alternatives vary primarily by the number of acres in each of the two types of closures (see Table 4-56), the types of effects are generally the same for each alternative, although a few site-specific notes have been made. Of any alternative, Alternative 7 would close the most BLM-administered land to all firearm discharge followed by Alternatives 3,4,and 5 and then Alternative 6 with Alternative 1 having the least acres closed to all firearm discharge. Alternative 3 closes the most acreage in the planning area to firearm discharge unless legally hunting, followed by Alternatives 5, 7, 6, 4 and 2 respectively. Once again Alternative 1 closes the least amount of land in the planning area to firearm discharge unless legally hunting.

Areas that receive repeated target shooting use often contain many damaged or destroyed trees, or cleared areas on hillsides from foot and vehicle traffic associated with target placement. Since Alternatives 3, 5, and 7 close the highest acreage to target shooting, these alternatives would provide the most protection for vegetation and wildlife opposed to Alternatives 6, 4, 2 and 1 respectively. The focus on natural and cultural resource protection would also increase the compatibility between recreational uses and allow for less user conflicts and greater recreational diversity. The protection of aesthetic values of the natural landscape would be greater in Alternatives 3, 5, and 7 as well.

In regard to campfires, Alternative 1 provides the fewest restrictions on the use of campfires of all alternatives but also the least amount of wildland fire protection related to campfires. Alternative 1 provides relatively few restrictions to campfires other than the existing policy adopted in the Middle Deschutes/Lower Crooked Wild and Scenic River Plan. All action alternatives would close an additional amount of acreage to campfires as opposed to Alternative 1. This would simplify campfire regulations in the main Steamboat Rock block, and help protect historic cultural sites and other Special Management Areas by closing them to campfires. This approach would be more understandable, enforceable, and implementable than Alternative 1, though it would moderately reduce opportunities to enjoy campfires and provide minimal wildland fire protection.

With respect to dumping, the Public Health and Safety alternatives do not include any specific actions; however, closures to motorized vehicles described in the Recreation section would be expected to have indirect effects on dumping. Therefore, since Alternative 1 has the least amount of motor vehicle closures, it would contribute the least to the reduction of dumping. Conversely, based on acres closed to motorized use, Alternative 7 would have the greatest impact toward the reduction of dumping than any other alternative.

General Relationships

Definitions

Hunting means to take or attempt to take any wildlife by means involving the use of a weapon or with the assistance of any mammal or bird. The designation "Closed to firearm discharge unless legally hunting" would not prohibit year-round hunting of "unprotected mammals and birds".

Closure to firearm discharge would not apply to: (1) BLM personnel, including but not limited to: Acting in defense or protection of an individual, dispatching a critically injured animal for humane purposes, or dispatching a dangerous or damage-causing animal; and (2) Other government personnel in emergency situations, and: (3) Discharge

Table 4-56 Public Health and Safety Summary of Firearm Closures

	Type of Closure			
Alternative	**Closed to all firearm discharge**		**Closed to firearm discharge unless legally hunting**	
	Acres	%[1]	**Acres**	%[1]
Common to All	588	<1	0	0
Alt. 1	708	<1	3,646	1
Common to 2-7	4,657	1	15,616	4
Alt. 2	4,657	1	20,749	5
Alt. 3	8,296	2	121,398	30
Alt. 4	8,296	2	23,301	6
Alt. 5	8,296	2	110,075	27
Alt. 6	6,289	2	58,739	14
Alt. 7	11,486	3	83,121	21

[1] % of BLM-Administered Lands Within the Planning Area

Note: Alternative 1 and CT Alt 2-7 figures include closures in CTA. Alternative 2, 3, 4, 5, 6, and 7 figures include closures in CTA and CT Alt 2-7. Figures for areas closed to all firearm discharge include 290 acres of seasonal raptor closures.

of projectiles with a limited range where, should the shooter miss their target, the projectile is likely to hit the ground before hitting other, unintended targets, including but not limited to: a bow or compound bow and arrow, a slingshot, a BB gun, or a paintball guns, and (4) discharge of weapons using "blank" ammunition where no projectile is discharged including, but not limited to: blanks for dog training purposes, or by the military for official training purposes.

Visitors are defined as members of the public on BLM-administered public land in the planning area.

Assumptions

The recreational experience and conflicts with other uses and adjacent landowners

Many firearm discharging visitors enjoy returning to the identical site repeatedly. While many visitors engaging in firearm discharge ensure they shoot in a safe manner and clean up their trash, some visitors are not safety conscious, damage natural and cultural resources, and do not remove their trash. Target shooting, particularly at popular locations, typically results in large amounts of shooting related debris. However, within the population of visitors discharging firearms on BLM-administered land, hunters are assumed to leave behind a relatively small amount of the firearm discharge-related trash observed within the planning area.

Perceptions of safety and solitude are more likely when firearm discharge is predictable (occurs at specific locations and/or primarily during fall big-game hunting seasons). Areas closed to all firearm discharge increase perceptions of safety and solitude, compared to areas that are closed to firearm discharge unless legally hunting, or areas with no closures. Restrictions on firearm discharge, coupled with closures to, or limitations on motor vehicle use would tend to combine to increase perceptions of solitude and safety.

The overall effects of closures to all firearm discharge on availability of recreational opportunities will be minimal because these closures are limited, and opportunities for firearm discharge will continue to exist nearby.

Areas without firearm discharge restrictions will provide the greatest opportunities for target shooting and hunting recreationists. Firearm discharge closures in areas of moderate recreational use, with limited inholdings or adjacent landowners, will have greater positive effects on solitude than closures of similar acreage with intense recreational use, with numerous inholdings or adjacent landowners. Firearm discharge closures in urban areas (areas with intense recreational use, and numerous access points and adjacent landowners) were evaluated as having greater positive effects on the availability of recreation than closures in areas of similar acreage with more rural characteristics (moderate recreational use, few access points, and adjacent landowners). Firearm discharge closures in areas with intense recreational use and numerous privately owned inholdings and adjacent landowners would increase the compatibility of recreation more than closures of similar acreage in areas of moderate recreational use and moderate amounts of inholdings and adjacent landowners.

Firearm discharge closures in areas with intense recreational use and a relatively rare recreational experience will increase the availability of diverse recreation opportunities more than closures of similar acreage in areas of moderate recreational use and/or a common recreational experience. For example, a firearm discharge closure in the Badlands would have greater positive impacts to the diversity of recreation because Wilderness Study Areas are rare in the planning area, as opposed to a closure of similar acreage in the Bend-Redmond block, where recreational substitutes are relatively common.

Visitors displaced by closures of BLM-administered land to firearm discharge will continue to engage in firearm discharge activities in other adjacent areas where firearm discharge is legal, as opposed to participating in a different activity within the firearm discharge closure area. Also, except for hunting, most firearm discharge is a vehicle-dependant activity because most participants want their vehicles immediately adjacent to their shooting area for easy access to supplies. This means areas closed to all motorized travel and closed to firearm discharge unless legally hunting will have limited additional effect on the availability of recreational opportunities above the effects associated with the motorized closure alone.

Management and implementation

All visitors, including visitors engaging in firearm discharge, prefer the BLM to use the least amount of management control possible and still achieve the conditions and experiences for which the area is managed. Also, providing a diversity of recreation opportunities is dependent upon the BLM and its partners providing facilities, services, and active resource and social management. Without active recreation management including specially-designated use areas, designated trails, and public information on road and trail systems, the resulting recreation setting will offer a high degree of freedom of choice, but will also result in limited opportunities for many types of recreation. There is good evidence to show this is already happening in some places within the planning area. Firearm discharge is generally easier to manage in rural areas than in urban areas because urban areas generally include an increased density of recreationists, increased diversity of recreational uses, increased diversity of land uses, and increased number of adjacent landowners (especially adjacent residential landowners).ODF&W uses recreational hunting as a tool to monitor and control game species; this tool would not be used in areas closed to all firearm discharge. Areas closed to firearm discharge unless legally hunting will have a minimal effect on wildlife and wildlife management.

Areas closed to firearm discharge unless legally hunting will be more difficult to enforce than closures to all firearm discharge, since it may not be clear that someone is violating a closure unless he/she is contacted personally. Areas closed to firearm discharge unless legally hunting may be more confusing to visitors, placing additional pressure on BLM's limited law enforcement staff. In addition, alternatives that close more acreage to firearm discharge, campfires, and dumping will be less understandable and enforceable than alternatives with fewer closures. Implementation of firearm discharge closures will require an understanding of access points, posting of signs, and working with volunteer/Adopt-an-Open-Space groups for information distribution and feedback.

In general, alternatives closing the most acreage to firearm discharge, campfires, and dumping will be less implementable than alternatives with fewer restrictions. Implementability refers to the potential difficulty of the Prineville BLM office to successfully implement direction provided in this section. Closures delineated by easily identifiable boundaries (e.g. natural features, roads) will be more understandable, enforceable, and implementable because both the public and BLM staff will more readily understand which restrictions apply to which geographic areas. This ease of understanding should not vary by alternative, except in relation to the total acreage closure of the alternative.

Natural Resources

Trees and other vegetation will experience some level of firearm discharge-related damage and loss in areas open to firearm discharge, especially by those who are not hunting and at popular casual use target shooting areas. Areas closed to all firearm discharge will provide the greatest protection to vegetation. Areas closed to firearm discharge unless legally hunting will provide slightly less protection.

In areas closed to all firearm discharge, firearm hunting will no longer be available to control wildlife populations (bow hunting would still be allowed), and the recreational aspects of hunting will be lost. Areas closed to firearm discharge unless legally hunting will have a minimal effect on wildlife.

Firearm discharge closures in areas of topographical relief, with intense recreational use and numerous adjacent landowners were evaluated as having greater positive effects on distinct natural land forms than closures of similar acreage without topographical relief, and/or moderate recreational use and limited adjacent landowners.

Common Effects

Approximately 588 acres would continue to be closed to all firearm discharge common to all alternatives. These closures are a continuation of management direction provided in Federal Register notices established after the completion of the Brothers/La Pine RMP. The direct effect of these three firearm discharge closures (588 acres) is to prohibit all firearm discharge on 0.1% of the BLM-administered land in the planning area. This management direction provides limited protection for natural and cultural resources, fewer opportunities for land users to experience natural quiet and increased perceived safety (therefore, little diversity of recreation opportunities). Indirectly this continued management direction would be expected to displace a small amount of firearm discharge, but the extent of this displacement is unknown.

Campfire closures Common-to-All Alternative management include an existing Federal Register notice that closed 3,119 acres of BLM-administered land within the Lower Crooked and Middle Deschutes Wild and Scenic Rivers (WSR) to campfires between June 1 and October 15. This seasonal closure applies to the Wild and Scenic River boundaries, but leaves out other public lands in the same general area. Crooked River Ranch (CCR), a subdivision situated on a peninsula of land between the Lower Crooked and Middle Deschutes rivers, normally closes its boundaries to campfires between June 1 and November 1. This means CRR and the WSR corridors are closed to campfires, but the intermixed BLM uplands areas are open to campfires, which is confusing to the public and difficult to enforce.

Analysis of Alternatives

Effects of Alternative 1

Firearm Discharge

Alternative 1 would include three closures in addition to the three closures that are common to all alternatives. The direct effect of the six firearm discharge closures in Alternative 1 is to prohibit opportunities for all firearm discharge on 708 acres and firearm discharge unless legally hunting on 3,646 acres. These closures provide less resource and cultural protection, fewer opportunities for land users to experience natural quiet and increased perceived safety, less diversity of recreation opportunities, and less recreation compatibility than any other alternative. Alternative 1 has the least acres closed to firearm discharge, and would therefore be expected to be the most understandable, enforceable, and implementable of all the alternatives. Indirectly, these Alternative 1 firearm discharge closures are expected to displace less firearm discharge to other geographic areas than all other alternatives, but the extent of those displacements is unknown. Alternative 1 is expected to produce more conflicts among recreational users and between recreational users and adjacent landowners than any other alternative.

Dumping

The alternatives do not include any specific actions related to dumping in Alternative 1; however, closures to motorized vehicles described in the Recreation section are expected to have indirect effects on dumping. In Alternative 1, about 3 percent (11,111 acres) of the planning area would be managed for exclusive non-motorized use, effectively closing these areas to motorized vehicles, resulting in a probable reduction in the amount of waste dumped within the planning area. Although a quantitative analysis is not possible, it is reasonable to assume Alternative 1 would contribute to more dumping than any other alternative. Compared to the other alternatives, these limited motor vehicle closures provide the least amount of natural resource protection and the least opportunity for visitors to experience an aesthetic natural landscape. Alternative 1 is expected to require the least amount of engineering and design but the greatest amount of ranger presence and enforcement.

Effects Common to Alternatives 2-7

Actions Common to Alternatives 2-7 (the action alternatives) include the closure of some small, isolated blocks to all firearm discharge in areas of threatened natural or cultural resources, high visitation, and user conflicts; as well as closure of ACECs, RNAs, and other special areas to firearm discharge unless legally hunting; and finally closure of ACECs, RNAs, and other highly developed sites to campfires year-round, and closes all BLM-administered lands in the Steamboat Rock block to campfires seasonally.

Firearm Discharge

All action alternatives (2-7) would result in the closure of 4,657 acres of BLM-administered land to all firearm discharge, and 15,616 acres to firearm discharge unless legally hunting. Compared with current management, these closures would provide additional but limited natural resource and cultural protection, additional but limited opportunities for land users to experience natural quiet and increased perceived safety, additional but limited diversity of recreation opportunities, and additional but limited recreation compatibility.

Indirectly these Common to Alternative 2-7 firearm discharge closures would be expected to displace more firearm discharge activity to other geographic areas than would Alternative 1. Because the closures common to all action alternatives generally focus on small, isolated parcels adjacent to residential areas with high rates of recreational use, most of the displaced firearm discharge use is expected to move to larger blocks of BLM managed land, in areas with relatively fewer recreationists and adjacent residents. While the location and extent of these displacements is unknown, it is reasonable to assume some firearm dischargers will move to nearby BLM-administered lands, including the Cline Buttes and Bend- Redmond blocks.

Campfires

The Common to Alternatives 2-7 approach would close an additional 9,021 acres to campfires over management Common to All Alternatives, moderately reducing opportunities to enjoy campfires, and providing minimal additional wildland fire protection. Indirectly, however, these closures would simplify campfire regulations in the Steamboat Rock area. These simplified campfire regulations would make this approach more understandable, enforceable, and implementable than Common to All Alternatives. This approach would also reduce the need for BLM law enforcement officers to educate visitors and enforce the regulations.

Law Enforcement Authority

The Common to Alternatives 2-7 approach would provide BLM law enforcement rangers with increased authority to enforce existing Oregon state and local laws above what is provided in Alternative 1. The indirect effects of this approach would be an increased enforcement of Oregon state and local laws on BLM-administered land, and increased consistency of enforcement of Oregon state and locals laws between BLM and non-BLM-administered lands above Alternative 1, although neither of those effects can be quantified.

Dumping

Alternatives 2-7 would not result in any direct effects on dumping because these alternatives do not identify any site-specific actions. However, closures to motorized vehicles described in the Common to Alternatives 2-7 Recreation section would be expected to have indirect effects on dumping. Areas managed for exclusive non-motorized use would be closed to motorized vehicles, resulting in a probable reduction in the amount of waste dumped within the planning area. In addition, it is probable that an additional number of user-created travel-ways leading to habitual dumping areas will be closed, either to all vehicles, or at least to full-sized vehicles above the direction provided in Alternative 1. If implemented, these closures would be completed using fences, boulders, and signs. The effects of these probable actions include a reduction in dumping in the closed areas, and a displacement of illegal dumping to adjacent areas, leading to an increase in dumped materials in those adjacent areas.

Effects of Alternative 2

Firearm Discharge

Alternative 2 has six additional areas (5,133 acres) closed to firearm discharge unless legally hunting above those closed in Common to Alternatives 2-7. These closures are generally proximal to urban areas; two of them are managed as ACECs. Compared to current management, these closures provide additional natural and cultural resource protection, and allow for increased opportunities for land users to experience natural quiet and increased perceived safety. In conjunction with motorized closures, this alternative would increase the diversity of recreation opportunities above Alternative 1 by establishing urban, non-motorized areas closed to firearm discharge unless legally hunting. Compatibility would also be improved by providing non-motorized users an opportunity to recreate where the only firearm discharge allowed is hunting. Because of the limited number of closures, this alternative would be more understandable, enforceable, and implementable than the other action alternatives.

Compared to existing management the indirect effects of Alternative 2 firearm discharge closures include minor additional displacement of target shooters from generally small, urban BLM-administered lands with relatively high amounts of recreational use. Although the exact location and amounts of the displacement is unknown, the closures primarily occur on BLM-administered lands between Bend and Redmond, making it reasonable to assume at least some of those target shooters would move to adjacent BLM-administered lands in the Cline Buttes and Bend-Redmond blocks.

Dumping

There are no specific actions related to dumping in Alternative 2; however, closures to motorized vehicles described in the Recreation section are expected to have indirect effects on dumping. In Alternative 2, 25,699 acres or 6 percent of the planning area would be managed for exclusive non-motorized use, effectively closing these areas to motorized vehicles, resulting in a probable reduction in the amount of waste dumped within the

planning area. In addition, it is probable that an additional number of user-created travel-ways leading to habitual dumping areas will be closed, either to all vehicles, or at least to full-sized vehicles above the direction provided in Alternative 1 (see Common to Alternatives 2-7). If implemented, these closures would be completed using fences, boulders, and signs. Although a quantitative analysis is not possible, it is reasonable to assume Alternative 2 would allow the second-most amount of dumping of any of the alternatives. Compared to the other alternatives, these limited closures provide the second-least amount of natural resource protection and opportunity for visitors to experience an aesthetic natural landscape. Alternative 2 would be expected to require the second-least amount of engineering and design, but the second-greatest amount of ranger presence and enforcement.

Effects of Alternative 3

Firearm Discharge

This alternative would close 129,694 acres, or 32 percent of the planning area, to firearm discharge, the most acreage of any alternative. That acreage includes 8,296 acres closed to all firearm discharge, and 121,398 acres closed to firearm discharge unless legally hunting. Five of the six areas closed to firearm discharge unless legally hunting in Alternative 2 would be closed to all firearm discharge here. These closures would be especially important given their proximity to urban areas and the expected demographic changes predicted for the Central Oregon. In addition, Alternative 3 would close the Badlands, the Tumalo block, most of the La Pine block, and parts of the Mayfield and Millican Plateau blocks to firearm discharge unless legally hunting. Compared to Alternatives 1 and 2, these actions would improve natural resource protection by providing additional protection to vegetation and wildlife. Combined with closures to all motorized travel, these firearm discharge closures would provide the most recreational opportunities for experiencing non-motorized, target shooting-free areas, emphasizing natural quiet, high visual quality, and increased perceived safety in the planning area. From a compatibility perspective, these closures separate different user groups thereby reducing user conflicts. Compatibility would be emphasized because this alternative separates users to a great degree, reducing user conflicts, but less so than in Alternatives 5 and 7. Because of the additional firearm discharge closures, this alternative would be equally difficult to understand and enforce as Alternatives 5 and 7. Alternative 3 would be the second-least implementable, requiring nearly the greatest management presence (behind Alternative 5).

Compared to the other alternatives, Alternative 3 firearm discharge closures would be expected to displace the second-greatest amount of firearm discharge. Although the exact location and amounts of displacement is unknown, critical Alternative 3 closures would occur in the Steamboat Rock block, and parts of the Mayfield and Cline Buttes blocks, making it reasonable to assume some target shooters will move to adjacent BLM managed lands in the Bend-Redmond block, and sections of the Mayfield and Cline Buttes blocks still open to firearm discharge activities.

Dumping

The alternatives do not include any specific actions related to dumping in Alternative 3; however, closures to motorized vehicles described in the Recreation section would be expected to have indirect effects on dumping. In Alternative 3, 81,619 acres, or about 20 percent of the planning area would be managed for exclusive non-motorized use, effectively closing these areas to motorized vehicles, resulting in a probable reduction in the amount of waste dumped within the planning area. In addition, it is probable that an additional number of user-created travel-ways leading to habitual dumping areas would be closed, either to all vehicles, or at least to full-sized vehicles above the direction provided in Alternative 1 (see Common to Alternatives 2-7). If implemented, these

closures would be completed using fences, boulders, and signs. Although a quantitative analysis is not possible, based on acres closed to motorized use, it is reasonable to assume Alternative 3 would have less impact on dumping than Alternatives 6, and 7, but more impact than Alternatives 1, 2, 4, and 5. Compared to the other alternatives, these motorized closures would provide the third most amount of natural resource protection, and the third most opportunity for visitors to experience an aesthetic natural landscape. Alternative 3 would be expected to require the third-most amount of engineering and design, but the fifth-least amount of ranger presence and enforcement. Finally, the Recreation section in Alternative 3 closes the main Steamboat Rock block to full-sized vehicles only (while still allowing OHV use); this approach would continue to provide motorized recreation opportunities while reducing the amount of dumping.

Effects of Alternative 4

Firearm Discharge

This alternative would close an identical amount of area to all firearm discharge as Alternative 3 (8,296 acres); however, Alternative 4 only closes a limited amount of acreage to firearm discharge unless legally hunting above Common to Alternatives 2-7 (7,685 acres). Except in the Steamboat Block these closures provide less protection to natural and cultural resources than Alternative 3, but more than Alternative 2. Compared to 3, Alternative 4 would also reduce the diversity and compatibility of recreational opportunities by limiting the separation of uses, and establishing special areas managed for particular experiences. Overall aesthetic values would also be reduced compared to Alternative 3, because natural quiet, visual quality and perceived safety would not be provided for to the same degree. The one exception to the general trend in Alternative 4 would be Steamboat Rock. Additional acreage closure in the main Steamboat Rock block to firearm discharge unless legally hunting would improve natural resource protection, provide additional recreational opportunities, improve the aesthetic values of the natural landscape, and improve recreational compatibility in this part of the planning area. Alternative 4 would require more management presence than Alternative 2, but less than Alternatives 3, 5, 6, and 7. Alternative 4 would be easier to understand and enforce, and more implementable than Alternatives 3, 5, 6, and 7, but more difficult to understand and enforce and less implementable than Alternative 2.

Compared to the other alternatives, Alternative 4 firearm discharge closures are expected to displace a relatively small amount of firearm discharge. Although the exact location and amounts of displacement is unknown, based on acres of closure one can expect Alternative 4 would displace more firearm discharge than Alternative 2, but less than Alternatives 3, 5, 6, and 7. The only substantial closure above Common to Alternatives 2-7 would be in the Steamboat Rock area, making it reasonable to assume some target shooters would move to adjacent BLM-administered land in the Bend-Redmond and Cline Buttes blocks or the Crooked River National Grasslands.

Dumping

With respect to dumping, the alternatives do not include any specific actions in Alternative 4; however, closures to motorized vehicles described in the Recreation section would be expected to have indirect effects on dumping. In Alternative 4, 28,091 acres, or 7 percent of the planning area would be managed for exclusive non-motorized use, effectively closing these areas to motorized vehicles, resulting in a probable reduction in the amount of waste dumped within the planning area. In addition, it is probable that an additional number of user-created travel-ways leading to habitual dumping areas would be closed, either to all vehicles, or at least to full-sized vehicles above the direction provided in Alternative 1 (see Common to Alternatives 2-7). If implemented, these closures would be completed using fences, boulders, and signs. Although a quantitative analysis is not possible, based on acres closed to motorized use, it is reasonable to

assume Alternative 4 would have less impact on dumping than Alternatives 3, 5, 6, and 7, but more impact than Alternatives 1 and 2. Compared to the other alternatives, these motorized closures would provide the third-least amount of natural resource protection, and the third-least opportunity for visitors to experience an aesthetic natural landscape. Alternative 4 would be expected to require the third-least amount of engineering and design, but the fifth-most amount of ranger presence and enforcement. Finally, the Recreation section in Alternative 4 closes the main Steamboat Rock block to full-sized vehicles only (while still allowing OHV use), providing continued motorized recreation opportunities while reducing the amount of dumping.

Effects of Alternative 5

Firearm Discharge

This alternative closes the second most acres of BLM-administered land to firearm discharge. While Alternative 5 would include identical closures to all firearm discharge as established in Alternative 3 (8,296 acres), it would close a different set of acres to firearm discharge unless legally hunting (110,075 acres). This alternative would provide for the second most compatibility between recreational users, and between recreational users and adjacent landowners in urban and residential areas (Alternative 7 provides the most). This is reflected in Cline Buttes, La Pine, the Mayfield block, and the Crooked River parcels where large areas would be closed to firearm discharge unless legally hunting. Although this alternative would provide improved compatibility because of its increased management of user conflicts in urban and residential areas, overall it would close less land to firearm discharge than Alternative 3, and would not provide as diverse recreational opportunities as Alternatives 3 and 7 (although it would be more compatible and diverse than Alternatives 2, 4, and 6). Natural and cultural resource protection would exceed the protection provided in Alternatives 2, 4, 6, and 7 because a majority of the damage to these resources occurs in proximity to urban and residential centers, and would be largely protected by a closure to firearm discharge unless legally hunting. The aesthetic values of the natural landscape, including solitude and distinctive land forms, would be moderately protected, less than in Alternatives 3 and 7, but more than in Alternative 2, 4 and 6. Because of its proposed firearm discharge closures and urban orientation, Alternative 5 would require the most management presence and would be of equal difficulty as Alternatives 3 and 7 to understand and enforce. Alternative 5 would be the least implementable of any alternative.

Compared to the other alternatives, Alternative 5 firearm discharge closures would be expected to displace the most amount of firearm discharge (behind Alternative 7). Although the exact location and amounts of displacement is unknown, the urban characteristics of the closure areas in Steamboat Rock and Cline Buttes would directly affect the amount of expected displacement. As noted above, Alternative 5 would close fewer acres to firearm discharge than Alternative 3, but more target shooting generally occurs in Cline Buttes than in the Badlands, hence the change in expected displacement. It is reasonable to assume many of the displaced firearm users would move to adjacent publicly-owned lands, including the Bend-Redmond block of BLM-administered land, and the Crooked River National Grasslands just north of the planning area.

Dumping

With respect to dumping, the Public Health and Safety alternatives do not include any specific actions in Alternative 5; however, closures to motorized vehicles described in the Recreation section would be expected to have indirect effects on dumping. In Alternative 5, 54,548 acres, or 14 percent of the planning area would be managed for exclusive non-motorized use, effectively closing these areas to motorized vehicles, resulting in a probable reduction in the amount of waste dumped within the planning area. In addition, it is probable that an additional number of user-created travel-ways leading

to habitual dumping areas would be closed, either to all vehicles, or at least to full-sized vehicles above the direction provided in Alternative 1 (see Common to Alternatives 2-7). If implemented, these closures would be completed using fences, boulders, and signs. Although a quantitative analysis is not possible, based on acres closed to motorized use, it is reasonable to assume Alternative 5 would have a greater impact on dumping than Alternatives 1, 2, and 4, but less than Alternatives 3, 6, and 7. Compared to the other alternatives, these motorized closures would provide the fourth-most amount of natural resource protection, and the fourth-most opportunity for visitors to experience an aesthetic natural landscape. Alternative 5 would be expected to require the fourth-most amount of engineering and design, and the fourth-most amount of ranger presence and enforcement.

Effects of Alternative 6

Firearm Discharge

This alternative emphasizes effective wildlife habitats outside areas most likely to be affected by residential and urban development. Three of the five urban-related parcels that would be closed to all firearm discharge in Alternatives 3-5 (the airport allotment, the southern parcel in the Tumalo block, and the parcel north of Rickard Road, South of Highway 20) would now be closed to firearm discharge unless legally hunting. This would leave 6,289 acres closed to all firearm discharge, and 58,739 acres closed to firearm discharge unless legally hunting. Although the exact location and amounts of displacement is unknown, this alternative would close the third-least amount of BLM-administered land to firearm discharge, and would not close any previously identified intensive firearm discharge areas.

Alternative 6 would provide greater protection for vegetation and wildlife than Alternatives 2 and 4, but less than Alternatives 3, 5, and 7. The focus on natural and cultural protection would reduce the compatibility between recreational uses, and allow for more user conflict than Alternatives 3, 5, and 7 but less than Alternatives 2 and 4. The diversity of recreation opportunities would be reduced because of fewer restrictions in the high conflict urban areas, providing less diversity than Alternatives 3, 5, and 7, but more diversity than Alternatives 2 and 4. The protection of aesthetic values of the natural landscape would be greater than in Alternatives 2 and 4, but less than Alternatives 3, 5, and 7, and would move the area of emphasis from urban to rural. Because management is generally easier in rural areas compared to urban areas, this alternative would require less management presence, be easier to enforce, be easier to understand the regulations compared to Alternatives 3, 5, and 7, and harder than in Alternatives 2 and 4. Implementing this alternative would be easier than Alternatives 3, 5, and 7, but harder than Alternatives 2 and 4. Compared to the other alternatives, Alternative 6 firearm discharge closures would be expected to displace the third-least amount of firearm discharge, only displacing less than in Alternatives 2 and 4.

Compared to the other alternatives, Alternative 6 firearm discharge closures would be expected to displace the third least amount of firearm discharge, only displacing less than in Alternatives 2 and 4. Although the exact location and amounts of displacement are unknown, this alternative would not close any previously identified popularly used causal target shooting areas.

Dumping

With respect to dumping, the Public Health and Safety alternatives do not include any specific actions in Alternative 6; however, closures to motorized vehicles described in the Recreation section would be expected to have indirect effects on dumping. In Alternative 6, 83,804 acres, or 21 percent of the planning area would be managed for exclusive non-motorized use, effectively closing these areas to motorized vehicles, resulting in

a probable reduction in the amount of waste dumped within the planning area. In addition, it is probable that an additional number of user-created travel-ways leading to habitual dumping areas would be closed, either to all vehicles, or at least to full-sized vehicles above the direction provided in Alternative 1 (see Common to Alternatives 2-7). If implemented, these closures would be completed using fences, boulders, and signs. Although a quantitative analysis is not possible, based on acres closed to motorized use for this alternative, it is reasonable to assume Alternative 6 would have a greater impact on dumping reduction than Alternatives 1-5, but less impact than Alternative 7. Compared to the other alternatives, these motorized closures provide the fourth-most amount of natural resource protection, and the fourth-most opportunity for visitors to experience an aesthetic natural landscape. Alternative 6 would be expected to require the second-most amount of engineering and design, and the sixth-least amount of ranger presence and enforcement.

Effects of Alternative 7

Firearm Discharge

This alternative takes an approach that combines many of the features of the previous alternatives in a manner that attempts to meet, to the greatest degree possible, the needs of all of the issue areas. Of any alternative, Alternative 7 would close the most BLM-administered land to all firearm discharge (11,486 acres), but the third-most acreage to firearm discharge unless legally hunting (83,121 acres). This alternative emphasizes maintaining wildlife habitat, and would provide the second-greatest protection to vegetation and wildlife of all the alternatives. This alternative would also emphasize intensive visitor management, and with the motorized travel closures, provide for nearly maximum recreational opportunities for enjoying natural quiet, high visual quality, and increased perceived safety, behind Alternative 3. From a compatibility standpoint this set of firearm discharge closures would maximize the separation of different user groups, resulting in the greatest reduction of user conflicts. Because this alternative calls for nearly maximum separation of users and management presence, it would be equally difficult to understand and enforce as Alternatives 3 and 5.Although the exact location and amounts of displacement is unknown, this alternative would close the most acreage to all firearm discharge, including closures in the Steamboat Rock and Cline Buttes blocks (areas presently utilized by target shooters) and may result in displacement of target shooting to other BLM administered lands or to the Crooked River National Grasslands.

Dumping

With respect to dumping, the Public Health and Safety alternatives do not include any specific actions in Alternative 7; however, closures to motorized vehicles described in the Recreation section are expected to have indirect effects on dumping. In Alternative 7, 87,832 acres, or 22 percent of the planning area would be managed for exclusive non-motorized use, effectively closing these areas to motorized vehicles, resulting in a probable reduction in the amount of waste dumped within the planning area. In addition, it is probable that an additional number of user-created travel-ways leading to habitual dumping areas would be closed, either to all vehicles, or at least to full-sized vehicles above the direction provided in Alternative 1 (see Common to Alternatives 2-7). If implemented, these closures would be completed using fences, boulders, and signs. Based on acres closed to motorized use, Alternative 7 would have the greatest impact on reduction of dumping than any other alternative. Compared to the other alternatives, these motorized closures would provide the greatest amount of natural resource protection and the greatest opportunity for visitors to experience an aesthetic natural landscape. Alternative 7 would be expected to require the greatest amount of engineering and design, but the least amount of ranger presence and enforcement
Finally, the Recreation section in Alternative 7 would close the main Steamboat Rock block to full-sized vehicles only (while still allowing OHV use). This approach would

continue to provide motorized recreation opportunities while reducing the amount of dumping.

Cumulative Effects

The Public Health and Safety cumulative effects analysis area includes the entire FEIS/PRMP planning area and a limited amount of additional USFS acreage. Within the planning area, other public land parcels will be included in the cumulative effects analysis, including lands managed by Oregon State, Bend Metro Parks and Recreation District, the Central Oregon Parks District, and the Bureau of Reclamation. Additional areas outside of the FEIS/PRMP boundary include the Deschutes National Forest, close to Sisters and Bend, and parts of the Crooked River National Grasslands near Crooked River Ranch. These non-BLM areas are included in the cumulative effects analysis because they are within the Central Oregon urban interface area, are subject to similar urban types of pressures, and are readily accessible by the same visitors recreating on BLM-administered lands within the planning area. The rapid increase of human populations in Central Oregon is expected to exacerbate conflicts between those who enjoy and support discharging firearms on BLM-administered land and those who do not.

There are cumulative effects related to the guidelines described in the Intergovernmental Cooperation section (in Chapter 2). That section describes a mechanism whereby residents living in subdivisions adjacent to BLM-administered land may close their subdivision to all firearm discharge, and then request the appropriate local government to lawfully establish those closures under formal land use processes. With legal closures in place, local governments could then request BLM to extend the existing private land closure with a firearm discharge closure on BLM-administered land. Because only a limited number of subdivisions adjoining Prineville BLM-administered land have presently closed their boundaries to firearm discharge, only 2,175 acres of BLM managed land would qualify for a firearm discharge closure of this type at this time. These closures would be expected to reduce firearm discharge opportunities more than in Alternative 1. Additional subdivisions may engage in this process in the future; however, the location and extent of these actions is unknown, as are the possible cumulative effects.

Cumulatively the relatively few Alternative 1 closures to firearm discharge on BLM-administered land, along with closures implemented by other land management agencies within the cumulative effects analysis area, would be expected to provide more regional opportunities to discharge firearms than any other alternative.

While the degree of impacts would vary for Alternatives 2-7, the combination of additional restrictions on firearm discharge on BLM managed lands and other closures would tend to decrease opportunities to discharge firearms. Alternatives 2, 4, and 6 would have the least cumulative effects on opportunities to discharge firearms.

Alternative 7 would be expected to have the third greatest cumulative effects to firearm discharge behind Alternatives 3 and 5 which would be moderate and substantial respectively.

While these cumulative effects are not quantifiable, for all alternatives, the predicted increase in human populations, residential development, and recreational use of natural areas in Central Oregon would have increased firearm discharge-related conflicts among users, and between recreational users and adjacent landowners above the level of conflict without a population increase. Alternative 1 would have the most potential conflicts, with Alternative 2 next. Common to Alternatives 2-7 would have reduced firearm discharge-related conflicts among recreational users, and between recreational users and adjacent landowners compared to Alternative 1.

A final firearm discharge cumulative effect discussion centers on proposed closures adjacent to the Lower Crooked Wild and Scenic River corridor. The 1992 Lower Crooked Wild and Scenic River (Chimney Rock Segment) Management Plan directed that discharge of firearms and hunting would be limited to state waterfowl, big game, and upland game seasons. While those river closures have yet to be put in place, there is an expectation that those closures will be implemented in the future. Cumulatively the existing WSR direction combined with the proposed RMP firearm discharge closures would restrict target shooting in the area between the Lower Crooked WSR and the Prineville Reservoir (2,763 acres) to a greater extent than Alternative 1. Although additional acreage is being closed to firearm discharge in all action alternatives, the continuity of regulations from river to upland area means the Alternative 2-7 approach would be more understandable, enforceable, and implementable than Alternative 1

Cumulatively, one can expect that as human populations in Central Oregon increase, so will the amount of illegal dumping. In addition, the Social and Economic Impact Analysis Report for the Upper Deschutes RMP/EIS predicts an increase in the number of people living in poverty, and an increase in the cost of housing. From these predictions one can reasonably assume the poorest Central Oregon residents will experience a decrease in the amount of income available for waste disposal, resulting in an increase in the amount of dumping occurring on BLM managed lands within the planning area.

Archaeology

Summary

All alternatives would continue management direction to protect archaeological resources from project effects and consult with affected tribes about project undertakings in accordance with existing laws and regulations. Alternative 1 would have the greatest potential for effects to archaeological resources in general. The effects to archeological resources would be reduced under Alternatives 2-7. Effects to “at-risk” significant archaeological resources that would be expected under Alternative 1 would be reduced under Alternatives 2-7 due to the designation of ACECs. ACEC designation would limit or eliminate activities that could damage or diminish the integrity of archaeological resources. Similarly, potential for effects to archaeological resources that would be anticipated under Alternative 1 would be reduced under Alternatives 2-7 by emphasizing non-project related surveys. Non-project related surveys would provide much needed information about the kind of effects that are occurring to cultural materials in areas of high probability for the location of significant sites. In addition, the potential to stabilize and interpret “at-risk” significant archaeological resources, in particular, and protect and preserve non-renewable resources, in general, would be greatly improved as a result of criteria developed for identifying and prioritizing treatment of “at-risk” resources and non-project related surveys.

Alternative 1

Under current conditions, impacts that are presently occurring to archaeological resources and “at-risk” significant archaeological resources would continue to diminish the integrity of those resources without additional site-specific decisions to alter uses.

Common to Alternatives 2-7

Most “at-risk” resources are protected by limiting activities that could damage them within the immediate vicinity of the resource or by designating ACECs that would emphasize interpretation or limit activities in large areas.

Conducting non-project related inventories across the planning area would have an overall beneficial effect on all forms of archaeological resources. Such inventories would, at once, provide the BLM with better information about the amount, extent, and nature of those resources within the planning area (and by extension, how best to manage them), while at the same time identify representative samples of archaeological data from which scientifically based conclusions about the past could be established.

Managing significant caves in their natural state with an emphasis on interpretation and, where applicable, for appropriate recreational uses, would have a positive effect on archaeological resources. Currently, all caves within the planning area have not been inventoried to determine their resource values. However, prior to authorizing cave uses, various legal requirements would have to be met to ascertain if public access limitations or restrictions are needed.

Future anticipated actions to fence the Redmond Caves parcel and repair the fence around Pictograph (Stout) Cave would prevent unauthorized motorized vehicle access to the areas. This limitation to public access would have a positive effect on archaeological resources in general and "at-risk" significant resources in particular. Such limitations would reduce the dumping, vandalism, soil compaction, and other surface disturbance that is occurring under present conditions.

Objectives that include a designated trail system, limited to foot traffic only, for the Steelhead Falls area and closing and rehabilitating user created trails not part of the designated system would have a beneficial effect on archaeological resources. Such a trail system would allow the public to visit much of the area while directing visitors away from fragile, non-renewable resources that are easily damaged.

Interpretive development and education products for "at-risk" significant archaeological resources would have a positive effect for both the public and the resource. Interpretive development would provide needed measures to stabilize and safeguard threatened resources, while educational products would inform the public about the value, sensitive nature, and geographic importance of those resources.

General Relationships

The analysis of effects on archeological resources is based on several assumptions. Each alternative would comply with the various federal laws, regulations, and policies intended to mitigate project effects to archaeological resources. Archaeological resources would be located, protected, developed, interpreted, and preserved in accordance with existing legal authorities. Appropriate tribal governments would be consulted to ensure their interests are taken into account prior to decisions to implement plan allocations, goals, and objectives.

Each alternative makes allocation or management emphasis decisions that would affect the resource base of non-renewable archaeological resources. However, prior to decisions to implement federal or federally licensed undertakings, various laws and regulations require that an agency official take into account the effects of those undertakings on archaeological resources. Similarly, prior to implementation of federal undertakings, various legal authorities require federal agencies to make a reasonable and good-faith effort to take into account the comments and concerns of local Indian tribes to determine if tribal interests would be affected by project activities. The Wagon Roads ACEC, in Township 17, Range 12, Section 1, would continue to protect the historical features for which the ACEC was designated. Other existing ACECs, RNAs, and WSAs would generally have a beneficial effect on archaeological resources where management actions restrict detrimental uses in those areas. Given those considerations, it is expected

that effects to archaeological resources would be kept to the minimum allowable by law. Actual effects cannot be quantified until site-specific projects are identified and archaeological surveys, site inventory, and documentation is completed.

Analysis of Alternatives

Effects of Alternative 1

Alternative 1 would continue the present management direction provided for archaeological resources found in the Brothers/La Pine RMP. Under this alternative the BLM would meet its legal responsibilities to protect archaeological resources from federal or federally licensed ground-disturbing activities. The management strategy to protect archaeological sites from the effects of project activities would be to avoid them through project modifications. Segments of historic Huntington Road would continue to be recognized as an ACEC and subject to the management guidelines found in the Brothers/La Pine RMP. Alternative 1 does not provide guidance about how the BLM would determine the nature of the archaeological resource base across the planning area, or how it would identify and manage "at-risk" significant archaeological resources threatened by human activities or natural processes. Under this alternative, the expected effects to those "at-risk" resources would continue the trends in resource condition as noted in the Affected Environment section.

Although Alternative 1 provides minimal legal protection for archaeological resources from federal or federally licensed undertakings through avoidance, it does not provide a management strategy that would 1) reduce non-project related effects to resources due to an increasing local population base and visitation rate to public lands, 2) provide direction for determining the amount, extent, and nature of archaeological resources in the planning area, and 3) develop a criteria for identifying "at-risk" significant archaeological resources and prioritizing them relative to a treatment schedule. Impacts under this alternative would be particularly threatening to "at-risk" significant archaeological resources. Unauthorized motorized and mechanized vehicle access to the Redmond Caves parcel, Tumalo Canals, and Pictograph (Stout) Cave would continue to diminish the integrity of those historical resources unless site-specific mitigations were implemented.

Similarly, without a special management designation for the Tumalo Canals, the potential of a material site identified for possible gravel extraction immediately adjacent to the historic canals would affect the local landscape, topographic features, and vegetation, in addition to creating dust and noise. Those activities, in turn, have the potential to affect the integrity of location, design, and feeling that contribute to the significance of the historic feature. In light of those considerations, Alternative 1 would have the greatest potential effect on archaeological resources due to soil compaction, vandalism, artifact collection, erosion, surface disturbance, mineral material extraction, and refuse dumping. By extension, those factors would contribute to a deficiency in resource diversity and information potential.

Effects Common to Alternatives 2-7

Alternatives 2-7 would carry forward the minimal legal responsibilities provided for archaeological resources found in Alternative 1. However, in contrast to that alternative, Alternatives 2-7 establish a more affirmative approach for the management of archaeological resources, in general, and "at-risk" significant archaeological resources, in particular. In keeping with that proactive approach, the Wagon Roads ACEC is carried over into Alternatives 2-7. Here, however, two segments of the existing Wagon Roads ACEC are removed from ACEC designation, due to lack of importance and relevance, and two segments of the historic Horner and Bend/Prineville Roads are added to the Wagon Roads ACEC. Those segments of historic roads that are included

in Alternatives 2-7 are considered eligible to the National Register of Historic Places. Alternatives 2-7 also provide additional proactive management guidance in support of conducting nonproject-related inventories to determine the amount, extent, and nature of archaeological resources across the planning area.

Alternatives 2-7 establish criteria for identifying "at-risk" significant archaeological resources and recommend a method for prioritizing proactive treatment for those resources. A segment of the historic Tumalo Canals is one such "at-risk" significant resource. The feature is considered eligible to the National Register of Historic Places. Alternative 2-7 would designate approximately 1,050 acres surrounding the historic features. The area would be designated as an individual ACEC only in Alternatives 2, 5, 6, and 7. However, in Alternatives 3 and 4, it would be combined with another ACEC where it would receive the same management direction as in Alternatives 2, 5, 6, and 7. Consequently, it would be managed by the same guidelines across all action alternatives. Other identified "at-risk" resources that would be managed in a more proactive manner in Alternatives 2-7 than under existing conditions include: Redmond Caves, Steelhead Falls, and Pictograph (Stout) Cave. The criteria developed to manage "at-risk" significant archaeological resources also provides for including additional significant, threatened resources to the list, should those resources be discovered during future inventories. Similarly, treatment of caves, in general, would emphasize a more proactive management approach than under current conditions.

Effects to archaeological resources and "at-risk" significant archaeological resources would generally be the same under all action alternatives. The approximately 875 acre Wagon Roads ACEC would restrict some uses within the boundaries of the ACEC. Mining of saleable materials would be permitted within one and a half miles of the ACEC but would not be allowed within its boundary to protect the integrity of location, feeling, setting, and design that contribute to the significance of the historic roads. Military tracked vehicles and OHVs would be allowed to cross the historic roads at designated places within the ACEC but would be restricted from traveling over the length of the historic roads. Woodcutting would occur outside of the 300 foot buffer on either side of the historic roads but would not be allowed within the ACEC. No motorized vehicles, mining activities, woodcutting, or shooting would be permitted along the one mile segment of the ACEC within the fence enclosure located in Township 17, Range 12, Section 1. Special recreation permits for activities that could reduce the integrity of the roads would not be granted. All other forms of recreation that do not affect the resources for which the ACEC was designated would be encouraged. Restricting the forgoing activities would reduce erosion and soil displacement and compaction to the roads and their associated features. By restricting those activities, the potential for degradation to the historic property would be reduced and opportunities for interpretation and public education products would be increased. Similarly, completing a non Section 106 cultural resource survey along the roads would document the full extent and nature of the historic features and would provide important information to help identify how best to protect and manage the resource.

Similar to the Wagon Roads ACEC, designating the 1,050 acres around the Tumalo Canals as an ACEC, or providing guidelines for their protection in other ACEC designations, would restrict some uses. Mining of saleable materials would not occur within the ACEC boundaries. Livestock grazing and horseback riding would be allowed within the ACEC but would be restricted from entering the 335 acres where the historic canals are located. Motorized and mechanized vehicle use would be allowed on designated trails in the vicinity of the ACEC but would not be permitted within the ACEC boundaries. Dispersed camping and new discretionary rights-of-way would be allowed on public lands outside of the ACEC but would not be allowed inside the ACEC. Restricting the forgoing activities would reduce erosion, soil compaction, vandalism, and displacement of cultural materials along the historic canals and to their associated features. By reducing those forces affecting the site, degradation would occur at a much slower rate

than under existing conditions and opportunities for interpretation and public education products would be increased. Similarly, completing a non Section 106 cultural resource survey along the historic canal segment would document the full extent and nature of the feature that would provide important information about how to best protect and manage the resource.

Cumulative Effects

Alternative 1 would have the greatest potential for cumulative effects to archaeological resources. The rapid rate of local population growth and urban development, combined with the recreational popularity of the region, has made public lands in central Oregon more accessible, better known, and more intensively used. Under existing management conditions, that increased development near, and recreational use on, public lands would have a diminishing effect on archaeological resources due to artifact collection, vandalism, surface disturbance, soil compaction, and human induced erosion and fire.

In contrast to that, cumulative effects to archaeological resources under management strategies for Alternatives 2-7 would be greatly alleviated as a result of ACEC designation, designated trail systems, certain limitations on public lands access and uses, and a more proactive approach to protecting, preserving, and enhancing heritage resources.

Indian Sacred Sites

Summary

All alternatives would continue management direction to the extent practical, permitted by law, and not clearly inconsistent with essential agency functions to accommodate access to, and ceremonial use of, Indian sacred sites by Indian religious practitioners. In addition, each alternative would continue management direction to avoid adversely affecting the physical integrity of such sacred sites wherever possible.

All alternatives would comply with the various federal laws, regulations, and policies intended to protect and preserve Indian religious practices.

The agency official would be responsible for ensuring that the BLM operates within a government-to-government relationship with federally recognized tribal governments relative to sacred sites and other tribal interests prior to decisions to implement plan allocations, goals, and objectives.

All alternatives would make allocation or management emphasis decisions that would potentially affect Indian sacred sites. However, prior to implementation of federal undertakings, various legal authorities require federal agencies to make a reasonable and good faith effort to take into account the affect of their undertakings on Tribal interests. Given that consideration, it is expected that affects to Indian sacred sites or access to those sites by Indian religious practitioners would be kept to the minimum allowable by law.

Social and Economic

Summary

This section describes the potential social and economic effects of implementing the alternatives described in Chapter 2. The alternatives primarily affect social or economic values indirectly, as a result of land use allocation or allowable use decisions that affect future uses of public lands or conditions under which uses would be allowed. It also

includes anticipated outcomes from reasonably foreseeable actions that would likely be taken to implement the alternatives considered in the FEIS. These include factors that have the potential to affect social or economic conditions within the planning area, local communities, the region and the nation:

- Land ownership classifications and regional transportation corridor allocations that may affect *community development*;
- Land ownership classifications, scenic value and recreation emphases that may affect *amenity values*[7];
- Anticipated treatments to restore and maintain *ecosystem health and diversity* including hazardous fuels reduction;
- *Land uses* including livestock grazing, mineral uses, forest products, and military uses; and
- *Transportation and utility* corridors and classification of BLM-administered roads.

The planning area is surrounded and profoundly influenced by growth and economic development in Central Oregon. The associated build-out of rural and urban lands and increase in recreational and commercial demands on BLM-administered lands are by far the most significant social and economic influences in the region. Central Oregon is a popular tourist and retirement destination, and the contributions of recreation and tourism are important to most of the local economies. Although the BLM–administered lands are, for the most part, not the premier draw for the area, lands within the planning area often provide links to national forest lands and provide an ever-growing locally important source of amenity and recreational values. The lands also provide a continued base for uses such as livestock grazing, aggregate mining, transportation and utility rights-of-way, and land sales, exchange, or acquisition. Public lands in the planning area are important to the communities because they contribute important values citizen's lifestyles. Decisions about how those lands will be used in the future affect, to varying degrees, the economies of local communities and the land available for future development.

There may be a wide variety of potential indirect socioeconomic impacts associated with the proposed alternatives, primarily associated with spending changes. Increases or decreases in spending within the region associated with the plan (e.g., from changes in agency program spending, user/visitor spending or resource use levels) could have indirect impacts to related economic activity of dependent industries (e.g., local retail or service businesses). In addition to the indirect economic impacts from spending, there may be socioeconomic impacts on the local users and communities from the proposed alternatives. Since a number of the impacts cannot be quantified, it is not possible to aggregate all impacts to determine the potential magnitude of the effects on the region's economy and social environment. The socioeconomic impacts identified under these alternatives are likely to be distributed over a wide variety of individuals and groups. Although the potentially greatest impacts may be expected to affect small specific user groups (e.g., recreational groups such as OHV users), some of the more general impacts (e.g., amenity values and land ownership benefits) are expected to provide more broad, regional benefits to both resident and non-resident users. The benefits are expected to be relatively minor overall and mostly dispersed, but all would provide some net socioeconomic benefits at a regional scale.

[7] The concept of amenity value is inherently tied to what economists call "non-use values" as well as direct use values associated with natural resources. The premise is that people place monetary values on natural resources that are independent of their present use of those resources. For example, some people may gain utility simply from knowing that the Lower Crooked Wild and Scenic River or Badlands Wilderness Study Area is preserved even though they may never expect to visit these areas. When discussing socioeconomic impacts, it is important to go beyond simply delineating the more or less tangible changes and link these to human values. In the economics literature, natural resource values that are free of people's present use of the resource have been variously termed intrinsic, existence, and nonuse values. These values arise from a diversity of motivations, including stewardship responsibility, desire to preserve for potential future use, and a desire to bequeath certain environmental attributes and resources to future generations. Today, it is widely accepted that these nonuse values in aggregate can be very important.

Within the limits of available information, this social and economic analysis suggests that, because of the nature of the decisions, many aspects of Alternatives 2-7 would have negligible adverse or beneficial effects on the region's economic environments. The exception to this would be the projected indirect economic benefits derived from anticipated restoration and fuels reduction activities, from projected economic development associated with the transportation corridor south of Redmond, and from the expected cost savings to ODOT from areas available for mineral extraction.

Alternatives 2-7 would generally have a beneficial cumulative social impact, when considered in comparison to Alternative 1, by increasing recreational opportunities and emphasizing regional coordination, a priority given the region's fast-paced growth. However, social effects vary strongly between the alternatives, primarily the effects on different recreational user groups. These are described in detail in the Recreation section of this chapter.

Implementation of Alternatives 1, 2 and 4 are estimated to result in the lowest amount of projected economic spending and potential for job creation. Potential indirect economic benefits are estimated at about $182,000 million in increased spending and about five additional jobs in the region, compared to about as much as $450,000 in increased spending and as many as 12 additional jobs in the region for Alternatives 3, 5, 6 and 7. This is primarily determined by the potential spending and job creation associated with anticipated restoration and fuels hazard reductions treatments. A substantial future economic benefit is expected related to the allocation of a regional transportation corridor between Bend and Redmond in Alternatives 2-7, with a higher anticipated benefit associated with Alternatives 4-7.

Community Development

Community Expansion

Alternative 1 would provide among the highest amount of lands classified for Community Expansion of all the alternatives, however, many of the lands currently desired by the local communities for important infrastructure are classified by the B/LP Plan in an exchange or disposal category that would not necessarily maintain conforming uses or be available for community needs in the future. Alternatives 2, 4, and 7 would be the most responsive to community needs for infrastructure or expansion. Alternatives 3, 5, and 6 would provide the least amount of lands that would benefit communities, or include land use limitations that may not meet community needs. Those alternatives that are most responsive to future community demands are also those likely to contribute to future community expansion.

Regional Transportation

The lack of available transportation corridors in Alternative 1 has the greatest potential indirect economic impacts of all of the alternatives, because of the potential limitations that could be imposed upon expected build-out within the urban growth boundary of the City of Redmond. Alternatives 2-7 would all provide for a transportation corridor outside of the runway protection zone for future relocation of Highway 126, and would all alleviate, to some extent, the potential failure of the Yew Avenue interchange. However, Alternatives 3-7 would provide greater potential benefits because of the anticipated link to Highway 97. Alternatives 4-7 would provide the greatest potential economic benefits and management flexibility for solving future regional transportation problems.

The potential related economic development that could be realized by the interchange improvements was estimated at $42 to $179 million in annual wages and 1,600 to 4,750 jobs. While such economic development is dependent on numerous other factors, even

the lower level of job increase would result in nearly a 2 percent increase in regional employment. This would represent a major economic benefit in the planning area, locally, and regionally. Accordingly, the benefits associated with Alternatives 3 through 7 could have substantial regional importance and significance but little importance nationally.

Amenity Values

Public Land Ownership

Alternatives 2-7 classify most of the planning area as "retention" classification (Z-1 or Z- 2), and include changes in management direction that would improve amenity values within the planning area. Alternatives 3, 6, and 7 are expected to have the greatest potential positive indirect socioeconomic effects due to the perceived link between property values and proximity to open space and public lands.

Scenic Values

Alternatives 2-7 have a greater emphasis on the importance of scenic values than does Alternative 1, particularly those parts of the landscape that are dominant topographic features. Within Alternatives 2-7, objectives for management of visual resources would be the same, but there would be varying levels of anticipated treatments in the planning area that would restore or enhance the landscape and its open space and scenic values. Alternatives 3, 6, and 7 would have more aggressive restoration objectives than Alternatives 2, 4, and 5. More aggressive restoration treatments could have greater short term effects on visual resources, but long term would provide natural appearing landscapes that would have improve hydrologic function. This would provide positive indirect socioeconomic effects.

Recreation

All alternatives in the plan will affect recreation visitors in the planning environment. Depending upon visitor preference, impacts from the alternatives may be significant. Due to the long time customs and cultures in the planning area and the fact that recreation is an important part of these customs and is highly valued for users of the area, it is expected that any change regardless of what type, will be perceived as negative by some recreation users. The 2001 Upper Deschutes Resource Management Plan Social Values Survey conducted for this planning effort and other information from scoping and public meetings indicate many people favor a separation of motorized and non-motorized users. In most cases, non-motorized users have a greater interest in having separated uses, and are more likely to avoid areas because of associated motorized uses than are other motorized users. Alternatives that have higher amounts of areas with a non-motorized or non-motorized exclusive recreation emphasis, especially in large blocks of land (Alternatives 3, 5,6, and 7), would generally provide quiet and solitude than Alternatives 2 and 4 that would focus more on shared uses.

Recreational spending is expected to increase in Alternatives 2-7 compared to Alternative 1 as a result of improved diversity of recreational opportunities. This is a beneficial local impact. These alternatives would have indirect benefits because they would increase the need for local goods and services to support more identifiable recreational opportunities and greater diversity than Alternative 1. Indirect benefits associated with these changes in recreational opportunities also would include increased opportunities for interpretation and education in the area.

Ecosystem Health and Diversity

The economic benefit to private property owners from fire and fuels management programs on public lands is the avoided costs that property owners would have to pay

to insure or otherwise protect themselves and their property from fire damage in the absence of these programs. Estimates of anticipated future annual vegetative treatment program costs were used as a representation of the economic and social benefit to the neighboring communities from these fire/fuels and other vegetative treatments and are included under the Land Uses section.

Land Uses

Livestock Grazing

Livestock grazing offers important social and economic benefits to the local communities and to the regional and national economy. Ranches of various sizes and with various degrees of dependence on public land exist throughout the planning area. The alternatives would not change about 72 percent of current authorized use, so the effects between alternative are limited to about 28 percent of current authorized use. This is a relatively small change on a regional or national scale. While some of the alternatives represent potentially significant effects for some permittees, overall, the magnitude of changes considered in the alternatives would not have a significant effect on the regional or national livestock industry, nor contribute significantly to current trends in conversion of ranchlands to resorts or residential developments.

Minerals

The BLM manages mineral resources in three categories, locatable minerals (such as precious and base metals and some nonmetals), leasable minerals (such as oil, gas, and geothermal), and salable minerals (including sand, gravel, and decorative stone). The alternatives do not substantially change existing management direction for locatable materials. However, a "no surface occupancy" stipulation for fluid mineral leasing would apply to all of the new and existing ACEC designations through the alternatives. The social and economic effects related to locatable and leasable mineral development are expected to be minimal owing to the low probability for development of these mineral resources during the life of the plan.

For mineral sales, Alternatives 1 and 7 would likely provide the highest potential cost savings ($237,500 annually) for taxpayers and the most potential social and economic benefits (one job, one indirect job, and $71,000 in indirect output). Alternatives 3, 5, and 6 would be less likely to provide as many benefits as Alternatives 1 and 7. Alternative 4 would likely provide the fewest benefits from cost savings of any alternative. At least 300,000 acres are available for mineral material sales under all alternatives.

Forest Products

There are no changes to the commercial forest land allocations or the firewood and juniper bough permitting process, and due to adequate resource supplies, no substantive change in the socioeconomic effects is expected with implementation of any of the alternatives.

For Alternative 1 the estimated cost for mechanical treatment is approximately $140,000, and about $64,000 for prescribed fire treatments. For Alternatives 2-7, the combined total quantifiable spending and employment changes from timber and vegetative management changes would be less than $0.5 million and fewer than 12 jobs. Compared with a regional economy for the agricultural sector of $143.7 million in annual output and 3,906 jobs, the projected changes in spending or employment for timber and vegetation management would be less than a 0.35 percent increase in the region's agricultural industry and 0.3 percent increase in regional agricultural jobs. In a regional context, therefore, this increase would be barely discernable and would be considered only of minor importance to the area's agricultural sector. The increase would

have no discernable national importance as Oregon is not in the top 20 list of states for Agriculture in the National Agricultural Statistics and Agricultural Census provided by the U.S. Department of Agriculture. There were some Oregon Counties that made the top 100 counties nationwide for Agriculture, but Crook and Deschutes Counties were not among them.

Military Training

The military training opportunities provided for in all alternatives would contribute to public health and safety, military preparedness, and national security; with each alternative contributing to different degrees. All alternatives except Alternatives 3 and 4 would provide sufficient lands t meet the basic military mission. Only Alternatives 6 and 7 would provide sufficient area for simultaneous training exercises and occasional large scale exercises. Alternative 7 would enable the military to meet its training mission more effectively than any other alternative by providing the best combination of tracked and wheeled vehicle and infantry training. Thus, Alternative 7 would be expected to provide the greatest contribution to public health and safety, military readiness, and national security.

Under Alternative 1, the short-term agreements (3-year permits) for military training on BLM-administered lands would continue but probably not result in congressional funding for training facility improvements. The long-term commitment for military training provided for in Alternatives 2-7 would increase the likelihood of congressional funding for the facility improvements that could support and enhance training opportunities. Funding for facility improvements would create job opportunities for contractors and their employees and would generate business for suppliers of construction materials. Improved training opportunities provided by facility improvements could increase the number of military personnel training in the area and could contribute to the local economy of the area.

Recreation and Tourism

Visitor spending associated with recreation activities that are likely to include lands within the planning area will continue to provide increasing economic benefits, which would not be significantly altered by any of the alternatives.

Alternatives 2 – 7 may all result in varying shifts in the different types of recreational users and/or distribution of recreation user types across the planning area. However, most categories of recreation opportunities will continue to exist to some level in the planning area regardless of alternative selected. Given the magnitude of the rise in industry sales and trends in both motorized and non-motorized recreation sectors, and the amount of public lands in the Central Oregon area available for a variety of recreational activities; the range of shifts between recreation focus in Alternatives 2-7 would have no effect on the local, regional, or national recreation economy.

Transportation and Utilities

Regional Transportation

Allocating regional transportation corridors anticipates future community development and reduces the potential for incompatible uses occurring within the area. Potential future impacts to natural resources are also reduced by establishing guidelines under which future transportation uses of the area could occur. Alternative 1 would not make any of these provisions, and future right-of-way decisions would be based on responses to individual applications. Alternatives 2-7 would establish consistent mitigation requirements that would include eliminating multiple rights-of-way in areas where new rights-of-way for regional corridors are established. Alternatives 2-7 would all

allocate the same corridor for the anticipated reroute of the Highway 126, and variations of lengths and anticipated purposes of corridors between the south end of Redmond and north end of Bend. Alternatives 2, 4, and 7 would have the most potential impacts associated with natural resource lands, but would also provide the most potential economic benefits to the local economy. Expected indirect economic benefits of the future development of the corridor between Bend and Redmond are described under community development.

Local Transportation

Local transportation system effects are related to costs for expected future maintenance based on the road classification as either a collector or a local. The amount of roads classified as collectors are about 200 miles less in Alternatives 3-7 when compared with Alternatives 1 and 2. This represents a potential maintenance cost reduction of about $400,000, although this does not represent a direct economic benefit due to the amount of annual anticipated deferred road maintenance costs that would be anticipated under all alternatives and the likely increased costs of a future designated local road and trail system. The 200 miles of collector roads designated as local roads in Alternatives 3-7 could represent some potential loss of access to public land users. The exact extent of those limitations would be dependent upon subsequent analysis and designation of a final local road system; however, those alternatives with higher percentages of Primary or Secondary wildlife emphasis, or non-motorized emphasis or non-motorized exclusive designations, are likely to eventually have a greater reduction in future local roads than those with other designations.

General Relationships

Indirect economic impacts are typically those that can be seen on employment, household income, etc. generated by the change in the demand for goods and services required by the directly affected industries. Indirect impacts are closely related to induced economic effects which are generated by changes in consumer spending resulting from changes made to certain factors, amenity values in this instance. There are several areas in which indirect economic effects may be seen within the local and regional economy. With improvements to BLM-administered lands in the planning area that would restore or enhance the landscape and its open space and scenic values generally positive socioeconomic indirect effects would follow. Typical positive effects might include enhancement of quality of life factors for both residents and users, which have several follow-on effects within local and regional economies, such as expansion of the user base. Expansion of the user base would have certain indirect income effects in the local and regional economies. These indirect effects may be seen in continued demand for housing generating additional construction spending and employment associated with home construction, continued influx of retirees and additional spending in the region from transfer payments received from government and private retirement plans or investments, as well as continued movement into the region by the high tech and other light industries together with associated spending, and payments to communities in the region. Although BLM-administered lands contribute to the attractiveness of the planning area, using data currently available, it is not possible to determine exact visitor expenditure capture rates or direct expenditures, to attribute a percentage of any additional spending values to the values provided by BLM- administered lands, or to reflect specific measures and comparisons of the indirect social and economic impacts of the proposed alternatives.

Community Development

Communities within the planning area are economically interdependent and are working to maintain individual identities. Public lands are important to maintain generally

undeveloped separation between the communities, and to support uses that contribute to local, regional, and national economies.

Several local city and county comprehensive plans and planning efforts also have an influence on land uses within the planning area. These include the Redmond 2020 Comprehensive Plan (City of Redmond, 2001), the Bend Area General Plan (City of Bend, 1998), the Deschutes County Community Plan (Deschutes County, 2001), and the Crook County Natural Resource Plan (in development). The region also has several collaborative regional planning efforts underway. The Prineville District of the BLM is one of the partners in these collaborative projects. The region's rapid pace of growth, quality of life issues, projected land use needs, and concerns about the supply of land for commercial, industrial and recreational uses are reflected in these collaborative planning projects (Central Oregon Collaborative Projects, 2003).

In the Central Oregon area, there are short-term (less than 20 years) and long-term (20 years +) demands for lands to support community infrastructure described below. These demands have led to analysis of the social and economic impacts of the alternatives in the Transportation and Land Ownership Issue Categories.

Community Expansion

Deschutes County/City of Redmond - In its analysis of Redmond Urban Growth Reserve land needs (for a period 20 to 50 years into the future), the City of Redmond projects that there would be a net land deficit of approximately 5,500 acres of available buildable lands to provide for the projected 20-year population growth. Deschutes County and the City of Redmond have also identified a need for approximately 300 acres for expansion of the Deschutes County fairgrounds and/or for a sewage treatment facility to accommodate expected future uses.

Deschutes County/La Pine – Deschutes County anticipates a need for approximately 400 acres for development of a new airport in La Pine (Coffman Associates, 2002), and approximately 750 acres for expansion of sewer system infrastructure, treatment and holding facilities near the same area. The community has also expressed desires in the past for lands to support a variety of parks and other open-space developments.

Crook County/City of Prineville– The local Parks District has an interest in acquiring Barnes Butte for future park development.

Nearly all of the lands designated for possible community expansion under all alternatives are presently zoned Exclusive Farm Use (EFU) by Deschutes and Crook Counties. EFU zoning limits development that would conflict with agriculture and prevents farmland from being divided into parcels too small for commercial agriculture. Open space uses such as parks and development of open space recreation areas (including camping and recreation vehicle park facilities) are considered likely possible future land uses that would be permitted under EFU zoning. Other uses would require future zone changes.

Regional Transportation

Lands that are suitable for relocation of Highway 126 outside of the runway protection zone and to relieve the potential failure of Yew Avenue interchange have also been identified. The City has an agreement with the BLM for future management of the Redmond Caves parcel as an interpretive park.

Amenity values

Amenity values typically mean those natural and physical characteristics of an area that contribute to people's enjoyment and appreciation of an area and/or that contribute to its appeal, aesthetic coherence, and cultural and recreational attributes. For example, a species or scenic vista has an amenity value if its existence improves our lives in some nonmaterial way, e.g., when we enjoy the experience of sighting a hummingbird or when we enjoy walks in the forest more when we sight a lady-slipper, or the serenity of seeing a fly fisherman at dawn or the pastoral scene of cattle grazing in a green meadow. Hiking, fishing, hunting, bird-watching, and other pursuits have a market value as recreation, and wild species and scenic vistas contribute, as amenities, to these activities. Yet, expressing amenity values remains somewhat elusive. When dealing with an abstract concept such as amenity values in the context of assessing any change or shift in land use management, it is important to establish precisely what we mean when we refer to the planning area's amenity values.

The concept of amenity value is inherently tied to what economists call "non-use values" as well as direct use values associated with natural resources. The premise is that people place monetary values on natural resources that are independent of their present use of those resources. For example, some people may gain utility simply from knowing that families can camp in the desert near Millican or that the Lower Crooked Wild and Scenic River or Badlands Wilderness Study Area are preserved even though they may never expect to visit these areas. When discussing socioeconomic impacts, it is important to go beyond simply delineating the more or less tangible changes and link these to human values. In the economics literature, natural resource values that are free of people's present use of the resource have been variously termed intrinsic, existence, and nonuse values. These values arise from a diversity of motivations, including stewardship responsibility, desire to preserve for potential future use, and a desire to bequeath certain environmental attributes and resources to future generations. Today, it is widely accepted that these nonuse values in aggregate can be very important.

As this area continues to grow, amenity values are likely to become increasingly socially important and linked to the economic prosperity of the area. Estimates of the amenity value that local residents and users place on BLM-administered lands have not been specifically quantified. Estimates of value have been derived from previous studies and surveys and trends analysis for the region. For example, we know from this work that most people today value the openness and "naturalness" offered by large areas of undeveloped lands. Local realtors attest that proximity and access to BLM-administered lands is desired by many land buyers (Korish, personal communication, 2003), generally for their scenic, recreational, or undeveloped natural land qualities, and suggest that maintenance or enhancement of these qualities would have a positive quality of life impact on local residents or users. The extent of amenity migration is another indicator which can be directly associated with people's desire for proximity to areas with high level of amenities. Several studies conducted across the U.S. have shown conclusively that rural areas are most likely to experience growth in the 1990s, as is true of the planning area, (McGranahan, 1999). One of the key forces behind this growth in high amenity areas has been the growth of retirement and recreation areas in rural America. The aging of the population has increased the number of people of retirement age who are now searching for places to live that have low crime rates, low costs of living, and moderate winters. The resulting growth in transfer payments to rural areas has helped to create new jobs (Hirschl and Summers, 1982; 1984).

Those aspects of the alternatives that most closely reflect the potential for effects to amenity values are related to the Visual Resources, Recreation, and Land Ownership issue categories. This analysis considers public open space provided by the numbers of acres and zoning designations considered in Land Ownership and the range of recreational opportunities provided by the recreation management emphases and travel

management designations established by the RMP alternatives. In assessing amenity values, management practices or activities anticipated in the reasonably foreseeable future that could change the appearance of the natural landscape were qualitatively considered, such as vegetation, and fire/fuels, and mineral extraction.

Public Land Ownership

Land ownership classifications (Z1, Z2, Z3, or Community Expansion) influence or direct future retention of public lands in public ownership. These classifications affect the amount of future open, undeveloped space that would contribute to amenity values and also affect the amount of land available to meet future community needs. The classifications can also affect future present and future management decisions about the kinds of uses and investments that may be applied to lands based in part on their ultimate ownership classification. Lands available for exchange (Z-2) can provide land managers with flexibility to acquire lands through exchange rather than purchase, an especially useful tool for transferal within specific areas to better block up land ownership configuration. These lands may or may not provide future amenity values for adjacent landowners or the general public.

Any future transfers of BLM-administered lands would necessarily be contingent on numerous other factors and participants for completion (e.g. other willing participants in the transaction, adequate funding and successful site-specific environmental compliance). Future transfers would not occur without further public notice and analysis.

Designation of lands as Z-1 has the most restrictive influence on future BLM management decisions since these lands are identified for retention, while Z-3 designations have the least restrictive influence, since these lands are classified for disposal through either sale or exchange. For community members, Z-1 designations provide the greatest assurance of specific parcels being maintained in public ownership. Lands classified as Z-2 provide moderate management flexibility since these lands may be exchanged if there are equal or better resource values to be gained. This classification assures that lands would only be exchanged of equal or greater value, but that may not provide for specific parcels to be maintained in public ownership. Community expansion lands are lands which may have important natural resource values, but which have also been identified for specific community needs. These lands are reserved for sale, exchange, or lease transfer to another government agency to provide a greater public benefit than would be realized under BLM administration. This designation puts a strong limitation on future management flexibility, but provides communities with a strong assurance that lands would not be used for purposes inconsistent with identified community needs.

The past incidence of BLM land transfers were about 640 acres during the previous 10 years and about 880 acres in the 10 years before that (about 1520 acres over 20 years). Local agency funding constraints have been, and are likely to remain, a major obstacle to future land transfers of BLM within the planning area. At the past rate of interagency transfers, the land ownership of very few acres of BLM-administeredlands would be expected to change ownership in the near future. However, given the rate of growth in the area, current and near future demand by communities or agency initiatives are likely to affect past rates of sale or exchange.

Scenic Values

Scenic values on BLM-administered lands in the planning area would continue, overall, to be characterized by the large tracts of natural lands in the region, with dominant vegetation features including juniper and pine wooded areas, shrub lands, and grass lands. Topography and water features are other dominant natural landscape features. Wildland fires would continue to be suppressed and vegetative treatments for community and firefighter safety is expected to occur under all conditions. Techniques

such as mowing, thinning of forested woodlands, and landscape level burned landscapes are expected to be present to some degree in all alternatives, altering the landscape characteristics across the planning area.

Recreation

All alternatives in the plan will affect recreation users in the planning environment. Some of the impacts may be significant, while others may be minimal. The stakeholders may prefer the resultant impacts, while others may not. Due to the long time customs and cultures in the planning area and the fact that recreation is an important part of these customs and is highly valued for users of the area, it is expected that any change regardless of what type, will be perceived as negative by some recreation users.

The Social Values Survey conducted for this planning effort and other information from scoping and public meetings indicate many people favor a separation of motorized and non-motorized users. In most cases, non-motorized users have a greater interest in having separated uses, and are more likely to avoid areas because of associated motorized uses than are other motorized users. Alternatives that display higher amounts of areas with a non-motorized or non-motorized exclusive recreation emphasis, especially in large blocks of land, would generally provide more amenity values for those interested in quiet and solitude.

In the case of shifts and/or reduction in access, the degree of impact may be associated with the scale of the shift and/or reduction. Where the shifts/reductions are less the impact is expected to be minimal, and where the shifts/reduction in access to land use is significant, the impact is expected to be increased. The degree of change or shifts in these components for each of the alternatives can be compared by the travel management designations and recreation emphasis for each alternative. Alternatives that display a higher level of an "open" or "limited to designated roads and trails" travel management designation are likely to have more motorized access available, thus generally providing more amenity values for those interested in motorized access to areas.

Much of the current and future conflicts between users are not due to agency management decisions about the land, but are a direct result of rapid population growth and the increased trends in urbanization in the planning area.

Ecosystem Health and Diversity

The Prineville District of the BLM spends approximately $1.5 million per year on its fire suppression program, not including large fire suppression costs. Fuels management programs are funded at about $2.4 million annually, including planning and salary costs, district support costs, and treatments including a mixture of prescribed burning and mechanical fuels reduction treatments. The fuels program is growing dramatically with the emphasis placed on reduction of hazardous fuels by the 2000 National Fire Plan. Livestock grazing and firewood collection on agency lands also serve to reduce fuel loads, although the value of these activities to the fire and fuel management programs has not been quantified. Often there is a cost associated with administration or clean up following wood cutting. The cost of the administration or clean up may actually cancel out the benefits gained by doing so, resulting in a break-even situation. These fire suppression costs express the entire program costs over 1.6 million acres of BLM-administered lands in Central Oregon, a much larger area than the BLM-administered lands in the planning area.

The BLM fire and fuels management programs play an important role in maintaining public safety and protecting property and ecosystem values within the region. Throughout the Planning area, BLM-administered lands are adjacent to local communities and private residences. As a result, wildland fires have a great potential to

cross property lines between private lands and wild lands. Wildland fires threaten public and firefighter safety and have the potential for property damage and ecological effects that may not be consistent with management objectives. As part of its land stewardship responsibilities, BLM manages fuel arrangement and quantities as a preventive measure to reduce the severity of wildland fires. Also, BLM actively suppresses wildland fires to minimize fire damage to human lives and property. The Federal Fire Policy of 1995 stresses that human life is the primary priority for protection. As a secondary concern, BLM also uses fire and fuels management to minimize resource damage from wildland fires.

The economic benefit to private property owners from BLM's fire and fuels management programs is the avoided costs that property owners would have to pay to insure or otherwise protect themselves and their property from fire damage in the absence of BLM programs. The complexities of insurance impacts and potential for litigated compensation for negligence make it very difficult to quantify these net avoided costs. Instead, for purposes of this analysis, estimates of BLM's future annual vegetative treatment program costs were used as a representation of the economic and social benefit to the neighboring communities from these fire/fuels and other vegetative treatments. Vegetative treatments including fuels management activities are performed to meet a variety of land management objectives, including forage improvement, habitat restoration, promoting ecosystem health and diversity, and to contribute to the social and economic needs of local communities. Most of the cost of fuel and vegetative treatment activities is in preparation and monitoring. Costs of implementing the work are relatively low, with prescribed burning costing between $10 and $40 per acre, and mechanical treatment activities costing between $30 and $100 per acre. There is assumed to be no change in the immediate future to expenditures for fire suppression and preparedness.

Land Uses

Livestock Grazing

Grazing permittees respond to loss of public AUMs in various ways; by increasing productivity on base properties, purchasing or leasing alternate pasture, buying hay and feeding on owned or leased land, or by selling all or a portion of their herd. Permittee's options are more flexible when they have a larger ratio of owned/leased pasture versus public land, when there is leasable pasture nearby and/or the permittee can easily/cheaply haul animals to new pasture, when there are few seasonal restrictions on public and private land they graze, or when they ranch as a "hobby" and can afford the increased costs of alternate pasture/feed sources.

The economic analysis estimates the range of effects under both full-flexibility and limited flexibility scenarios. Neither of these scenarios represents all permittees, and actual effects will be dependent on the private business decisions made by individual permittees based on their individual circumstances. A permittee's ability to withstand AUM losses depends on his reliance on federal forage. Reliance is high when permittee's private land acreage is low, or his ability to haul livestock to alternate pastures is low. For the planning area, these conditions are usually met, meaning reliance is often high. Most permittees in the planning area have little private land, probably generally 160 -1,000 acres. They run few livestock (most have less than 50 head), so they are unlikely to be able to bear the cost of shipping livestock to other available pasture.

Without knowing permittee dependence on federal forage, one cannot predict how AUM losses would affect his/her grazing operation. A high dependence would make it more likely that AUM losses would cause the permittee to cease grazing altogether, perhaps even selling his private property if the only income came from livestock grazing. A permittee with low dependence on federal forage could more easily absorb AUM losses with no change to his/her overall grazing operation. Most Alternative 7 forage

reductions would not take place unless the grazing permittee voluntarily relinquishes his/her permit. This is assumed to reduce effects on the individual permittee, though the impact on the local economy would be the same as if the closure were forced. A study (Rowe *et al*., 2001) in a rapidly developing area in Colorado examined the factors influencing ranchers who graze on public land to sell their base property (private land to which the grazing privileges are attached). "Since ranch land is often the primary target for subdivision, ranchers play an important role in this pattern of land use change," say the authors. A rancher's decision to sell is affected by changes in federal grazing policy, local land-use planning efforts, and development of surrounding land. Changes in zoning and development can raise property values, increase taxes, and require more frequent checks of gates, fences, and livestock. But the decision is also influenced by non-economic factors, say the authors. "Ranchers continue to ranch despite financial difficulties. They stay because of...sense of place, attractiveness of lifestyle, family values, and tradition."

Minerals

The BLM manages mineral resources in three categories, locatable minerals (such as precious and base metals and some nonmetals), leasable minerals (such as oil, gas, and geothermal), and salable minerals (including sand, gravel, and decorative stone) from its lands. The alternatives do not substantially change existing management direction for locatable materials. However, a "no surface occupancy" stipulation for fluid mineral leasing would apply to all of the new and existing ACEC designations through the alternatives. The social and economic effects related to locatable and leasable mineral development are expected to be minimal owing to the low probability for development of these mineral resources during the life of the plan.

Locatable and Leasable Minerals – About 403,900 acres or 100 percent of BLM-administered lands in the planning area would continue to be open to locatable mineral entry. Similarly, about 374,400 acres or about 93 percent of BLM-administered lands could continue to be open to mineral leasing in the planning area, of which about 21,250 acres would remain closed to surface occupancy. Additional closures to surface occupancy apply through the various alternatives. Locatable and leasable minerals are not discussed in detail in this section, as there is low potential for the development of these resources.

Mineral Materials – As described in the Minerals section of this chapter, the primary demand for mineral resources in the planning area is for saleable mineral materials. The potential for mineral material development under sales and free use contracts is high within the planning area because of the expanding population and the corresponding demand for aggregate material to build and maintain infrastructure. Since many of the potential mineral material sites are near rural residential areas, the potential for conflicts with residents is high.

The Oregon Department of Transportation (ODOT) is expected to continue as one of the primary users of mineral materials from BLM-administered lands within the planning area over the next 20 years. Initial studies by ODOT suggest that considerable reserves of aggregate exist on BLM-administered lands within the planning area. In addition, ODOT foresees considerable future demand for aggregate for road construction and maintenance. ODOT estimates that its average annual demand for aggregate within the planning area over the next 20 years will be about 250,000 cubic yards per year (Russ Frost, written comm.). However, it should be noted that ODOT's aggregate demand from year to year is highly variable and may range from less than 100,000 or up to several hundred thousand cubic yards depending on funding and project needs.

ODOT is not the only consumer of aggregate mineral materials in the planning area. County and city governments and the private sector also utilize mineral materials for

road, residential, nonresidential and other projects. The Oregon Department of Geology and Mineral Industries (DOGAMI) estimated the average annual aggregate demand for all uses in Deschutes County over the next fifty years. According to DOGAMI (1995), annual aggregate consumption in Deschutes County will reach about 1,210,000 cubic yards between 2010 and 2020, and will likely increase by about 100,000 cubic yards every ten years thereafter.

All alternatives make decisions about availability of lands for mineral uses and conditions under which those uses may occur, but do not authorize the development of any particular sites. Proposals to develop new sites on available lands would be subject to site-specific environmental analyses.

In all alternatives, there would be a minimum of about 300,000 acres available for mineral material site development. The primary variables are related to specific site information such as rock quantity and quality and haul distance, which are generally not known at this scale. Use of BLM-administered lands for future aggregate sources offer three primary benefits for ODOT and Oregon taxpayers, (1) free use of mineral materials, (2) decreased haul distances, and (3) increased competition in contract bidding. Fees for development and extraction from these sites are generally waived for public agencies including ODOT. For private commercial operators, BLM would charge fair market value for mineral material extracted from public lands.

ODOT estimated that in 1998 it saved an overall average of $4.40/ton of aggregate when it was able to provide a public material source for a road project largely as a result of the increased competition for the contract. This savings also accounts for the haul cost savings and the savings derived from free use of aggregate materials. Adjusting for inflation and converting into cubic yards, this savings is estimated to correspond to about $3.80/cubic yard. If all of ODOT's estimated average annual aggregate need of 250,000 cubic yards were met from BLM-administered lands, an average potential savings of $950,000 per year could theoretically occur.

Historically, only a relatively small percentage of ODOT's aggregate demand has been met from BLM administered lands due to the unfavorable location of existing public mineral material sites relative to road projects (Russ Frost, written comm.). However, ODOT has identified a number of new potential sources on BLM-administered lands that are in more favorable locations. Thus, an increasing fraction of ODOT's needs could be met from public sources through the life of this plan. Whatever the case, the frequency of ODOT's ability to offer a public aggregate source cannot be reliably predicted due to the uncertainty of where and when future ODOT projects will occur and the uncertainty of when or where new mineral material sites will be developed (each new site proposal is subject to an environmental analysis with an uncertain outcome). It is therefore not possible to reliably estimate the actual potential cost savings that could be incurred by ODOT. The actual savings is likely to be less than half the $950,000 maximum potential savings based on ODOT's relatively low historical use of BLM mineral material sites. For the purposes of analysis, it is assumed that 25% of ODOT's annual needs will be met from BLM-administered lands during the life of this plan, leading to an average annual savings of $237,500 per year.

The total cost savings resulting from the use of public mineral material sources may either be retained in the region (e.g., by enabling ODOT to perform more work in the region under the same budget) or the savings could pass out of the region to benefit other areas of the state. Any savings generated from the planning area would benefit Oregon taxpayers in terms getting more out of their tax money. Savings that are retained locally would benefit local taxpayers the most as they are the primary users of the local infrastructure. Due to the uncertainties associated with estimating the total cost savings and how those savings would be distributed, it is not possible to determine how much savings will be retained in the region and how much will benefit other parts of the state.

For the purposes of analysis, it will be assumed that 50% of the cost savings (about $119,000) will be retained in the region and directly benefit local taxpayers. However, it should be noted that this analysis of the potential cost savings does not account for the costs associated with the environmental analyses required for the development of new public mineral material sites or the reclamation and rehabilitation costs.

Under all alternative mining activities may have adverse social impacts in the form of noise, dust, and increased traffic. The setback for mining activity is set by the county. All alternatives comply with the minimum county setback, or provide an even greater setback distance than that established by the county. The differences will be described by alternative

Forest Products

Commercial purchasers and individual permittees currently, and will continue, to harvest timber, juniper boughs, firewood, and other products from BLM-administered lands within the planning area. The primary difference between alternatives is in the location of areas available for products, and the limitations on access that could potentially increase costs of removal of forest products.

Timber – Commercial timber harvest contributes substantial direct regional economic benefits (jobs associated with logging and milling) and indirect benefits from secondary wood product manufacturing and timber-related industries and services. State governments also benefit directly through receipt of four percent of revenues from BLM timber sales, firewood and other special forest products collections. The state of Oregon also collects Oregon Forest Products Harvest and Privilege Tax of about $2.87 per 1000 board feet of harvest on BLM-administered lands (based on March 2002 tax figures).

Compared to the timber available from National Forest lands in the region, the amount of timber available for harvest on BLM's managed lands in the planning area is quite small. In the La Pine portion of the planning area, BLM manages 40,134 acres of lodgepole and ponderosa pine as commercial forest, including 1,826 acres that are managed by BLM within the La Pine State Park. These commercial forests represent 2.4 percent of the total commercial forest land base in Deschutes County. In the northern portion of the planning area, BLM manages about 1080 acres of commercial forest – less than one percent of the commercial forests in Deschutes and Crook counties.

There would be no change to the amount of lands designated commercial forest lands under any alternatives. These are lands allocated with production of commercial timber as one of the primary objectives. However, given the relatively recent mountain pine beetle salvage of many of the forested areas, coupled with the expected emphasis on hazardous fuels reductions, there is a relatively low level of commercial timber products expected over the plan period. This represents no net change to long-term projected economic benefits that are likely to be realized from harvest of materials from those lands. For the next few decades, as La Pine timber stands regenerate and grow to commercial size, all alternatives would rely primarily on timber harvests of small diameter trees (generally, 4 to 12 inches dbh [diameter at breast height]) as part of forest restoration and fuels reduction treatments.

Special Forest and Range Products – The BLM issues permits for the collection of vegetative products. These include juniper boughs used in making furniture and other items such as transplants for landscaping, Christmas trees, lichen, juniper berries, sage leaves and other miscellaneous products. With the exception of juniper boughs and firewood, harvest of these products on BLM administered lands in the planning area is a minor activity.

There would be no changes to the current permit process for juniper or other special forest products harvest. Since none of the action alternatives proposed to change the

current permit process for subsistence or other firewood collection on BLM-administered lands and the available resource supply is expected to be adequate for these continued land uses, no substantive change in socioeconomic effects are projected as a result of future implementation of the any of the proposed alternatives.

Most of the permits to harvest juniper boughs are sold to commercial operators. The boughs are used to make Christmas wreaths which are then sold at retail throughout the country. In the period 1996-2000 an average of 170,113 pounds of juniper boughs were sold on the BLM Prineville District – of which an estimated 75 percent came from the within the planning area. The 2000 and 2001 juniper bough harvests increased substantially – averaging about 640,000 pounds. Future juniper bough production from BLM-administered lands in the region is projected to stabilize at the last three years average of about 500,000 pounds. Based on a permit price of $0.05 per pound for juniper bough harvests, the juniper bough harvests generated $25,000 in permit receipts to the federal government over the last three years of harvest, which averaged about 500,000 pounds per year (from 2000 to 2002).

About a dozen individuals currently make their living from juniper furniture production in the region. According to interviews with several of these individuals, about one third of their raw juniper was obtained from private property, one third from U.S. Forest Service land and one third from BLM-administered land (Burleigh, personal communication, 2003). Furniture makers estimate that they typically require 10 to 12 cords of juniper annually and that about three to five percent of the trees within most old-growth stands in the region are living and suitable for furniture. Furniture makers individually select the pieces they collect for their aesthetic suitability and estimate that, on average, their raw material costs represent 5 to 10 percent of the final price of their goods (Burleigh, personal communication, 2003). Hobby wood/furniture permits issued average about 10 to 12 per year. Although permits are required for the harvest of juniper from BLM-administered land, there is evidence that these forest products are often collected illegally without permits.

Currently, most of the firewood collection from BLM-administered land is administered through the Central Oregon Initiative Interagency Firewood Program that sells firewood permits for $10 per cord. Up to eight cords are allowed per household annually (more than enough to meet most household's annual heating and cooking needs). Free personal use permits are also periodically offered as supplies and regulations allow.

Based on the current price of a cord of wood (about $110), firewood permits can provide up to $800 ([$110/cord - $10/per cord permit cost] X 8 allowed cords) in value to each household in the region that uses firewood (although there is a personal labor cost for the cutting and hauling of the wood). In addition to the economic benefits to households, sales of chainsaws and other woodcutting equipment and supplies plays some part in the local retail and service economy.

From 1992 to 2002, firewood collectors gathered about 13,000 cords of wood from BLM-administered lands in the planning area, generating $130,000 in revenue for the federal government and about $1,300,000 of economic benefit to permit purchasers (although there were personal labor and equipment costs for the cutting and hauling of the wood and firewood costs have not always been $110 per cord).

Despite the population growth experienced in the planning area over this same time period, local public demand for firewood seems to be stable or slightly declining. This trend may be due to local government code restrictions on the use and installation of wood burning stoves and increased use of other heating systems in new homes.

No changes to the current firewood permitting process are proposed under any of the proposed alternatives. Although BLM may periodically change the areas where firewood

collection would be allowed, the alternative locations would not appreciably increase the cost or decrease the opportunities to gather firewood on BLM-administered lands in the planning area. Firewood collection from dead trees would be expected to decline while firewood from small diameter green trees (thinning) would be expected to increase. Future firewood sales are projected to be below the planning area's sustainable yield.

Military

Military training use of BLM-administered lands in the planning area would provide important contributions national military readiness. Military training exercises would occur within various areas designated by the alternatives consistent with past uses. The alternatives allocate different areas to the long-term use of the military. This allocation and subsequent anticipated lease actions for the areas considered in the alternatives will change the training center and budget allocation status, providing for more funding opportunities for restoration and long-term management of the public lands within the training area. Consequently, long-term, the levels of investments in infrastructure are expected to increase, but to what extent is currently unknown. Because training is expected to continue at past levels, an average expenditure similar to 2002 of at least $1,000,000 would be expected under all alternatives (McCaffrey, personal communication 2003).

Recreation and Tourism

On average, people have less leisure time than in the past, although that does not necessarily reflect trends in areas with a high component of retirees. Trends reflect that having less time has influenced the nature of recreational use. Individuals and families are going to the parks and other public lands that are close to them with greater frequency, but with shorter duration than in the past (Oregon Parks and Recreation Department, 2003). This, taken against regional recreation trends and growth of outdoor recreation across the socioeconomic spectrum indicates that visitor recreation and demand on BLM-administered lands in the planning area is likely to continue to increase, given regional, state, and national trends in outdoor recreation (Community Planning Workshop, 2002; Oregon Parks and Recreation Department, 2003; U.S. Department of the Interior, 2002).

To the extent possible, actual data collected during patrols of the various designated OHV recreational areas was used to derive a general understanding of visitor use and shifting trends for both non-motorized and motorized recreational use of BLM-administered lands. Where data specific to the planning area was not available, general trends analysis was conducted using exiting regional, state, and national information.

In Central Oregon, tourism and recreation serve as important income generators. For example, the 2001 National report (U.S. Department of the Interior, 2002), shows that participants 16 years old and older spent $769 million on wildlife-watching activities in Oregon in 2001, fishermen another $602 million, and hunters some $365 million, representing a combined total contribution of about $1.74 billion to the State's economy. While no precise figures exist for the planning area, it is clear that these activities are important within the regional context.

The area's magnificent scenery, clean environment and numerous, as well as varied, recreation locations makes the region a popular vacation destination. However, while tourism and recreation have this important regional role, the BLM-administered lands within the planning area do not serve as primary tourist destinations. According to tourism personnel interviewed at the Central Oregon Visitor's Center and the Bend Visitor's Center, other recreational and tourism opportunities such as the mountains and forests in western Deschutes County serve as principal regional visitor attractions (Audette, 2003; French, 2003; Ives, 2003). The one exception to this general statement

about BLM-administered lands in the planning area is wintertime OHV recreation. This use of the planning area contributes substantially to the local tourism seasonal economy.

Aside from the designated and advertised OHV trail systems, currently few visitors are knowledgeable about the recreational resources on BLM-administered lands. However, its considerable scenic and open space resources add to the region's naturalistic character. For instance, visitors to local resorts that go on guided horseback rides are unaware in most cases whether they are on private or public lands, or whether those public lands are BLM or National Forest or Grassland administered, but the BLM-administered lands are an important contributor to the overall recreational experience of that visitor. In addition, the BLM-administered lands increase regional tourism and recreational capacity by providing recreational opportunities for local residents who would otherwise compete for use of other more popular regional recreation areas.

Recreation trends suggest that individuals participate in a range of non-motorized and motorized recreational activities in the area. The most popular activities are recreational activities such as hiking and walking, biking, nature and wildlife observation, off-road motorized use (OHV), hunting and target shooting, camping, and horseback riding. (Community Planning Workshop, 2002 and Oregon Parks and Recreation Department, 2003). There has been a significant increase in public demand for nature study activities and for land management emphases on wildlife and natural resource protection as well as for amenities including quiet, natural places (Oregon Parks and Recreation Department, 2003). Demand for OHV use in the region has increased over the past decade (Oregon Parks and Recreation Department, 2003). Use of BLM-administered lands to provide winter recreation opportunities, particularly for motorized recreation, when U.S. Forest Service lands are inaccessible will continue and become more prevalent National and statewide trends reflect potential increased mountain biking use in the area (Sporting Goods Manufacturing Association, 2001).

Many in the area consider Central Oregon to be a national leader in mountain bicycle usage. Growth trends in Oregon could surpass national trends. In just the last five years at least four new bike shops have opened in Central Oregon. Crook County has expressed an interest in promoting mountain biking in the Prineville as a part of their natural resource and economic development strategy. Also indicative of increasing trends are local events such as the Bend Bicycle Festival or Cascade Cycling Classic that demonstrates a strong interest in bicycles and consequently increases bicycle demand through the number of organized group rides, and other activities provided at the festival.

According to information provided on the National Association of Bicycle Dealers (NABD) website, the U.S. bicycle industry was approximately a $5.5 billion industry in the year 1999, including the retail value of bicycles, related parts, and accessories through all channels of distribution, according to the National Sporting Goods Association report The Sporting Goods Market. The market grew to $5.8 billion in 2000, moved to $5.3 billion in 2001 and is forecast at $5.3 billion again in 2002. While these are national sales trends, it is expected that the sales figures represent continued demand for bicycle use including mountain biking. The stabilizing yet significant amount of bicycle sales combined with expected population growth in the area and the apparent trends in mountain bike use in Central Oregon indicate that demand for mountain biking recreation opportunities will increase.

Visitor spending associated with recreation activities on BLM-administered lands within the planning area will continue to provide economic contributions to the local and regional economy. However, based on secondary data at hand it is not possible to measure the effects directly associated with visitor spending relative to BLM-administered lands in the planning area. It is expected that given the concentration of OHV use occurring between the months of December through March that economic

inputs relative to all recreational uses will be greatest during these periods. Other seasonal variations relating to recreational uses on BLM-administered lands in the planning area can be expected; however, there is limited data to predict inputs relative to seasonal fluctuations.

According to sales registrations from several major manufacturers as provided in MIC Retail Sales Report, sales for off-highway motorcycles (off-highway includes dual sport motorcycles) in Oregon have increased by 79% as compared to 143% for the U.S since 1998. Also according to the same source, ATV sales have increased by 105% in Oregon compared to 86% nationally since 1998. According to NOHVCC, ATV's are currently selling at a rate of 2,200 per day nationally, with 70% of these sales in the 10 Western States. Given the recent sales trends, the fact that that OHV opportunities will continue regardless of the alternatives considered in this FEIS. The population is increasing –particularly a segment of the population with greater disposable income, and it is expected that OHV sales should not experience any significant adverse affects overall from any of the alternatives considered. Primary and secondary economic benefits from OHV retail sales in the local area are expected to continue.

This holds true for the other recreation sectors as well. While it is expected that some shifts will potentially occur in the distribution of recreation types, all types of recreational opportunities that have existed in the past in the planning area, in the surrounding public lands, will continue to exist into the future. Since some change will occur only in the distribution of use types, it is expected that all primary and secondary economic affects associated with each industry will continue. As a result of increased population as well as increased urbanization with the preference of recreating close to home, people will still recreate in the area and spend money on groceries, gas, lodging, restaurants and shopping.

Transportation and Utilities

Transportation within and through the planning area is important regionally and locally. Many major transportation and utility corridors pass through the planning area. The alternatives do not substantively vary with regard to lands allocated for the use of presently identified corridors, but do vary by the areas that may be designated as avoidance areas – such as lands allocated for as ACECs. Management and control of the use of many of the major travel routes through the area are not within the jurisdiction of the BLM but are a major contributor to overall social and economic effects within the planning area, to the local communities within or adjacent to the planning area, and to the region as a whole. There would be no direct effect to any of the existing major travel routes from any of the alternatives considered. Roads outside the BLM jurisdiction are considered explicitly or by default in most alternatives as an expected continued use, with expected continued development and upgrading as increased population demands dictate. The one exception to this is in general mitigation considered in regards to the granting of new rights-of-way, and in particular in consideration of a future new right-of-way between Bend and Redmond.

Regional Transportation

The major potential for social and economic impacts related to transportation management considered in this FEIS includes consideration of the regional and local transportation situation. Regional Transportation includes consideration of several potential regional travel corridors.

Local Transportation

Local transportation includes consideration of the relative amount of road and/or trail access that is expected to be provided to the public. Continued efforts to stop the creation

of illegal user-created travel-ways would include some expected level of blocking or obliterating these travel-ways until new, undesignated travel-ways are found. The proliferation of user created travel-ways damages vegetation, increases soil compaction, makes it harder to understand the designated travel system, provides access to problem dumping areas, and often provides convenient access from residential areas to public lands. Generally these roads have very intermittent uses and their elimination would likely have very limited impacts. Some local residents may have convenient access to public lands eliminated, although these past uses have generally not been in compliance with BLM authorized land use policies. It is also expected that reductions in user created roads, particularly in areas near to urban areas or residential areas would reduce the potential for illegal dumping, noise, dust, and user conflict with those residents preferring a naturalistic setting surrounding to their homes. Since past use levels and use patterns are not known, the extent and nature of these effects on local residents cannot be precisely identified or quantified. User created travel-ways within the planning area may be being used in part by recreationists that have few if any alternative resources. If alternative recreational opportunities (such as designated trail systems) are developed, many of the current recreational users would likely shift their uses accordingly.

Arterial roads within the planning area are not maintained by BLM because they are mostly under county or state jurisdiction. BLM roads are currently identified for maintenance needs based on their system classification as a designated collector or local road. The alternatives re-classify a number of those roads from collector (a higher standard) to local road. The significance of this reclassification is that the roads classified as collectors would have road management objectives established commensurate with that classification, and roads classified as local would be available for future designation as part of the system with specific road management and maintenance objectives or available for closure to general travel. A change from a collector to a local road would be expected to lower the cost of maintenance of those roads at that standard.

Estimated future annual maintenance costs for BLM roadways are $900- $1,000 per mile for local roads and $2,000-$4,000 per mile for collector roads. These cost estimates represent the full annual maintenance costs, but in practice, the BLM, Forest Service and other agencies regularly defer annual maintenance spending. They are used in the analysis to compare potential cost reductions related to changes in road category only, not as an estimate of actual costs.

Analysis of the Alternatives

Effects of Alternative 1

This alternative is the Brothers/La Pine RMP direction continued with the addition of all subsequent NEPA decisions, emergency closures, settlement agreements and current memoranda. Alternative 1 would not designate a transportation corridor south of Redmond outside of the existing urban growth boundary. This would result in deferring the evaluating and establishment of a suitable corridor to a future time prior to the granting of a right-of-way. This could result in potentially reduced or delayed economic development for the city of Redmond. Lands classified for Community Expansion lands would include most of the lands in demand from local communities, but not in La Pine. Alternative 1 would anticipate a vegetation and fuels program that would generate about $204,000 annually. All of the area would be open to mineral sales, which would give this the highest potential for conflict with adjacent neighbors of all alternatives. Amenity values would be represented by about 95 percent of the public lands within the planning area in a retention or retain or exchange classification and management flexibility would be the highest of the alternatives with about 44 percent of the planning area classified as Z-2. This alternative would also have the highest amount of lands designated for

disposal, allowing for the greatest potential benefits from the BACA bill, because lands available for disposal emphasize use of the BACA bill legislation to maintain funding within the state to acquire other lands (See Appendix D).

Community Development

Community Expansion – Under Alternative 1, about one percent of BLM-administered lands in the planning area would be designated as Community Expansion areas, which are lands for disposition to other governmental ownership if these government agencies (federal, state or local) wish to acquire the properties. It is expected that the future use of at least part of the Community Expansion would include open space or recreational uses desirable to the local communities (such as group use sites, sports fields, campgrounds, recreational vehicle park facilities, target shooting areas, or other developed recreation amenities), but some future infrastructure development may also occur.

The Community Expansion areas identified under this alternative would be available for disposition to other governmental ownership if these government agencies (federal, state or local) wish to acquire the properties. It is expected that the future use of at least part of this 5,617 acres would include open space or recreational uses, but some future development may also occur.

For Redmond, this alternative would make up to 300 acres of BLM-administered land adjoining the Deschutes County Fairgrounds available for possible acquisition by the County or other local agency to enable future Fairground expansion. Development of additional parking and open space recreational uses (such as development of a recreational vehicle park) are the expected future land uses for the acquired lands. This expansion of facilities would represent positive social and economic benefits to the local community and region by providing additional capacity and services to serve large events and attract visitors (Bishop, 2003). The large availability of land offered and the relatively slow rate of likely future development in the area suggests that 300 acres would be more than enough land to accommodate development within the next 20 years.

In La Pine, several properties desired by local communities (as described under assumptions) for development would be designated Zone 2 in this alternative. Since these properties would be designated as Zone 2, it is possible that some public entity could acquire these lands if there is evidence of sufficient community need (per the Recreation and Public Purposes Act) and a fair land exchange can be arranged.

Regional Transportation – Alternative 1 corresponds to ODOT's "No Build Analysis" in the "Yew Avenue to Deschutes Market Road Analysis' (ODOT, 2002b). Under this alternative, no BLM-administered land would be provided to ODOT or Deschutes County for use in future transportation improvements of US 97.

US 97 is the primary north/south transportation corridor for Central Oregon, serving the rapidly growing communities of Redmond, Bend, Sunriver and La Pine. The highway also is used as a major truck route for the Western United States, providing shorter and more direct access for goods between California, the Willamette Valley, Central Oregon, eastern Washington and Northern Idaho.

Travel speeds average from 35 to 45 miles per hour (mph) for automobiles and 26 to 40 mph for trucks along the corridor. By 2016, the travel time from Madras (just north of the planning area) to the California-Oregon border is expected to increase from 4.4 hours to 5.8 hours, an increase of nearly 30 percent. Currently, 27 percent of the corridor is classified as moderate congestion and 5 percent is high congestion. If no improvements to the highway are made, the areas of high congestion are projected by ODOT to increase to 26 percent (ODOT, 1995).

According to the ODOT transportation analysis, the current volume to capacity ratio (v/c) for the 30th highest hour for five of the intersections associated with the Yew Avenue interchange are unacceptably high and do not meet state mobility standards (ODOT, 2002b). The 30th highest hour statistic is used by ODOT to represent the likely peak rush hour conditions that may be expected to occur. Traffic conditions are projected to deteriorate further by 2015 and 2025 – resulting in v/c ratios greater than 2.0 at nine local intersections. These mobility conditions can be expected to hinder further development in the neighboring areas. The congestion and delays associated with the inadequate traffic infrastructure may be expected to be a fundamental constraint to any new commercial, industrial or residential development on properties needing to use these connections to access US 97.

As a result, unless the Yew Avenue interchange and transportation system receive adequate improvements, it is expected that any development adding significant levels of traffic in that area would prove difficult to permit. This presents potential adverse consequences to the City of Redmond since this constraint could prevent:

- Planned future expansion of the current transportation system;
- Expansion of the County Fairgrounds; and
- Continued economic development at the existing Airport Business Campus Industrial Park (ABC Industrial Park) and future development of the planned Roberts Field Business Center (Roberts Center).

In addition, several other potential local development projects could be affected by continued "failure" of the Yew Avenue interchange. These include: planned expansion of the Central Oregon Community College, the planned Franks Landing commercial center at the Yew Avenue Interchange, the 200 acre Central Oregon Irrigation District office park development, and future development of 80 to 100 acres of City of Redmond property zoned for industrial use located south of Airport Avenue and west of 19th Street.

At this time, most of the projects mentioned above have insufficient information to assess economics associated with their development. However, the ABC Industrial Park and the Roberts Center have had studies done to assess potential changes to the region's economy. If completed, the ABC Industrial Park and the Roberts Center together could add between 1,600 to 4,750 jobs and $42 to $179 million in wages to the region. Similarly, the development of those two projects could generate up to $12 million in enhanced property value and taxable property base for the City and County. In addition, full construction of those two projects could generate one-time construction spending of over $183 million for the region. Under Alternative 1, the region would not realize such benefits. It should be noted, however, that total economic development estimates presented for ABC Industrial Park and the Roberts Center are highly dependent on numerous other factors such as future commercial real estate demand, other economic conditions and related regional development. However, for purposes of this analysis these projections serve as a relative means of comparing alternatives.

Amenity Values

With respect to open space values, BLM would continue to classify about 95 percent of its lands within the planning area with the zoning designations Zone 1 and Zone 2. Under these zoning designations, BLM would continue to retain the lands in public ownership with an emphasis on increasing public land holdings (i.e., Zone 1) and would continue to identify these areas as lands with high resource values (i.e., Zone 2). Lands on the periphery of large blocks would continue to be fragmented and somewhat discontinuous on the periphery of BLM's holdings, which would somewhat detract from the open space values associated with natural space and opportunities for solitude.

Based on information derived from the Social Values Survey, there is a desire for greater separation between motorized and non-motorized user groups on BLM-administered lands in the planning area. While opportunities for mixed uses would remain the same under Alternative 1, the character of the natural areas and the quality of the experience would continue to be affected and in some cases dominated by motorized uses, thus potentially adversely affecting those desiring a more natural experience.

Under Alternative 1, the application of recreation management emphases (for definitions of recreation management emphases, see the following Recreation discussion) would continue to provide a range of recreation opportunities, although mostly shared use facilities. Nearly 80 percent of BLM-administered lands in the planning area would be managed with a multiple use with shared facilities emphasis and nearly 20 percent would be managed with a roads only/low recreation emphasis, providing very little separation between motorized and non-motorized uses.

Due to these considerations, amenity values under Alternative 1 would continue to be beneficial contributors to the quality of life in the region, but are not optimized due to parcelization of open space and a limited range of segregated recreational opportunities.

Existing vegetation management practices would continue under Alternative 1, under current visual classifications. Alternative 1 provides less emphasis on the scenic importance of dominant community background features. However, to most people the difference in emphasis is not noticeable. About 402,400 acres within the planning area would be open to mineral sales, potentially resulting in adverse visual impacts associated with surface mining activities (e.g., large-scale vegetation clearing, topographic modifications, erosion, etc.), although the likelihood of wide-scale landscape disturbance is low. Overall scenic values under Alternative 1 would continue to have moderate beneficial effects on the quality of life in the region.

Under the Alternative 1, visitors would continue to be unaware of the recreational resources on BLM-administered lands in the planning area, and recreational opportunities and amenities (e.g., designated trails systems, signage, parking lots, outhouses, and interpretive areas) would continue to be limited. The potential development of recreational amenities for local communities in Community Expansion areas would have a positive effect on visitor enjoyment of recreational resources in the planning area.

Ecosystem Health and Diversity

Alternative 1 represents BLM's current fire/fuels and vegetative management practices. All other alternatives are then compared to Alternative 1 to determine potential changes under the proposed RMP alternatives. The following analysis is based on the cost of implementing the treatments. Current treatments on BLM-administered lands in the planning area are estimated to be about 4733 acres annually. Of these 4733 acres, about 2580 acres are estimated to be prescribed fire treatment and about 2,000 are estimated to be mechanical treatment.

At an average cost of $65 per acre, the cost for mechanical treatment of 2150 acres is estimated at $139,750. At an average cost of $25 per acre, the cost for prescribed fire treatment is estimated at $64,500, for a total program cost of $204,250 annually under Alternative 1.

Land Uses

Livestock Grazing – Alternative 1 is the baseline to which other alternatives are compared; however Alternative 1 is not the same as the current situation. Alternative 1 represents an estimated increase of 7,498 AUMs authorized use from the current situation, and a

corresponding increase in livestock sales of 1.26 to 5.03 percent. Estimated sales of cattle and calves under Alternative 1 direction would increase by $327,000 to $1,308,549 from the current situation. This would increase the size of the livestock industry within the planning area, especially in the La Pine area where the unalloted areas are located. In this alternative, BLM-administered forage would provide for just over four percent of local cattle/calf sales. For further effects analysis discussion, see the Land Uses, Livestock Grazing section earlier in this chapter.

Mining – Alternative 1 would continue to have about 403,900 acres or about 100 percent of BLM administered lands in the planning area open to mineral material sales. Under this alternative, all of ODOT's proposed mineral material sites would be available without land use plan limitations.

IMPLAN Sector 51 – New Highways and Street multiplier was used to estimate the potential for direct employment benefits to the region from the increased construction spending "funded" by the road construction raw material cost savings. The IMPLAN employment multipliers estimate that each $1 million of spending (in 2000 dollars) in this sector typically generates about 9.1 jobs, 8.5 indirect jobs and $0.6 million in indirect output annually. Therefore, an increase of $119,000 in highway construction spending would generate about one job, one indirect job and $71,000 of indirect output for the region each year.

Forest Products – Under this alternative, the average annual timber harvest on BLM-administered lands in the planning area would be about 50,000 cubic feet or 250,000 board feet. About half of this annual timber harvest would be for sawlogs, posts and poles, with an estimated sales value of about $300 per 1,000 board feet. The remaining timber would be harvested for wood chips, with an estimated value of $16 per green ton. The estimated commercial value of the harvestable sawlogs (not necessarily BLM revenue returning directly to BLM) would be $37,500 and the wood chips would be about $16,000 (1,000 tons). The total commercial value of timber production under this alternative would be about $53,500.

Based on this production estimate, and assuming all revenue comes from salvage or restoration sales, the federal government would retain about 96 percent of this revenue ($51,360) and the remaining four percent would be allocated to the state and likely returned to the county in which the timber was harvested.

Military Training – The short-term (3-year) permits for military training on BLM-administered lands that would continue under Alternative 1 would probably not result in congressional funding for training facility improvements. Thus, the economic benefits (jobs, local spending etc.) would probably not occur under this alternative.

Transportation and Utilities

Regional Transportation – Alternative 1 does not provide any specific direction for allocation of regional transportation corridors. No specific current direction would prohibit those uses in the areas considered for transportation corridors in Alternatives 2-7, however, the potential for other uses that may conflict with that expected use is greater in Alternative 1 than it is likely to be under Alternatives 2-7.

Local Transportation – Alternative 1 represents the amount of total road miles currently inventoried in the BLM data base. In total, there are about 3, 281 miles (2,562 miles of local roads, 302 miles of collector roads, and 218 miles of arterial roads) of roads that meet definitions of local, collector, or arterial roads as defined in the Glossary.

Effects Common to Alternatives 2-7

Community Development

Alternatives 2-7 would provide some designated transportation corridor to help to meet identified community development needs within the planning area. The potential future effects would be to allow for at least build-out within the City of Redmond's Urban Growth Boundary, although the degree to which the corridor would alleviate current problems varies by alternative.

Amenity Values

Public Land Ownership – There is little difference between the alternatives regarding open space. Alternatives 2-7 all include most of the planning area in a "retention" classification (Z-1 or Z-2). Between 96 and over 98 percent of BLM administered lands would be classified as Z-1 or Z-2 under Alternatives 2–7. Consequently each of these alternatives emphasizes retaining public lands to maintain or create large consolidated blocks of public land that provide connected natural landscapes, highly valued open space, and opportunities for solitude.

Open space values are improved by an emphasis on maintaining and/or creating large consolidated blocks of open space. These alternatives all shift previously designated Zone 2 lands to Zone 1 lands. These alternatives would maintain large blocks of land with known resource values and would preserve a buffer between the rapidly growing communities of Redmond and Bend. Thus, indirect economic impacts of these alternatives should be comparable to those identified for Alternative 2. In addition, these alternatives would have a greater emphasis on maintaining lands for specific wildlife benefits. Given known local, regional and national preferences towards lands offering such opportunities, as in Alternative 2, efforts to maintain or enhance these attributes would have a positive quality of life effect on local resident users and non-local, non-resident users alike.

Scenic Values – Scenic values would be improved due to the localized vegetation restoration efforts, management and clean up of dump sites, and reductions in areas open to mineral sales. These represent beneficial effects associated with these alternatives. There would be minor, temporary adverse visual impacts associated with the prescribed burns, under the increased fire management program, though, long-term positive economic impacts to and within the local and regional economy would be expected.

There are several areas in which indirect economic effects may be seen within the local and regional economy. With any improvements to BLM-administered lands in the planning area that would restore or enhance the landscape and its open space and scenic values, positive indirect socioeconomic effects would follow. Typical positive effects might include enhancement of quality of life factors for both residents and users, which have several follow-on effects within local and regional economies, such as expansion of the user base. Expansion of the user base would have certain indirect income effects in the local and regional economies. These indirect effects may be seen in continued demand for housing generating additional construction spending and employment associated with home construction, continued influx of retirees and additional spending in the region from transfer payments received from government and private retirement plans or investments, as well as continued movement into the region by the high tech and other light industries together with associated spending, and payments to communities in the region.

Recreation – It is expected that some increases in amenity values based on an increased range of recreation opportunities would occur. The most significant amenity effect from Alternatives 2-7 is from the change in management direction from travel management

direction that allows for a substantial amount of areas "open" to cross country travel to "limited to designated roads and trails." Once implemented, this management direction would result in an overall reduction of the amount of areas with the potential for braided user-created trails or damaged or trampled vegetation.

Ecosystem Health and Diversity

For Alternatives 2-7, the combined total quantifiable spending and employment changes from timber and vegetative management changes would be less than a $0.5 million and fewer than 12 jobs. Compared with a regional economy for the agricultural sector of $143.7 million in annual output and 3,906 jobs, the projected changes in spending or employment for timber and vegetation management would be less than a 0.35 percent increase in the region's agricultural industry and 0.3 percent increase in regional agricultural jobs. In a regional context, therefore, this increase would be barely discernable and would be considered only of minor importance to the area's agricultural sector. The increase would have no discernable national importance as Oregon is not in the top 20 list of states for agriculture in the National Agricultural Statistics and Agricultural Census provided by the U.S. Department of Agriculture. There were some Oregon Counties that made the top 100 counties nationwide for Agriculture, but Crook and Deschutes Counties were not among them.

Land Uses

Livestock Grazing – One to fifty permittees would be affected by AUM reductions, and there would be a 0.01 to 8.44 percent reduction in local cattle/calf sales. For further effects analysis discussion, see the Land Uses, Livestock Grazing section earlier in this chapter.

Minerals – Under Alternatives 2-7, surface occupancy restrictions would increase under each action alternatives from about 52,810 acres under Alternative 2 to about 101,350 acres under Alternative 5. However, the potential for locatable or leasable mineral development is low, and it is unknown whether the location of the surface occupancy restrictions would affect any future mineral leasing activities.

Military Training – The long-term permits for military training on BLM-administered lands that would be provided for in Alternatives 2-7 would increase the likelihood of congressional funding for training facility improvements. Funding for facility improvements would create job opportunities for contractors and their employees and generate business for suppliers of construction material thus aiding the local economy. Improved training opportunities provided by facility improvements could also increase the number of military personnel training in the area and thus could contribute additional spending for local goods and services in and around the planning area.

Transportation

Regional Transportation – Alternatives 2-7 would identify two potential corridors – one is north of the current highway 126 between Bend and Redmond. Identifying this corridor would reduce the future potential for inconsistent uses within the corridor. A corridor between Bend and Redmond is identified in Alternatives 2-7, although the effects of the alleviation of the Yew Avenue problem vary by alternative. The result of having a corridor between Bend and Redmond would include some level of improvement in the overall potential congestion at the Yew Avenue interchange during peak traffic events.

Local Transportation – Future reconfiguration of the transportation system on BLM-administered lands within the planning area is intended to meet recreational and travel management objectives, maintain adequate user access, and reduce BLM's land management costs (e.g., by reducing route mileage, dumping opportunities and law enforcement requirements).

Alternatives 2-7 would all include direction for subsequent area analyses to determine whether local roads would become part of the designated system, or be available for closure. In general, future direction would likely be to close redundant roads and develop more loop routes in an effort to decrease the occurrence of user-created road use. Exact effects cannot be predicted until a site-specific analysis determines which local roads would be designated or closed. Based on other management direction, those areas with primary or secondary wildlife emphasis are likely to have the greatest potential for road reduction (See also Chapter 4 - Transportation and Utilities). Closure of frequently traveled user-created roads may affect users who relied on these routes as access to specific locations for recreational or other activities within the planning area. Removal of these access routes would likely increase their travel time to the location if they can take alternate routes to access these locations.

No economic benefits to the local economy were identified due to the disparity between the current road maintenance expenditures and the projected cost for future maintenance and the uncertainty over the exact road miles to be maintained under each alternative. Given the current deferred road maintenance needs, it is difficult to determine the additional effects any changes in responsibilities would have; either for road closure or for road maintenance. Considering both context and intensity, the effects from internal road changes do not appear to be of major importance regionally or nationally. However, the internal road changes could have substantial importance to the local BLM district in determining budgets and establishing funding priorities. Road maintenance funds are not projected to increase, and therefore, a continuation of deferred annual maintenance would occur in Alternatives 2-7. In future, the anticipated reduced amount of local roads would also reduce the amount of deferred maintenance. However, until a final site specific analysis has been completed, there is no way to estimate the degree to which that might be reduced.

Effects of Alternatives 2-7

Community Development

Community Expansion – Alternative 2 would increase the acreage classified for community expansion compared to Alternative 1, which would facilitate transfer to state or local governments interested in acquiring these lands to meet their community needs.

Under this alternative, about 750 acres in the La Pine area would be classified as available for purchase by the Deschutes County and/or La Pine Special Sewer District for the purposes of sewage infrastructure expansion to serve future community and residential growth in the area. The new sewage facilities would enable the potential development of 1,800 homes in the area. In addition, about 300 – 400 acres near La Pine (currently identified as the site for potential future development of the La Pine Airport) and currently identified for expansion of 300 – 400 acres near Redmond (for the expansion of the County Fairgrounds) would be designated as Community Expansion lands. While all of these lands were also available for possible community use under Alternative 1, they could only have been obtained through land exchange agreements. Under this alternative, these lands have been identified as Community Expansion lands and, as such, can potentially be purchased from the BLM by appropriate agencies (and pending necessary compliance and agency approval), which may facilitate their future transfer.

While this economic development would be expected to have a positive effect on the local economy by providing more housing, infrastructure and other local development for the region, the social effects may differ on the local community and region. The expansion of the housing in La Pine could change the local social environment from the influx of new residents. However, any of these developments would also be possible under Alternative 1.

Alternative 3 would result in a net decrease of nearly 2,500 community expansion acres being available for disposition to other governments compared to Alternative 1. The reduced acreage available for potential community development would reduce the future options for state or local governments to meet their community needs since fewer BLM-administered lands would be available for acquisition. Under this Alternative, there would be specific requirements that all of the 3,120 acres designated for community expansion be used for open spaces, greenbelts and parks. There would be lost economic development opportunities for the region since these lands would no longer be available to meet community expansion needs. The magnitude of the economic development impacts would be dependent upon the availability of alternative sites and opportunities to meet the community expansion needs. In addition to the possible loss of indirect economic development effects, the indirect social impacts associated with the airport and fairground expansion would also be "lost".

Alternative 4 would allocate lands for Community Expansion that could potentially be sufficient for the La Pine Airport, the La Pine Sewage Treatment expansion and the 300 acres for the Deschutes County Fairgrounds. Since the La Pine Airport development or La Pine Sewage Treatment expansion were identified as Z-2 lands under Alternative 1, their designation as Community Expansion lands under Alternative 4 represents potential positive social and economic impacts to the local area and region by facilitating their potential future transfer.

While it is anticipated that nearly all of the likely future Community Expansion lands would be maintained as open space (possibly with some increased recreation use), other land uses could occur if rezoning of the properties is completed by the appropriate agencies. The only currently anticipated rezoning of Community Expansion lands would be associated with that the 40 acres needed for construction of the proposed La Pine Airport south facilities (Coffman Associates, 2002). Therefore, the current amenity values for these properties are expected to be maintained and no discernable adverse social environment impacts would be expected with the community expansion associated with this alternative. The condition that interconnecting open space would be an element of the future land planning under this alternative may be expected to add some unquantifiable positive indirect social effects and likely generate additional wildlife and other ecosystem benefits.

Alternative 5 would result in a net increase of about 159 acres in Community Expansion lands compared with the No Change Alternative becoming available for future transfer to county and/or city ownership if these government agencies wish to acquire the specific properties.

Under this alternative, BLM-administered lands for both the La Pine Airport and La Pine Sewage Treatment expansion would not be available under the Community Expansion land allocation. The properties needed for these developments would be designated as Zone 1 lands and, therefore, would not be available for these uses. If no comparable and alternative land resources are available, then compared with Alternative 1 (which designated the properties as Zone 2 lands and potentially available to meet public needs), Alternative 5 would effectively preclude future development of the La Pine Airport and/or the La Pine Sewage System. This would likely represent some adverse indirect economic impact on the regional economy although the magnitude of the effect cannot be quantified. There would also be potential indirect social effects associated with these proposed developments that would also be "lost".

Under this alternative up to 300 acres of BLM would be available for future expansion of the Deschutes County Fairgrounds.

Alternative 6 would decrease lands classified as Community Expansion lands under this alternative by about 500 acres compared to Alternative 1, resulting in a net reduction

of potentially "saleable" BLM-administered lands (i.e. Z-3 and Community Expansion lands) of about 2,100 acres.

Under this alternative, BLM-administered land for the La Pine Airport, the La Pine Sewage Treatment expansion and the 300 acres for the Deschutes County Fairgrounds would be available under the Community Expansion land allocation. Since the La Pine Airport development or La Pine Sewage Treatment expansion were identified as Z-2 lands under Alternative 1, their designation as Community Expansion lands under Alternative 6 represents potential positive social and economic impacts to the local area and region by facilitating their potential future transfer.

Under this alternative, all of the likely future Community Expansion lands would be maintained as open space (possibly with some increased recreation use) and could be used only for parks, greenbelts, open space, recreational spaces or community infrastructure needs. Therefore, the current amenity values for these properties are expected to be maintained and no discernable adverse social environment impacts would be expected with the community expansion associated with this alternative. The condition that interconnecting open space would be an element of the future land planning under this alternative may be expected to add some unquantifiable positive indirect social effects and likely generate additional wildlife and other ecosystem benefits.

Two hundred (200) acres of BLM-administered lands desired for the future expansion of the Deschutes County Fairgrounds would be designated as community expansion under this alternative, as compared to 300 acres under Alternative 1. Facilitation of this development could result in indirect beneficial economy impacts to the regional economy.

Alternative 7 would decrease Community Expansion acres by about 2,005 acres compared to Alternative 1. The potential development of recreational amenities for local communities on Community Expansion areas would have a negligible adverse effect on visitor enjoyment of recreational resources in the planning area compared to Alternative 1. Alternative 7 has selected areas with requirements for open space or greenbelts, but would meet community needs for lands for future airport and industrial development as well as fairground expansion.

Regional Transportation – Evaluation of the economic effects of different corridor alternatives is described under the Community Development-Regional Transportation heading in this section.

Amenity Values

Public Land Ownership – There is little difference between the alternatives regarding open space. Alternatives 2-7 all include most of the planning area in a "retention" classification (Z-1 or Z- 2). Alternatives 3, 4, 5 and 6 all have requirements for maintenance of open space characteristics on lands classified for Community Expansion. There would be substantial positive socioeconomic effects from maintaining large blocks of land with known resource values and preserving the greenbelts separating the Bend and Redmond communities. However, there may also be potential lost economic opportunities if those lands do not meet community needs for industrial or other identified development needs.

The greatest indirect economic impact is likely to be generated under Alternative 3 by the net decrease of nearly 2,500 community expansion acres being available for disposition compared to Alternative 1. These lands may also become ineligible for fairground or airport expansion. This would result in a loss of potential economic development opportunities for the region. The extent of deleterious economic development impacts

would also depend on the availability of alternative sites and opportunities for meeting community expansion needs.

Scenic Values – The potential effects that could reduce amenity values related to development of mining sites are discussed in more detail in the Land Uses – Minerals section of this chapter. Overall scenic values would be potentially most affected by these uses in Alternative 2, and would have the least potential to affect amenity values in Alternative 3. Alternatives 4 and 5 would also have reduced potential over Alternative 1 due to requirements for utilizing alternative sources and buffer zones around residential areas. Alternatives 3, 6, and 7 have the most aggressive probable vegetation treatments and can therefore be expected to have the greatest potential short-term effects on scenic quality, but would likely have similar long-term effects which would generally support continued naturalistic settings.

Recreation – Under Alternatives 2 and 4, the application of recreation management emphases would somewhat increase the range of recreational opportunities compared to Alternative 1. The majority of BLM-administered lands (59 to 77 percent depending upon the alternative) would be managed with a multiple use with shared facilities emphasis. The remaining lands would be managed with an emphasis on non-motorized use and a small portion of the planning area would be managed as exclusive non-motorized use management or with a roads only low recreation emphasis. Open space values are marginally improved due to the increased range of recreational opportunities provided under the recreation management emphases.

Alternatives 3, 5, 6, and 7 would allocate larger areas with a non-motorized or non-motorized exclusive recreation emphasis, especially in large blocks of land and would generally provide more amenity values for those interested in quiet and solitude.

Ecosystem Health and Diversity

Under Alternatives 2, 4, and 5, BLM would increase the annual mechanical acres treated (from 2,150 acres under Alternative 1) to about 7,297 acres. At an average of $65 per acre, this increase of 5,147 acres would increase program spending by about $334,555 for mechanical treatment. Total prescribed fire treatment acres would increase slightly over Alternative 1 (from 2,580 acres to 3,924 acres), for an approximate increase of $33,600 (1,344 acres X $25/acre). Total overall vegetative management program costs would increase by about $368,155 compared to Alternative 1.

Alternatives 2, 4 and 5 would result in a net increase of about $368,155 in spending on vegetative management over current spending under Alternative 1. The IMPLAN Sector 26 – Agricultural, Forestry and Fishery Services most closely matches these treatment activities and therefore has been used to estimate the direct employment effects of the increased treatment spending. The IMPLAN employment multipliers estimate that each $1 million of spending (in 2000 dollars) in this sector typically generates 25.4 jobs. Therefore, an increase of $368,155 in vegetative management would generate about 9.4 jobs for the region annually. The IMPLAN employment multipliers estimate that each $1 million of spending (in 2000 dollars) in this sector typically generates 9.7 indirect (and/or induced) jobs. Therefore, an increase of $368,155 in vegetation management spending would generate about 3.6 indirect jobs for the region annually. The IMPLAN employment multipliers estimate that each $1 million of spending (in 2000 dollars) in this sector typically generates $0.64 million in direct (and/or induced) output spending. Therefore, an estimated increase of $368,155in spending would generate about $235,619 in indirect output for the region annually.

Under Alternatives 3, 6, and 7, BLM would increase the projected annual mechanical acres anticipated for treatment (from 2,000 acres under Alternative 1) to 5,581 acres. At an average of $65 per acre, this increase in 3,581 acres would increase program spending

by about $232,765 for mechanical treatment. Total prescribed fire treatment acres would more than double over Alternative 1 (increasing from 4,000 to 8,371 acres), for an approximate increase in spending of $109,275 (based on an average $25 per acre cost). Total overall vegetative management program costs would increase by about $342,040 compared to Alternative 1.

Alternatives 3, 6 and 7 would result in a net increase of about $342,000 in spending on vegetative management over current spending under Alternative 1. The IMPLAN Sector 26 – Agricultural, Forestry and Fishery Services most closely matches these management treatment program activities and therefore has been used to estimate the direct employment effects of the increased treatment spending. The IMPLAN employment multipliers estimate that each $1 million of spending (in 2000 dollars) in this sector typically generates 25.4 jobs. Therefore, an increase of $342,000 in vegetative management spending would generate about 8.7 jobs for the region annually. The IMPLAN employment multipliers estimate that each $1 million of spending (in 2000 dollars) in this sector typically generates 9.7 indirect (and/or induced) jobs. Therefore, the estimated increase of $342,000 in vegetative management spending would generate about 3.3 indirect jobs for the region annually. The IMPLAN employment multipliers estimate that each $1 million of spending (in 2000 dollars) in this sector typically generates $0.64 million indirect (and/or induced) output spending. Therefore, the estimated increase of $342,000 in vegetative management spending would generate about $218,880 in indirect output for the region annually.

Land Uses

Livestock Grazing – For further effects analysis discussion, see the Land Uses, Livestock Grazing section earlier in this chapter.

In Alternatives 2 and 3, one permittee would be affected by AUM reductions, and there would be a very minor reduction in local cattle/calf sales, which would be unlikely to have measurable effects on the local economy. Local livestock sales would be reduced by 0.01 to 0.05 percent ($3,000 to $12,000) compared to Alternative 1, depending on permittee flexibility in securing alternate forage sources.. In this alternative, BLM-administered forage would provide for just over four percent of local cattle/calf sales.

In Alternative 4, about 20 permittees would lose their BLM permits. This would result in a 0.039 to 1.58 percent reduction ($108,000 to $416,000) in local cattle/calf sales, depending on permittee flexibility, compared to Alternative 1. This would impact the local livestock industry but is likely to have minimal effects on the local economy. Forage from BLM-administered public land would contribute just less than four percent to local cattle/calf sales.

About 50 permittees would lose their BLM permits in Alternative 5. This would mean a 2.11 to 8.44 percent reduction ($576,000 to $2,221,000) in local cattle/calf sales, depending on permittee flexibility, compared to Alternative 1. This reduction would affect the livestock industry and would likely have measurable effects on the local economy. These induced impacts were not quantified. In this alternative, BLM administered forage would provide for about 2 percent of local cattle/calf sales.

In Alternative 6, eight permittees would be affected, reducing local cattle/calf sales 0.25 to 1.02 percent ($69,000 to $267,000) depending on permittee flexibility. This would impact the livestock industry but would likely have minimal effects on the local economy. In this alternative, BLM-administered forage would provide for about four percent of local cattle/calf sales.

One permittee would be affected by mandatory AUM reductions in Alternative 7; the remaining AUM reductions would be accomplished through voluntary permit

relinquishments. Compared to Alternative 1, local cattle/calf sales would be reduced by 0.76 to 3.04 percent ($207,000 to $799,000), depending on permittee flexibility. This would impact the livestock industry and would likely have measurable effects on the local economy. These induced impacts were not quantified. In this alternative, BLM administered forage would provide for 3.6 percent of local cattle/calf sales.

Minerals – It is important to note that the following comparison of the Alternatives with respect to acres available to mineral material site development does not necessarily reflect a comparison of how much mining will occur. There is no direct correlation between the number acres available for mineral material site development and the amount of mining that will take place. What matters is where the economically accessible high quality rock deposits are relative to the acres available. Therefore, it is possible for an alternative with relatively few acres available for mining to result in more mining on public lands than for another alternative with more acres available. As such, it remains possible for the social and economic benefits described for Alternative 1 to occur in all alternatives.

Alternative 2 would designate 349,199 acres as available for mineral material site development, the highest of all action alternatives. All but one of ODOT's prospective mineral material sites would be available without land use plan restrictions under this alternative. A portion of another prospective site would be unavailable due to the 1/8-mile buffer zone around a nearby residentially zoned area. Both of these sites are near Cline Buttes but there are other prospective sites in the same area that could be equally viable. Therefore, the potential cost savings for ODOT and the social and economic benefits identified under Alternative 1 could also be obtained under Alternative 2.

Alternative 3 would allocate approximately 347,080 acres as open for mineral material site development. This alternative would allocate the same number of acres as Alternative 6, but more of the open acres would have restrictions. The availability of ODOT's prospective mineral material sites would be the same as that for Alternative 2. However, all of the prospective sites in the Cline Buttes area would be within the Juniper Woodlands ACEC and would be subject to restrictions to protect old-growth juniper. These restrictions could increase operational costs and cut into the savings from using BLM sites within this area or cause ODOT to use alternative sources that could be farther from project sites. Nonetheless, it could be possible for ODOT to incur the same cost savings as in Alternative 1 owing to the possibility of potential site development compatibility with old-growth juniper in some areas of the ACEC. Consequently, the socio-economic effects described for Alternative 1 could also occur under Alternative 3.

Alternative 4 would have about 335,772 acres open to mineral sales. Unlike any of the other proposed alternatives, Alternative 4 would require ODOT to use alternative aggregate sources before opening a new site on BLM-administered lands if alternative sources exist within 30 miles of a construction site. Because of this requirement, Alternative 4 would encourage use of existing public and private sources more than other proposed RMP alternatives, resulting in increased hauling distance, increased aggregate prices and/or less competition during the bidding process. Alternative 4, therefore, would likely result in little or no cost savings for ODOT since there are many existing private and public sources available within 30 miles of most, if not all parts of the planning area . However, some cost savings could still be attainable through the use of existing public sites when located within favorable distances from road projects. Since ODOT would likely not be able to attain the potential $119,000 annual savings under this alternative, the socio-economic benefits described for Alternative 1 would probably not occur.

Under Alternative 5, about 311,799 acres would be available for mineral material site development, the least of any alternative. Two of ODOT's prospective sites would not be available in the Cline Buttes area and the alternative prospective sites nearby would be subject to the restrictions of the Peck's Milkvetch ACEC. Thus, the social and economic

effects of this alternative would likely be similar to those of Alternative 3 despite the less acreage available in Alternative 5.

Alternative *6* would have about 347,080 acres available for mineral material site development, the same as Alternative 3. Like Alternatives 2 and 3, one of ODOT's prospective sites would not be available and one would be partially restricted by a 1/8-mile buffer zone in the Cline Buttes area. All of the other prospective sites in the Cline Buttes area would be restricted to protect special values in the Peck's Milkvetch ACEC. Hence, the cost savings and social and economic effects of Alternative 6 would likely be similar to those of Alternatives 3 and 5.

Alternative 7 would allocate 349,199 acres as available for mineral material site development. The availability of ODOT's prospective mineral material sites is similar to that of Alternative 6. However, in this alternative, the boundary of the Peck's Milkvetch ACEC has been modified to exclude one of ODOT's potential mineral material sites in the Cline Buttes area. Thus, one of ODOT's prospective sites in the Cline Buttes area would be available without special restrictions, unlike Alternatives 3, 5, and 6. Consequently, the potential cost savings and the social and economic effects of Alternative 7 would likely be more like those of Alternative 2.

Forest Products – Alternatives 2, 4, and 5 would provide an estimated average annual timber harvest of about 120,000 cubic feet or 600,000 board feet (half as saw wood and half as chips). The estimated commercial value of the harvestable saw wood would be about $90,000, depending upon demand and the estimated wood chip production would be 2,400 tons with a commercial value of about $38,400. The estimated total value of timber production under these alternatives would be $128,400 ($123,256 of which would be retained by the BLM and $5135 returned to the county of harvest if all sales were salvage or restoration). Compared to Alternative 1, these alternatives would generate an additional $75,000 of revenue in timber sales. The IMPLAN Sector 26 – Agricultural, Forestry and Fishery Services most closely matches the timber harvesting activities and therefore has been used to estimate the direct employment effects of timber harvest. The IMPLAN employment multipliers estimate that each $1 million of spending (in 2000 dollars) in this sector typically generates 25.4 jobs. Therefore, the estimated increase of $75,000 in timber harvest revenues would generate about 2 jobs for the region annually. The IMPLAN employment multipliers estimate that each $1 million of spending (in 2000 dollars) in this sector typically generates 9.7 indirect (and/or induced) jobs. Therefore, the estimated increase of $75,000 in timber harvesting would generate about 0.75 indirect jobs for the region annually. The IMPLAN employment multipliers estimate that each $1 million of spending (in 2000 dollars) in this sector typically generates $0.64 million indirect (and/or induced) output spending. Therefore, the estimated increase of $75,000 in timber harvesting would generate about $48,000 in indirect output for the region annually.

Alternatives 3, 6, and 7 would project an average annual timber harvest on BLM-administered lands in the planning area at 150,000 cubic feet or about 750,000 board feet (half as saw wood and half as chips). The estimated commercial value of the harvested saw wood would be about $112,500 and the wood chip would be about $48,000 (3,000 tons). The total commercial value of the timber production under these alternatives would be about $160,500 ($154,080 of which would be retained by BLM and $6,420 would be distributed to the county of harvest if all of these sales were salvage or restoration sales). Compared to Alternative 1, these alternatives would generate nearly $107,000 of additional annual revenue in timber sales.

The IMPLAN employment multipliers estimate that each $1 million of spending (in 2000 dollars) in this sector typically generates 25.4 jobs. Therefore, the estimated increase of $107,000 in timber revenues would generate about 2.7 jobs for the region annually. The IMPLAN employment multipliers estimate that each $1 million of spending (in 2000

dollars) in this sector typically generates 9.7 indirect (and/or induced) jobs. Therefore, it is estimated that an increase of $107,000 in timber harvest spending would generate about one indirect job for the region annually. The IMPLAN employment multipliers estimate that each $1 million of spending (in 2000 dollars) in this sector typically generates $0.64 million indirect (and/or induced) output spending. Therefore, it is estimated that an increase of $107,000 in timber harvest spending would generate about $68,000 in indirect output for the region annually.

Military Training – Alternatives 2 and 5 would provide a larger area for military training in than Alternative 1 but whether the occasional need for simultaneous training exercises or larger multi-unit training exercises would be met is uncertain. Thus, Alternatives 2 and 5 could contribute more to public health and safety, military readiness, and national security than Alternative 1 depending on whether simultaneous or multi-unit training needs are met.

Alternatives 3 and 4 would not provide enough land to meet the needs of the military by limiting opportunities for simultaneous or multi-unit training. These alternatives would likely contribute the least to public health and safety, military readiness, and national security.

Alternatives 6 and 7 would meet the needs of the military by providing space for both simultaneous and multi-unit exercises. Alternative 6 would allocate Areas 1, 2, and 3 as rotational for military uses though the military has determined Area 1 to be unsuitable for training exercises. Alternative 7 would drop Area 1 and Areas 2 and 3 would become satellite areas that would extend the available training area beyond the core area. Thus, Alternative 7 would be expected to provide the greatest contribution to public health and safety, military readiness, and national security.

Transportation and Utilities

Regional Transportation – Alternative 2 would allocate a transportation corridor to facilitate future granting of a right-of-way for a road south of Redmond to the Deschutes Market interchange. This alternative would not include a potential interchange link at Quarry Road.

ODOT's analysis of this alternative concluded that this road configuration would not remove sufficient traffic from the Yew Avenue Interchange to enable the future interchange to meet mobility standards (ODOT, 2002b). While the proposed improvement of the interchange and extension of the roadway to the Deschutes Market interchange would reduce some of the congestion and traffic impacts at the Yew Avenue Interchange, ODOT indicates that these improvements would be inadequate to solve the congestion problems described under Alternative 1. Thus, this Alternative offers little change from Alternative 1. Under Alternative 2 none of the area's potential economic development dependent on the Yew Avenue Interchange improvements would likely occur.

Thus, as in Alternative 1, the region would not realize the benefits associated with jobs, wages, enhanced property values, increased tax bases, or construction spending. Under this alternative, the estimated future economic benefits potentially associated with development of properties such as the ABC Industrial and Roberts Field Business Parks would possibly be partially obtained, thus representing some potential economic benefits; however, the degree to which future development would be limited under this alternative has not been quantified.

Alternative 3 would allocate a transportation corridor to facilitate redevelopment of the Yew Avenue interchange and development of a roadway corridor about 2 miles south of Redmond to a proposed interchange at the junction of Quarry Road and US 97. The proposed roadway corridor would consist of an extension access between South

Redmond and the two interchanges. Under this alternative, land use measures would also be applied to control any development on the land adjoining the roadway corridor to prevent any future sprawl impacts.

ODOT's analysis indicates that the proposed regional transportation and access changes under Alternative 3 would significantly improve the area's current and projected future traffic problems (ODOT, 2002b). Under this alternative, the 2025 volume to capacity (v/ c) ratios for the segments of US 97 south of Yew Avenue and North of Quarry Road would be improved over the existing roadway — with v/c ratios decreasing by 0.04 to 0.06.

Under this alternative, future economic development projects such as the ABC Industrial Park and the Roberts Center could be completed. If completed, the ABC Industrial Park and the Roberts Center together could add between 1,600 to 4,750 jobs and $42 to $179 million in wages to the region. Similarly, the development of those two projects could generate more than $12 million in enhanced property value and taxable property base for the City and County. In addition, full construction of these two projects could generate one-time construction spending of up to $183 million for the region. Under Alternative 3, assuming development of these projects or similar ones, the region would realize benefits that it would not realize under either Alternatives 1 or 2. Even if only some of the development associated with these projects occurred, the area would still realize substantial benefits to the regional economy.

Secondary benefits would be generated from the related spending in the regional economy by the employees and other businesses serving the firms in projects such as the industrial and business parks described above. The magnitude of these indirect impacts can be estimated using an IMPLAN input-output model for the affected region.

According to the IMPLAN model for the two county region, in the Trade sector about $0.7 million of indirect spending is generated for every $1 million of direct spending in the region. In addition, about 9.5 indirect jobs are also associated with every $1 million of direct spending. Therefore, as a conservative estimate of the economic impact based on an estimated total direct economic development impact of $42 million, about 400 associated jobs and $29.4 million of indirect economic benefits could be expected

Alternatives 4 – 7: Under all of these alternatives, BLM would provide a transportation corridor allocation to facilitate the redevelopment of the Yew Avenue interchange and development of a future roadway to both the Deschutes Market interchange and Quarry Road interchanges. The proposed roadway corridor would consist of an extension access between South Redmond and the two interchanges. Under this alternative, land use measures would also exist to control any development on the land adjoining the roadway corridor to prevent future sprawl along the corridor. The future transportation changes proposed for Alternatives 4, 5, 6, and 7 correspond with the ODOT's Alternative 3 as described in the *Yew Avenue to Deschutes Market Road Analysis* (ODOT, 2002b).

Under this alternative, traffic levels at the Yew Avenue Interchange would be reduced to acceptable levels by providing an additional transportation corridor for traffic between South Redmond and the Deschutes Market Junction. According to ODOT, future volume to capacity ratios south of the Yew Avenue interchange would be sufficiently improved under this alternative. In addition, under this alternative, the 2025 volume to capacity (v/c) ratios for most segments of US 97 south of Yew Avenue would be improved over the existing roadway – with v/c ratios decreasing by 0.01 to 0.06. Only at the segment of US 97 South of 61st Street would this alternative worsen the volume to capacity ratio, and in that case the increases would be minor (only a 0.01 v/c increase northbound and 0.03 increase southbound). Under Alternatives 4 through 7, the region would realize the same direct and indirect economic benefits as those described under Alternative 3

Local Transportation – Alternative 2 would involve designing an integrated transportation system using existing local and historic roads (including existing county rights-of-way). This alternative would minimize development of new rights-of-way on public lands. This alternative would have the highest density and most miles of collector roads of the action alternatives (the same as under Alternative 1, see Table 4-57, Collector and Local Roads by Alternative). The alternative includes an allocation of a transportation/utility corridor about one-half mile wide along the Burlington Northern- Santa Fe (BNSF) railroad right-of-way from south Redmond to Deschutes Junction.

This alternative would not include an interchange at Quarry Road under this alternative. There would be no access from that corridor to the adjacent public lands. Under Alternative 2, some private lands could potentially be used for the future extension of the road to Deschutes Junction.

Alternatives 3- 7 would reduce the density and miles of collector roads and slightly increase the miles of local roads available for future designation or closure, leading to greater consolidation of the transportation system than under Alternatives 1 and 2. The future local roadway configuration under these alternatives would be projected to be about 2800 miles. This would represent an increase of about 300 miles of local roads compared with Alternative 1, with a comparable decrease in collector roads. The decrease in collector roads would reduce the agency's future operating and maintenance responsibilities. The extent of this reduction would be partially offset by the increase in future operating and maintenance requirements associated with the increase in local roads. However, since the annual maintenance requirements and costs for local roads are far less than those for collector roads, it is expected that there would be a net reduction in the agency's maintenance costs. Based on an estimated annual operating and maintenance cost of $2,200 for collector roads and $950 for local roads, the future road maintenance costs under this Alternative would decrease by about $210,000 compared to Alternatives 1 and 2. However, given that current BLM road maintenance program has extensive deferred maintenance needs, while the reduction in agency's maintenance responsibilities would have a positive economic effect in reducing the agency's future road maintenance responsibilities, the effect may be estimated to be negligible since it is not expected to result in any savings in actual future road maintenance spending.

Cumulative Effects

The primary causes of economic and social change in the area would be underlying local, regional, and national social and economic trends. Regional population growth is likely to have the most significant economic and social impact on the local and regional populations, a baseline condition that is not significantly affected by any of the alternatives considered in this FEIS. Almost all of the action alternatives reduce, to some extent, the impacts of population growth by providing direction and guidance on how to manage expected resource and human conflicts, and through specific land use allocations and allowable uses within certain areas. The most significant potential for economic cumulative effects are related to the impacts of relieving the potential Yew Avenue interchange failure and the potential taxpayer cost of obtaining aggregate for public projects in the area.

Table 4-57 Collector and Local Roads by Alternative (miles)

Road Maintenance Category	Alternatives 1 & 2	Alternatives 3 -7
Arterial	218	220
Collector	302	104
Local	2,562	2,808

Direct and indirect benefits for each alternative have been evaluated using comparative analysis to extrapolate trends based on secondary data from regional, state, and national sources. This analysis suggests that there will be net positive social and economic benefits generated in the communities and counties within the boundaries of the planning area with the implementation of Alternatives 2-7. Positive effects are likely to include enhanced quality of life factors for both residents and users and enhanced areas for recreation uses. The indirect social and economic effects also may be reflected in the continued influx of retirees, and additional spending in the region from transfer payments received from government and private retirement plans or investments, the influx of high tech and other light industry business and employees, and the related housing demand and construction jobs.

Alternatives 2 and 4 have similar social and economic effects and significance even though some aspects of these alternatives differ. Alternative 2 generally continues a mix of uses on BLM-administered lands and resolves use and resource conflicts on a case-by-case basis rather than by separating land uses. Alternative 4 emphasizes increasing recreation opportunities with more separation of uses. Similar to previous alternatives, therefore, Alternative 5 considered together with the other past, present and reasonably foreseeable federal, regional and local plans and projects described above would have no adverse cumulative impacts. Cumulatively, this alternative would contribute only slightly to variations in local economic activity, employment and income generated by BLM-managed resources. The primary causes of economic and social change in the area would be underlying national and regional economic trends. BLM management actions would minimally influence regional population growth.

The socioeconomic impacts associated with Alternatives 2 and 4 are expected to be positive. Implementation of these alternatives is estimated to result in as much as $0.182 million in increased spending and about five additional jobs in the region. Since a number of the impacts cannot be quantified, it is not possible to account for all impacts to determine the magnitude of the effects on the region's economy and social environment. The potential benefits of some of these unquantified impacts could be appreciable, especially the recreation-related effects.

The socioeconomic impacts identified under Alternatives 2 and 4 are likely to be distributed over a wide variety of individuals and groups. Although the potentially greatest impacts may be expected to affect small specific user groups (e.g., recreational groups such as OHV users or target shooters), some of the more general impacts (e.g., amenity values and land ownership benefits) are expected to provide more broad, regional benefits to both resident and non-resident users. These alternatives are expected to provide a net beneficial socioeconomic impact on the region's economy and social environment. The benefits are expected to be relatively minor overall, and would be mostly dispersed (except for the recreational use impacts). A more specific and sizable socioeconomic benefit would be derived from BLM's regional transportation contributions under Alternative 4. All indirect socioeconomic impacts associated with these alternatives are expected to be beneficial. Implementation of these alternatives would result in about $116,800 in increased indirect spending and about two jobs in the region.

Alternatives 3, 5, 6, and 7 have similar social and economic effects and significance, even though aspects of these alternatives differ somewhat. Alternative 3 generally decreases human uses in the source habitats and special management areas and ACECs to resolve user and resource conflicts. Alternative 5 emphasizes segregated, low conflict activities in more urbanized parts of the planning area and promotes higher-conflict uses in more rural areas. Alternative 6, more than any other alternative, relies on local governments to create recreation opportunities. It emphasizes reducing conflicts between wildlife

management and human activities in rural areas rather than in urban areas. Alternative 7 generally emphasizes recreational uses that are managed for lower conflicts with wildlife in the areas away from population centers.

Nearly all of the socioeconomic impacts associated with Alternatives 3, 5, 6 and 7 would be beneficial. Implementation of these alternatives could result in as much as $450,000 in increased spending and as many as 12 additional jobs in the region. In addition, there are substantial potential economic development benefits associated with the regional transportation system improvements facilitated by BLM's land resources under these alternatives. This economic development impact could potentially represent the greatest socioeconomic impacts associated with these alternatives.

Since a number of the impacts cannot be quantified, it is not possible to account for all of these impacts to determine the full magnitude of the ultimate effects on the region's economy and social environment. The potential magnitude of some of these un-quantified impacts could be appreciable — especially the recreation-related effects.

In any case, the socioeconomic impacts identified under Alternatives 3, 5, 6, and 7 would be distributed over a wide variety of individuals and groups. While the potentially greater impacts may be expected to affect small, specific user groups (e.g., recreational groups such as OHV users or target shooters), some of the more general impacts (e.g., amenity values and land ownership benefits) would be expected to benefit most of the region's inhabitants and visitors.

These alternatives are expected to have a net beneficial socioeconomic impact on the region's economy and social environment. However, these benefits are expected to be relatively minor, except for the economic development impacts associated with BLM's regional transportation contributions and will be mostly dispersed (except for the recreational use impacts).

There may be a wide variety of potential indirect socioeconomic impacts associated with the alternatives considered in this FEIS. The primary indirect impacts would be associated with spending changes that generally vary by alternatives. Increases or decreases in spending within the region associated with the plan (e.g., from changes in agency program spending, user/visitor spending or resource use levels) will have indirect impacts from the related economic activity by dependent industries (e.g., home building, local retail, or service businesses).

Other potential indirect negative impacts could include artificially high local and regional land values resulting in a decrease of locally affordable housing opportunities, and the potential redistribution of particular sectors of the local communities. Similarly, these lands may also become ineligible for fairground or airport expansion, thus resulting in a loss of potential economic development opportunities for the region. The extent of deleterious economic development impacts will also depend on the availability of alternative sites and opportunities for meeting community expansion needs.

In addition to the indirect economic impacts from spending impacts, there may be socioeconomic impacts on the local users and communities. In most cases, the magnitude of these impacts can not be quantified since the existing causal relationships are generally complex and interdependent on other factors, and the indirect impacts may affect a wide variety of groups and individuals. Furthermore, since many of the direct impacts of the RMP alternatives are not quantifiable, it is not possible to evaluate quantitatively any related indirect impacts.

Environmental Justice

Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 11, 1994) requires that all federal agencies "make achieving Environmental Justice part of [their] mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

Opportunities for wood cutting, collecting special forest products, and other activities important to subsistence users of BLM administered lands would be maintained under all alternatives. From the non-economic perspective both day use and/or dispersed recreational uses would be widely available across BLM-administered lands at little or no cost. Military use and mining (activities with the potential to disturb nearby residents) are subject to restrictions on BLM administered lands that are uniform across the planning area.

Consequently no minority or low income groups are expected to be disproportionately affected by any alternative.

Incomplete and Unavailable Information

Existing data was used to project effects of implementing the proposed alternatives. This includes a variety of Geographical Information Systems data, current inventories and imagery, and interdisciplinary team professional knowledge of the area. Analysis to support the proposed alternatives is at a broad, programmatic scale rather than a site-specific scale. Consequently, the analyses often focus on qualitative discussions of the alternatives rather than on quantitative comparisons and evaluation. In general, quantitatively evaluating programmatic plans present greater challenges than quantitatively analyzing project-specific actions, since programmatic actions are inherently more general and unspecified than site-specific projects. Thus, in most cases the relative importance or significance of findings is difficult to predict, and should not be considered conclusive. The available secondary data informs our understanding of potential impacts based on general trends within the region, state, and nation which is consistent with the level of resource commitment considered in the alternatives.

Site-specific data about amounts and location of casual uses on lands within the planning area is generally not available. Minimal site-specific information is available concerning the demographics and preferences of causal users of these in Central Oregon. This results in a number of qualitative comparisons between the alternatives rather than specific correlations between where certain uses are allowed and the amount of use that would occur. However, local professional knowledge of the area provides a relative comparison of the popularity of certain areas, as well as the relative degree to which those areas contribute to risks to the ecological integrity of the planning area. For instance, anecdotal information concerning the spatial relationship of urban centers and motorized access to problem dumping areas provides the basis for projecting a probable reduction in dumping as a result of expected changes in casual motorized access to the area. This level of comparative analysis and anecdotal information combined with data base information is sufficient to support the broad scale alternatives considered in this FEIS/PRMP.

The locations of future mineral operations are not known due to the possibility of undiscovered deposits and uncertain future demand, technology, and energy/metal prices. Although common variety mineral materials occur just about everywhere, economically viable high quality rock deposits suitable for asphalt are relatively scarce. It is likely that not all economically viable mineral material deposits are known. Although some prospective mineral material sites have been identified by ODOT on BLM-administered lands, development is uncertain because each site must be approved by the BLM through site-specific environmental analysis. Oil and gas exploration of the planning area has been minimal, so the actual potential for development is unknown without further exploratory work. The geothermal investigation conducted at Powell Buttes by Brown and others (1980) is incomplete and inconclusive. More work is necessary to determine the economic viability of this site and the potential for development. These data gaps do not allow for quantitative analysis of the potential environmental effects of making lands available or unavailable for mining. When lands are withdrawn, closed, or restricted to mining practices, known and undiscovered economically viable mineral deposits may become unavailable or uneconomic due to the restrictions over the next 20 years. In cases where undiscovered mineral deposits are present, the specific effects of closing or restricting areas are unknown. The actual effects of allocating lands as open for mineral development also cannot be quantified due to the uncertainty of when, where, or how many mining operations will take place. However, general site potential information is available and is sufficient to support a relative comparison of the broad scale alternatives considered in this FEIS/PRMP. New information would be considered periodically during plan maintenance and updating procedures. Plan amendments to consider new information could also occur within the 10-20 year anticipated effective life of the proposed alternatives.

Vegetation data, which is the basis of all fire and fuels predictions, was compiled for the plan area with an analysis of satellite imagery. The picture from space is divided into small, 1/6th acre square pixels, and the dominant vegetation in each pixel estimated based on extrapolating from a number of sample data points. The data is suitable for identifying broad trends and dominant vegetation patterns, but is less useful for making claims about the composition or density of species and fuels in the understory layers. Fuel models were estimated from this vegetative information, but may not be accurate at the individual project planning scale. This plan is programmatic rather than specific, and therefore, the total annual emissions from burning of piles, underburning, and broadcast application of fire are not known. Assumptions are made based on objectives and the type of ecosystems in question. The amount of airborne dust that is generated from wind over the wildlands, mining activities, road construction and use, and farming is not known and cannot be quantified. Actions specifically permitted by BLM, such as mining and road construction, will have dust abatement mitigations as standard requirements. Prior to implementation of the projected activities identified in the alternatives, site-specific analysis with appropriate levels of information to support that level of decision would be completed. This specific level of information is not needed to support the broad scale alternatives considered in this plan.

The mapping of the expanding Wildland Urban Interface is an ongoing effort. Most neighborhoods and small clusters of homes are mapped, but with new construction and incomplete information at the time of the plan, the maps identifying the interface will continue to be refined.

Data or models to predict the amount of sediment delivery to specific streams as a result of indirect effects of implementing the alternatives considered are not currently available. Available computer models for assessing runoff and routing sediment are generally limited to small watershed applications and are not applicable to the sub-basin scale. Data on changes in vegetative cover following treatments within the planning area is known only in very site-specific instances. In addition, determining the actual location of future roads and trails is not within the scope of the alternatives considered in this FEIS/PRMP, and the location and hydrologic disposition of each road segment (i.e. ditches draining to road-stream crossings, ditches draining to gullies, cross-drain spacing intervals, road drainage distance from streams) would be required to determine how effective roads are at transporting surface flow to stream channels. Data of this type will not be known until site-specific analysis can be done. Similarly, the quantity of soil losses due to water and wind erosion is difficult to measure. However, this level of data is not needed to reasonably anticipate the potential for significant effects as a result of the broad scale programmatic proposed alternatives considered in this FEIS/PRMP. This analysis relies on accepted scientific relationships between watershed and riparian processes and functions and the projected watershed and streamside conditions.

Chapter 5
Consultation and Coordination

Introduction

In the fall of 2000, the Prineville District Bureau of Land Management (BLM) reinitiated the Upper Deschutes Resource Management Plan (UDRMP) Environmental Impact Statement (formerly the Urban Interface EIS) in an effort to respond to growing concerns over the expanding and changing needs of the urban interface areas. The RMP will revise needed sections of the Brothers/La Pine RMP and the Two Rivers RMP in response to changing issues identified through consultation and coordination with interested and affected groups and individuals. This chapter includes a brief description of the process used during the preparation of the Draft and Final Environmental Impact Statement and Resource Management Plan to keep people informed about and involved in the decision process.

Information Sharing

Public Notices

Federal Register

A Notice of Intent (NOI) was published in the Federal Register in 1995. The announcement contained a request for comments on concerns over managing public lands, and issues to be addressed in the RMP. The Notice of Availability of the Draft EIS was published in the Federal Register in October 2003.

Plan Updates

The BLM also prepared periodic plan updates that were posted to the website and mailed to the entire UDRMP mailing list. Eight updates were mailed between January 2002 and July 2004. News releases were sent to a list of about 40 media contacts, and subsequently broadcast on local television and radio stations, and printed in local newspapers.

Published Documents

Analysis of the Management Situation

In October 2001, the Analysis of the Management Situation (AMS) was published. The document identified preliminary issues based on internal meetings of BLM specialists and managers, meetings with tribal and local government representatives, calls and letters from the general public received over the previous ten years, and public scoping meetings conducted during earlier attempts to amend the existing RMP. Comments on the AMS served as a resource for members of the Issue Team during the collaborative process. The AMS also included an Issue Team Application and an invitation to participate in the collaborative planning process.

Draft Resource Management Plan/Environmental Impact Statement

The Draft Upper Deschutes RMP/EIS was published in October 2003.

Public Meetings & Field Tours

During the scoping/comment period for the AMS, public meetings were held in Redmond on October 16, 2001, in Prineville on October 17, 2001, and in La Pine on October 18, 2001. These meetings were advertised in local newspapers, and in the cover letter on the AMS (mailed to about 1,200 people in October 2001). The BLM also held public field tours to various sites of interest within the planning area as part of the scoping process. These field trips took place on October 20, 2001 in the area west of the Powell Butte Highway; on October 21, 2001 in the La Pine area; and on October 27, 2001 in the area east of the Powell Butte Highway.

Another round of meetings was held in November 2003 after publication of the Draft RMP/EIS to provide information to the public, answer questions, and facilitate public comments. These meetings were held November 12 in La Pine, November 18 in Prineville, November 19 in Redmond, and November 20 in Bend. There were also two meetings specifically to answer questions for the grazing permittees, in the morning and in the evening on November 13.

There were numerous other meetings open to the public, including Provincial Advisory Committee and Issue Team meetings (see further discussion of these meetings below under Collaborative Planning, BLM Process).

Web Site

A web site for the Upper Deschutes Resource Management Plan (UDRMP) process has been maintained since publication of the AMS. The site includes links to copies of the AMS, Draft RMP/EIS, the public meeting schedule, meeting notes, and results of a social survey conducted by the University of Oregon as part of the planning process.

Collaborative Planning

BLM Process

The proximity of BLM-administered lands to local communities increases use demands and the need for partnerships and coordination to provide for multiple needs and reduce conflicts. Public and other government participation during this planning process occurred mainly in a community-based framework. This process included using groups chartered specifically for this process, as well as including other separate but related governmental collaborative processes like the South Redmond Collaborative Planning Group.

The collaborative process was designed to put governments and citizens together to resolve the significant planning issues. See Table 5-1 for a list of key public involvement events. The following groups contributed to the planning effort in a variety of ways:

Intergovernmental Cooperators

Includes federal, state and local governmental cooperators who provided special information or expertise in preparation of the Environmental Impact Statement, or who have jurisdictions overlapping or contiguous to BLM-administered public land.

Deschutes Provincial Advisory Committee (PAC) & PAC Subcommittee

This is a committee formally chartered under the Federal Advisory Committee Act to provide a broad representation of interests to advise federal land managers within the Deschutes Province. A subcommittee of the PAC was assigned to act on behalf of the full PAC during this process. The PAC recommended that BLM develop the range of alternatives that included Alternatives 1-6, and then go forward with consensus recommendations from the Issue Team (see below). The PAC holds quarterly meetings open to the public. The PAC membership list can be found in Table 5-2.

Issue Team

Issue teams are working groups chartered by the PAC to focus on specific planning issues. The Issue Teams included representatives of the general public, specific interest groups, permit holders, other stakeholders, and intergovernmental representatives. The Issue Team membership list is in Table 5-3.

Issue Subcommittee

The Issue Team broke into eight smaller teams which focused on clarifying issues and developing alternatives around specific issue categories. These teams met frequently to develop concepts around which the alternatives were designed. All Issue Team meetings were open to the public.

Preferred Alternative Subcommittee

After the descriptions of the range of alternatives were completed by the BLM, the Issue Team was again reorganized to focus on evaluating the range of alternatives and developing areas of consensus on a preferred alternative. For that process, the Issue Team was arranged into five smaller groups based on the interests each member identified early in the process. In some cases, these groups were similar to those organized around the issue categories. These teams rated and ranked the interest categories, rated the alternatives according to the categories, and selected members to act on their behalf to work on consensus on a Preferred Alternative. The results of the subcommittee work were returned to the full Issue Team. The larger group finalized the Preferred Alternative consensus recommendation that was forwarded to the PAC and subsequently to the BLM.

The Preferred Alternative Subcommittee reconvened after the DEIS public comment period ended to review the comments and determine where the group was in agreement on how to respond to the comments. The group then helped revise the Preferred Alternative to reflect areas of consensus. These changes were forwarded to the PAC for approval. The PAC approved all changes and forwarded them to the BLM with a letter of commendation on the process.

Other Collaborative Processes

In addition to the process designed for the Upper Deschutes Resource Management Plan, the BLM also participates in other related interagency efforts to address community needs such as public land uses, ownership, transportation, and healthy watersheds. A brief summary of some of the more directly related on-going efforts and their relationship to this Resource Management Plan are described below.

South Redmond Collaborative Planning Group

The Governor of Oregon sponsors a state-wide Community Solutions Team composed of various state agency representatives and charged with collaboratively solving problems of growth and development. This team recognized the potential for problems associated with different, and sometimes ambiguous or conflicting missions of federal, state, and local governments related to the growth of Redmond. They assembled representatives from the BLM, OMD, ODOT, DLCD, Deschutes County, and the City to discuss the potential conflicts and demands and seek solutions that could, among other things, form the basis for some parts of the alternatives that would be evaluated by the BLM in the EIS. A key component of the collaboration process was the ability to combine evaluation and decision processes between agencies, thus saving substantial money, time, and resources needed to finalize important regional growth and development decisions.

The South Redmond Collaborative Planning Group provided a forum for developing alternatives to resolve regional transportation issues between Bend and Redmond, around the Redmond Airport, and community needs for public lands adjacent to the City of Redmond. These components were reviewed and subsequently included in the range of alternatives and in the consensus recommendation on the Preferred Alternative.

City of Redmond Urban Reserve Study

The City of Redmond is completing a 50-year urban reserve study to predict buildable lands needed to meet expected state requirements. The BLM is participating in this process and used early calculations of "expected need" to identify lands available for community expansion in several alternatives, including the Preferred.

Prineville Reservoir Resource Management Plan and State Park Master Plan

The USDI Bureau of Reclamation (BOR) and the Oregon Parks and Recreation Department have recently completed a management plan to guide recreation and resource use within the Prineville Reservoir area. This lies within the planning area, but is on land withdrawn from BLM jurisdiction. BLM representatives participated on the Ad Hoc Work Group and Technical Teams for the Prineville Reservoir EA, and representatives from the BOR also participated on the Issue Team during this process to ensure that the plans would have consistent management direction where necessary.

Sub-basin and Water Quality Restoration Planning

BLM is participating in several newly begun or ongoing Deschutes basin evaluation efforts that have and will continue to contribute important information to the Resource Management Plan. These include the joint Water Quality Restoration Project for the Upper and Little Deschutes sub-basins, the Northwest Power Planning Council sub-basin planning process, and the in-stream flow assessment for the lower Crooked River. These are ongoing collaborations between government agencies such as the Forest Service, BLM, and USGS, as well as between local non-profit organizations like the Upper Deschutes and Crooked River Watershed Councils, and the Deschutes Resources Conservancy.

Millican-West Butte Road

Legislation provided Crook and Deschutes counties rights-of-way for the West Butte Road, (BLM Road 6520). A new paved road utilizing this route was completed in June 2004. The development of this route, in combination with the existing paved Millican Road, links Prineville to Highway 20. The BLM was involved as the counties planned and constructed the road.

Table 5–1. Key Public Involvement Events

Date	Event summary
1/12/01	All Issue Team meeting
4/11/01	Deschutes Province Advisory Committee (PAC)
6/20/01	PAC meeting
9/21/01	PAC meeting
10/01	Analysis of the Management Situation published and mailed
10/16/01	Public meeting, Redmond
10/17/01	Public meeting, Prineville
10/18/01	Public meeting, La Pine
10/20/01	Public tour, area west of Powell Butte Highway
10/21/01	Public tour, La Pine area
10/27/01	Public tour, area east of Powell Butte Highway
12/10/01	Issue Team meeting – Land Uses
12/10/01	Issue Team meeting – Recreation
12/11/01	Issue Team meeting – Land Ownership
12/11/01	Issue Team meeting – Ecosystem
12/14/01	Issue Team meeting – Transportation & Access
12/14/01	Issue Team meeting – Public Health & Safety
1/7/02	Issue Team meeting – Land Uses
1/7/02	Issue Team meeting – Transportation & Access
1/9/02	Issue Team meeting – Land Ownership
1/9/02	Issue Team meeting – Ecosystem
1/14/02	Issue Team meeting – Public Health & Safety
1/14/02	Issue Team meeting – Recreation
1/16/02	PAC meeting
1/17/02	Issue Team meeting – Archaeology
1/29/02	All Issue Team meeting
1/31/02	Issue Team meeting – Ecosystem
2/1/02	Issue Team meeting – Land Ownership
2/4/02	Issue Team meeting – Transportation & Access
2/5/02	Issue Team meeting – Public Health & Safety
2/6/02	Issue Team meeting – Archaeology
2/11/02	Issue Team meeting – Land Uses
2/13/02	Issue Team meeting – Social/Economics
2/25/02	Issue Team meeting – Transportation & Access
2/26/02	Issue Team meeting – Public Health & Safety
2/27/02	Issue Team meeting – Archaeology
3/1/02	Issue Team meeting – Ecosystem
3/6/02	Issue Team meeting – Archaeology
3/11/02	Issue Team meeting – Land Uses
3/13/02	Issue Team meeting – Land Ownership
5/13/02	Issue Team meeting – Land Uses
5/14/02	Issue Team meeting – Public Health & Safety
5/15/02	Issue Team meeting – Archaeology
5/16/02	Issue Team meeting – Recreation
5/17/02	Issue Team meeting – Public Health & Safety
5/17/02	Issue Team meeting – Social/Economics
5/20/02	Issue Team meeting – Ecosystem
5/21/02	Issue Team meeting – Transportation & Access
5/22/02	Issue Team meeting – Land Ownership
5/28/02	Issue Team meeting – Land Uses
6/19/02	PAC meeting
6/21/02	All Issue Team meeting
9/11/02	PAC meeting
11/26/02	Issue Team meeting – Social/Economics
12/10/02	All Issue Team meeting
2/11/03	All Issue Team meeting
2/25/03	Preferred Alternative Subcommittee meeting
3/4/03	Preferred Alternative Subcommittee meeting
3/11/03	Preferred Alternative Subcommittee meeting
3/14/03	PAC meeting

3/17/03	Preferred Alternative Subcommittee meeting
3/20/03	Preferred Alternative Subcommittee meeting
4/1/03	All Issue Team meeting
6/11/03	PAC meeting
10/2003	Draft RMP/EIS published and mailed
3/16/04	All Issue Team meeting
3/16/04	Preferred Alternative Subcommittee meeting
4/13/04	Preferred Alternative Subcommittee meeting
4/14/04	Preferred Alternative Subcommittee meeting
4/15/04	Preferred Alternative Subcommittee meeting
4/15/04	Preferred Alternative Subcommittee meeting
4/19/04	Preferred Alternative Subcommittee meeting
4/19/04	Preferred Alternative Subcommittee meeting
4/20/04	Preferred Alternative Subcommittee meeting
4/20/04	Preferred Alternative Subcommittee meeting
4/22/04	Preferred Alternative Subcommittee meeting
4/27/04	Preferred Alternative Subcommittee meeting
4/27/04	Preferred Alternative Subcommittee meeting
4/29/04	Preferred Alternative Subcommittee meeting
4/29/04	Preferred Alternative Subcommittee meeting
5/4/04	Preferred Alternative Subcommittee meeting
5/6/04	Preferred Alternative Subcommittee meeting
5/17/04	All Issue Team meeting
6/21/04	PAC meeting

Table 5-2. Deschutes Provincial Advisory Committee (PAC)

Last Name	First Name	Interest	Organization
Achterman	Gail	At Large Representative	Deschutes Resource Conservancy
Ardt*	Glen	State Agency	Oregon Department of Fish & Wildlife
Burley	Chuck	Forest Products	Burley & Associates, LLC
Carlson	Dennis	At Large Representative	Hood River County Department of Forestry
Chaudet*	Mollie	Federal Agencies (BLM/USFS)	Province Liaison
Cordova*	Jerry	Federal Agency	US Fish & Wildlife Service
Erickson	Dan	County Government	Wasco County
Fowler	Brad	Forest Products	Fowler Timber Company
Gentry	Don	Tribal Government	Klamath Tribe
Gill*	Kent	Conservation/Preservation	Friends of The Metolius
Henrikson	Gerald	Federal Agency	Bureau of Indian Affairs
Lamb	Bonnie	State Agency	Dept of Environmental Quality
Leslie	Dave	County Government	Deschutes County Planning Dept
Lillebo*	Tim	Conservation/Preservation	Oregon Natural Resources Council
Mcclain	Dave	Mineral Industry	Private Consultant
Nelsen	Richard	Livestock Grazing on Federal Land	Rancher, BLM Grazing Permittee
Oliphant	Dennis	Recreation/Tourism	Sun Country Tours Inc.
Penhollow*	Clay	Tribal Government	Confederated Tribes of Warm Springs Reservation
Stecher	Christopher	Recreation/Tourism	Mt. Bachelor, Inc.
Thomas*	Sarah	County Government	Crook County Rep.
Towne	Robert	Federal Agency	BLM Field Manager
Tweten	Randy	Federal Agency	National Marine Fisheries Service
Weldon	Leslie A.C.	Federal Agency	Deschutes National Forest
Wickman*	Boyd	USFS Research	Pringle Falls Experimental Forest

* PAC subcommittee members have asterisk by last name.

Table 5-3. Issue Team Members

Last Name	First Name	Organization	City
Anderson	Jim		Sisters
Angell	Jim		Bend
Ardt	Glen	Oregon Dept of Fish & Wildlife	Bend
Babb	Geoff	Nature Conservancy of Oregon	Bend
Bell	Jeff	USFS, Ochoco National Forest	Prineville
Beraud	Bob	Bonneville Power Administration	Portland
Bird	Sally	Confederated Tribes of Warm Springs Reservation	Warm Springs
Boyer	Jeff		Bend
Brown	Dick	City of Prineville	Prineville
Burley	Chuck	Burley & Associates, LLC	Bend
Carlson	Merrie Sue	Government Office of The State of Oregon	Bend
Carlson	Scott	Hooker Creek Companies, LLC	Bend
Cooper	Scott	Crook County Courthouse	Prineville
Cordova		US Fish & Wildlife Service	Bend
Crume	Butch		La Pine
Davis	Randall	Oregon Dept of Transportation	Bend
Davison	Bob	Wildlife Management Institute	Bend
Deboodt	Tim	Crook County Extension Service	Prineville
Devoney	Mark	Oregon Dept of Transportation	Bend
Dufourd	Joani	Central Oregon Motorcycle & ATV Club	Bend
Duncan	Dave	Oregon Military Department	Salem
Eccles	Terry	Oregon Parks & Recreation	Salem
Egertson	Chris	Oregon Natural Desert Association	Bend
Elliott	Jerry	Oregon Military Department	Salem
Faulkner	Ed		Prineville
Fenty	Brent	Oregon Natural Desert Association	Bend
Ferry	Brian	Oregon Department Fish & Wildlife	Prineville
Florey	Ken		Bend
Fockler	Bill	Oregon Equestrian Trails & Central Oregon Shooting Sports Association	Bend
Forbes	John	La Pine Parks & Recreation District	La Pine
Frost	Russ	Oregon Dept of Transportation	Bend
Gilbert	Nancy	US Fish & Wildlife Service	Bend
Gill	Kent	Friends of The Metolius	Camp Sherman
Graves	Bob		Bend
Graves	Mimi		Bend
Gray	Susan	Archaeological Society of Central Oregon	Bend
Hammer	Katie	Central Oregon Parks & Recreation District	Redmond
Hartwell	Ray	Deschutes Resource Conservancy	Bend
Hensley	Jim	Crook County Undersheriff	Prineville
Hildebrandt	Jamie	Rock Springs Guest Ranch	Bend
Hiller	David		Sisters
Hinman	Rick	Central Electric Co-op, Inc	Redmond
Holmes	Matt		Bend

Last Name	First Name	Organization	City
Holmquist	Anne		Redmond
Hunt	Bruce	Central Electric Cooperative	Redmond
Jinings	Jon	Dept of Land Conservation & Development	Bend
Johnson	Jerry	Our Public Properties	La Pine
Johnson	Libby	Department of Energy, Bonneville Power Assoc.	The Dalles
Jorgensen	Steve	Deschutes County Community Development	Bend
Kachlein	Belinda		Bend
Keller	Alan	Crook County Landfill	Prineville
Kimball	Kate		Bend
Lamb	Bonnie	Dept of Environmental Quality	Bend
Lillebo	Tim	Oregon Natural Resources Council	Bend
Lonsdale	Sandy	Juniper Group Sierra Club	Bend
Malarkey	Didi		Eugene
McCaffrey	Bill	Oregon Military Department	Bend
McCaulou	Scott	Deschutes Resource Conservancy	Bend
McGraw	Chuck	City of Redmond	Redmond
McMullen	Chad	Hooker Creek Companies, LLC	Bend
Mcnight	Brett	Department of Environmental Quality	Bend
Miller	Larry	Oregon Parks & Recreation Department	Bend
Miller	Ron		Redmond
Moore	Ed	Oregon Department of Transportation	Bend
Morrow	Catherine	Deschutes County Planning Division	Bend
Norton	M L	Central Electric Cooperative	Redmond
Oliphant	Dennis	Sun Country Tours Inc.	Bend
Parsons	Cory	Crook County/OSU Extension	Prineville
Penhollow	Cary	Central Oregon Irrigation District	Redmond
Penhollow	Clay	Confederated Tribes Of Warm Springs Reservation	Warm Springs
Peterson	Bill	USDA Forest Service, Bend/Fort Rock	Bend
Pewther	John	Redmond Planning Commission	Redmond
Pieper	Barbara		Sisters
Pieper	Darrell		Sisters
Ponsford	Walter	Jefferson County	Madras
Ponte	George	Oregon Department of Forestry	Prineville
Quitmeier	Bob	City of Redmond	Redmond
Read	George	Deschutes County Planning Department	Bend
Sailors	Tammi	Central Oregon Irrigation Dist	Redmond
Schloer	Walt	USDA Forest Service, Bend/Fort Rock	Bend
Schonborn	Lyn		Bend
Schonneker	Chuck	North Unit Irrigation District	Madras
Singhose	Susan		Bend
Singhose	Wayne		Bend
Stewart	Jon	Deschutes National Forest	Bend
Stout	Doug		Bend
Strome	Darsie		Bend
Sutherland	Jo Anne	City of Redmond	Redmond
Thomas	Sarah	Crook County Representative	Prineville
Thomasberg	Paul		Bend

Last Name	First Name	Organization	City
Thorn	Bruce	Quail Valley Ranch	Salem
Tomjack	Tom & Mary		Bend
Tonsfeldt	Ward		Bend
Towe	Marie	Crooked River Ranch Riders Club	Crooked River Ranch
Unger	Alan	City of Redmond	Redmond
Van Vliet	Alan	Eagle Crest	Redmond
Wallace	Kerrie		Powell Butte
Whipple	Brigette	Confederated Tribes Warm Springs	Warm Springs
Wickman	Boyd	USDA Forest Service, Research	Bend
Winch	Martin		Bend
Wolfenbarger	Bob		Lebanon
Woolley	Laren	Empire Corp. Park	Bend
Yoder	Katy		Bend
Youtie	Berta		Prineville
Zakrajsek	Larry	Bureau of Reclamation	Bend
Zelenka	Bill	Crook County Planning Department	Prineville

Agencies and Organizations Consulted

The Prineville District BLM mailed the public scoping packet (AMS) to approximately 1,200 agencies, organizations, and individuals, and the DEIS to about 1,700. The Upper Deschutes proposed RMP/FEIS was sent to the current mailing list which now includes about 2,600 names of agencies, organizations and individuals. The following lists are representative of the entities on the mailing list:

Elected Officials

Bend City Council
Crook County Representative
Crook County Under sheriff
Deschutes County Board of Commissioners
Government Office of the State of Oregon
Jefferson County Board of Commissioners
Sisters City Council

Tribal Groups

Burns Paiute Tribe
Confederated Tribes of Warm Springs
Klamath Tribes

Cooperating Agencies

Barlow/Bear Springs Ranger District
Bonneville Power Administration

Bureau of Reclamation
Central Electric Cooperative
Central Oregon Irrigation District
Central Oregon Irrigation District
Central Oregon Parks and Recreation District
City of Prineville
City of Redmond
City of Redmond Planning Department
Crook County Courthouse
Crook County Extension Service
Crook County Landfill
Crook County Planning Department
Department of Energy, BPA
Department of Environmental Quality
Department of Environmental Quality
Department of Land and Conservation Development
Deschutes County Community Development
Deschutes County Planning Division
Deschutes National Forest
Hood River County Forestry Department
Hood River Ranger District
Klamath County Extension Service
Klamath County Planning Department
National Marine Fisheries Service
North Unit Irrigation District
Oregon Department of Fish and Wildlife
Oregon Department of Forestry
Oregon Department of Transportation
Oregon Division of State Lands
Oregon Military Department
Oregon Natural Desert Association
Oregon Parks and Recreation
State Historic Preservation Office
U.S. Fish and Wildlife Service
U.S. Forest Service, Bend-Fort Rock Ranger District
U.S. Forest Service, Deschutes National Forest Monitoring Program
U.S. Forest Service, Ochoco National Forest
USDE Bonneville Power Administration - EWP
Wasco County

Organizations/Businesses

Archaeological Society of Central Oregon
Burley & Associates, LLC
Central Electric Co-op, Inc.
Central Oregon Motorcycle and ATV Club
Central Oregon Partnership
Crooked River Ranch Riders Club
Deschutes Resource Conservancy
Eagle Crest
Empire Corporation Park
Fowler Timber
Friends of the Metolius
Hooker Creek Companies, LLC
La Pine Parks and Recreation District
Nature Conservancy of Oregon

Oregon Equestrian Trails
Oregon Natural Resources Council
Our Public Properties
Quail Valley Ranch
Rock Springs Guest Ranch
Sierra Club, Juniper Group
Sun Country Tours, Inc.
Wildlife Management Institute

Others

Interested public not affiliated with an above-mentioned group
Livestock grazing permittees
Miscellaneous additional businesses
Recreationists
Special recreation permittees

Preparers

BLM Interdisciplinary Team

The following table (Table 5-4) contains, in alphabetical order, the primary members of the Prineville District Interdisciplinary Team who were responsible for the preparation of this document. Following the table are lists of other District and State Office personnel who assisted in the preparation and/or review of this document.

Table 5-4. Interdisciplinary Team for Upper Deschutes Resource Management Plan

Name and Title	Education	Experience
Keith Brown *Outdoor Recreation Planner*	B.S. Natural Resource Economics, University of Vermont; M.S. Recreation Resources, Colorado State University	Prineville District Recreation Planner for past 2 years. Over 10 years seasonal recreation work experience in the non-profit, for-profit, and government sectors.
Geoff Babb *Fire Ecologist*	M.S. Watershed Management, University of Arizona; B.A. Biology, Western Washington University	In current position since July 2004. Participated on UDRMP for previous two years while employed with The Nature Conservancy (TNC) as Fire Mgmt. Officer. Twenty five years experience with TNC, BLM, USFS, and Washington Dept. Natural Resources.
Steve Castillo *Forester*	B.S. Forest Management Oregon State University	U.S. Forest Service (1977-1992). BLM (1992-present). Current duties: All aspects of forest management with emphasis on ecosystem restoration, hazardous fuels treatment, and small diameter timber harvest.
Mollie Chaudet *Project Manager, Upper Deschutes RMP*	A.S., Forest Technology, Central Oregon Community College.	Twenty years of experience with the Forest Service. Environmental Coordinator and National Environmental Analysis Instructor, 1990-present; Project Planner, 1982-1989. Timber Sale Preparation 1978-1981.
Lisa Clark *Writer/Editor*	M.F.S. Conservation Biology/Wildlife Ecology, Yale University; B.A. Journalism, minor in English, University of Oregon.	13 years with BLM, in fire suppression/Rx burning, wildlife, recreation, and writing/editing. Three years with the Forest Service as wildlife biologist and writer/editor. Adjunct Instructor, Univ. of Oregon, General Science Program (2000 - present). Contractor on Content Analysis Team (public comments on Upper Deschutes DEIS).

Name and Title	Education	Experience
G. Scott Currie *Recreation Planner*	M.L.A Landscape Architecture, Cal Poly Pomona; B.S. Natural Resource Management, Cal Poly San Luis Obispo.	Recreation planner for Prineville District BLM 1999 – present. 10 years experience as Landscape Architect/Recreation Planner with USFS and USDA-NRCS. 10 years experience as Landscape Architect/Recreation Planner with EDAW, Inc.
William I. Dean *Wildlife Biologist*	B.S. Wildlife Biology, Colorado State University; Associate in Science, Finger Lakes Community College.	Bureau of Land Management (1990-2003) Currently wildlife biologist for the Deschutes Resource Area.
Jimmy Eisner *Fisheries Biologist*	B.S. Fisheries, Humboldt State University.	Fish Biologist for Prineville District BLM 1991 – present.
Ryan Franklin *Geologist*	B.S. Geology, University of Oregon.	Seasonal wilderness ranger (1995-1996) and seasonal hydrological technician (1997) for the USFS. Seasonal interpretive ranger (2001) for the BLM. Currently a geologist and writer/editor for the BLM. Duties include minerals planning and inventory of rock collecting sites.
Ron Gregory *Deschutes Resource Area Archaeologist*	B.A. and M.A., Applied Anthropology, Oregon State University.	Positions held as archaeologist with the USFS and BLM with responsibilities for locating, researching, and documenting historic properties and heritage resources and planning for their preservation and appropriate uses.
Ron Halvorson *Natural Resource Specialist ñ Botanist*	B.S. Animal Science, Cal Poly San Luis Obispo; M.S. Renewable Resources Management, University of Nevada, Reno.	Range Conservationist BLM (1974 - 1984), District Botanist Prineville District BLM (1985 - present). Responsible for implementation of special status plant and Research Natural Area programs, and policy oversight of Area of Critical Environmental Concern program.
Douglas D. Kile *GIS Coordinator UDRMP/ Deschutes Resource Area*	Associates Degree in Drafting (1982), Treasure Valley Community College.	Coordinate and provide GIS analysis and cartographic needs for issue teams and resource area specialists. Previously employed as GIS assistant on the Prairie City Ranger District and Malheur National Forest Supervisors Office.
Michelle McSwain *Hydrologist*	Masters in Forest Hydrology, Oregon State University; BA Geology, University of Wisconsin-Madison.	District hydrologist for Vale District BLM 1987-1989; Zone Hydrologist for Willamette National Forest 1989-1997; Hydrologist for Prineville District BLM 1997-present. Duties include district watershed program lead, water quality, riparian, stream channel, and aquatic habitat management.
Phil Paterno *Appraiser/Realty Specialist*	B.S. Plant and Soil Science, State Certified General Appraiser.	Duties include the valuation of land and interests, and the processing of land exchanges, acquisitions, sales and other realty related cases.
Teal Purrington *Rangeland Management Specialist*	M.S. Rangeland Resources, Oregon State University B.A. Biology, University of California, Santa Cruz	In current position since 1991. Duties include managing livestock grazing and providing input on management of other public land uses to preserve and enhance forage and other rangeland resources. Served as Content Analysis Team Coordinator for public comments on Upper Deschutes DEIS.
Sue Stewart *Fire Ecologist*	M.S. Natural Resource Management, Fire Ecology, University of Idaho. B.S. Forest Management, Oregon State University.	Various fire management positions with US Forest Service and BLM since 1987. Fire Ecologist for Prineville BLM and Deschutes and Ochoco National Forests 99-03. Currently Applied Fire Ecologist with Washington Office USFS.
Lawrence C. Thomas *Environmental Protection Specialist*	B.S Soil Science and Biology, Cal Poly Pomona.	Soil Scientist USDI BIA 1975-1977, Soil Scientist USDI BLM 1977-1992, Environmental Protection Specialist USDI BLM 1992 to present.
Michael Williams *Writer/Editor*	PhD. Sociology, University of California, Santa Barbara.	Writer Editor for USDA Forest Service and Bureau of Land Management, 1992 to Present.
Ron Wortman *Realty Specialist*	B.S. Business and Cartography, Eastern Oregon College.	Realty Specialist for Prineville District for nine years. Duties include preparation of sales, exchanges, recreation and public purposes applications, rights-of-way, and leases and permits.

Other preparers/reviewers

Barron Bail, Prineville District BLM District Manager
Andrea Carpenter, USFS, local computer programming support during Content Analysis
Jennifer Collins, Contractor on Content Analysis Team, and Prineville District BLM, Writer/Editor
James Grace, Prineville District BLM, Computer Specialist
Janet Hollister, Contractor on Content Analysis Team, and Prineville District BLM, Writer/Editor
Mark Krantz, USFS, Washington Office (based in Salt Lake City, Utah), support during Content Analysis: computer programming
Frank Lamb, USFS, Washington Office (based in Salt Lake City, Utah), support during Content Analysis: computer programming
Lawrence MacDonald, Prineville District BLM, Computer Specialist
Jean Nelson-Dean, Prineville District BLM, Planning and Environmental Coordinator
Berry Phelps, Prineville District BLM, Recreation Planner
William Pieratt, Prineville District BLM, Noxious Weeds Specialist
Gabrielle Renshaw, USFS, Washington Office (based in Salt Lake City, Utah), support during Content Analysis: Project design, management, execution
John Swanson, Prineville District BLM, Rangeland Management Specialist
Megan Teaford, Prineville District BLM, Writer/Editor
Marci Todd, Deschutes Resource Area Assistant Field Manager
Robert Towne, Prineville District BLM Deschutes Resource Area Field Manager
Cindy Underwood, USFS, Washington Office (based in Salt Lake City, Utah), support during Content Analysis: coding and data entry
John Zancanella, Prineville District BLM Archaeologist

BLM State Office contributors/reviewers

Mike Barnes, Realty Specialist
George Buckner, Wildlife Biologist
Robert DeViney, Chief of Realty/Records
Leslie Frewing-Runyon, Planning and Environmental Coordinator
Mike Hamel, Visual Information Specialist
Richard Hanes, Archaeologist
Nancy Ketrenos, Geologist
Craig Mackinnon, Rangeland Mgmt. Specialist
Jerry Magee, Planning and Eivironmental Coordinator
Rosemary Mazaika, Environmental Protection Specialist
Cliff McClelland, Printing Specialist
Christina Caswell McElroy, Regional Economist
Jim Rounds, Cartographer
Joan Seevers, Botanist
Eric Stone, Planning and Environmental Coordinator
Mattye Walsworth, Cartographer
Joe Moreau, Fish Biologist
John Styduhar, Realty Specialist
Louisa Evers, Fire Ecologist
Margeret Wolf, Outdoor Recreation Planner

Summary of Public Comment on the Draft Upper Deschutes RMP/EIS

Introduction

This report is a summary of public comment received by the Bureau of Land Management (BLM) regarding the Draft Environmental Impact Statement (Draft EIS) for the Upper Deschutes Resource Management Plan. The comment period was October 17, 2003 to January 15, 2004. The BLM received 1,360 responses in the form of letters, emails, faxes, telephone conversation transcripts and organized letter campaigns. These responses have been analyzed using a process called content analysis (see below). This document also contains BLM responses to comments.

Although this analysis attempts to capture the full range of public issues and concerns, it should be used with caution. The respondents are self-selected; therefore their comments do not necessarily represent the sentiments of the public as a whole. However, the analysis does attempt to provide fair representation of the wide range of views submitted. In considering these views, it is important for the public and decision makers to understand that this process makes no attempt to treat input as if it were a vote. What the content analysis process does is ensure that every comment is considered at some point in the decision process.

The Summary of Public Comments begins with a general overview of the content analysis process, followed by a discussion of respondents' main areas of concern. This summary is not intended to provide an exhaustive account of public concerns; it is intended to give a rich, though general, discussion of the pervasive themes running through public comment. Following this summary is a more detailed listing of public concerns organized into three sections: Planning; Alternatives; and Environmental Consequences. These are accompanied by BLM response to each Public Concern Statement on the Draft EIS.

Each section includes Public Concern Statements in bold that summarize the example comments that follow the Public Concern Statement. A Public Concern Statement is a statement that typifies or groups a number of individual but similar comments. Each Public Concern Statement is accompanied by one or more sample comments, which provide respondents' specific perspectives and rationales regarding that concern. For each sample comment a letter number is provided, enabling the reader to track and review the original response, if necessary. In some cases, comments are also grouped under subheadings. Some comments have been included that do not require responses, but were included to show the diversity of public opinions on a subject. These appear throughout the document. Finally an italicized Response to the Public Concern Statement is provided. All original responses may be viewed on the BLM web, at the Prineville District BLM office, or by requesting an electronic version on a CD.

Summary of Content Analysis Process

The content analysis process used for this EIS is a method developed by the Content Analysis Enterprise Team (CAET), a specialized U.S. Forest Service unit, for analyzing public comment on federal agency land and resource management proposals. The BLM established a Content Analysis Team (CAT), which received training on this process and modified it slightly to meet the needs for this specific EIS. This method employs both qualitative and quantitative approaches. It is a systematic process designed to provide a mailing list of respondents, distinguish specific comments in each response,[1] evaluate similar comments from different responses, and from those identify specific concerns.

[1] Responses refer to single, whole submissions from respondents- e.g., letters, emails, faxes, agency comment forms, etc. Comments refer to identifiable expressions of concern made within responses.

From these specific concerns, Public Concern Statements are derived which may group one or more comments identifying the same area of concern. The process also provides a relational database capable of reporting various types of information while linking comments to original letters.

Through the content analysis process, the CAT analysts strive to identify all relevant issues, not just those represented by the majority of respondents. The breadth, depth, and rationale of each comment are especially important. The CAT's intention is to represent the public's viewpoints and concerns as fairly as possible, and to present those concerns in such a way as to facilitate systematic review and response by decision makers.

Overview of Comments and Responses

Who Commented

Demographic analysis presents an overall picture of respondents: where they live, their general affiliation to various organizations or government agencies, and the manner in which they responded. The database the content analysis team uses contains public comments organized under subject categories, and demographic information. Thus demographic coding, combined with comment coding, allows managers to use the database to focus on specific areas of public concern linked to geographic area, organizational affiliation, and response format.

The information in this report is based on the following:

Original responses:	220	(16%)
Organized campaign:	1140	(84%)
Total Responses	**1360**	

The content analysis team identified several categories for demographic purposes. Responses are the individual letters, emails, Faxes, etc., received. Respondents are the individual response writers.

Geographic Representation
Geographic representation is tracked for each response. Responses were received from 10 states and one was received from Canada. Ninety-six responses (7 percent) did not indicate any geographic information. Of the 1360 responses, 89 percent were from Oregon residents and 2 percent were from Washington. Approximately 70 percent of the responses were received from within the three main Central Oregon counties. They are Deschutes County (49 percent), Crook County (13 percent) and Jefferson County (8 percent). Responses were received from 107 different cities and towns across the country. Fifty-eight percent of those were represented by the local cities of Bend (31 percent), Redmond (15 percent), and Prineville (12 percent).

Organization Affiliation
The groups or agencies represented in the public comments are also tracked for each response. Examples of organization type include businesses, recreational groups, preservation/conservation groups, livestock industry, city, county, state, federal and tribal agencies and individuals. Fifty-one (51) different organizations or groups responded to the DEIS. Individuals comprised the majority of respondents with 1304 responses (96 percent). However, as will be noted later, the majority of these individuals were part of an organized response campaign also called "form letters". Ten responses

(approximately 1 percent) each were received from businesses and recreational groups with eight responses each (0.5 percent) from the livestock industry and preservation/conservation groups. A total of 15 responses (1 percent) were from city, county, state, federal and tribal governments. See Chapter 5 for a more detailed listing of organizational representation in the planning process.

Response Types
Responses were received in a variety of formats. The majority (84 percent) were "form letters" or organized campaigns. The remaining responses were in the form of letters (14 percent), agency comment forms (2 percent) and telephone conversation records (less than 1 percent).

What They Said

Planning Process

The BLM received many favorable comments on the planning process, including comments about the extensive public involvement in the Issue Team process, and comments about the BLM's professional staff.

Respondents also made suggestions about how the BLM could improve the planning process, including specific comments on obtaining assistance with implementation by partnering with the public, prioritizing enforcement needs, and improving public awareness.

Several respondents felt that the planning process was flawed. Their reasoning included concerns about biased decision-making; failure to recognize the need for military training and local transportation; failure to address the destination resort industry in Crook County; improper use of science; failure to follow national regulations; an inadequate implementation plan, including monitoring and enforcement; and flawed public involvement.

Most of the comments on the planning process did not require changes to the Proposed Resource Management Plan (PRMP). The BLM provided responses describing how the issues were addressed in the DEIS, clarifying why we felt the process was adequate, and stating that we agreed with the comment and/or would keep the suggestions in mind during implementation.

The BLM did make several additions/changes to the FEIS in response to public concerns about the planning process. For instance, we improved our description of military needs; we added a discussion of the destination resort industry in Crook County; we broadened the list of partners we intend to rely upon during implementation; and we clarified desired outcomes and criteria for adaptive management to improve implementation.

Alternatives

General
There were numerous comments in which the respondent "voted" for a particular alternative, but most often these comments lacked enough specificity for BLM response. Some felt the range of alternatives was adequate, others found it unacceptable.

Ecosystem Health & Diversity
Several of the comments on vegetation resulted in improvements to the FEIS. In response to criticism of the Historic Range of Vegetation concept, we include additional direction for consideration of specific factors during site-specific analysis, and we include

additional focus on, and acknowledgement of, social and economic factors that may preclude restoration of "historic" conditions near urban areas. The section on traditional uses of vegetation has been supplemented with additional objectives, rationale, and guidelines to respond to Tribal concerns.

Many respondents provided suggestions for the wildlife alternatives. Most comments asked for clearer direction or clarification of concepts or maps, and a few asked for increased emphasis on protecting wildlife. In response, the FEIS has been improved by clarifications, additional descriptions, and inclusion of additional roads/trails data, as well as more substantive changes including addition of: a) a "Multi-Species Habitat Conservation Strategy" and b) more seasonal and year-round vehicle use closures. In response to a request for maintaining habitat effectiveness at 70 percent or more in primary wildlife emphasis areas, the BLM and the Issue Team developed new guidelines to meet the intent of the comment.

Land Uses

Some comments on Livestock Grazing, Mining, Military or Forestry resulted in changes to the FEIS/PRMP. Generally, the comments resulted in additional clarifying language in the FEIS (rather than changes to the alternatives), such as requests for: a) a better description of the differences between grazing alternatives, b) using limits on mining operations as guidelines rather than regulations, c) inclusion of the Oregon Military Department's (OMD) mitigation measures for restoration, and d) addition of language describing the importance of BLM-administered land to military training operations. The only changes to the alternatives as a result of comments include giving more flexibility to the BLM in deciding when to close grazing allotments or create Reserve Forage Allotments and dropping military use of the Steamboat Rock area as requested by OMD.

Recreation

The most popular topic of comment was recreation. People commented on the concept of mixed use versus separated use, the creation of new trails, the need for public access, and the need for more/fewer motorized use closures. There were also some comments on rockhounding, camping, and Special Recreation Permits (SRP). Comments resulted in changes such as seasonal separation of some uses, an emphasis on designated non-motorized trail systems, and a provision for allowing OHV use on portions of the Tumalo Canal system (outside of the Tumalo Canal ACEC) in Cline Buttes. The collection limits for rockhounding are dropped from the FEIS pending direction at the national level. The seasonal restrictions to motorized use on roads in southern La Pine were also dropped in response to citizen comments. In response to comments, the FEIS addresses concerns of existing SRP holders by including language allowing continued operations during the permit renewal process.

Transportation and Utilities

The public commented that the RMP should more clearly describe lands available for transportation needs, should consider administrative access needs, and should contain improved transportation maps. These clarifications and additions have been made in the FEIS/PRMP, as well as some other small technical corrections or minor modifications. There were no comments asking for changes to the alternatives.

Land Ownership

As a result of comments, Issue Team discussion, and agency direction, there were fairly substantial changes to the Land Ownership alternatives. The amount of community expansion and Z-2 category lands have been reduced, with subsequent increases in Z-3 (disposal) and Z-1 (retention) categories. The FEIS also includes specific guidance that community expansion lands must be considered for state "in lieu" of selection prior to transfer to communities.

Public Health & Safety

The BLM received several public comments asking for additional areas to be closed to firearm discharge. Upon review of the requests and existing guidelines, no changes were made. However, the BLM pointed out that the guidelines allow for consideration of new circumstances, therefore, some of the requested areas could be closed during the life of the plan if conditions warrant. The FEIS/PRMP includes language to better address the needs of non-BLM government personnel acting in an official capacity to discharge firearms.

Archaeology

The public comments on this section resulted in only minor modifications and clarifications to the document. For example, the FEIS will include National Register criteria for evaluation of eligibility to National Register of Historic Places.

Visual

The FEIS now provides direction for limited development of OHV scenic viewing opportunities north of Prineville Reservoir.

Environmental Consequences

Ecosystem

The public asked for more analysis of the effects of motorized use and livestock grazing on multiple resource values, and the Environmental Protection Agency asked for additional information, data, analyses, or discussion on impacts of the preferred alternative. Portions of the DEIS addressing these issues were highlighted but no changes were made. Comments led to additional information and/or analyses in the FEIS regarding juniper, carbon dioxide assimilation, military and cumulative effects on wildlife, and effects of various actions on the Oregon spotted frog.

Land Uses

In response to public comments, the FEIS now includes additional discussion of how land uses would be affected by transportation corridors. The FEIS reflects the indirect effect on public safety from the BLM allowing the military to conduct training activities.

Recreation

Several changes were made to this section in response to comments about adequacy of analysis of effects on recreation. There is additional analysis of road and trail mileage, additional direction (and associated analysis) for trail links and/or additional riding opportunities in the La Pine and Prineville Reservoir areas, and a recognition of the effects on commercial operations from limiting equestrian (and other non-foot traffic) to designated trails. The FEIS includes additional information regarding the effects of growth of motorized recreation, in response to numerous comments on the subject.

Social, Economic

The public asked the BLM to more thoroughly address social and economic effects. In response, the BLM has added data and analysis on the effects to the local economy from OHV use, rockhounding, mining, and Special Recreation Permits. The FEIS also includes additional information on Crook County, and the importance of public lands to its population.

Comments and Responses

Planning

General adequacy of planning and decision process

1. The RMP should balance its consideration of recreation and other uses and values.

. . . In the planning process . . . deference was too often given to motorized recreation at the expense of non-motorized recreation and wildlife. (Individual, Anchorage, AK - #1360).

We are concerned that the plan seems heavily weighed toward recreational interests and the interest of citizens of more urbanized and wealthier counties located within the planning area. (Crook County, Prineville, OR - #179)

Response: *Recreation, both motorized and non-motorized, was a significant planning issue because of the impacts that population growth in the communities within and adjacent to the planning area have had on recreational use of public lands. (See DEIS/FEIS Chapter 1). Other significant issues included Transportation and Utility Rights-of-Way, Ecosystem Health and Diversity, Land Uses such as livestock grazing, minerals uses, timber and special forest products, and the Oregon Military Department uses; Visual Resources, Land Ownership classification, Public Health and Safety, and Archaeological Resources. The range of alternatives, and the Preferred Alternative in the DEIS were developed with an intent to provide for all interests to some extent in all of the alternatives. Some alternatives specifically focused on emphasizing different types of uses in the more "rural" and "urban" areas to represent the interests of those communities. (See DEIS Chapter 2, pages 32, 37-40; and FEIS, Chapter 2).*

2. The social values survey led to biased decisions.

The social values survey BLM is using to make decisions on OHV management was written as to reach a preordained conclusion and certainly not one that the OHV community could support or appreciate. The form and its style did not lend itself to a positive outcome for motorized use. (Individual, Bend, OR - #192)

Response: *The social values survey was designed and conducted by the Community Planning Workshop of the University of Oregon to gather information to help the BLM understand communities' attitudes and beliefs about the BLM-administered lands within the planning area. Of the 2,050 surveys sent out for the Social Values Survey, 692 of the surveys were completed and returned for a response rate of 34%. The survey was sent out to households and key stakeholder groups that included members of the OHV community within the study area. The key findings of the survey reflect feedback provided by those who responded to the survey. While that information was useful in providing background information on the respondents' opinions about a variety of public land management issues, it was not used as the sole criteria to determine the final outcome of the land allocations or conditions under which motorized use would be allowed in the DEIS/FEIS Preferred Alternative.*

Purpose and Need

3. The RMP should identify the need for military training in Central Oregon.

II: 13 - OMD believes that this "Purpose and Need" statement regarding the "Oregon Military Department and National Guard" is inadequate. The statement does not

identify the need of the OMD to maintain a large training maneuver area within the State of Oregon for the purpose of training National Guard troops and maintaining troop readiness in support of State and national missions to include State emergencies effecting the public health and safety. This purpose and need statement does not identify the issue that there is no comparable maneuver training area within the State of Oregon. The purpose and need statement also inadequately addresses the need for a long-term (30 year) land use agreement for training lands in order to appropriately obtain congressional funding to adequately resource the Training Center in terms of program, manpower, and equipment. Programs include the Integrated Natural Resource Management Plan for the purpose of maintaining the natural setting of the Training Center, the Integrated Cultural Resources Management Plan the protection of archeological resources, and the development of the Integrated Wildland Fire Management Plan for the protection of resources and the local communities from wildland fire (Oregon Military Department, Salem, OR - #1308).

> ***Response:*** *These are important concepts to be captured. The purpose and need description has been modified slightly in the FEIS. Most of the changes in response to these comments have been made to the description of military uses and needs in Chapter 3 of the FEIS. The FEIS references OMD's relevant planning documents in the Common to all Alternatives discussion in Chapter 2 of the FEIS and in the Continuing Management Direction section of the PRMP.*

4. The RMP should address the transportation needs of Crook County-based industry.

...wood products industry is heavily dependent upon transportation routes which can carry significant freight loads. Adding to the importance of this issue is the fact that the Les Schwab Tire Co...is even more dependent than wood products on adequate transportation routes. Regrettably...the wholesale trade industry sector...is omitted entirely in the analysis. Since some of these all-important transportation routes, existing and contemplated, must cross BLM lands, we must find any omission of reference in the proper context of their importance to the Crook County community deeply troubling. It is clear that the transportation needs of Crook County-based industry may not have been considered in the selection of alternatives. (Crook County, Prineville, OR - #179)

> ***Response:*** *Crook County was involved throughout the planning process. (See DEIS Chapter 5, pages 588-595 and FEIS Chapter 5). The Upper Deschutes Analysis of the Management Situation (October 2001) identified the need to upgrade the Millican-West Butte Road as a potentially significant issue because of the economic importance of that roadway to Crook County. Prior to publication of the DEIS, legislation was passed transferring ownership of the right-of-way of the West Butte portion of that road to Crook County. Consequently, the issue was dropped from further consideration in the DEIS. (See DEIS, Chapter 1, page 21). The DEIS/FEIS Preferred Alternative would not affect any existing freight haul routes. No contemplated routes were identified by Crook County during the planning process. Additional analysis related to the paving of Millican-West Butte Road has been added to the FEIS.*

5. The RMP should address the destination resort industry in Crook County.

The [industries] paragraph [Vol. 2, Ch. 3, p.231] devotes considerable attention to the importance of the destination resort industry in Deschutes County while mystifyingly omitting any reference to the fact that Crook County two years ago passed a destination-resort siting ordinance and has currently approved construction of its first resort which happens to be in the proximity of BLM land...and the fact that the analysis and various alternatives omit any reference to this potential shows a lack of adequate consideration. (Crook County, Prineville, OR - #179)

Response: At the time the DEIS was published, the referenced resort had not yet received final approval. A discussion of resort zoning in Crook County has been added to the discussion in the FEIS.

Use of science

6. The RMP was based on inaccurate and incomplete information.

More debate and discussion should have centered on the AMS information itself. How can you support a position when the information you must use is either inaccurate or incomplete? (Individual, Prineville, OR - #1314)

Response: *The Analysis of the Management Situation was the initial analysis document in the Upper Deschutes planning process and was based on the best available information. Between that document and the publication of the Draft Upper Deschutes Management Plan and Environmental Impact Statement additional information was collected by specialists, and provided by other agencies and issue team members. In addition, during our Issue Team process, individuals were invited to note specific inaccuracies within the AMS. Over 1,300 individuals and representatives of agencies organizations responded to the Draft and provided additional feedback about the Draft. This feedback has been analyzed and incorporated, when appropriate, in the FEIS. For example, the language concerning vegetation management has been changed in the Preferred Alternative.*

7. The RMP should not be so heavily based on ICBEMP.

All references to specific ICBEMP integrity ratings (low, moderate, high) should be removed from the UDRMP/EIS . . . [because they] were developed examining aerial photos i.e. no "on the ground" data was collected and previously collected agency data was ignored. (Individual, Pullman, WA - #1373)

The final decision for ICBEMP was not issued; therefore, it is not appropriate to include anything that would have resulted if the final decision had been issued. (Individual, Pullman, WA - #1373)

The analysis information the issue teams were given is very slanted. The analysis material is largely supported by the Columbia River Basin Report. This report tried to use the pre-settlement past as a guideline to future goals and direction. The report criticizes numerous environmental conditions that exist as a result of human settlement and occupancy. The report tries to promote a desire to mimic environmental conditions that supposedly existed before European settlement. Let's just call it Historic Range of Native Variability. I don't currently support this agenda because it doesn't complement a free market based economy. (Individual, Prineville, OR - #1314)

Response: *Information contained in the Scientific Findings for the Interior Columbia Basin Ecosystem Management Project (ICBEMP) is credible scientific information about the broad-scale location and condition of ecological and social components related to the proposed decisions identified in the DEIS/FEIS. Specifically, those scientific findings led to the identification of priority watersheds for future restoration, as well as providing relevant information about the scale of environmental impacts on broad-scale ecological function related to the cumulative effects of fire suppression and juniper invasion throughout the inter-mountain west.*

8. The knowledgeable BLM staff should be recognized for the effort that went into this planning document.

The wildlife information compiled for this planning effort is impressive. Updating wildlife range and distribution maps, creating a criteria base from which to evaluate values and impacts to wildlife, identifying source habitats and priority restoration areas all took an incredible amount of time and dedication to develop and produce the volume

of information provided. ODFW recognizes Bill Dean and the BLM staff who assisted him in this effort to produce comprehensive wildlife information while working under shifting alternative strategies and staff time limitations. (Oregon Dept of Fish & Wildlife, Bend, OR - #1298).

I commend the effort and thoroughness of your office and staff in putting together this document [Upper Deschutes RMP/EIS]... The plan is good for local residents, essential to the long term health of the local economy, and fair to all constituencies. The Resource Management Plan is well reasoned, a compendium of good information, and consistent with the BLM's responsibilities. As a frequent visitor and owner of land in Terrebonne (adjacent to the BLM) I support the BLM's recommendations and [am] appreciative of its efforts. (Individual, Wellesley Hills, MA - #117)

Because of the catastrophic effect downward regulation of grazing would have on my business, I take the commitment to rangeland health seriously and look to the BLM for leadership in that regard. I believe that we are blessed by having knowledgeable BLM people like John S. to work with in that regard, people acting as if there is no intrinsic incongruity between cattle grazing and rangeland health, that it is strictly a management issue. (Domestic Livestock Industry, Bend, OR - #27)

Collaboration

9. The RMP should be consistent with federal, state, local, and tribal regulations.

We urge consideration of whether the plan has attempted to "harmonize Federal regulatory actions with related State, local and tribal regulatory and other governmental functions." For example, we note with concern that the proposed protection standard for eagles includes a 1/4 - 1/2 mile buffer around eagles' nests, as opposed to the county's standard of 1/4 mile, and a January - August seasonal closure of buffer areas, versus the county's Jan. 1 to May 31 closure period. (Crook County, Prineville, OR - #179)

The Court notes with concern the omission from Appendix B, "Planning Criteria/ Legislative Constraints," of Executive Orders 12875, "Enhancing the Intergovernmental Partnership"; Executive Order 13132, "Federalism"; and Executive Order 12866, "Regulatory Planning and Review." Although an Executive Order regarding relationships between federal agencies and tribes is specifically called out in the appendix, the omission of similar orders governing relationships between agencies and local government gives us pause and leads us to wonder if the plan was constructed with an eye toward compliance with these orders. It is difficult to see how this could have been accomplished if the existence of the orders was not recognized as the alternatives were developed. We value the emphasis placed by various Administrations on the local, state and federal relationship, and we urge that prior to final adoption of the plan, the alternatives be reviewed carefully for compliance with relevant orders. (Crook County, Prineville, OR - #179)

> ***Response:*** *As noted in Chapter 5 of the DEIS/FEIS, this planning process had an extensive collaborative process intended to meet the spirit of this regulation. Where possible, the plan incorporates or defers to county and state guidance as a baseline. However, federal lands are subject to federal standards. In the example cited, the federal restrictions are consistent with the guidance provided by the US Fish and Wildlife Service (USFWS). In the case of raptor restrictions, the BLM has gathered information from approximately 20 sources to create distance buffers and seasonal restrictions that best meet the needs of raptors in Central Oregon (for a complete list of references used in the DEIS, See Volume 2, page 59). The agency standards, modeled after USFWS standards, have been modified to account for climate, disturbance factors and any other local factors. These restrictions apply only to federal lands.*

A different example of our concern that BLM restrictions are consistent with those of other governments can be found in the DEIS/FEIS Preferred Alternative for Public Health and Safety. In that alternative, the process for designating no shooting areas next to private lands relies heavily on integrating with county regulations.
In response to this comment, the FEIS includes Executive Orders 12866 and 13132 in Appendix B, but also note that the principles of those executive orders are present in Section 202 (c)(9) of FLPMA and are represented in BLM's Land Use Planning Manual and Land Use Planning Handbook. Executive Order 12875 is not included in Appendix B because it was revoked by Executive Order 13132.

10. The RMP needs to be compatible with the proposed new grazing regulations.

Given the importance of livestock operations in Crook County, we have specific concerns with some of the proposals. This month, proposed regulations were released for administration of grazing permits, and while they will not be final for several months, the UDRMP FEIS is even further out into the future. Our assumption is that development of those regulations will be closely followed during the continuing work on the FEIS to insure the FEIS and regulations are compatible. (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

The [43 CFR] regulations also require that the "District or Area Manager shall analyze the inventory data and other information available to determine the ability of the resource area to respond to identified issues and opportunities. The analysis of the management situation shall provide, consistent with multiple use principles, the basis for formulating reasonable alternatives, including the types of resources for development or protection," 43 CFR 1610.4-4. The RMP's [grazing] "formula" approach...could not possibly meet these standards since it does not allow the decision maker to fully and adequately identify the ability of the resource to respond to specific management actions due to its constantly changing nature. (Northwest Environmental Defense Center, Portland, OR - #1370).

The preferred alternative...conflicts with "Existing management direction [which] already provides a process for responding to ecological concerns," [see p.84]...[because]...the "formula for Alternative 7 is modified...by the addition of an "ecological conflict" factor... This problem is exacerbated by the fact that, under the preferred alternative, allotments would not be placed in "closed" or RFA status in most cases, unless the grazing permittee voluntarily relinquishes his or her permit...Inserting an "after-the-fact" approach to decision making into environmental analysis and planning not only violates NEPA but fails to satisfy the planning requirements under FLPMA...[which]...require[s] that the "District or Area Manager shall estimate and display the physical, biological, economic, and social effects of implementing each alternative considered in detail," 43 CFR 1610.4-6....The RMP cannot provide any definitive determinations in relation to the impacts of livestock grazing and other actions on to the public prior to these actions taking place. (Northwest Environmental Defense Center, Portland, OR - #1370).

We question whether mandatory or voluntary closures are in keeping with the proposed regulations, and the 10th Circuit Court of Appeals decision in Public Lands Council v. Babbitt, 929 F. Supp. …[The] closures may be affected by the changing regulations. While we understand some environmental groups seek to buy permits to retire them, this is specifically prohibited under the proposed regulations in keeping with Public Lands Council v. Babbitt, op cit. Uses such as "reserve forage allotments" will not be permitted under the revised regulations. (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

Response: *We are closely following the development of the new grazing regulations to ensure that this plan is consistent with that direction. The new grazing regulations will*

automatically be adopted upon their release. Any inconsistent decisions in the RMP will be revised through plan amendment.

Currently, the BLM's process for evaluating the conditions on allotments (Rangeland Health Standards) does not take into consideration many of the situations commonly encountered in an urban interface area, such as increased residential or resort development, or the often increased cost to the permittee of fence maintenance. Current evaluations do not help to prioritize allotments for action to address these social and economic issues. The Grazing Matrix outlined in the DEIS, Alternatives 2-7 integrates social and economic considerations with the ecological ones identified in Rangeland Health Standards. Alternatives 4-7 would result in immediate actions to reduce conflicts.

Initially, the proposed changes to the national grazing regulations included a provision to allow Reserve Common Allotments (RCAs), but the proposal has since been dropped. There was enough interest in the concept that the BLM stated it would pursue options that would not require regulatory change. The Reserve Forage Allotments (RFAs) proposed in this EIS are one such option. While RCAs could have been applied to any allotment, the RFAs we are proposing would only be applied to allotments where we have identified a high potential for conflicts between livestock grazing and other uses and/or values. The existing regulations require BLM to issue permits for grazing in areas available for livestock grazing unless, through a land use planning process, it identifies reasons why grazing may not be appropriate. Since we have taken these steps, RFAs could be implemented under current as well as the new grazing regulations.

11. The BLM should coordinate and partner with local, state, and federal agencies when assessing rangeland health, creating trails, monitoring road/trail use, and conducting law enforcement.

The Service would like the opportunity to work cooperatively with the BLM when assessments for rangeland health are being conducted within the range of the sage grouse (U.S. Fish & Wildlife Service, Bend, OR - #1304).

The Fish and Wildlife Service recommends that the BLM establish a team that includes the Service, Oregon Department of Fish and Wildlife Service, Crook and Deschutes Counties, and others, to assist you in evaluating and monitoring the implementation of the use of roads and trails. Citizen/user groups should be involved in this monitoring to bring transparency to the decision-making process (U.S. Fish & Wildlife Service, Bend, OR - #1304).

We hope local, state and federal partnerships are emphasized for both non-motorized trails and motorized trails and routes. (Individual, Prineville, OR - #1310)

The UDRMP may need some overall direction or goals for coordination with regional trail plans of local jurisdictions - providing trailheads, links or trail corridors where needed. This direction could be added to the Transportation section of the plan, where the issue of regional trails is missing. (Deschutes County Bicycle/Pedestrian Advisory Committee, Bend, OR - #296)

This plan should allow for partnerships with county law enforcement. (Individual, Prineville, OR - #1310)

If the BLM cannot afford to have federal law enforcement, they should consider contracting with local law enforcement to periodically enforce your plan. A few random enforcement actions should do wonders for respect for the law. (Individual, Bend, OR - #1273)

Response: *The proximity of BLM-administered lands to local communities increases use demands and the need for partnerships and coordination to provide for multiple needs and reduce conflicts. Public and other government participation during the planning process occurred mainly in a community-based framework using focus groups chartered specifically for the process. The collaborative process used in the planning effort is intended to serve as the basis for future partnerships to implement the FEIS/PRMP and is described in detail in Chapter 5.*

The vision statement section of the DEIS/FEIS, Chapter 1, states that "Local communities are integrally involved in developing and implementing management strategies for individual geographic area within the planning area." Direction for specific partnerships occurs in various locations throughout the document (e.g., partnering with the City of Redmond on management of Redmond Caves; partnering with BOR, North Unit Irrigation District, Deschutes County, etc. on designation of the North Unit Canal as a regional trail).

BLM has contracted with County Sheriff Departments in the past. These contracts have been an effective means to patrol public land. Funding for law enforcement has decreased in recent years and we have focused our limited budget on funding our BLM Ranger program. We are adding a fourth Ranger to the Prineville District staff to help with education and enforcement on public land. We have, and will continue to request additional funding to support partnerships with county law enforcement.

12. The RMP should reflect the business relationship between BLM and livestock grazing permittees, and direct the BLM to involve permittees in decisions affecting the allotments they graze.

The Plan clearly shows that as recreational use of public lands becomes more and more a paramount issue, there will be more and more pressure on cattlemen to downward regulate cattle grazing on these public land allotments. To avoid economic catastrophe for me, at least two considerations are important. First, that I be treated by BLM as a business partner in decisions that affect the health and utilization of my allotments; and second, that any downward changes in utilization of those allotments be administered with the context of a plan that allows me to compensate for the loss in a pre-emptive way. (Domestic Livestock Industry, Bend, OR - #27)

"...In looking at the Preferred Alternative 7, there was only one area that I saw that might lead to downward regulation of grazing in my allotment, that being the assignment of the Sanford Creek Allotment to a sage grouse habitat....If the idea does go ahead, in some forms it could have major impact on grazing especially if the animal is Listed. So, I would like very much to have the opportunity to be involved in this process if it goes forward.(Domestic Livestock Industry, Bend OR – #27)

...we hope for a long future of cooperation with the BLM to protect and improve the natural resources on our lease [Bruckert Allotment]. (Domestic Livestock Industry, Bend OR - #1339).

Response*: While the Draft EIS did not specifically state that the BLM will coordinate and cooperate with grazing permittees, it does cite policy and regulations we follow that address these relationships, including the Taylor Grazing Act (TGA) and the Code of Federal Regulations (CFR) (see citations in DEIS, Vol. 1, p. 16 and Vol. 2, p. 22). The TGA directs the BLM "to provide for the orderly use, improvement, and development" of public grazing lands, and "to stabilize the livestock industry dependent upon the public range," goals which require the BLM to act in the interest of grazing permittees. The CFRs direct the BLM to "consult, cooperate, and coordinate with the affected permittee" when developing Allotment Management Plans, making decisions about permitted forage use levels, installing range projects, and when making other decisions which have the potential to affect*

permittees. The Prineville District BLM is committed to continuing cooperative work with grazing permittees.

The increase in recreational use of public lands is, and will increasingly become, a more paramount issue. There are many other factors impacting the grazing industry that include, but are not limited to increasing urbanization, changes in the marketplace, increases in gas prices, and mad cow disease. All of these factors and more can have an impact on the grazing industry as a whole, as well as individual ranchers. Risk is inherent in conducting business in all industries. BLM's role is to manage the public lands in its jurisdiction responsibly and under a multiple-use concept that considers all public land users.

13. The BLM should afford the Oregon Military Department more opportunities as a cooperating agency.

[OMD] considers the land allocation, the length of the land allocation agreement, and the specific Terms and Conditions of use as being intrinsically related. However as a cooperating agency, this Department had no visibility or input into the development of the BLM's Management Direction contained in [the] EIS and was afforded no opportunity to review or comment on BLM Management Direction until this public comment period. Based on a meeting with Mr. Barron Bail, BLM District Manager, in 2003 we were under the impression that this Department would be afforded the opportunities normally associated with common courtesy of a cooperating agency. This was not the case with respect to . . .the standards and guides of this plan. (Oregon Military Department, Salem, OR - #1308)

Response: *This planning process was heavily focused on hands-on involvement rather than document review by cooperators. The OMD was well represented and actively participated as a member of the Land Uses and Public Health and Safety Issue Teams. They provided expertise early in the planning process and assisted in identifying issues, developing and recommending draft alternatives, and in selecting the Preferred Alternative. Limited review timeframes focused the cooperating agencies comments on the DEIS. An administrative draft of the FEIS/PRMP has been provided to the OMD.*

Comments not requiring a response:

14. The RMP should provide for enhancing public lands surrounding Pronghorn Resort.

In order to effectively enhance the land surrounding Pronghorn we intend to collaboratively work with BLM to remove old fences and to close and revegetate unnecessary or duplicative roads. We support those aspects of the plan that are consistent with the enhancement of the public lands surrounding Pronghorn. (Business, Bend, OR - #901).

Public involvement

15. The Issue Team process used to develop the RMP was flawed…

because of how the consensus process was dealt with.

I understand the makeup of the issue team members was not broad based - nor did it ever support the multiple use philosophy. Motorized recreation was so contentious that it couldn't even be dealt with by the issue teams - all decisions had to be made by BLM management because consensus was never reached and it was the only issue that was handled in that manner. (Individual, Portland, OR - #15)

As a sitting member of the "Land Owners" issue team, I felt we had built a consensus, not only among our own group, but also among the other issue teams. When the teams

were consolidated, and the remaining members joined, the community expansion needs were virtually eliminated; this, I feel, should be reviewed, with a substantial reinstatement of the land zoned Z-3 and designated "community expansion". (Individual, Redmond, OR - #68)

because user group representation was not balanced.

As an active participant in the recreation issue team meetings along with participation in the full issue team meetings for the two year process, it was my opinion from the onset that the makeup of the issue teams was not broadly interest based. (Individual, Bend, OR - #192)

It appears that the makeup of the team members was not broad based. In reading the report I get the feeling that this team did not support the multiple use philosophy. Throughout the draft there was reference to user conflicts. It seemed to be implied that these conflicts were between motorized and non-motorized users. In my experience these conflicts, if they exist to the extent that is implied in this report, can be managed. I feel the way this can be done is by education of all user groups. (Individual, Redmond, OR - #30)

When the process was first introduced to the large variety of issue team members it was with a great amount of skepticism on my part to enter the mix and be able to make a difference. As the process wore on and the group narrowed, I felt the balance was so skewed that as a motorized recreationist it would be impossible to help my constituents. Throughout the months my level of frustration and understanding of the enormity of the task grew at about the same pace. (Individual, Bend, OR – #10)

The makeup of the issue team members was not broad based - nor did it ever support the multiple use philosophy. Motorized recreation was so contentious that it couldn't even be dealt with by the issue teams - all decisions had to be made by BLM management because consensus was NEVER reached and it was the only issue that was handled in that manner. (Individual, city unknown - #14)

We are wondering how... [Hooker Creek]... has been made an advisor of this Plan. We are all hoping it is not just because he has a lot of money and are hoping that his business practices have been thoroughly investigated to eliminate the possibility of his advise, about this Plan, becoming used for his own personal gain. (Individual, Redmond, OR - #52)

After reviewing the list of participants, we [Lobos Motorcycle Club] believe the BLM did a grossly inadequate job of reaching out to OHV users for participation when forming the teams and advisory groups that developed the list of alternatives and that finally selected Alternative 7. These are overwhelmingly the largest stakeholders. (Lobos Motorcycle Club, Clackamas, OR - #1301)

The greatest error in the analysis is the way the issue teams were made up. The issue team members didn't represent a broad based group of individuals. Most issue team members were BLM representatives or Federal, State and County employees. The smaller or second portion included those who are more environmentally active and probably affiliated with an environmental group of some kind. The small percentage that was left over made up your average mixed group of people. They were either retired people or those who could somehow participate without disrupting their jobs. As the meetings continued this group suffered the most losses. These conditions along with other kept the issue teams from being properly represented. Those who had financial incentives were way more dominant. (Individual, Prineville, OR - #1314)

OHV users are the vastly predominant user group on the lands under this plan. Our community has worked extremely hard and has committed millions of dollars in a good

faith effort to partner with management on these lands in achieving mutual goals. The planning process, including representation on the issue teams and final groups selecting alternative 7, was in no way fairly balanced relative to our stake in the planning area. (Individual, Clackamas, OR – #1313)

I hope you'll reopen some of the discussion that led you to Alternative 7. Please involve more motorcycle, ATV and 4wd users in this process. (Individual, Clackamas, OR - #1313)

OMRA [Oregon Motorcycle Riders Association] is extremely concerned about the absence of meaningful opportunities for involving motorized recreational interests in the UDRMP planning and development process. Only one individual representing motorized recreation was allowed to participate on the Recreational Issue Team, and no other motorized recreation interests were allowed to join any other issue team. Attempts by Oregon Motorcycle Riders Association to increase the representation of the motorized recreation community in the UDRMP process were rejected by BLM without explanation. No motorized recreational interests were represented on the Deschutes Provincial Advisory Committee (PAC) and Subcommittee, despite years of participation by Oregon Motorcycle Riders Association members and other OHV users of the planning area leading up to the UDRMP process. (Oregon Motorcycle Riders Association, Portland, OR - #1302)

because the meeting format interfered.

The public participation process was too long. Much time was devoted to ground rules and good manners and little time to produce substantive comments or consensus within the issue team. We spent entire mornings hammering out rules of conduct and less than an hour to reach agreement on matters within our recreation issue team. (Individual, Bend, OR - #192)

The large issue team meetings were always carried out by following BLM's preplanned format. The meetings always started off with an agenda that was generally new and unexpected. This made it literally impossible to affect the meeting's outcome. Issues and concerns that may have developed from previous meetings were never handled properly at the next meeting. The large issue team meetings were spaced too far apart. We should have met more often. (Individual, Prineville, OR - #1314)

In some respects, the public involvement early on was found by participants to be cumbersome and complicated, at least through the development of Issues. One suggestion we would offer is to work closely with Dr. Laura Van Riper, of the national Riparian Service Team, on a system of follow-up interviews from those who closely participated and others. It will be important to document "lessons learned" and ways to continue the strong efforts at involving the public while also reducing some of the more burdensome and time consuming parts of the process. This information should be shared with the Ochoco NF, which is soon to begin its own LMP Amendment processes. (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

> ***Response:*** *The BLM committed to a collaborative planning approach to receive the greatest amount of public and agency input possible, ultimately to create a plan that best represented the agency's multiple-use management strategy while responding to agency, special interest group, and individual needs in the planning area. The challenges to this process were extensive and required balancing a variety of recreation needs, community needs, and other public agency needs with natural resource management goals. The diversity of input meant that the outcome could not represent 100 percent of each group's needs. However, the BLM feels that although some interests and needs were not met to a level that was requested, a reasonable balance of uses and resource protection measures was developed. See FEIS Chapter 5 for a more detailed discussion of the process and Issue Team representation.*

16. The BLM did not adequately advertise public involvement opportunities during development of the RMP.

First, I would tell you that although I have access to the Bend Bulletin, listen to the radio, and watch the local television news broadcasts, the announcement of the public meetings in November was the first that I had heard of this whole project. I find it hard to believe that I missed any previous announcements for public input and comments over the years that it has obviously taken to compile this huge amount of information. Now that this is a 'done deal', I'm not sure what effect (if any) that the public comments will have on this plan. (Individual, Redmond, OR - #122)

> ***Response:*** *We regret you did not see the public announcements that we sent out on numerous occasions from the district regarding the Upper Deschutes Resource Management Plan. We send all of our news releases to a mailing list that includes 64 media addressees in Central Oregon. However the media outlets decide whether they will cover the news release in their daily or weekly news. In addition, we sent periodic updates to over 2,000 individuals who have expressed an interest in the management of public lands in Central Oregon.*
>
> *News releases were sent out whenever there was an opportunity for the public to comment, which included the release of the Draft Analysis of the Management Situation, the release of the Draft Environmental Impact Statement and the public Issue Team meetings that occurred in between. Our records show we sent out news releases in October of 2001 to announce the Analysis of the Management Situation; in January, May, June, and December of 2002 to announce public meetings; and in February, March, and May of 2003 to announce Issue Team meetings; in October and November of 2003 to announce the Draft EIS public meetings; and twice in March of 2004 to announce public comments received on the Draft and subsequent subcommittee meetings. Throughout the process, the BLM has collected material and arranged for interviews for the Bend Bulletin, bend.com, the Bend Bugle, KBND, the Newberry Eagle, the Salem Statesmen Journal and KTVZ-21. The media outlets that have provided the most coverage during this planning process seem to be KBND, the Bend Bugle and bend.com. Announcements of the availability of planning documents for this project have been published, as required by regulation, in the Federal Register.*
>
> *Finally, the Draft Upper Deschutes Management Plan and Environmental Impact Statement is not the final plan. It was issued as a draft with the intention of generating comments that would enable the BLM and its planning partners to generate a Proposed Management Plan and Final Environmental Impact Statement that improves upon the draft.*

17. The RMP should reflect input from the public.

Our members and member organizations have supplied excellent information to you... regarding the specifics of certain areas such as Cline Buttes, Prineville Reservoir, and Juniper Woodlands. We urge that the final plan adopt their excellent suggestions. Please remember that for any plan to be successfully implemented it needs the ownership and support from the users. It is not too late to make the changes needed to the [UDRMP] to make it a win-win plan. (Preservation/Conservation Organization, Idaho Falls, Idaho - #1367).

> ***Response:*** *The UDRMP was developed through a community-based planning process that considered the diverse opinions and needs of local, regional and national interests. The range of alternatives considered many of the suggestions of the public, including those referenced in this comment, and numerous changes were made in response to these comments. We feel that the Preferred Alternative strikes the best balance for reasonable resource protection and use.*

18. The BLM needs to be more responsive to public requests for information.

No accurate irrigation maps or reclamation information was ever introduced or utilized throughout this entire process. My requests for such information have been denied since the early stages. The same thing happened when I requested information on agriculture and its effects and contributions to our current wildlife conditions. (Individual, Prineville, OR - #1314)

> ***Response:*** *Finding a reasonable balance between intensive, costly data collection and completing a plan within a reasonable timeframe is difficult. Producing data from a variety of sources is time consuming as well. Information needs and analyses were prioritized and some analyses were not completed during development of the DEIS. We have updated information and assumptions related to the effects of private land use on wildlife habitat and included this in the FEIS.*

19. The RMP should be written so the public can understand it.

We don't yet clearly understand many aspects of the plan even though we attended a presentation meeting, examined the exhibits, and talked to members of the staff, etc. We don't understand all the repercussions short term or long term of the preferred option. (Individual, Bend, OR - #1294)

> ***Response:*** *Various methods (e.g., text, maps, tables, charts, graphs) were used to provide and display information in a user friendly format. Although efforts were made to present information in an understandable way, some of the more scientific and/or technical pieces are inherently more difficult to understand. There are many layers of decisions and alternative management strategies in the UDRMP. We have tried several strategies. One challenge is that the RMP must meet certain format requirements that do not always make for the most "readable" text. That is one reason that, in the DEIS, Appendix A, Objectives and Guidelines, reads differently than Chapter 2, Alternatives. Chapter 2 summarized, in a more narrative fashion, the technical guidance in Appendix A. During our public meetings on the Plan we presented simplified summaries of key decisions being made by the plan. We have also published numerous maps to help clarify those key decisions.*

Comments not requiring a response:

20. The BLM should be commended for the public involvement process for this plan.

ODFW commends the BLM Prineville District staff for their unprecedented effort to engage and obtain meaningful input from a broad cross section of public perspectives. . . [and]. . . recognizes Mollie Chaudet, project manager, on her skill and ability to hold this process together, keep it on track and on schedule, and to facilitate the production of the DEIS. (Oregon Department of Fish and Wildlife, Bend, OR - #1298)

The [US Fish & Wildlife] Service recognizes and appreciates the significant efforts made by the BLM in providing a collaborative citizen involvement approach to develop and analyze the draft UDRMP. The Service has actively participated as a member of the Deschutes Provincial Advisory Committee, and the Upper Deschutes Resource Management Plan Issue Team, to advise the BLM during the planning process. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

In our view [Wildlife Mgmt. Institute] the process used to develop the draft Plan was a fair and open one that allowed those involved to learn from others and understand their perspectives. This model effort helped to result in a high quality product. (Preservation/ Conservation Organization, Bend, OR - #1295)

Implementation

21. The BLM should focus on implementing and enforcing land management actions to reduce conflicts with OHV users and to protect wildlife.

In general, we support the direction contained in Alternative 7, which attempted to work out resource conflicts with OHV uses by separating uses and designating motorized trail systems and specific areas where OHV recreation can occur. At the same time, we find that OHV use potentially can be one of the most destructive uses of public lands if it is not carefully controlled and managed . . . .We recognize that many riders/drivers are responsible, and avoid sensitive areas and follow the rules. We also know that many of the organized groups and associations promote responsible behavior, and work with the agencies to provide enjoyable outdoor experiences and protect the environment. And we also believe the OHV use is an activity that has grown rapidly in the past few years, and is largely uncontrolled across the public lands and National Forests in Central Oregon. Given the dual potential for a) providing some outstanding recreational activities and b) damaging lands and disrupting populations of plant and animals, a most important focus of this plan needs to be on clear management direction and well-implemented and enforceable management tools. (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

[W]e have concerns that the variety of proposed activities within management areas will preclude your ability to achieve your ecosystem goal to restore and support healthy ecosystems in conjunction with vegetation and wildlife habitat needs. For example, as presently proposed the Preferred Alternative allows for extensive Off Highway Vehicle use within important habitat areas for special status species. Alternative 7 proposes to reduce or eliminate Off Highway Vehicle (OHV) use in some areas and construct extensive networks of new and loop trails in other areas. Without successful implementation of the reduction or elimination in OHV use that is called for in some areas, the adverse affects will be expanded by creating, opening, or improving OHV trails in other areas. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

Develop a sage grouse conservation and restoration strategy prior to expanding roads or trails within sage grouse yearlong and probable habitat areas. Develop OHV management strategies for sage grouse use areas to maintain sage grouse habitat and use by sage grouse. Establish an independent review process to evaluate management plan effectiveness in meeting the management goals and direction for sage grouse and their habitat. (U.S. Fish & Wildlife Service, Bend, OR - #1304).

ODFW supports the general direction and management guidelines presented in the Plan (pp. 44-46, Table 2-2), and urges the BLM to follow through with effective implementation and staffing to ensure monitoring occurs. ODFW believes effective implementation of these guidelines will be especially challenging given the resource demands of the growing population of people in the planning area. Two species of particular concern are bald eagles nesting and roosting on Grizzly Mountain and Prineville Reservoir, and sage grouse using the southeast portion of the planning area. (Oregon Dept of Fish & Wildlife, Bend, OR - #1298).

The UDRMP should provide the framework for the future establishment of a sage grouse conservation strategy to: 1) prioritize restoration actions; 2) address short and long-term restoration goals; and 3) develop a monitoring and adaptive management process to ensure sage grouse objectives are met. Establish a mechanism in the UDRMP to implement new motorized seasonal use periods within areas restored for sage grouse. [The BLM should] Establish a mechanism in the UDRMP to implement new motorized seasonal use periods within areas restored for sage grouse. (U.S. Fish & Wildlife Service, Bend, OR - #1304).

Response: *The DEIS (Volume 3, Appendix A, p. 36 ;) and FEIS/PRMP have a guideline that states the BLM will work with ODFW and OMD to develop a habitat management plan for pronghorn and other species (in the Bend/Redmond Block). This guideline has been modified in the FEIS to a "Multi-Species (including sage grouse) Habitat Conservation Strategy", and now includes other partners (e.g., USFWS) and applies to other geographic areas (e.g., Millican Plateau, North Millican, etc.).*

Also in the DEIS, (Chapter 2, p. 76; FEIS, Chapter 2) under Sage Grouse, management guidance identifies that the PRMP will follow the existing Management Guidelines for the Greater Sage-Grouse and Sagebrush-Steppe Ecosystems (2000) until a new management strategy is developed and adopted.

Currently, there is an interagency effort underway to develop a state-wide conservation strategy for sage grouse. The FEIS includes guidance for development of concurrent/ integrated habitat restoration/improvement projects within sage grouse habitat prior to the development of new motorized routes through these habitats. The BLM is open to developing integrated monitoring and review processes.

22. The BLM should consider whether it can realistically implement the probable actions associated with Alternative 7…

and whether it has adequately weighed the costs of implementation in the RMP.

We especially urge consideration the costs of enforcement and compliance (to the government, regulated entities and the public), flexibility, distributive impacts, and equity have been adequately weighed during the process (Crook County, Prineville, OR - #179)

including those related to recreational uses.

In regard to Cline Buttes: The management direction in Alt 7 is unrealistic and beyond the scope of BLM administrative resources. (Numerous individuals, OR - #1365)

The impact of changing BLM management direction from open to designated did not show enough analysis. BLM did not show in the draft plan that they can realistically or feasibly manage the multileveled piecemeal designations proposed for the planning area. (Individual, Portland, OR - #15)

While all action alternatives call "for an increase in non-motorized trail development," it is unlikely that there will be a rapid development of an extensive non-motorized trail system for many years. (OMSI Science Camps, Redmond, OR - #1293)

Without huge additional resources, how feasible is Alternative 7? Regarding OHV use, if the cost of closing Badlands, managing Cline Buttes with separate systems, adding new systems to the Bend-Redmond block and opening up North Millican for year round use is looked at financially, it seems like an alternative destined to fail. (Individual, Bend, OR - #192)

including effectively meeting multiple resource management objectives.

The Service supports the designation of primary wildlife emphasis level as an appropriate tool to identify areas where wildlife is one of the most important management considerations and to retain high wildlife use. However, with wildlife disturbance from roads and trails being a key concern for wildlife managers, the UDRMP has established a framework of conflicting resource management objectives between travel management designations and areas designated as primary wildlife emphasis.

Conflicting resource management objectives will be difficult to manage and limit the effectiveness of the plan to meet either recreation or wildlife resource objectives (U.S. Fish & Wildlife Service, Bend, OR - #1304).

including a realistic time-frame for implementation.

No time frame is designated for the decision process for additional caves nominated for significant cave status (page 15). Federal bureaucracies being what they are, a realistic time frame should be specified (Individual, Nashville, TN - #87).

Proposed management actions must also be implemented in a timely manner. We strongly suggest that the Final RMP include timetables for implementation, and a statement regarding BLM's intention to request sufficient financial resources to accomplish RMP objectives in a timely and efficient manner. (Timber or Wood Products Industry, John Day. OR - #119)

We're hopeful BLM will take one bite at a time to accomplish an elephant of tasks and changes. Hopefully this team will rank all management actions by High: 1-3 years to implement, or continue implementing, Moderate: 3-6 years, and Low: 6+ years (Individual, Prineville, OR - #1310)

including the need for adequate staffing and funding to implement proposed actions.

Without huge additional resources, how feasible is Alternative 7? Regarding OHV use, if the cost of closing Badlands, managing Cline Buttes with separate systems, adding new systems to the Bend-Redmond block and opening up North Millican for year round use is looked at financially, it seems like an alternative destined to fail. (Individual, Bend, OR - #192)

The DEIS projects that its extensive proposed changes will be funded with the participation of the OHV community through state funds. Unless the final plan enjoys broad support from the OHV community...The funds upon which the plan implementation depends may not materialize... (Blue Ribbon Coalition Inc., Idaho Falls, ID - #1367)

Furthermore, the Oregon Department of Fish and Wildlife is concerned that current levels of staff and funding may not be sufficient to implement the Preferred Alternative. (Oregon Department of Fish and Wildlife, Bend, OR - #1298)

It was stressed several times in the document that BLM will be looking to partnerships for funding. By reducing OHV use dramatically, closing much land to our use, the OHV community will be unwilling to give at its current level to the BLM budget. (Individual, Bend, OR - #192)

Frankly, BLM has not demonstrated the commitment, the budget or the people skills necessary to successfully deploy a new plan for managing OHV usage in our area. I have met your people, you have no real expertise, fine people, but no real understanding, no gut feel for the nature of the OHV issues. (Individual, Powell Butte, OR - #124)

[We are concerned with the plan because] even a good plan will work only if there are funds for enforcement of the new restrictions. (Individual, Sisters, OR - #1326)

BLM Transportation plan needs to be tons stronger in emphasis on BLM getting funding for designated routes and trails of all types. BLM needs to aggressively pursue funding for designated route/trail creation, maint., and closure of unnecessary routes/trails. Look at the USFS/State Parks system and other BLM districts that do this. Explore partnerships with USFS under COI. (Individual, Prineville, OR - #1310)

We have little reason to believe the BLM has the financial or staffing ability to implement the major changes envisioned by Alternative 7. (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

The greatest problem and threat this area faces comes from motorized activities; particularly motorcycles and ATVs. ...given this history from the motorcycle industry and its individual participants of having nor ability to control or police their own activities until entire areas are destroyed, any acceptable Alternative will have to have their area of use clearly defined, a policing plan, and BLM capability and desire to enforce those plans. To realistically do that their area of use will have to be severely limited and the rules straightforward and simple. One of those rules should be than any motorized trail should be at least one mile away from any private property boundary. Anything less invites continued conflict in this area. Another rule that I would like to see, (although I know it would never be accepted) would be that once these trails are defined, if the motorized recreationists are found to go off those trails or extend them in any way, they would lose 1 mile of trail for each infraction. That is the only way I can think of that they may try to police themselves. (Individual, Bend, OR - #1324)

and include an alternate strategy for plan implementation in the event that funding/staffing is not received.

In the event that proposed outcomes are not achieved [footnote: DEIS page 478], or adequate staff and funding for plan implementation is not provided [footnote: DEIS page 326], ODFW recommends that some sort of plan modification, or a default plan, be identified and described that will provide for natural resource protection. (Oregon Dept of Fish & Wildlife, Bend, OR - #1298)

> ***Response:*** *The Proposed Upper Deschutes Resource Management Plan (PRMP) represents a long-term vision for managing the lands in this area. There are certainly resource and funding challenges to achieving the vision established here. There will also be significant challenges when we begin to apply its guidance on the ground. For instance, mixing motorized and non-motorized in a relatively small area such as is anticipated in the Cline Buttes area. However, not all of those solutions can be firmly established when making land use plan-level decisions. Resources and funding have always been extremely limited – and are anticipated to continue to be so. However, the guidance in the PRMP serves as a focal point for where to direct limited resources, and emphasizes partnerships with the community to help accomplish those objectives. A collaborative implementation and monitoring plan will be developed following the Record of Decision (ROD) to help integrate BLM and community resources where possible.*
>
> *We anticipate BLM base funding levels to remain static in the coming years and will likely only see budget increases in some program emphasis areas. What that means is that BLM resources will be at or below current levels. The BLM is committed to implementing the long term vision set in the plan, and to committing available resources to that. It will be necessary to not only request additional BLM funds to implement the proposed actions but to seek partners and grants for further assistance. We recognize that we cannot implement this plan alone; it will take all of us who have a stake and/or interest in these public lands.*

23. The RMP should provide economic incentives to encourage desired behaviors.

We especially urge consideration of whether alternatives have adequately provided for alternatives to direct regulation, including providing economic incentives to encourage the desired behavior, such as user fees or marketable permits, or providing information upon which choices can be made to the public. (Crook County, Prineville, OR - #179)

> ***Response:*** *The decision to implement user fees and marketable permits are outside the scope of the PRMP. However, nationally the BLM is pursuing strategies to mobilize*

citizen participation in planning processes and for plan implementation. We are open to new approaches for achieving desired outcomes during plan implementation. The BLM is interested in identifying partnership opportunities and developing collaborative projects with other agencies, organizations, groups, and individuals to meet the goals and objectives identified in the PRMP.

24. The RMP should consider alternative ways to obtain funds for implementation.

I do understand that we need to protect and properly manage this State's precious natural resources. I would be in support of increasing OHV sticker fees to help pay for better management and education related to recreational OHV use. (Individual, Canby, OR - #140)

I'm sure that one of the main incentives to reducing riding areas is financial. I would hope that the money we pay for off-road stickers could be used to maintain riding areas but I don't know if that is the case. Therefore, here are a couple of suggestions that may help to bridge the financial gap. 1. Charge for camping at the staging areas. Most campgrounds charge a few dollars a night. You could use the honor system and have a collection box posted. 2. Charge for trail maps. It would gladly pay a buck for a map. Again, use the honor system and perhaps put up a notice that the funds collected will be used to create new trails. 3. Create a super new riding area and charge to use it. The rider would purchase a special sticker or a key to get in. I guarantee that many riders would gladly pay for the privilege of using a new area. 4. Do a fund-raiser. Contact COMAC or another club and see if they would be willing to put on an event and donate the entry fees. Again, advertise that the funds raised will be used to create more trails and I'll bet you get a terrific turnout. (Individual, Powell Butte, OR - #245)

We believe better cooperation, sharing of goals and information, and even equipment (like heavy equipment to close roads) is a more efficient use of public funds, and would promote better "management" on all public lands...There should be staff at the BLM whose job is to coordinate these things. (Individual, Bend, OR - #1294)

Response: *These are good ideas, which will be considered in the future, but they are outside the scope of the UDRMP.*

Monitoring

25. The RMP should drop the livestock grazing formula from Alternatives 2-7, because it is dependent on monitoring that is unlikely to be completed.

…because the [grazing] formula approach requires well developed and statistically valid monitoring programs be in place in order to accurately identify the impacts of management decisions, it is highly unlikely, in this case, that decisions necessary to protect resource values will be made during the life of the RMP. This is because BLM has a long history of failing to conduct required monitoring and to take appropriate action when such studies are done. Further, funds for monitoring have typically been the first items eliminated from BLM's budget and instead of stopping all actions for which the monitoring was supposed to take place, the agency proceeded or continued the actions. See GAO/RCED-92-51...In many cases...plans either lack monitoring programs altogether or have extremely vague requirements for how plans should be modified on the basis of data derived from monitoring. See Noss et al, The Science of Conservation Planning, Island Press, Washington, DC (1997). (Northwest Environmental Defense Center, Portland, OR - #1370)

Response: *The primary monitoring the Grazing Matrix depends on is the Standards for Rangeland Health & Guidelines for Grazing Management (S&Gs) to determine compliance*

with 43 CFR 4180. The Prineville District BLM has completed S&G assessments on approximately 30 allotments in the planning area, and is on a schedule to complete assessments on the remaining 94 allotments by 2008. There are 17 allotments in the planning area that would fall into "close or create Reserve Forage Allotment" status even without completion of S&Gs.

26. The BLM should monitor the effects of livestock grazing and other activities on microbiotic crusts.

...monitoring of "biotic crusts" is one of at least 12 indicators that need to be examined as a component of the Watershed Function for Uplands, a Standard for Rangeland Health. BLM should [a] acknowledge the need to undertake a consistent monitoring approach in evaluating biological soil crusts on upland sites; [b] agree that the RMP will provide for monitoring for the indicators of rangeland health, including biological soil crusts; [c] use the data resulting from this monitoring to inform decisions regarding management of grazing and other resource uses; [d] develop a soil crust monitoring strategy appropriate to the planning area; and [e] provide NEDC and the public an opportunity to review and comment on this methodology prior to implementation, including identification of appropriate reference sites. The monitoring strategy should not be an inventory level but should be a part of the overall evaluation of the watershed function for uplands." (Northwest Environmental Defense Center, Portland OR - #1370)

Response: *The importance of biotic crusts is discussed in Chapter 3 of the DEIS/FEIS, in several places in the Ecosystem section (see DEIS, Vegetation starting on p. 235; Soils starting on p. 283; and Biological Soil Crusts starting on p.284; all in Vol. 2) . The effects of various actions on biotic crusts are also discussed the DEIS/FEIS. In the Soils section of Chapter 4 we acknowledge that "activities such as livestock grazing, hiking, horseback riding, mountain biking and dispersed camping" affect soils (and thus soil crusts), but their effects are relatively minor compared to those from motorized use. The effects analysis therefore focuses on motorized actions.*

Existing policy (43 CFR 4180 – Fundamentals of Rangeland Health and Standards & Guidelines for Grazing Administration) provides a framework for the BLM to consider the effects of livestock grazing on biotic crusts (and other resources) and to discontinue grazing where necessary to reduce detrimental effects. Therefore, we did not develop a duplicate process in the DEIS/FEIS. The assessments and resultant changes in management are conducted on a site-specific basis, rather than during a broad-scale land use planning effort. It was not possible to complete the detailed assessments prior to or in conjunction with the DEIS, but the Prineville District BLM is scheduled to complete assessments on all grazing allotments by 2008 (DEIS Vol. 2, page 12). Completed assessments and the schedule are available for public review upon request.

While we did not believe it was necessary to develop a duplicate process for detailed ecological assessments, we do feel it was important to help provide direction for weighing the potential for conflicts (ecological, social, and economic) and deciding how to reduce conflicts. The formula to estimate conflict takes into account a variety of factors, including but not limited to recreation, wildlife habitat, WSA values, cryptogamic soil crusts, water quality, and noxious weeds. The "Grazing Matrix" gives the BLM flexibility to consider additional factors and potential interactions between factors.

27. The RMP should provide an estimate of the funding needed to monitor effects of OHV use on wildlife.

Oregon Department of Fish and Wildlife recommends that BLM present a progress report regarding monitoring actions that are specified as a result of the Interim Travel Management court judgment for the Millican Valley OHV area (3-10-2000). The progress report should provide some indication of BLM's effectiveness in monitoring OHV impacts on wildlife habitat, and provide an estimate of the levels of staff and funding

required to provide effective monitoring over the entire planning area (see Recreation Summary/Assumptions page 469 DEIS). Furthermore, the summary would provide OHV use information by month and week. This information could help reviewers understand potential impacts that proposed wildlife protection seasonal closures could have on OHV use during the winter months. (Oregon Dept of Fish & Wildlife, Bend, OR - #1298).

> ***Response:*** *The monitoring required as part of the Millican Litigation Final Judgment (Civil No. 98.29 – ST) in 1999 required that the BLM schedule monitoring of OHV use for each weekend during the months of December through April as well as additional monitoring mid-week in March and April. The database showing results of this monitoring is available for review upon request. The usefulness of this data is limited, since it is a point sampling of isolated staging areas and contacts during patrols, rather than a statistical monitoring survey design. While this data does not provide a complete estimate of the numbers of visitors to the Millican Valley OHV Area, it does provide some information on types of vehicles used and where visitors are coming from. This information may be useful in developing area-specific plans for facilities in the Millican Valley OHV area in the future.*
>
> *OHV impacts on wildlife habitat are related to many contributing factors, including road and trail system design, location, density of trails, season of use, and other recreation and public uses other than OHV use. Isolated data on rough numbers of visitors using OHVs, the types of vehicles used, and the origin of the visitors does not provide effective monitoring of impacts to wildlife habitat, therefore the staffing levels needed to monitor use in Millican Valley would not provide an estimate of BLM's ability to monitor impacts on wildlife habitat throughout the entire planning area. The level of funding and staffing to provide effective management of public use will likely vary over the entire planning area, depending on how access and transportation for each public land block is managed, how frequently it is used, what the level of infrastructure and education is, the availability of volunteers, and relative sensitivity of resources within each area. The BLM will continue to work with ODFW and other partners to develop an appropriate monitoring strategy for activities.*

28. The RMP should include a monitoring plan and adaptive management strategies to evaluate the effectiveness of the outcomes described in the Alternatives.

…management under the Plan should be conducted as an experiment so that ten years from now we will have learned as much as possible about the effects of our land management activities. We [Wildlife Management Institute] encourage the BLM to secure funding to improve on this important aspect of planning and Plan implementation. We also recommend that the Plan have an annual monitoring plan. (Preservation/Conservation Organization, Bend, OR - #1295)

Page 349, Sage Grouse, last sentence, "However, Alternative 7 would also take an adaptive management approach at meeting both wildlife and recreational needs in the North Millican geographic area." It is not clear how the plan will "take an adaptive management approach" if an adaptive management methodology has not been established. ODFW recommends that the stated adaptive management approach be clarified, including monitoring criteria that would trigger management changes. (Oregon Dept of Fish & Wildlife, Bend, OR - #1298).

The DEIS contains no clear monitoring plan describing how it will be determined how well natural resource and OHV objectives are being met, or what happens if they are not achieved…we would urge that the [OHV] closures and other regulation changes be implemented and monitored before extensive investment in new development. Citizen/user groups should be involved in monitoring to bring transparency to the decision-making process. (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

Given the potential for damaging lands and disrupting plant and wildlife populations, we recommend establishing a monitoring protocol and adaptive management procedures in order to track authorized and unauthorized OHV use and to allow effective and timely resource management changes when necessary. (US Fish and Wildlife Service, Bend, OR - #1304)

Oregon Department of Fish and Wildlife is concerned that the DEIS does not include effective methods for monitoring OHV impacts, and adaptive management strategies to successfully implement the Preferred Alternative. (Oregon Department of Fish and Wildlife, Bend, OR - #1298)

In addition, we would urge that the closures and other regulation changes be…monitored for successful implementation before expanding OHV facilities/trail into other areas of primary wildlife emphasis. (US Fish and Wildlife Service, Bend, OR - #1304)

We suggest a cautious adaptive management approach to shifting from seasonal closures to limits on motorized road and trail density in North Millican. The initial transition from seasonal closures should limit road and trail density to less than 1 mile per square mile and should be accompanied by carefully designed and implemented monitoring. (Preservation/Conservation Organization, Bend, OR - #1295)

The DEIS does not include a monitoring plan to assess effectiveness of the actions identified under each alternative. ODFW recommends that an effective monitoring plan be included, to assess effectiveness and allow for adaptive management to ensure that objectives are met. For example, Alternatives 2-7 call for some very complex motorized and non-motorized systems of shared use, separate use, limited use, and habitat effectiveness outcomes. A monitoring plan is critical to ensure that habitat effectiveness objectives are met. If objectives are not met, an adaptive management approach will allow actions to be adjusted as needed. (Oregon Dept of Fish & Wildlife, Bend, OR - #1298).

A key issue that the Wildlife Management Institute believes is not addressed adequately by Alternative 7 or any of the other alternatives is…"How will the extent of Plan implementation and its effectiveness in resolving identified issues be determined?" Monitoring and documenting the BLM's progress toward full implementation of the draft Plan must be addressed far more thoroughly. Such monitoring should provide information on whether actions called for in Plan decisions actually have been implemented. (Preservation/Conservation Organization, Bend, OR - #1295).

Of…great…importance is monitoring designed to provide information on the effectiveness of actions when implementing Plan decisions. Effectiveness monitoring methods and standards should be structured to respond to the issues and concerns expressed by the public. It should, for instance, respond to the question of "whether the land use plan decisions and NEPA analysis are still valid" and whether "the allocations, constraints, or mitigation measures [are] effective in achieving objectives." (Preservation/Conservation Organization, Bend, OR - #1295)

Effectiveness monitoring and evaluation should be explicitly integrated with Plan actions and accompanied by a commitment to establish thresholds for various resource parameters that have been identified as triggers or indicators that a new decision is required. These triggers should be derived from the desired future conditions set forth in the Plan. We [Wildlife Management Institute] recommend that this process, which provides an objective, science-based means of determining whether a new plan decision is required, should be used in any alternative selected for the final Plan. This kind of sequential reappraisal of land use decisions is necessary to make the planning process a credible protection mechanism for the public's broad interest in the affected resources. (Preservation/Conservation Organization, Bend, OR - #1295)

Monitoring…very few agencies do it and fewer still do it well. Monitoring should be results oriented, to tell if a management action is working, needs modified or buried. Monitoring should be simple enough to track costs, progress and allow public to help, as appropriate. We hope the final Decision Record will provide direction that if, through monitoring, a management action is not working or needs to be modified; this can be done without having to do lots of NEPA, etc. (Individual, Prineville, OR - #1310)

> ***Response:*** *The FEIS/PRMP clarifies desired outcomes and criteria for adaptive management strategies. The FEIS/PRMP includes guidance for development of concurrent/integrated habitat restoration/improvement projects within sage grouse habitat prior to the development of new motorized routes in identified sage grouse habitat. The BLM will extend this collaborative process to develop an integrated implementation and monitoring and review process for plan implementation.*

Interim trail system

29. The RMP should provide more details on how the interim trail system will be implemented.

The interim plan is very important to OHV use. Without more complete and detailed information about what the users will have while all these designated trials are being planned, I have significant problems with the plan and the process. While understanding this is a planning document, part of the planning must be planning for the interim.... The interim plan will determine uses for an indeterminate period. The interim plan must be described in further detail and the consequences of that plan need full analysis. The interim plan should not provide an opportunity for BLM to avoid the requirements of NEPA. (Individual, Bend, OR - #192)

Cline Buttes - a more detailed interim plan is absolutely needed. There are too many folks that are going to argue about any designated trail system there and if the interim plan severely limits OHV use there, that will suit many anti's very well. (Individual, unknown city/state - #14; and Individual, Portland, OR - #15)

The Interim Plan [for Cline Buttes area] is not defined enough for comment. (Numerous individuals, OR - #1365)

Cline Buttes needs a more detailed interim plan. With Eagle Crest expanding and private property already located around this area there needs to be great attention focused on this multiple use area. (Individual, Redmond, OR - #30)

…The interim plan must be described in further detail and the consequences of that plan need full analysis. The interim plan should not provide an opportunity for BLM to avoid the requirements of NEPA. (Individual, Bend, OR - #192)

The North Millican area is one of the critical geographic regions for OHV use in the planning area and the state of Oregon for Oregon Motorcycle Riders Association members. The UDRMP needs to provide a clear explanation of how OHV uses in this area will be protected and integrated into the management effort during the interim period following adoption of the final UDRMP and the implementation of the proposed trail system. (Oregon Motorcycle Riders Association, Portland, OR - #1302)

The preferred alternative BLM is proposing does not adequately reflect how an interim policy will be implemented. This interim policy greatly affects our sport [snowmobiling] and the users as there are no assurances BLM will ever have the resources to put together a designated trail system in the areas proposed. (Individual, Eugene, OR - #1312)

The preferred alternative BLM is proposing does not adequately reflect how an interim policy will be implemented. This interim policy greatly affects our sport and the users as

there are no assurances BLM will ever have the resources to put together a designated trail system in the areas proposed. (Numerous individuals, numerous cities/states - #120)

The preferred alternative BLM is proposing does not adequately reflect how an interim policy will be implemented. This interim policy greatly affects our sport and the users as there are no assurances BLM will ever have the resources to put together a designated trail system in the areas proposed. (Numerous individuals, OR - #1365)

Interim plan shows inadequate detail for the standard that will be used, for a quantifiable response. As this is a management plan and not supposed to be providing specifics on trail systems, etc., the process could conceivably never move beyond an interim plan and that would affect thousands of users by providing nothing. (Individual, Portland, OR - #15)

Interim plan shows inadequate detail for the standard that will be used, for a quantifiable response. As this is a management plan and not supposed to be providing specifics on trail systems, etc, the process could conceivably never move beyond an interim plan and that would affect thousands of users by providing nothing. (Individual, #14)

There is a danger that the interim plan may become "final" if firm deadlines are not an integral part of the final plan. (Blue Ribbon Coalition INC., Idaho Falls, ID - #1367)

The Cline Buttes area has been a designated riding area for several years, but the BLM has done nothing to manage it. When the BLM gets around to making a trail system, only a minimum of work should go into it. It should be mapped with trail numbers, private property boundaries marked and trails leading to them should be closed. Leave the trails "single track" because as soon as you use cats and groomers on them they become extremely fast and dangerous. (Individual, Bend, OR - #1280)

> ***Response****: Guidance for the interim use of existing roads and trails in included in the FEIS/PRMP. The interim use guidance will continue motorized use on most existing motorized travel ways in areas designated in the PRMP as Limited to Designated Roads and Trails. The interim use guidance will apply until a site-specific decision on a final local transportation system or agreements with specific rights-of-way holders has been completed.*

Public Education

30. The RMP should direct the BLM to improve public awareness.

There needs to be more education of the public, more ongoing programs for the public to be involved in a hands-on way with their land. We think this would help promote an agreement on goals and values making management actually work. (Individual, Bend, OR - #1294)

[I] would like to see more education on use of those BLM public lands. Perhaps education in public schools - 5th grade on up. Specific education on destruction that 3 and 4 wheel ATVs, dirt bikes and pick-up trucks can do. (Individual, Bend, OR - #22)

I think a better awareness campaign, of such things like use of a backstop when shooting, take your target when you leave, and don't be careless while shooting; this is serious business and would help. (Individual, Terrebonne, OR - #1357)

I would emphasize that the land managers emphasize and educate the motorized public that no vehicles are allowed unless signage says they are allowed in an area. (Individual, Terrebonne, OR - #185)

[The BLM should] Work with Special Recreation Permit holders and Group users to educate them about wildlife, vegetation and habitat, archaeological, and other land

management concerns, so that these areas can be avoided during sensitive times of the year. Commercial SRP holders can then provide a public service while protecting resource values and minimizing conflicts with other educational program participants and adjacent landowners. (OMSI Science Camps, Redmond, OR - #1293)

There is a real problem in this area with roads, trails and ways not being marked. It is hard to figure out if this fence is private or BLM. If the gate is open I don't know if I'm leaving or going onto public lands. The BLM needs to do all it can in signing public lands. The maps need to be improved; I have stood toe to toe with people who say I'm on their land but the map lines show it is public land. (Individual, Bend, OR - #1345)

…[Areas closed to firearm discharge] need to be clearly identified on the ground so anyone will know what public land is closed. (Individual, Prineville, OR - #1310)

If roads are closed, the reasons for the closure should be posted. Most people obey the rules when they understand that there is high fire danger, or nesting birds, or highly erodible soils. (Individual - #1297).
Response: *The FEIS/PRMP contains additional direction for public information and education. Education, engineering, and enforcement are all measures that the BLM plans to undertake concurrently to address land management issues and implement the RMP.*

Enforcement

31. The RMP should increase enforcement and cooperative law enforcement with other agencies.

Two...concerns we don't think the draft plan sufficiently included were enforcement issues and the lack of cooperation with other government agencies. This includes the other federal oversight agencies, state agencies (Oregon Fish and Wildlife, ODOT, etc.), and local governments including Deschutes County Sheriff's Office. Regarding the enforcement currently in effect. . . there rarely is any. On weekends there is no one at BLM to respond to lawbreakers' activities, and no state or local enforcement personnel can take up the slack without specific coordination with BLM. Sizemore Road in Deschutes County is a good example with weekend drag races with unlicensed off road vehicles on Sizemore, and destructive off road riding through the BLM areas of environmental concern. It would also benefit citizens living in proximity to federal land. It would help local government in land use issues to understand the goals and needs of public land where it checkerboards with private land. It should not be up to private citizens to try to force local government to be responsive to what is required for the bigger picture. (Individual, Bend, OR - #1294)

We recommend that a Cooperative Agreement, with funding by BLM, be developed with the Crook County Sheriff to fund additional patrols, including OHV patrols in key areas to increase enforcement. This is particularly needed to reduce violations of State law, such as littering, vehicle operation and registration, and wildlife harassment (this has been reported to ODFW/BLM). (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

I have witnessed numerous target shooting events, motorcycle and atv "runs" and illegal campfires in the Tumalo Winter Deer Range. They seem to occur on the weekend when law enforcement is not available to investigate. Roads in the protected areas need to be closed and signs stating consequences for illegal use should be posted (Individual, Bend, OR - #1292)

> ***Response:*** *The BLM will continue to seek funding to support law enforcement assistance agreements with local counties, effectively extending our patrol and enforcement capabilities.*

Past assistance agreements have included Crook, Deschutes and Jefferson Counties and were considered to be very successful. We work cooperatively with other federal, state and local law enforcement agencies. BLM recently received cross delegation of authority for BLM and USFS law enforcement personnel to work across agency boundaries.

32. The RMP should prioritize enforcement needs.

Law enforcement needs to be used sparingly. The number of officers/ac. within the Prineville District is a very low number. They should only be used for high priority work in this planning area. (Individual, Prineville, OR - #1310)

Response: *Upon completion of the RMP, the District law enforcement focus will continue to address safety issues, recreation use monitoring, visitor services, small forest product collection regulation, and crime investigation. The Prineville District has a successful Central Oregon aerial patrol program during which aircraft and on-the-ground law enforcement and resource personnel work together to search for suspicious and illegal activities.*

33. The RMP should recognize enforcement needs in popular recreation areas.

If you are going to allow motorized use in the Mayfield block; there must be some type of law enforcement to make sure that motorized vehicles stay on the open roads. At the present time there is widespread environmental damage caused by vehicles driving on closed roads and across open ground. The dumping problem along the open road and adjacent areas is acute. (Individual, Bend, OR - #201)

If the BLM decides to allow for mountain biking in the upper Cline Buttes block, there are a few issues that concern us - Enforcement of separate facilities. Mountain bike trails are very durable when constructed correctly and used only by bicycles, but they are very easily damaged by motorcycles, ATVs and horses. (Recreational Group, No Town, OR - #1317)

The BLM does not have the manpower to enforce the wilderness study area regulations and it would be easier on both BLM employees and the land to close this area off to all motor vehicles. I think an alternative allowing any level of motor vehicle access would be impossible to enforce. (Individual, Bend, OR - #90)

I believe that developed trail systems need to be examined carefully before new systems are imposed and that the agency needs to be confident that it can meet its obligation especially when it comes to law enforcement, which currently seems very inadequate to meet the needs of what already exists. (Individual, Redmond, OR - #1341)

The parking problem total closure [of Badlands WSA] will necessitate is not addressed in the plan. If BLM had problems managing Badlands prior to this RMP, how will total closure take care of those problems? (Individual, Bend, OR - #192)

I question the BLM's capabilities to implement the plan's details such as road & trail closures. Please detail BLM's plan to provide LEO staffing. (Individual, Bend, OR - #1353)

Response: *The planning area is in an "urban interface" management situation. Successful implementation of the RMP will not occur with only additional law enforcement resources. The BLM lacks the resources to put law enforcement officers throughout the 400,000 acres of public land in the planning area. The strategy of the plan is to direct the BLM to provide engineering, education, and information to proactively solve most problems, and to allow law enforcement to address situations where the above mentioned solutions do not work. Designated road and trail systems, road and trail maintenance, signs, maps, better web site*

information, fences, barriers, gates, non-law enforcement staff patrols, volunteer projects, etc. can provide meaningful measures that supplement law enforcement efforts.

Use of volunteers

34. The BLM should partner with the public on plan implementation, monitoring, and enforcement.

We hope local, state and federal partnerships are emphasized for both non-motorized trails and motorized trails and routes. (Individual, Prineville, OR - #1310)

As relayed to Mr. Currie [BLM recreation planner] we have the equipment and materials to assist BLM in completing some of the work necessary to help deter the violation of the designations for the BLM property, which we support. (Individual, Redmond, OR - #1334)

BLM Guidelines in Appendix A, pages 7 and 57, describe specific actions prohibited within either 350 feet of known passages or 250 feet from entrances. The COCTF can offer assistance on a volunteer basis in determining where these perimeters are located. We can work with your GIS technicians in developing maps and drawings of BLM caves. We can also work on cave inventory, such as using a datasheet developed at Lava Beds National Park. (Preservation/Conservation Organization, Portland, OR - #280).

Can a similar program to the highway "adopt a road" system be implemented on sites or acres of public lands? (Individual, Prineville, OR - #42)

BLM, USFS, Oregon State Forestry and even private land owners need to reflect on their civic responsibilities to accommodate the increasing need for outdoors motorized recreation. Decreasing opportunities in the face of increasing demand will result in an administrative nightmare with over-use and substantial damage to the small areas reserved for such use, and rampant unauthorized use in restricted areas. Rather than reduce the amount of recreation lands or compromising future opportunities for such lands. . . please work with local OHV groups to establish, maintain, police and improve more such recreational opportunities. (Individual, Cheshire, OR - #153)

Response: *The BLM intends to involve other agencies, organizations, and the public as it implements the RMP. The above suggestions and others will be considered.*

Alternatives

This section contains comments on the range of alternatives, comments on alternatives by each issue category, and general comments on alternatives.

Range of alternatives

35. The range of alternatives is not acceptable…

because all alternatives show lands to the south and east of Redmond classified as Community Expansion.

There is…an inadequate range of alternatives in the DEIS which in Alternatives 2-7 all show [only] allocation of lands to the south and east of Redmond for a conveyance for community expansion. (Consultants/legal representatives, Bend, OR - #1315)

... [T]he transportation alternatives...are too conservative. (Individual, Redmond, OR - #88)

because the areas available for mining, livestock grazing, and logging do not differ enough.

The RMP does not satisfy NEPA requirements to evaluate a reasonable range of alternatives. While the stated purpose of each alternative appears to be different, the management direction of the various resources in the alternatives differs very little.... mineral sales range from 100% to 81% availability - less than 20%. See, vol.1, p.41. In fact, in each of the alternatives, the entire land base is available for locatable mineral entry and the agency does not propose to withdraw any of the planning areas from such use.]...out of the seven alternatives listed, the number of acres that will be grazed by livestock never falls below 230,000. Vol. 1, p.40. [and] …none of the alternatives contain a "no-logging" proposal and the amount of the land to be logged varies by only 7%. See V.1, p.41. (Northwest Environmental Defense Center, Portland, OR - #1370)

Response: *The range of alternatives included those lands that the City of Redmond's Urban Reserve Study indicated may have been needed to support urban expansion under Oregon State land use laws. Within each of the alternatives, there were variations of the kinds of uses that could be allowed on those lands if they were eventually acquired. These included limitations only for park and open spaces uses, or to provide for transition zones between public undeveloped lands and urban areas. In the FEIS, based on the final results of the Urban Reserve Study, lands east of Redmond have been changed from a Community Expansion classification to Retention (Z-1). That study showed that those lands east of the North Unit Canal would not be needed in the next 10-20 years for urban reserves.*

The range of mineral alternatives is actually greater than the acreage numbers suggest. Alternative 4 has an additional restriction that would substantially preclude approval of new sites in most of the planning area. Under Alternative 4, new mineral material sites may not be developed on BLM-administered lands where alternative sources are available within 30 miles driving distance of (1) construction site(s) where the mineral materials would be used or (2) commercial distribution centers where the mineral materials would be sold as raw materials or finished products. Due to the prevalent distribution of existing sites across the planning area, this restriction effectively closes most of the planning area to new site development.

The area available for livestock grazing varies from 229,000 to 389,000 acres across the alternatives. This is 57 to 96 percent of the planning area, respectively, which the BLM believes is a reasonable range. The Issue Team, which included representatives from environmental groups and fish and wildlife agencies as well as rancher advocates, worked closely with the BLM and reached consensus on the range of alternatives included in the DEIS/FEIS. The range of alternatives took a hard look at reasonable alternatives for addressing the significant issues within the scope of the land use plan decisions being made. (See Analysis of the Management Situation for the Upper Deschutes Resource Management Plan and Environmental Impact Statement, Pg 21)

The range of alternatives is determined, in part, by the significant issues. Significant issues concerning vegetation management are described in the DEIS/FEIS, Chapter 1. Eliminating "logging" of public lands was not identified as a significant issue. Another important aspect of the range of alternatives is the nature of the decisions being made. This is a Land Use Plan, and does not authorize site-specific decisions such as "logging," but rather sets broad-scale goals for vegetation and landscape conditions.

The range of alternatives for vegetation management was primarily focused on high priority watersheds, declining shrub-steppe plant communities, wildlife habitat, old growth forests and woodlands, and hazardous fuels within the Wildland-Urban Interface (see DEIS/FEIS, Chapter 1). The range examined the effects of managing with an overall goal of either restoring healthy and diverse ecosystems within the "current" physical and structural range, or with more of an emphasis on an "historic range."

36. Alternative 7 should consider no grazing, timber harvest, or mineral extraction in the Northwest area.

We disagree with the recommendations of Alternative 7 for resource use [in the Northwest planning area]. To support the wildlife and recreation emphasis, we recommend no grazing, timber harvesting, or mineral extraction in this area (Individual, Sisters, OR - #1326).

> ***Response****: The overall management goals for the Northwest area include a primary wildlife emphasis for deer winter range and a non-motorized trail recreation emphasis. Approximately 1,000 acres (or 17 per cent) of the geographic area is designated commercial forestlands. The vegetation management direction for this area includes an emphasis on maintenance and restoration of old growth ponderosa pine structure. Most of the public lands within this area are juniper woodlands, some of which are high priority watersheds that are at hydrologic risk due to the high juniper densities. Management of these resources is an important component of overall health of the watershed. The Preferred Alternative contains provisions for integrating wildlife, recreation, and other resource objectives when making final site-specific decisions about activities to be conducted within this area.*

The following comment requires no response:

37. The range of alternatives is acceptable.

The range of alternatives presented in the draft Plan adequately addresses the issues in the planning area. (Preservation/Conservation, Bend, OR - #1295)

Ecosystem Health & Diversity

General

38. The BLM should develop a focused management strategy to ensure long-term ecosystem viability.

It was generally recognized that wildlife habitat within BLM administered lands continues to be degraded in some areas as a result of adjacent urban development (e.g., residential development in winter range, increased year round recreational motorized activities). For these and other reasons, sage grouse, mule deer, and pronghorn have shown marked declines over the last 50 years throughout the planning area. Cumulatively, the factors presented pose a challenging dilemma to resource managers. Our ability to restore and support healthy ecosystems in conjunction with vegetation and wildlife habitat needs, while managing for expected increases in human population and use levels (Goals, Volume 2, p. 42) will become more difficult over the life of the plan. As a result, the Fish and Wildlife Service recommends that the BLM fully evaluate current habitat conditions (e.g., habitat fragmentation), wildlife trends, and cumulative effects of all activities within the planning area, and develop a focused management direction necessary to ensure ecosystem viability for the long term (U.S. Fish & Wildlife Service, Bend, OR - #1304).

> ***Response:*** *The DEIS/FEIS describes current habitat conditions and population trends in Chapter 3 and habitat conditions (i.e. habitat fragmentation) in Chapter 4, as described for Alternative 1. The most current available information for describing the affected environment and assessing the environmental consequences of the alternatives, including cumulative effects was used in the DEIS. The FEIS contains additional analysis about land allocations and local roads in the cumulative effects analysis. The PRMP combined emphasis of source habitats and priority watersheds provides a focused management vision for future management activities.*

39. The RMP should provide plant and animal censuses in essential areas.

[The Plan lacks] specific census of plants and animals in many of the areas where corridors for migration are essential, and in areas where human development is encroaching at a fast pace....The plan doesn't include what we believe are crucial elements, systems, or programs to obtain this information (Individual, Bend, OR - #1294).

> ***Response:*** *Of the four special status plants known to occur in the planning area, Peck's Milkvetch is likely the most threatened with development on private land and associated activities on public land. This is also the only plant of the four for which BLM manages a majority of its known habitat, and for which BLM actions may play a major role in the long-term health of this species. Complete census of all plants on public land would be impractical. However, long-term monitoring of four critical populations or groupings of plants has been initiated. Through challenge cost share funding we have also partnered with Oregon Department of Agriculture to determine the effects of various kinds of disturbances on this species. Upon completion of this project we should have a clearer picture as to how this plant responds to disturbance and can then focus our management efforts on any needed protective measures, or conversely, allow active management of habitat that will encourage plant growth, reproduction and establishment.*
>
> *Chapter 3 of the DEIS/FEIS provides current available information on wildlife species in the planning area. The BLM gathered a significant amount of information on population ranges and use areas. For some species, periodic survey and monitoring have been conducted and population numbers and/or general trend descriptions have been included. However, due to funding limitations, the Bureau does not conduct thorough systematic surveys of all wildlife. Instead, the BLM focuses inventories on special status species (i.e., sage grouse) and species of local interest (i.e., mule deer) when projects may adversely affect them.*
>
> *Monitoring of all wildlife species would also be unrealistic. The BLM instead focuses on long-term monitoring of special status species. For example, the Prineville BLM has been monitoring sage grouse annually for over 20 years. The Bureau also monitors spotted frogs, bald eagles and golden eagles. Site specific surveys are conducted for some species when proposed projects may adversely affect a population. For example, prior to timber management projects, the Bureau may conduct 1 – 2 years of northern goshawk surveys. In addition, the BLM coordinates with other agencies such as USFWS, ODFW and the USFS on survey and monitoring efforts and to share data.*
>
> *It is expected that ongoing, quantitative monitoring of special status species sites will at least provide information on current trends. Through challenge cost share funding we have also partnered with local, state and private agencies and organizations to determine the effects of various kinds of disturbances on species and are currently developing a multi-species conservation strategy.*

40. The RMP should not allow ecosystems to be simplified or homogenized.

Please do not simplify or homogenize ecosystems. "Increased homogeneity (reduced patchiness) has negative attributes of increased continuity of fuels and insect hosts that create significant problems in the management of sustainable forests" [quote from Everett, et al., Continuity in Fire Regimes between Riparian and Adjacent Sideslopes in the Douglas Fir Forest Series. 2001] (Preservation/Conservation Organization, Eugene, OR - #238)

> ***Response:*** *The Preferred Alternative for ecosystem management has many provisions designed to increase vegetative and wildlife diversity, compared to that which would occur under no management or current management. For forest ecosystems, an example objective in the PRMP, Management Direction, Vegetation: "Maintain and promote healthy and*

diverse lodgepole and ponderosa pine forest ecosystems…. Manage stand structure, density, species composition, patch size, pattern, and distribution to reduce the occurrence of uncharacteristically large and severe disturbances. Maintain or mimic natural disturbance regimes so that stands are resilient to periodic outbreaks of insects, disease and wildfire..."

Vegetation

Vegetative condition and trend

41. The RMP should state the current vegetative condition for the planning area, or identify it as "incomplete or unavailable information."

DEIS Page 235 - the document states: "this section describes the broad vegetative types within the planning area, including important features and trends of each." However, under several specific plant communities headings (big sagebrush, low sagebrush, western juniper, riparian-wetland), there is little (if any) discussion of vegetative trends. What is the trend in these communities? (Individual, Pullman, WA - #1373)

Page 334 - As Chapter 1 and Chapter 3 are presently written, the current health (condition and trend) of the vegetation resource is not stated for the majority of the UDRMP area. This fact should be included as incomplete or unavailable information. However, there are several other sources of information that were not included in the document on an allotment specific basis. Some of these sources are: allotment evaluation results of the late 1980s and early 1990s, Soil Vegetation Inventory results, trend plots, and photo stations. Inclusions of these sources would give the reader at least some indication of vegetation health (Individual, Pullman, WA - #1373)

Response: *The Affected Environment section (DEIS/FEIS, Chapter 3) provides a description of broad vegetation types and trends. Trends are described particularly in regard to fire exclusion, juniper occupation, and human influences. Vegetative condition is also described in more detail in DEIS/FEIS, Chapter 4, the Environmental Consequences Chapter. This chapter describes the response of native vegetation communities when affected by various land use activities, vegetative treatments, and natural processes. These chapters provide a broad picture of vegetation condition and how plant communities and habitats are changing by major plant community groups. These descriptions are not intended to be site specific for each geographic area, each allotment, or each plant community type. BLM has some current information regarding vegetative condition, but is also lacking this detailed site information for many areas. Even if BLM had complete inventory data, inclusion of this type of site-specific information would not be appropriate for an analysis at the broad scale of a land use planning area of over 400,000 acres. Our current, most comprehensive means of collecting site-specific information is through field assessments according to the Standards for Rangeland Health and Guidelines for Grazing Management. These assessments are currently being conducted for each allotment and are due to be completed for the District by 2008. This information is available for review at the Prineville District Office*

Current Range vs. Historic Range of Vegetation

42. The BLM should use site-specific NEPA planning during plan implementation, because the concepts of Historic vs. Current Range of Vegetation are not useful when considering the plan as a whole.

Two of the major themes, Historic Range (Alternatives 3, 6, & 7) and Current Distribution (Alternative 2, 4, & 5), are perplexing. Conceptually, the themes of restoring vegetative associations, wildlife species distribution and connectivity, hydrological functions, etc., are understandable either within current distribution or within historic range. Yet when the plan is considered as a whole, much of the proposed DEIS management direction for Alternatives 2-7 could preclude the desired outcomes - such as fuels reduction in

the wildland urban interface, open roads and trails to motorized vehicles, exotic and noxious weeds, access Right-of-Ways (ROW) to private property, and livestock grazing and fencing. To address this dilemma, ODFW recommends site specific NEPA planning during plan implementation, to allow a more thorough analysis and evaluation of the desired social values in each geographic area in the context of the area's ecological potential. This approach would optimize desired outcomes under either theme of current distribution or the more expansive theme of historic range. [includes quotes from Agee (1996) Schmidt (1996)] (Oregon Dept of Fish & Wildlife, Bend, OR - #1298).

> ***Response:*** *The FEIS, Chapter 2 and the PRMP include additional direction for consideration of these factors during site specific analysis. They also provide additional focus on social, economic, and development factors that may preclude restoration of "historic" conditions near urban areas.*

43. The BLM should amend the Preferred Alternative to support Current Range Vegetation Management rather than Historic Range.

Please amend the preferred alternative to support Current Range Vegetation Management….Current range …is the best approach because of its built in flexibility. [It] isn't restricted...to a concept of trying to re-create the uncertainties of the past...[which would be]…impossible and isn't very beneficial to the community at large. Current Range is the most compatible and consistent with other current land-use activities like agriculture, multiple use and recreation. Current range works best with our current and future vegetative conditions. . .[It] has the best chance of creating a healthy and diversified ecosystem that prioritizes our current needs and vegetative concerns. Historic Range will be more expensive to implement and more law enforcement will be necessary. Historic Range reduces public access, has built-in conflicts with multiple uses, and de-emphasized agricultural use. (Numerous individuals, multiple cities/states, #747).

The BLM is managing public lands within a federally designated reclamation project area. The land within this reclamation area is mostly privately owned. The project area is meant for human development and occupancy. This is another reason I support Current Range, it accommodates people and their actions the best. It works better under change, the types of changes that will occur now and in the future. (Numerous individuals, multiple cities/states, #747).

> ***Response:*** *The BLM recognizes the myriad of other public land uses we must consider and their relationship to the "Historic Range of Variability" concept. Many of these multiple uses are not necessarily contributing to HRV objectives. The BLM's intent is to literally restore vegetation, habitat, and watersheds to pre-European conditions; but, rather, to use the HRV concept as a guide to help work toward restoring conditions that are more healthy, resilient, and sustainable. In some areas, to restore watersheds to historic conditions would be impossible. In all areas, restoration of historic or even rehabilitation to properly functioning conditions represents significant challenges. The Preferred Alternative acknowledges social land economic factors and limitations to applying the HRV concept in all areas. The HRV concept will be incorporated during plan implementation as much as is practicable. Various components and degrees of HRV will be included in vegetation and habitat project designs, as well as other project or activity plans, including recreation, road/trail design, Right of Way development, etc. Site specific analysis for projects is better suited to determining relative potential for success.*
>
> *Some changes to the Vegetation Preferred Alternative have been incorporated into the FEIS to acknowledge and address the many important social and economic components of the planning area. The PRMP includes directions to evaluate social and economic values in the context of ecological potential during project planning.*

Traditional uses of vegetation

44. The RMP should provide vegetation management that protects and enhances traditional plant uses.

We [Confederated Tribes of Warm Springs] see no reference to vegetative management that will protect and enhance traditional uses and plants of cultural significance to the Confederated Tribes of Warm Springs. This is both a treaty obligation and a trust responsibility of the Bureau that should be specifically mentioned inside the vegetation management section. What is missing is an affirmative statement or obligation to conduct vegetative management that protects and enhances these traditional uses and plants. (Tribal, Confederated Tribes of Warm Springs, Warm Springs, OR - #1300)

While the EIS identification of plants and areas of traditional cultural significance is good (Vol. 2, pp. 223-224, 320-321) . . . it appears that the BLM in its planning documents is only addressing these areas in terms of access and land exchanges. In addition to those issues, vegetation management to protect and encourage those plants for use by the native peoples should also be identified in this planning process. (Legal/Consultant, Bend, OR - #1315)

> ***Response:*** *Through the consultation process, the BLM will continue to work with local Tribes to learn more about the traditional cultural landscape and the resources of tribal importance found there. Where information about traditional use areas and cultural plants exists, the BLM and Tribes can collaborate to protect and enhance those locations and resources in a proactive manner. Since submission of the Tribes' comments, BLM and Tribal staff have worked together and developed an objective, rationale, and guidelines to address the Tribes' concerns about agency vegetation management and traditional cultural plants and added that into the FEIS/PRMP.*

Vegetation treatments

45. The BLM should use more prescribed burning as a restoration tool.

Under Alt 7 there are 3,838 acres prescribed for burning per year. This is less than 1% of the 400,000 acres covered in this EIS. Less than 3% of the land is going to be mechanically treated per year...It appears that in the EIS your ability to manage land has been restricted to less than 4% per year. It is obvious that there are enormous tracts of Western Juniper that have encroached on Sage Grouse habitat that the BLM won't have the tools to restore to Pre-Euroamerican settlement conditions. The science calls for fire, the people call for fire, even our Congress passed laws this year for more fire. Why is there virtually no fire in the plan? (Individual - #1297)

The treatment levels [regarding fuels management] do not even equate to one tenth of a percent of the entire land base. While the treated areas may emphasize preservation of structures and property, it does nothing to address the preservation of existing landscapes, ecosystems, or wildlife habitat. The alternatives need to increase the areas treated and emphasize the preservation of existing landscapes. (Individual - #76)

> ***Response:*** *The Preferred Alternative, compared with present management, is very ambitious. In the first 5 years of implementation, the focus will be on treatments within the wildland-urban interface areas to treat hazardous fuels. Due to the potential for wildfire, these areas will receive the highest priority for treatment. Because these areas, by definition, are located in close proximity to homes, communities, roads, and people, we cannot use prescribed fire as a tool as liberally as we would like. There are many concerns regarding smoke, visual, and escape issues. For these reasons, vegetation management will rely more heavily on mechanical means in the Wildland-Urban Interface (WUI) areas and prescribed fire in the non-WUI areas. Between mechanical treatments and prescribed fire, combined vegetation treatments will amount to nearly 4 per cent per year. Over the estimated 15*

year life of this plan, if the prescribed amount of treatment acreage were implemented, there would be a total of approximately 57 per cent of the planning area treated. Of course, with a prescribed return treatment interval of 10-15 years in some WUI areas, there would begin to be some overlap acres. Considering existing and future vegetative treatments and natural burns, this is a very substantial vegetation management program. Changes in vegetative conditions and structures have deviated from historic norms over a very long period of time (over 100 years). To transition to healthier, more resilient landscapes will, likewise, take many decades of active restoration management.

46. The BLM should minimize the negative ecological impacts of fire management activities.

Where it is appropriate to reintroduce fire, please reduce ground fuels and ladder fuels, but do not thin canopies to reduce bulk density. Opening the canopy will only stimulate growth of hazardous ladder fuels. (Preservation/Conservation Organization, Eugene, OR - #238)

Fires should not be fought in WSAs or special management areas. (Preservation/Conservation, Portland, OR - #1370)

We support prescribed fire as a fuel management technique but fire management must be carefully planned so as to minimize effects on wildlife, soil, site productivity, and large trees, down woody debris, and snags. Fall burning should be considered because that is when nature would have done most of the burning. The effects of spring burning on the life-cycles of plants and wildlife must be fully considered in the NEPA process [Excerpt from Forest Ecology & Management v. 127 by Tiedemann et al. is attached to support statement]. (Preservation/Conservation Organization, Eugene, OR - #248)

The EIS states that the planning area has generally good air quality, and that air quality has improved in recent years. The EIS also states that all prescribed burning projects will comply with Oregon's Smoke Management Plan to ensure meeting National Ambient Air Quality Standards (NAAQS)...The EIS also forecasts a sharp increase in prescribed burning over present levels under all alternatives, with alternatives 3, 6 and 7 showing greater increases of prescribed fire treatments in planning years 6 - 15 than the other action alternatives, an estimated increase of 6650 acres a year (a 350% increase in acreage). If one of these alternatives is selected, it will be important throughout the life of the RMP that BLM works closely with the State of Oregon to ensure that prescribed burns continue to operate in accordance with specific requirements of the Oregon Plan, as they may change over time. Since the RMP will be used as a reference document in the years to come, the ROD should commit to any specific actions known at present, such as operational burn plans, monitoring or reporting requirements required of BLM in the Smoke Management Plan for individual prescribed burns. These commitments will serve as specific instructions to the Prineville District's present and future managers. Since we view actions taken to comply with the Smoke Management Plan as air quality mitigation for the project, these commitments would also satisfy the mitigation requirements of NEPA (CEQ Regulations at 40 CFR 1502.14). (U.S. Environmental Protection Agency, Seattle, OR - #1426)

Bulldozers and other large equipment that has the ability to disturb the soil and cause new invasions of weeds should be avoided during fire fighting unless property or human lives are at stake. (Preservation/Conservation Organization, Eugene, OR - #1370)

Response: *The "Review Update of the 1995 Federal Wildland Fire Management Policy" acknowledges that fire is a critical natural process and must be reintroduced into the ecosystem at a landscape scale. The policy emphasizes that for natural ignitions (i.e. lightning-caused) a manager must have the ability to choose from the full spectrum of fire management actions, from prompt suppression to allowing fire to play its natural ecological*

role. Allowing an unplanned ignition to burn, in the WSAs and special management areas is not feasible due to their size in relation to the fire size typical for the area, ownership patterns, values at risk in adjacent areas, and our obligation to protect nearby private lands from wildland fires originating on public lands both as part of the Federal Fire Policy and under the Oregon Revised Statutes concerning "nuisance fires." Neither the 1995 Federal Fire Policy nor the 2001 update requires that wildland fire use be an option anywhere, just that where feasible, it should be an option. However, guidelines provide for an appropriate management response of initial attack and full suppression of all wildland fires, direct the use of natural and human created barriers (i.e. roads as available for control lines), and state that the use of heavy equipment in ACECs, WSAs, and RNAs would be avoided. If used, heavy equipment would be restricted to existing roads and trails. The Emergency Fire Rehabilitation Handbook outlines the process for implementing emergency fire rehabilitation projects, including steps to reduce the invasion and establishment of undesirable or invasive vegetation species

47. The RMP should require prescribed burning and prescribed natural fire to mimic natural wildfires.

Prescribed burning should occur in the summer when wildfires normally occur. (Preservation/Conservation Organization, Eugene, OR - #1370)

Response: The BLM recognizes that most lightning-caused wildland fires in Central Oregon occur in the summer, particularly August. Depending upon vegetation type and resource objectives, prescribed burning may occur in the spring, summer, or fall. Burning in current fuel loads runs a greater risk of escape and threats to resource values and adjoining private property. Heavy fuel loads may need to be reduced initially under spring conditions where higher fuel moistures allow more moderate burning conditions. Summer burns also consume more snag and downed logs and therefore have a greater impact on wildlife habitat. Summer burns suffer from the lack of resources to support such projects due to demand from suppression. (See also DEIS, Volume 3, and the PRMP).

48. The Preferred Alternative should address noxious weeds.

...the preferred alternative fails to provide for treatment or other means of addressing this critical and pervasive problem [noxious weeds], see RMP v.2, p.188-197 (Preservation/Conservation Organization, Portland, OR - #1370)

Response: *The BLM addresses noxious weeds through current program guidance documented in district and regional vegetation management plans (see a summary of Noxious Weed Management Guidelines in DEIS, Appendix A, Common to All Alternatives, and in the PRMP, Continued Management Direction).*

49. The RMP should provide for reducing invasive juniper…

using site-specific analysis to estimate site response to treatment and prioritize projects.

Invasive Juniper Woodlands: The Service would like to work with you on the juniper woodland removal projects. We are particularly interested in the removal of junipers that have invaded sage grouse habitat that still has the habitat potential to support sage grouse. We recommend each project have site-specific analysis. We suggest that BLM convene a committee to assess the restoration potential of each site. The removal of juniper may not result in the expected repopulation by native plant species that we want reestablished. The response of the vegetation community to mechanical/fire removal of juniper will depend on the ecological resilience of each site. Results of the restoration to achieve the desired range of condition will likely be based on a number of factors including the type of fire, management practices after the fire, presence of existing non-native species (e.g. cheatgrass), and soil type. Removal of junipers will not necessarily resolve the problem and initiate the natural successional process to reestablish native

plant communities. Issues that may be key to successful restoration must be addressed on a site specific basis and include: 1) type of resources still present within the juniper stand; 2) type of impact fire will have on the remaining bunch grass and sage plant species; and 3) potential for an undesirable annual non-native grassland monoculture. Juniper cutting and burning activities should be closely evaluated on a site-by-site basis. This would enable the BLM to prioritize mechanical removal and burns on areas likely to respond favorably to prescribed disturbance, such as target sites still hosting adequate densities of understory perennial bunchgrasses. The Eastern Oregon Agricultural Research Center, based out of Burns, Oregon, has done a considerable amount of research on this issue and would be a valuable asset in assisting in prioritizing juniper control efforts and prescribing follow-up treatments. (U.S. Fish & Wildlife Service, Bend, OR - #1304).

on the basis of stands rather than individual trees.

Management of Invasive Junipers - we support the juniper control work proposed in Alternative 7, but prefer to see management of old-growth juniper on the basis of stands and not individual trees. For example, in treating invasive juniper to restore suitable habitat for sage grouse, we recommend removal of all trees in the treated area to reduce perch trees for predatory birds. Leaving trees of "old-growth form" in those areas reduces the effectiveness of the restored habitat. (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

by excluding livestock and re-introducing fire, rather than by mechanical treatment methods.

Juniper should be dealt with by excluding livestock and reintroducing fire, not through mechanical means that will spread weeds and remove nutrients from the site. The scientific basis for juniper control is highly questionable. Juniper will take care of itself after you remove livestock and reintroduce fire. [Excerpt from Journal of Range Management article by A. Joy Belsky is attached to support statement]. (Preservation/ Conservation Organization, Eugene, OR - #238)

Response: *The proposed vegetation management strategy within the Preferred Alternative provides for the utilization of a variety of techniques and prescriptions matched to site conditions and objectives for ecosystem restoration and fuels management. Livestock grazing, prescribed fire, and mechanical methods are all proven viable tools for managing vegetation. Proper grazing can be sustainable while improving or maintaining rangeland condition. Grazing can be helpful for managing certain weed species. Grazing would be suspended, in many cases for two growing seasons, following certain restoration treatments.*

At the FEIS/PRMP level, the general direction is to treat areas of young "encroachment" type junipers in historic sage grouse (shrub-steppe) habitats. There are provisions to retain some young juniper to help facilitate trail designs and to integrate restoration efforts with wildlife and social needs that will be considered during site-specific analysis.

The trade-offs regarding removal of juniper to restore shrub-steppe communities and sage grouse habitat and managing for old-growth juniper woodlands would be evaluated during site-specific project analysis. Management of the two plant communities need not be mutually exclusive. Where juniper occurs at the fringe of, or within, predominantly sagebrush-steppe habitat, most of the trees are young juniper and can be effectively cut or burned. In some juniper expansion areas, there is a minor component of old trees. In these areas, 80-90 percent of the juniper (the young juniper) could be cut or burned and a few widely spaced old trees or groups of trees could also be left. This treatment would still greatly benefit the sage-steppe habitat and also provide diversity for a variety of wildlife species.

In an effort to restore fire-adapted ecosystems, prescribed burning will certainly be emphasized in treatments outside of wildland-urban interface areas. Within WUIs, due to social concerns, mechanical methods would be the preferred treatment. In some cases, especially where vegetation structure has been drastically altered from historic conditions, a combination of both mechanical and prescribed fire would be used.

When mechanical methods are used, juniper would not always be "removed." In fact, in most cases, juniper would be cut and left in place or strategically piled for fuels treatment and/or to provide small creature refuge habitat. When juniper is cut and left on-site, nutrients and organic matter are retained and released to benefit soil and other plants. There are provisions to harvest some juniper where it is legally and physically accessible, where it can be removed economically, and where there would be a particular fuels hazard by leaving it in place. The potential for spread of weeds would always be considered and mitigation measures would be applied, whether prescribing fire or mechanical treatments.

The PRMP recognizes the complex ecological interactions of existing site conditions, current vegetation structure and composition, presence of noxious weeds/exotic species, wildlife habitat needs (including T&E species), insects, disease, and wildfire threats. These ecological considerations mixed with the juxtaposition of homes, private land, and other human developments, activities, and social concerns, makes for a complex situation requiring a wide variety of management tools and techniques which are provided for in the PRMP.

Wildlife

50. The BLM should maintain road density targets at less than 1.5 mi/mi^2 and 2.5 mi/mi^2 to protect wildlife in areas identified as primary wildlife emphasis areas.

In many locations across the planning area, road density currently exceeds 2.5 mi/mi squared when considering only arterial, collector, and right-of-way roads. For example, considering only these roads, 29% of the yearlong sage grouse habitat area (North Millican, South Millican, Horse Ridge and portions within the Millican Plateau) exceeded 2.5 mi/mi squared. When local roads and trails are included, 58% of the yearlong sage grouse habitat area exceeds 2.5 mi/mi squared. These areas are adversely impacted by high road density. Seasonal closures will be necessary across large areas to effectively manage the disturbance from roads to sage grouse, pronghorn, mule deer, and elk within areas identified as primary wildlife emphasis. The road density target for the open road network within primary wildlife emphasis areas should be maintained at densities < 1.5 mi/mi squared in order to benefit wildlife and retain high wildlife use. Current road densities (including only arterial, collector, and right-of-way roads) exceed 1.5 mi/mi squared in 50 percent of the total area, and exceed 2.5 mi/mi squared in 30 percent of the area, respectively. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

Response: *The RMP will reflect the use of a combination of management techniques in primary wildlife emphasis areas to reduce disturbance to wildlife, including elk, deer, sage grouse, and pronghorn. These techniques, as described in the DEIS/FEIS include decreased road densities, buffer zones and patch areas, as well as seasonal closures to meet wildlife needs. As site-specific Environmental Assessments are completed for each of the geographic areas, these tools will be used, in whatever combination is most effective for retaining wildlife use consistent with the wildlife and other objectives for that area.*

However, as habitat modeling has indicated, road densities due to roads outside of BLM management (e.g. state highways, county roads) and established legal rights-of-way, are often high, making a rigid adherence to just road densities impractical as a method to maintain suitable habitat on highly fragmented public lands. For example, in North Millican, the presence of Millican Road and State Highway 20 make reaching 70 percent habitat effectiveness through road density reductions alone impractical. As a result, in this

geographic area, additional emphasis will be given to maintaining and/or developing un-fragmented patches, concentrating year-round open trails in/near areas of lower wildlife value, and establishing timing and location of disturbances rather than road density by including a seasonal closure of some roads and trails to offer greater wildlife protection during sensitive periods (winter, breeding).

51. The BLM should coordinate and partner with local, state and federal agencies to manage wildlife and their habitats.

The Service [US Fish & Wildlife] concurs with the draft UDRMP Goals and Management Direction for Ecosystem Health and Diversity (which includes wildlife and special status species including the sage grouse). We support your commitment to implement the Greater Sage-Grouse and Sagebrush-Steppe Ecosystem Guidelines (2000) (Alternatives 2-7), and to ensure that grazing management will be implemented to meet habitat and other resource objectives. We offer our assistance in working with you on habitat management and monitoring for special status species to help ensure that projects will provide for the long-term conservation of the sage grouse and other special status species. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

We also recommend that BLM, in partnership with other State and Federal agencies, develop a multi-species habitat conservation strategy which includes; pronghorn antelope, sage grouse, mule deer, elk and golden eagles within and adjacent to the UDRMP. The strategy should address habitat quality and quantity, travel corridors, winter range, seasonal use areas, social conflicts and environmental constraints related to wildlife, and the goals and management direction outlined in the UDRMP. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

Invasive Juniper Woodlands: The Service would like to work with you on the juniper woodland removal projects. We are particularly interested in the removal of junipers that have invaded sage grouse habitat that still has the habitat potential to support sage grouse. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

ODFW recommends the BLM manage their lands consistent with or better than habitat conditions on adjoining public lands to provide for wildlife connectivity and distribution. (Oregon Dept of Fish & Wildlife, Bend, OR - #1298)

***Response**: The DEIS/FEIS cites plans to work with other public agencies including Oregon Department of Fish and Wildlife, US Fish and Wildlife Service, and the Oregon Military Department to develop a habitat management plan. This strategy, which is called a "Multi-Species Habitat Conservation Strategy," in this FEIS, ensures that management actions for wildlife protection and restoration will extend across all public lands in the geographic areas. The Conservation Strategy will address protection between these agencies across adjoining lands.*

52. The BLM should develop eagle management plans to protect eagles and restore habitat areas.

The Service [US Fish & Wildlife] is especially concerned about the un-authorized harassment of a golden eagle nest site from OHV users, and potentially others, along the Millican Road within the Millican Plateau.... [The BLM should] develop eagle management plans for the maintenance (e.g., protection from disturbance) and restoration of these important habitat areas. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

In our subdivision we have building restrictions from Deschutes County for eagle habitat management. I did not notice in the EIS mention of these (may indeed be there) but I hope the EIS has coordinated with the county on habitat management. (Individual, Redmond, OR - #199)

***Response**: In addition to federal eagle and other raptor protections that are already in place and Common to All Alternatives, the BLM plans to work with other public agencies including Oregon Department of Fish and Wildlife, US Fish and Wildlife Service, and the Oregon Military Department to develop a habitat management plan (DEIS/FEIS). This strategy, called a "Multi-Species Habitat Conservation Strategy" in this FEIS, ensures that management actions for wildlife protection and restoration will extend across all public lands in the geographic areas. The Conservation Strategy will address protection from disturbance, as in the case of the eagle in the Millican Plateau area, and will examine options such as trail re-routing.*

53. The BLM should modify the Preferred Alternative to include a seasonal closure in primary wildlife areas in the Millican area.

ODFW supports the Preferred Alternative (7) with seasonal closure modifications to motorized vehicles on identified primary wildlife emphasis areas in the North Millican, Millican Plateau, and Prineville Reservoir geographic areas to protect wintering big game species. ODFW supports the motor vehicle restrictions and closures in the Badlands, Horse Ridge, and South Millican geographic areas to protect wintering big game and wintering, nesting, brooding, and rearing sage grouse in the South Millican geographic area. ODFW recommends these modified seasonal closures due to impacts that Off Highway Vehicle (OHV) activities have on wintering big game species and sage grouse. (Oregon Dept of Fish & Wildlife, Bend, OR - #1298)

***Response:** In response to this comment BLM has modified Alternative 7, the Preferred Alternative, between the DEIS and the FEIS in the following ways: A guideline has been added to provide an interagency evaluation process that considers seasonally closing some portion of the Millican Plateau to motorized travel; and in the North Millican geographic area the guidelines are modified to include some area(s) which would have a seasonal closure. Alternative 7 also provides considerable guidance that is favorable to wildlife resources in the Prineville Reservoir geographic area. For example, 94 percent of this area would be designated as a primary wildlife emphasis and the other six percent would be a secondary wildlife emphasis. This alternative does not provide motorized trail use except for the possibility of the future development of a small play area north of Prineville Reservoir. Also, for motorized travel this alternative allocates 45 percent (17,826 acres) to "Limited to Designated Roads Seasonally"; 42 percent (16,439 acres) to "Limited to Designated Roads Only Year-Round; and 13 percent (5,193 acres) to "Closed Year-Round" within this geographic area.*

54. The RMP should not identify invasive juniper stands as sage grouse habitat, unless it also specifies removal of these stands.

A paper "Management Guidelines for Greater Sage-Grouse and Sagebrush-Steppe Ecosystems" dated August 21, 2000 that was a collaborative work between the BLM, USFWS, USFS, ODFW, and ODSL lists juniper expansion as one of the nine threats to [sage grouse]. Map 6 (from the DEIS) shows the Priority Restoration Areas for Sage Grouse, and Map 4 shows vegetation types. If a person draws a line from Prineville Reservoir to the south end of Bend, everything to the southeast is listed as "Priority Sage Grouse Restoration." If the same line is drawn on Map 4, it is easy to see that over 50% of the land mass is covered in Western Juniper. From the above cited paper...we know that Sage Grouse and Western Juniper do not co-exist. The map should be redrawn to reflect the area of scientifically plausible sage grouse habitat. Or the plan should specify the removal of invasive Western Juniper stands (Individual - #1297).

***Response:** As described in the DEIS/FEIS, an objective in the Preferred Alternative is to "maintain/restore large contiguous stands of healthy, productive and diverse native shrub-steppe plant communities throughout their historic range…On most historic shrub-steppe sites, western juniper would be reduced to widely spaced old-growth trees or small patches on ridgetops…" Treatment priorities for this maintenance/restoration program include*

"restoration of sage grouse and other special status and non-game habitat." Although old-growth juniper would be retained, the intent of this objective is to reduce the composition, density, and distribution of young juniper, helping restore sage grouse habitat.

55. The RMP should not expand the boundary of sage grouse habitat into the area west of Horse Ridge because this is marginal habitat and the action is unlikely to be funded.

The expansion of sage grouse managed land ... into the Barlow Caves (west side of Horse Ridge) allotment is not necessary, and in fact would add to the bureaucratic headache a potential listing could bring. BLM biologists have identified Horse Ridge as the western boundary of local sage grouse habitat. Expansion further west is not warranted, especially in light of the skeleton fire that destroyed the sagebrush habitat in 1996. Imposing more restrictions could affect grazing season, recreation, and travel management. If it were an area critical habitat, we could support the expansion. It is a marginal habitat at best, and inclusion in a management area imposes layers of procedural requirements and adds to already underfunded BLM mandates (Domestic Livestock Interest, Bend, OR - #1325).

Response: *The DEIS/FEIS, in Common to All Alternatives, has an objective to "ensure that actions are consistent with the conservation needs of special status species and do not contribute to the need to list special status species…" Specifically, habitat modification guidelines state that the BLM would maintain or improve the habitats of federally listed or proposed species, which includes sage grouse. The area identified in the comment above refers to sites that represent traditional shrub-steppe habitat, as well as areas that have had documented sage grouse in the last decade. Habitat loss is considered a primary reason for sage grouse decline, thus restoration of these traditional habitats is a cornerstone of the conservation strategy for sage grouse in this RMP.*

56. The RMP should identify more areas for wildlife emphasis in the Tumalo/Cline Falls Highway area, and in the Mayfield block.

There should also be a wildlife management emphasis area connecting Tumalo with the area east of the Cline Falls Highway. (Consultant/Legal Representative, Bend, OR - #1315)

I think you should consider reclassifying the wildlife priority of the Mayfield block. There is a herd of elk in this area; quite a herd of pronghorn, coyotes, mule deer are plentiful; and we even have a resident cougar. There are flocks of pinyon jays, mountain blue birds, abundant flickers, ravens, prairie falcons, red tail hawks and many other birds. I have also seen bobcat tracks. (Individual, Bend, OR - #201).

Response*: The BLM recognizes the value of Tumalo/Cline Falls area; however, at this time the amount of private land makes this difficult to manage. To facilitate better management options between these two primary wildlife emphasis areas, the area between the Tumalo block and the Cline Buttes block has been identified as desirable to acquire (DEIS Map 34: Land Tenure Zones/Land Acquisitions – Alternative 7 and FEIS, Map 6: Land Ownership and Military Use – Alternative 7).*

Although wildlife is important throughout the entire planning area, the BLM manages parcels with a multiple use management approach. Managing the Mayfield geographic area with a secondary wildlife emphasis does provide guidelines to conserve the habitats of the species that are present; however, the fact that this area is not a primary wildlife emphasis only displays the multiple-use management approach that the BLM manages under and it's attempt to balance wildlife values with other social interests across the planning area.

57. The RMP should modify or discontinue actions in primary wildlife areas.

All appropriate primary wildlife emphasis guidelines for habitat effectiveness, fragmentation, road densities, and habitat restoration treatments, should be applied to ensure that future proposed actions benefit wildlife and retain high wildlife use. Actions that do not benefit wildlife or retain high wildlife use within primary wildlife emphasis areas should be modified or discontinued to retain high wildlife use within these areas. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

> ***Response:*** *As stated in the DEIS/FEIS, primary wildlife emphasis means "wildlife is one of the most important management considerations for an area." The objective is to retain high use by wildlife in areas designated as primary. The intent of the guidelines for habitat effectiveness, patch size and fragmentation, road densities and restoration treatments is to provide a number of techniques that can be used to meet that ultimate objective. Depending on the area and management constraints, all of the guidelines and others that may also contribute to meeting the objective, would be applied to the extent practicable.*

58. The RMP should establish habitat effectiveness of at least 70 percent in primary wildlife emphasis areas to protect wildlife.

The habitat effectiveness index of 70 percent should be maintained as the minimum level necessary to maintain primary wildlife emphasis. The declining trend of the local sage grouse population, general loss and degradation of elk and deer winter range, the high number of user created road and trails being developed within North Millican, South Millican, and Horse Ridge, and the sometimes limited effectiveness of road closures, will require a minimum Habitat Effectiveness of 70 percent in order to provide for conditions that will ensure a benefit to wildlife and retain high wildlife use within primary wildlife emphasis areas. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

Recent past and current vegetation management efforts have contributed and likely will continue to contribute to suitable pronghorn habitat conditions in these areas. The Service [US Fish & Wildlife] is concerned with the low level (46 percent) of pronghorn antelope year round habitat that is proposed to be included within primary wildlife emphasis areas. We recommend that BLM include a higher level (above 70 percent) of year-round habitat within the primary wildlife emphasis area. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

> ***Response:*** *In areas that are identified to be managed with a primary wildlife emphasis, and there is a large amount (acreage) of BLM-administered lands with sufficient management authority over travel routes, the BLM would likely be able to reach 70 percent habitat effectiveness. This would mean that these areas would be managed with one or more of the following guidelines:*
>
> *Target a habitat effectiveness of 70 percent or greater;*
> *Maintain large, un-fragmented patches (1000 – 2000 acres);*
> *Target low densities of open motorized travel routes (≤ 1.5 mi/mi^2);*
> *Rate a high priority for habitat restoration treatments.*
>
> *However, in some geographic areas the BLM manages small and/or highly fragmented land parcels that could not meet the 70 percent guideline based on their small size alone. In addition, areas with essential or non-BLM travel routes also have factors outside of BLM control and would not meet the 70 percent Habitat Effectiveness guidelines.*
>
> *The BLM assessed each geographic area independently and applied the guidelines for primary wildlife habitat management when they could be applied. New guidelines based on the issues described above have been developed through the collaborative process, and have been applied to meet the intent of having primary, secondary or minor wildlife emphasis levels (See modifications for North Millican geographic area as an example).*

The DEIS/FEIS has a guideline that states the BLM will work with ODFW and OMD to develop a habitat management plan for pronghorn and other species in the Bend/Redmond Block. This guideline was modified in the FEIS/PRMP to be a "Multi-Species (including sage grouse) Habitat Conservation Strategy", includes other partners (i.e., USFWS) and applies to other geographic areas (i.e., Millican Plateau, North Millican, etc.).

In addition to the 46 percent of pronghorn habitat identified as having a primary wildlife emphasis, there is an additional 15 percent of pronghorn habitat that would be managed with a secondary emphasis. This management would still provide a significant level of consideration, intended to maintain at least a moderate amount of use.

59. The RMP should clarify the derivation and application of the concepts in the Habitat Effectiveness model and the primary wildlife emphasis areas.

Draft page 37 - ODFW supports the concept of creating wildlife emphasis levels. However, under primary wildlife emphasis the plan states that "Areas allocated to primary emphasis are intended to benefit wildlife and retain high wildlife use by applying one or more of the following guidelines:

- Target habitat effectiveness for a geographic area at 70 percent or greater;
- Where possible, maintain large, un-fragmented patches (1000 to 2,000 acres);
- Target low densities of open motorized travel routes (<1.5 mi/mi squared)
- Rate as a high priority for habitat restoration treatments."

ODFW recommends that at least the first three and preferably all of the guidelines be applied for primary wildlife emphasis areas. Implementation of the first three guidelines is consistent with the Habitat Effectiveness values provided in the DEIS for each geographic area by Alternative. (Oregon Dept of Fish & Wildlife, Bend, OR - #1298)

ODFW recommends modifying the [Wildlife Habitat Effectiveness] modeling approach described on Page 205 in the North Millican Area that excludes consideration of motorized trails within 1/4 mile of roads or ROW. ODFW can support excluding trails in the HE calculations that are part of the ROW. However, trails outside of ROWs should be included as part of the total road mileage used to calculate habitat effectiveness and in reaching motorized density goals for a particular area. (Oregon Dept of Fish & Wildlife, Bend, OR - #1298)

ODFW supports using as a model The Habitat Effectiveness Index for Elk on Blue Mountain Winter Range, and incorporating modifications based on findings in Rowland et al. (2000). However, it is difficult to understand how the habitat effectiveness ratings were derived, and whether they adequately assess potential habitat impacts under the proposed alternatives. Without implementing the model consistently and as designed, the HE values will have limited application for comparing loss of habitat effectiveness under each motorized access proposal . . .
ODFW recommends that the model be carefully implemented to allow accurate assessment of habitat impacts under each proposal. (Oregon Dept of Fish & Wildlife, Bend, OR - #1298)

The definition of "Primary wildlife emphasis" (Volume 2, p. 37) states "Areas allocated to primary emphasis are intended to benefit wildlife and retain high wildlife use by applying one or more of the following guidelines." The list of guidelines includes targets for Habitat Effectiveness, un-fragmented patches, road densities and a high priority designation for restoration treatments. Please clarify what is meant by "applying one or more of the following guidelines." We assume it is intended to be "as applicable" to each site. However, we are concerned that the language could be interpreted to mean that areas allocated to primary wildlife emphasis and are intended to benefit wildlife and retain high wildlife use could be met by applying only one of the guidelines (e.g., "rate as high priority for habitat restoration treatments"). The fact that the geographic

area may be "identified" as high priority for habitat restoration treatments, should not be misconstrued to mean that primary wildlife emphasis guidelines have been met for an area. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

The Service is concerned that although Alternative 7 allocates 100 percent of sage grouse habitat (77,601 acres) as "primary wildlife emphasis," the majority of the sage grouse habitat is open year round to motorized use. Prior to including any additional miles of local roads and trails, Habitat Effectiveness is already below target level (Table 4-4), as is road density. Due to the heavily roaded planning area, in order to achieve the guidelines developed for primary wildlife emphasis for sage grouse (i.e., HE = 70), and provide a OHV trail network, a large amount of arterial, collector, and all administratively controlled local roads, will need to be closed seasonally as well as permanently. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

Response: *The BLM recognizes that in some of the primary wildlife emphasis areas, the habitat effectiveness is already below the target level of 70 percent based on patch size and the road densities. The conflict has been resolving the difficulty of reaching the guidelines of 70 percent HE and retaining patch sizes of 1000 – 2000 acres given the amount of roadways that occur across the planning area. Many of the BLM parcels are too small or contain too many essential roads or travel-ways outside of BLM-administration control (State/County Highways, etc.).*

The BLM assessed each geographic area independently and apply the guidelines for primary wildlife habitat management when they can be applied. New guidelines based on the issues described above have been developed through the collaborative process, and will applied to meet the intent of having primary, secondary or general wildlife emphasis levels (See modifications for North Millican, below as an example).

In the Preferred Alternative the DEIS identified 51 percent of the sage grouse habitat as open year round to motorized roads and trails, and 49% as either closed seasonally, limited to a low density route system, or closed year round. However, the comment correctly identifies that in some of the sage grouse habitat, the habitat effectiveness is already below the target level of 70 percent. As a result of this conflict, the FEIS reflects a change in the North Millican area management strategy to be the following:

Moderately high habitat effectiveness of 50-60 percent
More variable patch size
Seasonal closure of some portions of the trail system to motorized and bicycle use
Lek protection buffers of 2 – 4 miles
Habitat improvement and trail re-design goals to increase the current level of habitat effectiveness.

60. The BLM should modify the Habitat Effectiveness model to use all roads and trails.

The "Habitat Effectiveness" model was used to evaluate wildlife habitat disturbance and fragmentation due to arterial, collector, and right-of-way roads. The habitat effectiveness model was modified from an elk habitat effectiveness model (Rowland et al. 2000) and applied as an index to also measure the percentage of available habitat that is usable by both sage grouse and mule deer. The Service recognizes that modeling can be an effective tool in analyzing the effects of roads and recreation trails on wildlife, and we commend you for undertaking this analysis. However, habitat effectiveness was calculated without including local roads and trails. With arterial, collector, and right-of-way roads, constituting less than one-half of the total miles of roads within the planning area, the modeling does not realistically assess wildlife impacts for Alternatives 2-7. Additionally, the UDRMP states that user created roads proliferate an estimated 2,000 miles of user created roads or local roads that are not maintained or officially part of an integrated transportation system occur within the Planning Area. Because many of these roads are not mapped, we would expect the model to under estimate habitat effectiveness. We

concur with your guidelines to "where possible, maintain large, unfragmented patches of habitat (1,000 to 2,000 acres)," and "target low densities of open motorized travel routes (< 1.5 mi/mi squared)." Service Recommendations: We recommend that the Habitat Effectiveness model be run using all roads (arterial, collector, right-of-ways) and trails, and that the UDRMP EIS assess the cumulative impacts of these roads on wildlife and habitat. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

In order to provide an appropriate effects analysis for impacts of roads and trails the habitat effectiveness model and the road influence index (RII) should be run for sage grouse, deer and elk for all roads and trails. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

> ***Response:*** *The Habitat Effectiveness Index (HEI) was used to assess effects of motorized travel on deer, elk, and sage grouse habitats. The Road Influence Index (RII) was used to assess the effects of motorized travel on pronghorn, and shrub-steppe and juniper woodland source habitats.*
>
> *The effects of local roads and trails were not included in the DEIS because of time limitations. However, for the FEIS/PRMP, the effects of local roads are included in Alternative 1 and Chapter 3 to demonstrate conditions as they exist today. With each alternative, the methods to reach specified wildlife emphasis levels may vary according to the geographic area. An area with numerous roads that the BLM has no jurisdiction over may need to be managed for patch size to reach a target emphasis level. Another method to reach target wildlife emphasis levels is road density reductions; however this would be unable to map until site-specific planning activities occur. Based on the target emphasis level and the existing conditions (Alternative 1), the density of local roads and trails could be adjusted to meet the emphasis level guides during implementation.*

61. The BLM should clarify the locations planned regarding sage grouse habitat restoration.

There seems to be some confusion in the Plan. Map 5 shows the Sanford Creek Allotment in a proposed "sage grouse restoration" area. However, the writing in the plan identifies the restoration area mostly to the south, with only 19 acres (Table 2-68) in the Prineville Reservoir area. As I understand the thinking from conversations with [The BLM wildlife biologist] at the meeting last week, the intent is to designate two sage grouse habitat areas, one a restoration area (to the south) and secondly a new development adjacent to the restoration (in the Reservoir allotments). While I am generally in favor of developing new habitat, from my reading and conversations I'm not convinced that a new habitat development for sage grouse in the Reservoir Allotments makes sense from a biology perspective, and it does seem to fly in the face of our other restoration activities there (Domestic Livestock Industry, Bend, OR - #27)

> ***Response:*** *The issue needs some clarification. First, it is important to realize that DEIS Table 2 – 68 and DEIS Map 5 do not work together. DEIS Map 5 is for Alternatives 2, 4, and 5, while Table 2 – 68 represents the Preferred Alternative, Alternative 7.*
>
> *Information displayed in the tables (such as Table 2 – 68) were only calculated from the current distribution of sage grouse (as displayed on DEIS Map 5) and not for the habitat restoration areas as displayed on DEIS, Map 6. The habitat restoration areas would be managed under the wildlife management levels as displayed on DEIS, Map 29 (FEIS, Map 4), and will not change even when the habitat is restored or improved. For example, unsuitable habitat in the Millican Plateau that is located in the restoration area and is designated as a general wildlife emphasis area would continue to be managed with a general emphasis, even if/when the habitat improved to be suitable for sage grouse.*

62. The BLM should more clearly explain road and trail density thresholds.

II: 8 - While OMD agrees with the BLM's statement that high road and trail densities "can" break up wildlife habitat, the numeric density threshold and extent to which primitive roads and trails do break up wildlife habitat in the UPDRMP high desert environment is not clearly understood. Additionally, OMD believes that frequency of use, as addressed in the next paragraph, is also a factor but that these factors are interrelated, are semi-dependent variables, and could be inversely related (Oregon Military Department, Salem, OR - #1308)

Response: *The FEIS/PRMP includes an improved analysis of the actual density of known mapped roads and trails within the planning area. While that data may not be qualified in terms of actual, measured effects on specific wildlife in this area, a great deal of literature and research is available on this subject that form the basis of the assumptions used in our analysis. Roads fragment habitat in two ways – by modifying the habitat within the roadway itself and by creating a disturbance from the uses that are then concentrated within that area. Frequency of use has some influence on the both the level of disturbance and the ability for resident animals to habituate themselves to that disturbance. However, data on frequency of use needed to answer this specific question is quite costly and would likely not significantly alter the assumptions used to evaluate the influence of roads on wildlife. The BLM will continue to contribute to improving our collective knowledge of the effects of human uses through plan implementation, using partnerships within the community.*

The DEIS/FEIS provides a general description of the effects that motorized travel can have on wildlife (Chapter 4). It addresses thresholds (benchmarks) to disclose and compare effects (Chapter 4). Chapter 4 of the DEIS/FEIS also addresses guidelines, using road density thresholds, for the three different wildlife habitat management emphasis levels. In particular, the BLM has incorporated models developed by Gaines et al.(2002) to describe the effects of road and trail use on wildlife.

Use on motorized roads and trails is one of the primary reasons the Brothers/La Pine RMP (1989) is being amended. Given the overall description of the existing transportation infrastructure and the need for additional transportation (both regionally and locally), there is considerable evidence and acceptance that the planning area has a high amount of motorized travel routes. The fact that these routes are being used to the point that additional routes are needed is also evidence that they are traveled frequently and that travel is expected to continue to increase.

Fish, Amphibians

63. The RMP needs to address the Oregon spotted frog.

Oregon Spotted Frog - a federal candidate species for listing under the Endangered Species Act. No provisions have been made in the plan to work towards saving this species & to keep it from being proposed. (Individual, Bend, OR - #1353)

Response: *The riparian guidelines provide protection for the Oregon spotted frog in the "Common to All" Alternatives section (DEIS/FEIS, Hydrology). This management direction is already in place and can also be found within the BLM's Special Status Species Policy and under the Fundamentals of Rangeland Health Standards, which provide protections and guidance for maintaining suitable habitat to support populations of the Oregon spotted frog.*

Riparian Areas, Water Quality

64. The RMP should clarify the relationship between the Riparian-Wetland Initiative and the Rangeland Standards & Guidelines.

Page 278, 279 - Discussion of Riparian-Wetland Initiative for the 1990s. It should be clarified how (or if) this Initiative relates to the Standards and Guides (S&Gs) adopted in 1997, e.g. is PFC, functional-at-risk, and non-functional as defined on page 278, or are somewhat different criteria used in the S&Gs? Or has the entire Initiative been superceded by the S&Gs? (Individual, Pullman, WA - #1373)

> ***Response:*** *The Proper Functioning Condition (PFC) assessment process is built directly into the Standards for Rangeland Health and Guidelines for Livestock Grazing Management assessments (S&Gs). There are five standards that need to be met as outlined in the S&Gs. The second standard is Watershed Function-Riparian/Wetland Areas. To ascertain whether this standard is being met or not, the PFC assessment is completed on streams within the allotment being evaluated. Information obtained during the PFC assessment is considered when determining whether or not Standard 2 is being met.*

65. The RMP should more directly address water quality by providing broad direction for restoration.

The Draft EIS states that all of the major rivers, and other streams within the planning area, appear on the State of Oregon's CWA 303(d) list as impaired for the parameters of temperature, dissolved oxygen, sedimentation, turbidity, PH, total dissolved gas and bacteria. The temperature parameter is exceeded in streams on all four of the sub-basins in the planning area. Section 303(d) of the CWA also requires the States to develop a load limit or TMDL for each stream and pollutant water bodies identified on the list as impaired. Compliance with the CWA is also a requirement of NEPA (40 CFR 1500.2(c)). TMDLs for streams in the project area have not been completed...we understand that BLM intends to comply with Section 303(d) and the State of Oregon, Department of Environmental Quality water quality requirements by combining the Protocol framework with a Memorandum of Agreement (MOA) entered into in 2003 by the State of Oregon and the BLM. The MOA is intended to satisfy both State and Federal point and non-point source pollution control requirements on BLM lands. The MOA ensures that BLM will coordinate with the State to revise or adapt Water Quality Restoration Plans (WQRPs) required by the Protocol and ensure that these plans are consistent in content and requirements with the final State TMDL sub-basin Water Quality Management Plans (WQMPs), which will also serve as the TMDL implementation plans for BLM administered lands. The MOA ensures coordination even if one party completes the work in support of its requirements prior to the other party...EPA supports the terms and content of the MOA. We believe that if properly followed, the MOA will ensure that implementation of the proposed action would not worsen water quality in the short-term and speed restoration of water quality in the long-term as project-specific actions are completed. However, because most of the surface streams in the planning area are presently impaired for several parameters, EPA recommends that the final preferred alternative and RMP more directly address the present exceedances in water quality limited streams by providing broad direction for the restoration of water quality. This is preferable to relying on individual projects following the RMP to do so. (US Environmental Protection Agency, Region 10, Seattle, WA - #1426)

> ***Response:*** *The DEIS/FEIS does provide broad direction and specific objectives and guidelines to improve water quality, including: 1) providing management direction to ensure that surface water and ground water influenced by BLM activities comply with or are making progress toward achieving State of Oregon water quality standards, 2) establishing objectives and guidelines within Riparian Conservation Areas (RCAs), 3)*

designating high priority restoration areas, 4) designating areas to motorized use as Open, Closed, or Limited, 5) designating areas available for grazing, 6) designating collector roads, and 7) designating transportation corridors.

As stated on page 77 of the DEIS, " for streams with water quality limited segments identified by the State of Oregon, uses and activities would be allowed in watersheds only if they would have no adverse effects on restoring water quality to required State water quality standards while protecting and enhancing natural values. Public use would be allowed along streams and around other water bodies, as long as State water quality standards are either attained at the same or greater rate than if the use or activity were absent or maintained. Management would be adjusted as needed for those uses and activities that are not leading to the attainment of State water quality standards. For streams with water quality limited segments (impaired waters) as defined by section 303(d) of the Clean Water Act, management activities would be implemented with the intent to restore water quality to levels that meet state water quality standards."

Objective H-8 (DEIS, Appendix A, pg 42) (also see PRMP, Management Direction, Water Quality) directs BLM to not degrade beneficial uses by improving riparian vegetation, stream shade, and stream channel function. Guidelines associated with this objective include: eliminating non-designated roads to reduce gullying and rills in RCAs and restricting or limiting uses and activities that adversely affect water quality (DEIS/PRMP).

66. The RMP should clearly define what is meant by "stream channel" and "aquatic stronghold."

What are you defining as a stream channel? I'm sure that you have many different terms to define different types. Flowing, seasonal, dry, etc. A stream channel in this case could be a wash that only sees flowing water once every so many years from flash rains. Is every ravine on the side of a hill a stream channel? Please define (Individual, Eugene, OR - #1286).

Some of this area [Northwest planning area] is designated for Ponderosa Pine restoration (Map 6) and much for 'aquatic stronghold restoration.' This sounds good, but we are not sure what this means, nor do we understand how it relates to the resource use provisions in the plan (Individual, Sisters, OR - #1326).

Response: *Stream channels are defined (see FEIS glossary) as all perennial, intermittent, and ephemeral channels having defined beds and banks. A stream channels is an open conduit which periodically or continuously contains moving water, or which forms a connecting link between two bodies of water. Stream channels do not include upslope surface features created from overland flow, such as rills. According to this definition, a wash that only flows water occasionally is considered a stream channel.*

The Preferred Alternative (and Resource Management Plan in general) outlines broad guidelines and policy for resource management. At the time of project level implementation, more specific planning occurs and treatment prescriptions are formulated to treat for local conditions and objectives. Generally, for ponderosa pine restoration, BLM would be thinning (and possibly doing some prescribed fire) from below to decrease the number of trees per acre and increase the average tree diameter in the stand. This would create more growing space to accelerate growth and improve health, and provide for increased long-term resiliency to insects, disease, and wildfire. Project level planning would be done according to NEPA procedures which allow additional opportunities for public involvement. See guidelines for management of ponderosa pine in the PRMP and discussion of forest ecology in the FEIS, Chapters 3 and 4.

Within the areas mapped for "Aquatic Stronghold Restoration", Objective H-11 (DEIS, Appendix A, pg 45) (FEIS/PRMP, Ecosystem Health and Diversity) outlines the objectives,

guidelines, and allowable uses associated with these areas. In short, actions taken within these areas would be undertaken to improve aquatic habitat. Examples may include, but are not limited to, reduction of conifer encroachment to improve riparian vegetation growth and vigor of species such as alder, water birch, willow, and red-osier dogwood; hiking trail rehabilitation to reduce sediment inputs to the streams and rivers; or fencing to restrict motorized use.

Special Management Areas

Caves – see Archaeological Resources section

ACECs

67. The RMP should provide for retention of trail systems in Horse Ridge by relocating trails outside the Horse Ridge RNA.

Existing mountain bike trails within Horse Ridge RNA should be relocated outside the RNA boundary. (Individual, Bend, OR - #1296)

Response: *The DEIS/FEIS identifies the need to develop a designated, non-motorized trail system in the Horse Ridge area and directs that this trail system be located outside the Horse Ridge RNA.*

68. The RMP should clarify map and text guidance for the Sage Grouse ACEC in Alternative 7.

On page xxxviii of the Executive Summary there is a comparison of the different alternatives for the Special Management Areas. For alternative 7 there are zero acres of ACEC for Sage Grouse. On Map 7 there is a large ACEC shown for Sage Grouse. Does Alternative 7 include a Sage Grouse ACEC in the southeast portion of the planning area? (Individual - #1297)

Response: *The DEIS, Map 7 contains an error in the legend. The area identified as an ACEC for sage grouse should have a description in the legend describing this as an option in Alternative 4. The FEIS reflects this change.*

69. The RMP should clarify that Oregon Water Resources Department will continue to be able to deliver water and apply for conservation projects if the Tumalo Canal system is designated as an ACEC.

The Draft RMP/DEIS does not have enough details to be useful in comments on the designation of the Tumalo Canals ACEC. It is not clear whether the canals subject to this designation are also currently in use for water delivery purposes. OWRD needs to understand how this designation may impact the diversion of water through the Tumalo Canals, any future modifications that the Irrigation District may want to make to the delivery system, and/or the Department's ability to require efficient delivery of water through the canals affected by this designation. While the Department supports protection of historic resources, the Department is also interested in maintaining the ability of water users to conserve and deliver water in an efficient manner. One such program opportunity that may be affected is the ability of the Irrigation District to apply for a conservation project under the Oregon Water Resource Department's Allocation of Conserved Water Program. This program allows existing water right holders to make improvements to their delivery system or implement on farm efficiencies that result in some portion of conserved water. A portion of this conserved water may then be applied to additional lands or transferred to another type of use, such as instream use. It is important for OWRD to understand whether designation of the Tumalo Canals as an ACEC could hinder this conservation process. (State of Oregon, Water Resources Department, Salem, OR - #1331)

Response: *The lands and canals that have been recommended for designation as an ACEC are not now, and never have been, part of a functioning irrigation system. They are relic canals whose ownership was relinquished to federal jurisdiction decades ago. Therefore, the Tumalo Canal ACEC would never be considered for the Allocation of Conserved Water Program.*

70. The RMP should allow motorized use on the Tumalo Canal trails, regardless of whether the feature is designated an ACEC.

I would like to see the Tumalo Canal ACEC dropped from this plan. The canals provide one of the best trail loops in the cline buttes area. How come it's taken the BLM Archaeologist until 2003 to recognize the canals? We (OHV) people have been riding the canals for 2 decades. If you want to designate these canals historic, then fine, but leave them open for all users…how is a manmade canal an area of critical environmental concern? How does the canal become an ACEC in alternatives 2, 5, 6, and 7 but not in alternatives 1, 3, and 4? The canals need to be part of a designated OHV trail system for all to use. (Individual, Redmond, OR - #1348)

Response: *The Tumalo Canals are a network of relic, unused irrigation canals between the communities of Tumalo, Redmond, and Sisters. The Tumalo Canal ACEC is a 1,050 acre area located east of Barr Road in the Cline Buttes area (DEIS/FEIS, Chapter 2). A small portion of the total canal system has been set aside as an Area of Critical Environmental Concern (ACEC) to protect the integrity of the system found at that location for future interpretation for the public. A brief description of an ACEC is, "an area containing specific resources that would benefit from some form of special management attention". The kind of special management attention the BLM is striving for with designation of this particular ACEC is the protection and preservation of a small segment of relic historic canals. Trail use in this specific area by OHVs, mountain bikes, and horses would not only diminish the historical integrity of an at-risk resource as noted in Chapter 2, under Archaeology of the DEIS/FEIS, but also conflict with an interpretive hiking experience. Additionally, one of the goals identified by the recreation issue team during the planning process was interpretation of historic features, so as to provide for a diversity of recreation experiences.*

The 1,050 acre area is identified as a separate ACEC in some alternatives. In other alternatives it is contained within a larger ACEC (e.g., Juniper Woodlands ACEC); however, the management intent in all action alternatives is to manage this 1,050 acre portion of the canals for historic interpretation and hiking use.

The FEIS provides new direction that allows the designation of OHV trails west of Barr Road in Cline Buttes by allowing development of OHV trails within or alongside some of the relic canals (i.e., those canals west of Barr Road and outside the boundaries of the Tumalo Canal ACEC). This management direction would at once provide OHV use on those segments of the historic canals that lack integrity, while at the same time, protecting and preserving that portion of the system where its location, design, and workmanship are at-risk of being irreparably damaged and lost for its interpretive values; a need that was identified throughout the planning process.

71. The RMP should drop ACEC designation for the Peck's Milkvetch and old-growth juniper in Cline Buttes.

I would also like to see the ACEC dropped for the Peck's Milkvetch and old growth juniper in Cline Buttes. What is old growth juniper? There are old juniper trees everywhere in Central Oregon. And Peck's Milkvetch is just a poisonous plant; it's referred to as loco weed. You can find Milkvetch plants everywhere. Are these plants and trees going to die because there is a trail through them, I doubt it. What does the Milkvetch provide to this area? Does it provide food to animals? No, but it does keep the land closed to OHV's. I have looked in every plant book at Barnes & Noble and online at the Oregon department of threatened and endangered species and found

no Peck's Milkvetch listed. If you want to protect it then direct OHV use around it. (Individual, Redmond, OR - #1348)

> ***Response:*** *Peck's Milkvetch is a "Bureau Sensitive" species. BLM has a mandate to conserve habitat for special status species and manage them in a way that does not contribute to the need to list these species as Threatened or Endangered. Peck's Milkvetch is also listed by the State of Oregon as Threatened. The BLM has an agreement with the State to manage State Threatened and Endangered species cooperatively.*
>
> *Peck's Milkvetch has a very limited range, which is centered within the planning area, in the Tumalo and Cline Buttes areas. This plant occurs only as widely scattered individuals outside this core population area. This core population stronghold is a cornerstone to that conservation strategy. Aside from the legal considerations, protection of sensitive, threatened, or endangered species is important for human needs such as pharmaceuticals, aesthetic diversity, ecological integrity, and even the health of our local economy. The overall recreational and tourism appeal of our Central Oregon area is dependent on maintaining health, functioning natural ecosystems and pleasing diverse landscapes. Maintaining a diversity of plant and animal species certainly contributes to ecological and aesthetic components of the natural environment. Conserving Peck's Milkvetch habitat is not incompatible with properly managed mixed recreation and other uses proposed for the Cline Buttes area.*
>
> *The definition for old-growth juniper is in the DEIS Affected Environment Chapter on page 241 and in the FEIS, Chapter 3. Old-growth juniper woodlands are a key ecological component of the Central Oregon landscape. The extent and age of these old woodlands are unique to Central Oregon. This plant community type has important habitat and aesthetic values. The Preferred Alternative does not include the options of a Cline Buttes or Alfalfa Market Road Old-Growth Juniper ACEC (considered in Alternatives 3 and 4). Instead, the Preferred Alternative policy is to conserve old-growth woodlands across the entire planning area, but also allow for other social-economic uses that are compatible with the conservation strategy or could be reasonably mitigated. See the Affected Environment and Environmental Consequences Chapters for a more complete discussion of old-growth juniper ecology and its biological significance.*

72. The RMP should consider ACEC designations for Smith Rocks, Alfalfa Market Road, Juniper Woodlands and Sage Grouse habitat.

The SFPC [Sisters Forest Planning Committee] supports Alternative 7 except to request the additional ACEC designations of Smith Rocks (see Alternative 3), Alfalfa Market Road (see Alt. 3 for old growth), Juniper Woodlands (see Alt. 3 for old growth) and Sage Grouse (see Alternative 4). The latter ACEC is particularly needed considering the recent ESA petition file for protection of sage grouse. (Consultant/Legal Representative, Bend, OR - #1315)

> *Response: The DEIS/FEIS considers a variety of management approaches for resources within the planning area. Several alternatives include considerations for managing a portion of the juniper old-growth and sage grouse habitat as well as the scenic resources in the Smith Rock area as designated Areas of Critical Concern (ACEC). Designation of ACECs is based on three factors – the relevance and importance of the area, and the need for special management of the area. The old-growth juniper woodlands of Central Oregon are recognized in the DEIS/FEIS as regionally uncommon and the range of the woodlands type are quite extensive through the planning area. Rather than designate only portions of the juniper old-growth for special management, the Preferred Alternative includes a broad-scale approach to old-growth juniper conservation that applies across the full range of the woodland type. The 10,000 acre expanded Peck's Milkvetch ACEC and the 1,050 acre Tumalo Canals ACEC also lie within the range of the old-growth juniper woodlands. These ACECs will provide indirect benefits to the old-growth juniper woodlands as well.*

Similarly, the current sage grouse management guidelines for the BLM provide affirmative direction across the full range of the shrub-steppe habitat. The Preferred Alternative also emphasizes restoration of the historic range of shrub-steppe habitat and establishes direction for motorized use that emphasizes improving sage grouse habitat.

There are also various other considerations that were taken in regard to the areas selected for ACEC designation in the Preferred Alternative. Existing management direction, adjacent land uses, and new travel management direction were also considered. For instance, in the case of the Smith Rocks area, the block is fairly isolated and is adjacent to Smith Rock State Park. All alternatives close the area to motorized use. In addition vision resources are protected by managing the area to meet a Visual Resource Management (VRM) Class 2 standard. For all of these areas, overall management direction supplied by the PRMP is sufficient to ensure the identified values are not sufficiently at risk to warrant a special management area designation.

Wilderness and Wilderness Study Areas

73. The RMP should not manage WSAs as wilderness areas unless they have been officially designated as such by Congress.

Public lands not officially designated wilderness by congress shouldn't be managed as wilderness in terms of access. These areas should be proactively managed for motorized access rather [than] using the "off limits" policy. (Individual, Boise, ID - #227)

Badlands - is not designated Wilderness. If BLM can't manage it now, how have they shown they will be able to manage the additional parking needed when only access is by foot, and the vandalism that will surely continue, as it is doubtful that the public responsible for breaking the law will stop because there's another sign telling them to stay out? (Individual, Unknown - #14)(Individual, Portland, OR - #15)

Badlands: This area has historical OHV use and should not be closed down. This area also doesn't fit the description of a Wilderness area. This land has been fenced and cross fenced, cattle have grazed on it, it has many roads running thru it. It's been used by OHV's for decades. It borders a major hwy; I was told the military used it for a bombing range. It has a gravel pit at one of its entrances. By closing this area instead of managing its use I feel the BLM is influencing the direction of the Badlands…The problems at the badlands aren't from OHV users; the problems are from social issues. When is the last time you saw a motorcycle with a refrigerator on the back on his way out to dump it off! (Individual, Redmond, OR - #1348)

Response: *The Badlands WSA has been inventoried for Wilderness suitability, found suitable, and recommended to Congress for inclusion in the National Wilderness Preservation System (BLM-OR-EA-91-43-8561.6, Wilderness Study Report, Volume 1, page 665). Designation of the WSA as Wilderness is the sole responsibility of Congress and is not within the scope of the UDRMP. The DEIS/FEIS Preferred Alternative does not propose to manage the WSA as a Wilderness (by closing the area to both motorized and mechanized use). The DEIS/FEIS Preferred Alternative does propose to close the area to motorized use, but allows mechanized use to continue to occur, which would generally not be allowed under a Wilderness designation by Congress.*

The Preferred Alternative provides for a non-motorized recreation setting in the Badlands WSA (DEIS, Map 14 and 21; FEIS, Maps 3 and 4), while providing for motorized use in other areas. The intent of the Preferred Alternative is to give the public a large area for non-motorized recreation that is separate from motorized use areas. The Preferred Alternative anticipates management needs and for improvements in parking and access control; however, with the increasing use the area is receiving, these improvements are needed regardless of the specific management policy applied to the area. There has been a continuing problem with motorized travel off designated, inventoried routes in the

Badlands, including OHVs. The closure, if implemented with access controls, will reduce these impairments to wilderness suitability as required by the BLM's Interim Management Policy for Lands under Wilderness Review.

74. The RMP should manage the Badlands as Wilderness.

This special place [the Badlands] has a delicate ecosystem that should be protected by wilderness designation…Campers and hikers seek a wilderness experience and this can only happen where there is peace and solitude. (Individual, Bend, OR - #66).

…allow the Badlands to remain Wilderness. (Individual, Bend, OR - #54)

The Badlands should be managed as a wilderness. (Individual, Bend, OR - #180)

***Response**: The Badlands is not a designated Wilderness Area. The 32,221 acre area is a Wilderness Study Area. Designation of the area as wilderness is the sole responsibility of Congress. Alternative 3 of the DEIS/FEIS proposes to close the Badlands to both motorized and mechanized travel; however, even this management prescription falls far short of the management guidelines and legal requirements for wilderness areas designated by Congress. The Preferred Alternative does close the Badlands WSA to motorized use. This action may provide some increase in the solitude experienced by visitors in the area; however, given the increased popularity of the area and its relative proximity to Bend, solitude may be a difficult goal for the area in the future, regardless of what designation is applied.*

75. The BLM should conduct a wilderness inventory of the 5000-acre area north and east of Dry River Canyon.

[T]he 5,000-acre area north and east of Dry River Canyon…was left out of BLM's original wilderness inventory but has been demonstrated to meet wilderness criteria for size, solitude and recreation opportunities, and its substantially natural condition. In addition, the area contains a variety of supplemental values including cultural sites and important habitat for a variety of wildlife species including raptors, sage grouse, Rocky Mountain elk and mule deer. Furthermore, when combined with the Badlands WSA, the area represents a significant amount of roadless acreage, which is becoming increasingly rare in Central Oregon. (Individual, Anchorage, AK - #1360)

***Response:** Section 603 of FLPMA directed a review of the roadless areas and islands identified by the inventory required in Section 201 and directed the Secretary to report to the President his recommendations as to the suitability or non-suitability of each area or island for preservation as wilderness. This one-time review was completed for Oregon on July 22, 1992, when the President transmitted his wilderness recommendations for Oregon to Congress. An area including Dry Canyon and the surroundings (6,221 acres) was inventoried for wilderness values as part of the Final Intensive Inventory Decision for Wilderness Review, Oregon and Washington, 1980. This area was eliminated from further wilderness review after receiving public comment due to the area's small size, limited opportunities for solitude, and limited screening from vegetation or topography that allow a visitor to avoid the sights, sounds, and evidence of other visitors.*

As a part of its analysis in recent litigation (Utah vs. Norton), the Department of Interior reviewed its wilderness inventory and study policies in light of FLPMA Sections 201 and 603. Based on this review, the Department entered into a settlement agreement with the State of Utah that clarifies the authority to establish WSAs expired in 1993. The settlement agreement acknowledges BLM's authority to inventory public lands for wilderness characteristics and to consider such information during land-use planning. The BLM cannot, however, create new WSAs or additions to existing WSAs to be managed under the Interim Management Policy, as such authority has expired. The settlement agreement clarifies that BLM may specify protective measures in the land-use plan for lands found to have wilderness characteristics. The BLM's wilderness inventory of Dry River Canyon of 1980 documented the lack of wilderness characteristics in this area.

Technical edits to Ecosystem Health & Diversity section

The FEIS has resolved the identified inconsistencies and clarified specific language pertaining to the following comments:

The following DEIS examples provide conflicting information regarding how habitat effectiveness calculations were derived and applied (Oregon Dept of Fish & Wildlife, Bend, OR - #1298):

- Page 36 under Habitat Effectiveness, "The approach used in this plan is to identify source habitats by general vegetation types and to display habitat effectiveness by alternative as it relates to the amount of influence of open roads and un-fragmented patch size." (also see page 37, Primary wildlife emphasis, which contradicts this statement, "apply one or more").
- Page 205 under North Millican, "The road and trail system densities for the area would be limited to a range of approximately 1.5 miles per square mile. Trails located within existing road or ROW corridors (i.e., parallel to, with 1/4 mile or less from existing roads or ROWs) would not be calculated as separate trail or road miles in reaching density goals for the area."
- Page 349 under Transportation Management Assessment, "This analysis only considers the allocation of arterial and collector roads and does not give a complete picture of the effects and management implications, especially as it relates to the management of local roads." See page 577 for a summary of the arterial, collector and local roads.
- Page 349 under Sage Grouse, "North Millican appears to have the ability to achieve a high (71 percent) habitat effectiveness; however, this area is also identified to provide OHV trails that are not considered in the Habitat Effectiveness calculations."
- Page 350 under Mule Deer, "As in other situations, local roads and OHV designations need to be considered before knowing the significance of any listed Habitat Effectiveness score."
- Page 352 under Use of other analysis and/or models, second bullet, "Also, potential vegetation treatments could complicate the suitability of the habitat in relation to open roads? For the draft EIS, only the roads effects will be modeled
- Page 353 under Common effects of some resource management programs, "Bureau of Land Management resource management programs such as recreation, minerals, lands and forestry often effect the environment in similar ways, such as by removing habitats for site developments and road and trail construction and by causing disturbances in relation to motorized travel access."
- Page 358, fourth bullet, "Using the Habitat Effectiveness index for sage grouse, deer and elk based on arterial and collector roads provides an understanding of the different levels of effects associated with the two road option. However, local roads are included in the road influence indexes for source habitats to display the current conditions and provide a comparison to the management guidelines identified for each wildlife emphasis level in each alternative." (Also see page 37, Primary wildlife emphasis which contradicts this statement).
- Page 358, fifth bullet, "Currently, existing data (vegetation condition) is not available to fully assess the HE, but sufficient data is available to assess the effects of different motorized travel route designations (arterial and collector roads). Local roads are not included in the HE analysis because their specific arrangement does not differ by alternative. However, a discussion of a comparison between the proposed wildlife emphasis levels is made with the Habitat Effectiveness."
- Page 366, under Shrub-Steppe Source Habitat, Transportation (with a similar statement page 367 under Juniper Woodland Source Habitat, Transportation), "The analysis of transportation (motorized travel) effects on shrub-steppe source habitat (and associated wildlife species) includes all mapped roads (arterial, collector and local roads) and motorized OHV trails in the Millican Valley OHV trail system. In

some geographic areas this calculation underestimates the effects of motorized travel because not all roads and trails are mapped and therefore are not included in the analysis."

- Page 369, under Sage Grouse, Deer and Elk, Transportation, "In the North Millican geographic area a Habitat Effectiveness analysis was done for sage grouse, deer and elk habitats using all BLM recognized roads and motorized trails located on BLM administered lands. Please note that Habitat Effectiveness is calculated by alternative for arterial and collector roads and the results are presented in each alternative."

Page 523, 3rd paragraph and elsewhere, there is a repeated error (missing word): Impacts "to" the old growth juniper woodland. (Oregon Department of Transportation, Bend, OR - #295)

Page 264, Mule Deer - The description of deer winter ranges includes some inaccuracies and omissions. The North Paulina Winter Range information is inaccurate. The plan states that "The North Paulina Winter Range includes 3,750 acres of public land in the Bend-Redmond management area. The management objective for this area is to maintain 5,500 deer." The correct information should read, "The North Paulina Winter Range encompasses approximately 200,000 acres with about half-managed by the BLM and the other half managed by the U.S. Forest Service. The North Paulina winter range located in the planning area is primarily within the following geographic areas: Horse Ridge, Badlands, and North Millican (108,126 acres), with the North Millican area identified as the most critical in the Bend La Pine Resource Management Plan (B/LP RMP). (Oregon Dept of Fish & Wildlife, Bend, OR - #1298)

Pg. 265, Rocky Mountain Elk: Add a description of the north/south travel corridor identified in the eastern end of the Prineville Reservoir area, and illustrated on Plan Map S-10. ODFW believes this travel corridor is utilized primarily during the winter by an estimated 100 - 250 elk moving between the Maury and Ochoco units. (Oregon Dept of Fish & Wildlife, Bend, OR - #1298)

[T]here is no discussion about the winter range or management objectives associated with either the Maury or Ochoco mule deer winter ranges. ODFW recommends including the following information: The West Maury winter range includes all of the Prineville Reservoir Area south of the reservoir and river, and northeastern portions of the North Millican Area. The current B/LP RMP recognizes the area south of Prineville Reservoir as crucial deer winter range. ODFW's most recent population estimate of 4700 deer is below the objective of 5200 deer for the Maury unit. ODFW estimates the West Maury winter range winters approximately 10-15% of the deer in the Maury unit. (Oregon Dept of Fish & Wildlife, Bend, OR - #1298)

Land Uses

General

76. The RMP should include grazing and minerals in the vision statement for Land Uses.

On Page 26 under the Land Uses section of the larger Vision statement, I noted that both Minerals and Grazing have been omitted completely. Considering the regional importance of grazing and mineral sources, and the fact that ""productivity of the public lands"" is an integral part of BLM's mission statement why are both minerals and grazing not discussed in this section of the DEIS? Under Land Uses, it states ""Land Uses that support community and national demands and contribute to the local economy and quality of life."" It seems that both minerals and grazing activities support the local economy and the quality of life in the community, and as such should be addressed. (Oregon Department of Transportation, Bend OR - #261)

Response: *All land uses including minerals and grazing are treated equally in the vision statement. The military is specifically addressed in this section due to its unique standing and national importance.*

Livestock Grazing

77. The RMP should consider whether livestock grazing is consistent with wildlife emphasis and restoration in the Northwest planning area.
This area [Northwest planning area] has grazing allotments in all of the BLM property and grazing is allowed in Alternative 7. Is this usage consistent with the wildlife emphasis and restoration? Is there going to be any effort to close those grazing allotments? Please note that we have never seen any grazing in the areas we frequent in the Northwest. (Individual, Sisters OR - #1326)

Response: *There are six grazing allotments in the Northwest area. Three of them would be "closed" or placed in Reserve Forage Allotment status in Alternative 7 if the permit is relinquished. Existing policy (FLPMA, PRIA, and 43 CFR 4180, et. cetera) and PRMP direction ensure that livestock grazing management is compatible with other resource values, including wildlife. Proper grazing management is consistent with both wildlife emphasis and rangeland restoration.*

78. The BLM should select Alternative 1 because the other alternatives provide no direct benefit to my grazing operation.

The Draft Upper Deschutes Resource Management Plan and Environmental Impact Statement provides no direct benefit to my [public land grazing] operation and therefore I prefer alternative one - no change. (Individual, city/state unknown, #1297)

Response: *The DEIS provided a range of alternatives, but none of them were designed to, nor would they, provide direct benefits to any particular grazing operation. The number of allotments closed to livestock grazing varies by alternative, from a high of 63 allotments in Alternative 5, to a low of zero in Alternatives 1, 2, and 3. In Alternative 7, the Preferred Alternative, one allotment would be closed to livestock grazing, while the remaining allotments would remain open unless the grazing operators choose to voluntarily relinquish their permits.*

79. The BLM should modify the Grazing Matrix (Alternative 7) to allow more flexibility and/or consider other factors.

One further suggestion to increase BLM's management flexibility is to give some discretion to the area manager when making these decisions to allow for unique circumstances and opportunities that may arise and that don't comport to the exact strictures of the grazing matrix. (Oregon Natural Desert Association, Bend OR - #1319)

ONDA supports BLM's general direction to allow for [grazing] permit relinquishment, however we believe the preferred alternative limits the ability of ranchers and the public to participate in this unique and voluntary transaction. It should be noted that the idea behind the grazing matrix stems from a current interest on the part of some ranchers to retire their grazing permits for conservation use (i.e. non use). These voluntary transactions are being fueled on the part of groups like ONDA who are willing to "buy-out" the financial interest of the permit in areas where we would like lands protected for wildlife or wilderness values. (Oregon Natural Desert Association, Bend OR - #1319)

Allowing [grazing] permits to be relinquished on lands that provide excellent wildlife habitat or harbor sensitive species would allow BLM to more quickly achieve wildlife objectives while minimizing overall management costs. Likewise if an allotment contained a 303d listed stream. (Oregon Natural Desert Association, Bend OR - #1319)

We [Pronghorn] acknowledge the innovative effort by BLM and others to develop a process for identifying those grazing allotments in which BLM would allow their retirement from grazing during the life of the RMP, upon voluntary relinquishment of the grazing permit. However, we disagree with BLM's proposal that the Crenshaw Allotment (#5116) be designated for reserve forage in the event that we choose to relinquish the permit. We ask that this allotment be closed in the event we choose to relinquish the permit . . . given this allotment's proximity to a major resort, its potential for ecological restoration, and as important antelope habitat, it should be considered to have, in the context of your proposed matrix, at least moderate ecological potential and high social potential, and therefore be eligible for closure. (High Desert Development Company, Bend OR - #901)

[ONDA] feels the current grazing matrix is too limiting in creating opportunities to relinquish grazing permits (and closing the allotment) and suggest this be expanded. Further, we suggest that for any allotment where relinquishment is an option, that BLM, at the discretion of the permittee, allow for the option of either grassbank or closing the allotment. (Oregon Natural Desert Association, Bend OR - #1319)

The matrix in the DEIS that includes the range health analysis, grazing demand, and conflict with other use information seems to have been a good analysis tool for this planning effort, but should not automatically be considered adequate where different conditions of resources and grazing activities occur. In [the] UDRMP area, there are many small allotments that might lend themselves to voluntary closure. In areas dominated by larger allotments, such as contiguous resource areas, voluntary closures would be the exception. (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

> ***Response:*** *We have modified the Grazing Matrix from that shown in the DEIS to provide more flexibility to BLM managers when there is low demand for an allotment. Specifically, the 1st and 4th boxes from the left in the top row will now read, "IPR, close or create RFA." This increases the possibility that allotments may be placed in RFA status or closed. We considered the suggestion to add factors to our decision process, including size of allotment, presence of wildlife habitat, proximity to destination resort, and potential for restoration. However, each of these factors is already accounted for in the Grazing Matrix (see pages 82-84 in Chapter 2 of the DEIS) so we did not add them or increase their weight in the equation. Grazing operators can participate in "voluntary permit relinquishment" for any allotment in any alternative, but the changes we made to the Grazing Matrix provide additional opportunities for the BLM manager to then place the allotment into a status other than "open."*

80. The RMP should provide alternate forage for operators affected by mandatory closures.

The mandatory closures due to conflicts with other uses should be carefully considered, and all attempts made to provide for the forage needs of the dependent operators. It seems clear under current direction that suitable grazing land should be offered according to priority to qualified applicants. (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

> ***Response:*** *Displaced permittees would be given first priority to obtain renewable permits and forage temporarily available in other allotments (see DEIS page 82, Table 2-11; FEIS, Chapter 2).*

81. The RMP should more clearly describe the intent of and differences between Alternatives 5 and 7.

The EIS also predicts Alternative 5 would result in the most effect to grazing permittees and the greatest loss to the local economy (2.11 to 8.44% in livestock sales), although

these predictions are only estimates in many cases of what private landowners might do...Chapter 2 of the EIS is not entirely clear in describing some differences between Alternative 5, which proposes the greatest reductions in grazing, and the preferred alternative (Alternative 7). The EIS suggests that the intent to curtail grazing AUMs under Alternative 5 is to reduce conflicts with private land uses in more urbanized portions of the plan area, whereas reductions under Alternative 7 may be voluntary, subject to manager discretion. (US Environmental Protection Agency, Region 10, Seattle, WA - #1426)

> ***Response:*** *The intent of Alternative 5 was to reduce conflicts between livestock grazing and uses on private and public land across the entire planning area, with an emphasis on reducing conflicts between grazing and adjacent private land in the more "urban" areas. In Alternative 7, the intent is also to reduce conflicts, but there is no emphasis on doing so just in urban areas. In addition, Alternative 7 adds the intent to reduce economic losses to permit holders from allotment closures (most closures would be voluntary), and to increase BLM flexibility (manager discretion) in deciding how and when to reduce conflicts. These intents are clarified in the FEIS.*

82. The RMP should determine which areas are "chiefly valuable" for livestock grazing.

The RMP fails to provide the BLM's assessment or criteria for its determination of which acres are suitable or which are "chiefly valuable" for livestock grazing in violation of FLPMA and the Taylor Grazing Act." (Northwest Environmental Defense Center, Portland, OR - #1370)

> ***Response:*** *The Secretary of the Interior needs to make a "chiefly valuable" determination (per Taylor Grazing Act direction) only if considering actions that would ultimately result in modification of a grazing district boundary. The grazing closures considered in this plan would be temporary, for the life of the plan only, and would therefore not result in modification of grazing district boundaries.*

83. The BLM should discontinue grazing to protect environmental and recreation resources.

…vehicles are only one of the reasons we found years ago that this [Harsch Allotment] is a very difficult area to use for grazing. Fences knocked down by elk, cut down by people & opened up to drive thru, are reasons I feel our grazing permit is best left in permanent retirement. This area's highest and best use is not only for the wildlife, but also for current favorites of hiking and horseback riding. (Domestic Livestock Interest, Bend, OR - #1338)

...Based on the vast amount of acreage allocated to livestock grazing in the planning area under the RMP, it is all the more imperative that WSAs be protected from degradation by livestock and other activities including limiting livestock numbers. The RMP, however, fails to provide any indication that BLM has conducted monitoring or environmental analysis within WSAs. Nor does the Plan indicate that WSAs will be managed for wilderness values by reducing livestock numbers in those study areas were ecological values are declining. (Northwest Environmental Defense Center, Portland, OR - #1370)

If cattle are allowed, however, to continue to overgraze, wallow, trample, and poop, I seriously doubt that your objectives [in Alternative 7] of "maintaining/restoring large contiguous stands of healthy, productive and diverse native shrub/steppe plant communities . . ." and "protecting and promoting the health and integrity of old growth juniper woodlands/savanna throughout its historic range" will ever be met. (Individual, Bend OR - #292)

All rangelands in poor or fair condition should be withdrawn from livestock grazing until they have developed an adequate herbaceous layer and a healthy microbiotic crust. (Northwest Environmental Defense Center, Portland, OR - #1370)

All rangelands in excellent condition should be permanently withdrawn from livestock grazing to allow baseline conditions to be studied and to act as a genetic reservoir of native species that are necessary for future reintroductions into degraded rangelands of the region. (Northwest Environmental Defense Center, Portland, OR - #1370)

EPA recommends that BLM include in the preferred alternative the goal of reducing grazing Animal Unit Month (AUM) allotments and acreage where necessary to assist in recovering surface water quality over the long term, particularly if the existing Standards for Rangeland Health could inhibit recovery in some locations. The final EIS [should] discuss whether it would be possible for Alternative 7, or another alternative to result in water quality improvement while retaining the greater flexibility of Alternative 7 to resolve land use conflicts, minimize economic losses, and minimize the turnover of land at the WUI to urban development, as the EIS suggests can result from changes in BLM management in close proximity to private lands (cited study by Rowe et. al(2001). (US Environmental Protection Agency, Region 10, Seattle, WA - #1426)

Livestock grazing should be reduced unless it can be shown that grazing does not cause or contribute to the spread of invasive weeds. (Northwest Environmental Defense Center, Portland, OR - #1370)

I believe that forage in the Juniper woodland south of Alfalfa Rd is insufficient for grazing. Years of drought and overgrazing including recent unauthorized extensions on these allotments have contributed to the poor condition of the native vegetation. If adopted, Alternative 7's emphasis on wildlife management and old growth juniper restoration would be in direct conflict with grazing. Native plants of this woodland are in need of help. Ending grazing and allowing this woodland to heal will bring alternative 7's goals within reach and aesthetically make the area more enjoyable for all users. (Individual, Bend OR - #116)

Section 7(a)(2) of the ESA requires the BLM to consult with NMFS on activities they authorize, fund or carry out to ensure that such activities are not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of their critical habitat, 16 USC 153(a)(2). The BLM's pervasive livestock grazing in the areas, however, will violate this mandate by continuing to degrade necessary habitat for bull trout. (Northwest Environmental Defense Center, Portland, OR - #1370)

> ***Response:*** *Existing policy (43 CFR 4180 – Fundamentals of Rangeland Health and Standards & Guidelines for Grazing Administration) provides a framework for the BLM to consider the environmental effects of livestock grazing, and to discontinue grazing where necessary to reduce detrimental effects. Therefore, there was no need for the BLM to develop a duplicate process in the DEIS/FEIS. The assessments and resultant changes in management are conducted on a site-specific basis, rather than during a broad-scale land use planning effort. It was not possible to complete the detailed assessments prior to or in conjunction with the DEIS, but the Prineville District BLM is currently scheduled to complete assessments on all grazing allotments by 2008 (DEIS Vol. 2, page 12). Completed assessments and the schedule are available for public review upon request.*
>
> *While we did not believe it was necessary to develop a duplicate process for detailed ecological assessments, we did feel it was important to help provide direction for weighing the potential for conflicts (ecological, social, and economic) and deciding how to reduce conflicts. The Grazing Matrix takes into account a variety of factors, including but not limited to recreation, wildlife habitat, WSA values, cryptogamic soil crusts, water quality,*

and noxious weeds. The Grazing Matrix gives the BLM flexibility to consider additional factors and potential interactions between factors.

One of the Fundamentals of Rangeland Health as stated in 43 CFR 4180 is that water quality complies with State water quality standards and achieves, or is making significant progress toward achieving, established BLM objectives. If an allotment is found to not be meeting a standard, appropriate action shall be taken to conform to the guideline. The action taken would be site specific and may, or may not, include a reduction in AUMs. Other actions, such as a change in time of use, may be more effective at improving water quality if water quality is the standard not being met. As discussed throughout the DEIS/FEIS, implementation of Alternatives 2-7 would result in improved water quality (see Water Quality section DEIS/FEIS, Chapter 2)

Additionally, Bear Creek, which is listed for stream temperature, is the only listed stream with significant amounts of public land that is currently being grazed in the planning area. (The other listed stream is 0.5 miles of the Little Deschutes River.) Under the current grazing management practice on public land, Bear Creek has been improving in channel morphology and riparian vegetation for over 25 years. Currently, the condition in the portion of Bear Creek located in the grazed pastures is better than that in an exclosure upstream. While Bear Creek is still not in the desired condition of Rosgen type E channel with willows, it has moved from a non-vegetated gully to a Rosgen type C channel with sedges and rushes, with a much narrower and deeper stream channel. Willows are beginning to come in along the creek and, based on surveyed channel cross-sections, channel width continues to decrease. Factors outside the control of the BLM, such as upstream water withdrawals which reduces water quantity, are also significant causes for the listing of Bear Creek for stream temperature. Therefore, absent a site-specific analysis, there is no evidence that simply reducing AUMs alone will result in improved stream temperature.

84. The RMP should identify which areas could become Reserve Forage Allotments, and for how long.

Alternative 7 would also place some areas in reserve allotment status if some treatments are necessary. The EIS should identify how many areas might be assigned this status, how would this compare with Alternative 5, and whether lands might be kept in reserve allotment status temporarily for the life of the RMP. (US Environmental Protection Agency, Region 10, Seattle WA - #1426)

Response: *The DEIS identified the allotments potentially assigned Reserve Forage Allotment status (DEIS/FEIS, Appendix G). The total acres in RFA status are listed at DEIS, p. 439, and described in DEIS/FEIS, Chapter 4. As indicated in these tables, no allotments are placed in RFA status in Alternative 5. The RFA status would apply temporarily for the life of the plan, as stated in Table 2-11, DEIS Vol. 2, p. 82 and in the FEIS..*

Mining

85. The RMP should treat hourly and daily limits on mining operations as guidelines rather than regulations.

"Limiting hours and days of operation substantially increase project costs and project duration. Depending on circumstances there may be no reason for these restrictions. Just because a property is zoned residential, if there is no dwelling within 1/8 mile what is being impacted? (Oregon Dept of Transportation, Bend, OR - #261)

On Page 86 there is discussion of allowable hours and days of operations for mineral extraction activities. . . . [Issue Teams discussed] buffers and so forth but it was not made clear that these restriction were to become rules or mandates. The impression was that these suggested hours of activity and buffers would be mitigation measures or

options that could be implemented and altered on a case-by-case basis. However, the DEIS appears to present the restriction of operational hours as a mandatory mitigation measure. Hours or operation as well as days and buffer widths should be site specific and negotiable depending on the site, project needs and the potential for conflict with other uses. ODOT would suggest that these rules be identified as guidelines and be include in Volume 3 on Page 314, under Operating Procedures. (Oregon Dept of Transportation, Bend, OR - #261)

> ***Response:*** *The Draft EIS provided for exceptions to the hourly and daily restrictions on mining in Volume 2, page 86. However, language was added to the FEIS to clarify that these restrictions are guidelines that will be applied on a case-by-case basis. There is a statement that reads, "These operating and blasting guidelines would be applied through site-specific environmental review on a case by case basis."*

86. The RMP should provide more access for locatable mineral prospectors.

I saw very little in your reports that provided access to the prospector which is covered by the 1872 mining act. Even if there is not much activity taking place at this time, it does not mean that it won't. (Individual, LaPine, OR - #236)

> ***Response:*** *Almost 100 percent of the planning area is available for locatable mineral entry under the 1872 mining laws in all alternatives. Only the 510-acre Powell Butte RNA has been withdrawn from locatable mineral entry.*

87. The RMP should reduce the amount of public lands available for mineral material site development because there will be too much impact from the access roads.

Keeping open 85% of the land area for mineral extraction (including ODOT needs) is not at all a good idea. Think of all the roads that will be built almost anyplace including the introduction of noxious weeds by the users of these access roads! (Individual, Bend, OR - #35)

> ***Response:*** *Most BLM-administered lands within the Planning Area are either too far from likely construction sites or do not have rock of sufficient rock quality to be developed. It is expected, based on demand and current areas of interest that 3-4 new mineral material sites will be developed with up to 1 mile of new access road constructed for each site. Up to 80 acres (less than 1 percent of the planning area) of ground disturbance can be expected from development of these sites if they occur.*

88. The RMP should prohibit mineral material site development where residents would be adversely affected…

because of the impacts of existing operations.

On the issue of Land Uses, I have a real problem with the unmitigated and arrogance appearance of gravel pit operations in my area. Though these operations are located on private property, they access these sites through BLM managed lands. Adjoining BLM managed lands are likely to be leased to facilitate these operations. Just the thought of more trucks, dust, noise and asphalt smells destroys the vision of Central Oregon's past and gives us a bitter taste of what the future will bring. I oppose expansion of existing pits, and hope that new locations (far from public residential and recreational areas) be permitted very carefully and with full public input. (Individual, Redmond, OR - #122)

because the truck traffic is dangerous.

We are contacting you in regards to the proposed gravel pit on Barr Rd. We would like to let you know we vehemently oppose this site for the pit. One of the many reasons is the

environmental impact on the land around the site; on the animals as well as human. The proximity to residential areas is frightening, as we have numerous animals, and we are having our first child soon. The sheer amount of traffic would be very dangerous. Barr Rd is heavily used by horseback riders, recreational enthusiasts, as well, many people walk/jog either with or without their children. Surely you can see how dangerous a heavily traveled road with giant trucks would be. Please know that [the Barr Road] pit would negatively impact the life of all Barr Road residents, as well Gerking Mkt road. Our property values would drop, and the toxicity of the trucks and the production of the aggregate would greatly harm humans and animals alike. We do not want our quality of life destroyed to placate ODOT. We don't see this site as a logical one seeing as there is another option. (Individual, Bend, OR - #1328)

because property values would be adversely affected.

We are contacting you in regards to the proposed gravel pit on Barr Rd. We would like to let you know we vehemently oppose this site for the pit. We moved here recently, and did so because of privacy. That would be destroyed as well our property values would plummet. (Individual, Bend, OR - #1328)

because existing mineral material sources are more than enough to meet demand.

The McClain and Associates study revealed that there is ten times more road aggregate than is needed for the next fifty years already available in existing gravel pits. With this in mind we feel that a beautiful area such as Cline Buttes should not be impacted with a gravel pit. (Individual, Bend, OR - #299)

> ***Response:*** *The Cline Buttes area has been identified as having high quality rock suitable for use as aggregate. The area is also situated within economic hauling distance of three major highways (Highways 126, 20, and 97). The combination of high quality rock and economic hauling distance is not a frequent occurrence in Central Oregon. In addition, existing aggregate reserves may not lie within economic hauling distance of planned construction projects in the Cline Buttes area. Due to economic factors and the importance of aggregate for building and maintaining infrastructure, a complete closure of the Cline Buttes area to aggregate mining would not represent a reasonable balance of uses.*
>
> *Note that the final PRMP would not authorize any specific mining operation in the Cline Buttes area. An application must be submitted to BLM before developing a new site on any BLM-administered lands. All new proposals are subject to an environmental analysis including notification of the interested and affected public and opportunities for public comment. If a site proposal is approved, guidelines and stipulations to mitigate conflicts with residents would be developed. For example, stipulations may restrict operations to certain hours of the day and may not allow operations on weekends. These site-specific mitigations would be considered at the time an application was submitted for a given site. Please refer to the minerals section of the DEIS/FEIS (DEIS pages 85-86, 197) for the stipulations and guidelines that are common to Alternatives 2-7. These stipulations and guidelines are based in part on local county regulations.*

89. The RMP should further restrict mineral material site development in areas with a wildlife and recreation emphasis.

We are particularly concerned with ODOT's request to be granted a road aggregate extraction site in the Cline Buttes Area. As Central Oregon's population continues to grow the need for open spaces to recreate will increase exponentially. The Cline Buttes area because of the close proximity to both Bend and Redmond is especially valuable for recreation. (Individual, Bend, OR - #299)

We disagree with the recommendations of Alternative 7 for resource use [in the Northwest planning area]. To support the wildlife and recreation emphasis, we

recommend no grazing, timber harvesting, or mineral extraction in this area. (Individual, Sisters, OR - #1326)

> ***Response:*** *The DEIS/FEIS identifies the areas that are available for mineral material site development but does not authorize any specific mining operation. An application must be submitted to BLM before developing a new site on BLM-administered lands. All new proposals are subject to an environmental analysis including notification of the interested and affected public and opportunities for public comment. If a site proposal is approved, guidelines and stipulations to mitigate conflicts with recreation and wildlife management objectives would be developed. Completely closing an area to mineral material site development because of a wildlife and/or recreation emphasis does not represent a reasonable balance of multiple-uses.*

90. The RMP should require mineral material truck traffic to exit the Cline Buttes area via Highway 126.

The other site proposed [for a gravel pit] on 126 is a much better option [than the Barr Road site]. It would not impact a residential area. Also, proposing to run the trucks on Barr Road even if the site is on 126 is a very [poor] idea for the aforementioned reasons [safety/environmental]. I have also been informed that a study was done on the necessity of another gravel pit and that the findings were such that there is ten times enough gravel for the next fifty years at the current sites. (Individual, Bend, OR - #1328))

If a gravel extraction site is unavoidable we feel that due to the relatively high population density on both Barr Road and Gerking Market Road the only remotely acceptable and safe location for aggregate extraction site in the Cline Buttes area would be Site N. Site N would only be acceptable and not pose an unreasonable risk to public safety if entry and exiting is only allowed via Highway 126. Highway 126 is designed, constructed and maintained to accommodate heavy truck and semi truck traffic with full width lanes and wide shoulders. Neither Barr Road nor Gerking Market Road were constructed nor intended for the heavy semi truck traffic that would result from access being allowed from these roads. Barr Road and Gerking Market Road are barely wide enough for two pickup trucks at the same time. There are several school bus stops on Barr Road and Gerking Market Road. Heavy gravel truck traffic on these relatively narrow roads would be nothing short of endangering our children. (Individual, Bend, OR - #299)

> ***Response:*** *The FEIS identifies the areas that may be available for mineral material site development and provides general management guidelines for some standardized mechanisms to help mitigate mineral development conflicts with residents. Under the Preferred Alternative mineral material sales may not be located within 1/8 mile of residentially zoned areas. In addition, roads that feed from BLM-administered land into residentially zoned areas may be used for mining-related traffic only if alternate routes are not available. Refer to the minerals section in the DEIS/FEIS for a more detailed discussion of the standardized guidelines that are Common to Alternatives 2-7. The guidelines related to minimum setback distances are based, in part, on county ordinances as well.*
>
> *However, it is important to note that the RMP would not authorize any specific mining operation. An application must be submitted to BLM before developing a new site on BLM-administered lands. All new proposals are subject to an environmental analysis including notification of the interested and affected public and opportunities for public comment. If a site proposal is approved, guidelines and stipulations to mitigate conflicts with residents would be developed. Stipulations may include truck travel restrictions on roads under BLM jurisdiction.*

91. The RMP should increase the mineral material buffer around residentially zoned areas.

Once again, because of the extensive aggregate use in the O'Neil area we are also dealing with the noise issue. This is also a very sensitive issue for the surrounding neighborhood. The heavy equipment used to mine the aggregate is noisy, and dusty, the rock crushers are noisy, and dusty, the processors are noisy, and dusty, the loaders are very noisy, and dusty, plus the trucks driving in and out, out and in, and up and down, down and up the O'Neil highway. The addition of the military gunfire along with the driving of military vehicles in and around that particular BLM property would cause a noise issue. We already have a noise issue with the current aggregate mining in this area and are not able to tolerate anymore of the same. The gun club, which is located to the south of the BLM property in question, can be clearly heard by all of the property owners in this area. What would added military gunfire do for the peace and quiet that we all thought we were purchasing when we moved into this area? Just how is the 1/8-mile buffer going to eliminate this possibility when this gun club is several miles away? (Individual, Redmond, OR - #52)

What would moving the military into the upper portion of Redmond accomplish as far as abolishing the conflict with the surrounding residences? What is fair about this move? Why would BLM think that the surrounding neighborhood of Redmond would not mind having both the aggregate mining operations and the military operations within that area? What makes this area any different than the Prong Horn area? Why does BLM think that the currently proposed 1/8 mile buffer zone appear to be enough buffer? The surrounding area of this portion of the BLM has established homes on its boundaries, would not the same conflicts still be in place? (Individual, Redmond, OR – #52)

> ***Response:*** *The 1/8-mile buffer zone is a guideline for reducing mining conflicts with residents. An application must be submitted to BLM before developing a new site on BLM-administered lands. All new proposals are subject to an environmental analysis including notification of the interested and affected public and opportunities for public comment. If a site proposal is approved, guidelines and stipulations to mitigate conflicts with residents would be developed. Through this process, BLM has the discretion to require a new mineral material site to be located farther than 1/8 mile from residentially zoned areas (also see Military).*

92. The RMP should give mineral material site development a higher priority relative to other uses of BLM-administered lands.

In all of the discussions related to wildlife, various recreational activities and other management objectives, the locations of specific activities, protection areas and habitats has been very critical. . . But this plan as related to mining, has provided "300,000 acres open for potential mineral use" with very little concern for where the need for material is, and for where the quality resource exists. (Oregon Dept of Transportation, Bend, OR - #261)

Also, there are numerous references to increased demand, importance of aggregate, the value of these materials, and the effect that haul distance has on viability of potential mineral sites, yet the RMP presents mineral use as adversely impacting and limiting other, presumably more important, land use opportunities. Why are land uses, such as recreation, never perceived as limiting opportunities for mineral extraction? This small issue of semantics is critical, to the overall concept of this plan. (Oregon Dept of Transportation, Bend, OR - #261)

…misconception - that the viability of mineral sites is not dependent on the site or location - prevails. This misconception has lead to the prioritization of all other land use needs above mineral sources and, as a result, opportunities for developing mineral sites

will be limited to the rare piece of land that is in no way important for any other potential land use or special interest. There is also a common misperception that cost is not as issue, as ODOT has limitless monetary resources and access to plenty of material sources. ODOT has done extensive research on potential resource areas throughout the plan area and has provided the BLM some very specific site information. Yet, the only areas that remain available for potential mineral use are in essence areas that none of the other management objectives have a specific interest in. Why are mineral resources the last priority?...the DEIS indicates that mineral material use is a recognized and valid need for these public lands, and one that is economically important to the taxpaying public. (Oregon Dept of Transportation, Bend, OR - #261)

The reality of the situation is that, throughout this planning area, the availability of economically accessible high quality aggregate materials is very scarce. ""Rock"" is abundant, but high quality aggregate is very limited. High quality aggregate is a much needed resource and as the population of Central Oregon grows, the demand for this resource will continue to increase. Yet through this plan, the BLM, one of the largest land owners in Central Oregon, has seemingly addressed the aggregate issue as a sidebar, allowing for mineral uses only when and if the use wouldn't directly conflict with one of the other management objectives. Let me make clear that ODOT recognizes the importance of all of the BLM's management objectives, and recognizes the difficult task that the BLM is faced with in trying to match the long term management of the public lands in Central Oregon with the demands for these lands. However, it appears that overall, the issue related to the availability of high quality aggregate and the current and future demands for this resource has not been adequately represented. As such, in our opinion, the issue of salable minerals has not been adequately addressed in this DEIS. (Oregon Dept of Transportation, Bend, OR - #261)

> ***Response:*** *A number of areas recognized as having quality mineral materials are available for site development under conditions of the PRMP. ODOT has seven potential mineral material sites in the planning area that remain or could become favorable during this planning cycle. Of those seven sites, two would not be available for development, one would require mitigation or be restricted to protect Peck's Milkvetch, and four would be available without any known special restrictions. In the Preferred Alternative, the boundary of the proposed Peck's Milkvetch ACEC was modified to make a potential mineral material site available without the restrictions imposed by the ACEC. This modification was made largely as a result of recognizing of the importance of the quality rock deposits near Cline Buttes. Recreation is not always considered a priority over mining. Allowable recreation uses in new mineral material sites will be determined through site-specific analysis that may result in restrictions on recreation or other uses to reduce conflicts with mining. Detailed demand and supply analysis is more appropriate, and would be more accurate, for site specific project analysis that is outside the scope of the Resource Management Plan.*

93. The RMP should not designate the ODOT pit at Cline Buttes as a recreational site if such designation would limit mineral extraction opportunities.

On Page 54, under Recreation, there is mention of the "ODOT Pit" and the desire for a cooperative management agreement. During the Issue Team discussions. . . I was informed by the BLM recreation specialist that this particular site would not become a "Designated Recreation Area". On Page 54 of the DEIS, there is discussion of development of a gravel parking area, loading ramps, information bulletin, ten acres of fencing and so on …ODOT requests that this site not be considered for a designated recreational site if such a designation will limit opportunities for mineral extraction in this area …This cinder pit, the "ODOT Site" and the ridge of rock to the west represent the only area within the Bend - Redmond - Sisters triangle that lies outside one of the numerous ACECs and other special interest areas that are off limits to mineral use, that

remains open for potential material source development. ODOT respectfully requests that the proposed improvements at this site for recreation be dropped from further consideration. (Oregon Dept of Transportation, Bend, OR - #261)

> ***Response:*** *The DEIS identifies this specific site as a future OHV play area (DEIS, Volume 2, Page 79). This site has been used by OHV enthusiasts on a regular basis for at least a decade. The FEIS does not provide specific direction on designation of this site as a play area, and instead provides a goal that BLM and ODOT cooperate on the future management of the site (and any future material sites) to provide both mineral materials and recreation opportunities. Designation of the existing site as a play area could occur in the future as part of plan implementation.*

94. The RMP should not portray recreation and mineral material operations as always being in conflict.

The Oregon Department of Transportation would like to reiterate that aggregate mining and recreation should not always be viewed as in conflict. Both uses can and frequently coexist in harmony as is discussed later in the document on Page 306, as well is other sections of the DEIS. The restrictions listed in the DEIS regarding the buffering of mineral sites from recreation sites is what creates the problem addressed above. In the interest of meeting all of the management objectives it would be our recommendation that the restrictions limiting mining in proximity to designated recreation areas be dropped. Additional language could be developed addressing some sort of mutual use concept allowing for the uses to coexist. (Oregon Dept of Transportation, Bend, OR - #261)

On Page 306, under Play Areas, it is stated that seven material sites are listed as OHV play areas, and in this same paragraph it states ""Pits are beneficial components of a larger trail system."" and "during periods of extreme fire precaution these pits provide the only OHV opportunities on public lands." These statements support the assumption that off-road vehicle use areas and mining sites are not mutually exclusive, but compatible uses. In fact, it appears that pit sites are uniquely suited for off-road vehicle use at times when the sources are inactive. Are mining and off road vehicle use truly in conflict or is this a perceived problem that really doesn't exist? . . If pits are used as play areas and shooting facilities as mentioned here and in several other areas in the DEIS why is there a restriction on mineral sites in proximity to recreation sites and trail systems? It seems that mining, shooting and OHV uses are compatible with management. (Oregon Dept of Transportation, Bend, OR - #261)

On Page 54, under Recreation, there is mention of the "ODOT Pit" and the desire for a cooperative management agreement. During the Issue Team discussions…I was informed by the BLM recreation specialist that this particular site would not become a "Designated Recreation Area". On Page 54 of the DEIS, there is discussion of development of a gravel parking area, loading ramps, information bulletin, ten acres of fencing and so on . . . ODOT requests that this site not be considered for a designated recreational site if such a designation will limit opportunities for mineral extraction in this area ….(Oregon Dept of Transportation, Bend, OR - #261)

This cinder pit, the "ODOT Site" and the ridge of rock to the west represent the only area within the Bend - Redmond - Sisters triangle that lies outside one of the numerous ACECs and other special interest areas that are off limits to mineral use, that remains open for potential material source development. (Oregon Dept of Transportation, Bend, OR - #261)

ODOT respectfully requests that the proposed improvements at this site for recreation be dropped from further consideration. (Oregon Dept of Transportation, Bend, OR - #261)

Response: *The RMP does not consider recreation and mining to always be in conflict. A footnote to Table 2-12 (page 85 in Volume 2 of the DEIS) states, "Designated recreation sites that depend upon or exist in mineral material pits generally will not be considered to be in conflict with mining operations for the purposes of setting up a buffer zone." This language has been added to the text in the FEIS.*

95. The RMP should present the framework for conflict and demand factors and stipulations for mineral material sales.

On Page xxvi, Management Direction Common to Alternatives 2 through 7, the reader is directed to Table ES-2 which shows up on Page xxxiii. Under the Minerals section of Table ES-2 it states: "Establish a framework for considering conflict and demand factors?" Is this framework for conflicts clearly presented somewhere in the DEIS? If not, where is this framework documented? Again in Table ES-2, a similar comment relates to the second statement under Minerals, where it says "Establish stipulations for salable mineral use?" Within the text of the DEIS are these stipulations clearly presented? If not, where are the established stipulations documented? (Oregon Dept of Transportation, Bend, OR - #261)

Again in Table ES-2, a similar comment relates to the second statement under Minerals, where it says "Establish stipulations for salable mineral use?" Within the text of the DEIS are these stipulations clearly presented? If not, where are the established stipulations documented? (Oregon Dept of Transportation, Bend, OR - #261)

Response: *The framework for considering conflict and demand factors is presented in Table 2-12 on page 85 and the stipulations for saleable mineral use are presented on page 86 (both page numbers are from Volume 2 of the DEIS and Chapter 2 of the FEIS).*

96. The RMP should more clearly state the meaning and application of "discretionary closures."

In the last paragraph on the bottom of Page 449, it states "Exclusion areas, avoidance areas, and other restrictions may add costs to the mining industry and add cumulatively to other present and future restrictions." Based on previous references to "Discretionary Closures" related to mining, ODOT would ask that "Discretionary Closures" be added to this list of restrictions. (Oregon Dept of Transportation, Bend, OR - #261)

…With these "Discretionary Closures" looming, it is difficult to determine what is actually available for potential use. Please explain in the EIS how, with the possibility of these seemingly arbitrary closures, can the BLM ensure that there will be sufficient public land available for mineral uses and that the regional aggregate needs discussed on page 551 of the DEIS will be met? (Oregon Dept of Transportation, Bend, OR - #261)

Under the "Goals and Management Direction Common to All Alternatives" on Page 52, under Minerals, the first bullet, it says ""Where not withdrawn from mineral entry or under discretionary closure."" Discretionary Closure is not defined in the glossary. In looking further through the DEIS it appears that Discretionary Closures are somewhat defined on Page 297. In this location it seems to indicate that a Discretionary Closure is a management decision to close lands, but criteria used to make that decision are not presented. Could you please define Discretionary Closures in the Glossary? Also, please describe the criteria used to make closure decisions and the thresholds that would warrant a discretionary closure. (Oregon Dept of Transportation, Bend, OR - #261)

Throughout the DEIS it appears that mineral extraction is the only land use subject to discretionary closures. If that is true, please explain why. If other land uses are indeed subject to discretionary closures, please describe those in the EIS. (Oregon Dept of Transportation, Bend, OR - #261)

Response: *The use of the term "discretionary closures" has been dropped from the FEIS due to the confusion caused by use of this term. This language change does not alter or modify any of the land allocations available for mineral development. Closures to mineral material site development are defined through the planning process; any further closures not identified in this plan would require a plan amendment.*

97. The RMP should clarify how BLM will meet the demand for mineral materials while mitigating conflicts with residents, recreation, and natural resource management objectives.

On Page 85 under Minerals, there is the following statement "Common to Alternative 2-7 would meet the increasing demand for mineral materials while reducing mining conflict with recreation, residents, natural resources and other management objectives." The DEIS does not provide sufficient support for this statement. Please explain how the Upper Deschutes Resource Management Plan will allow for the increasing demand for minerals to be met, while reducing the mining conflicts with these other uses. (Oregon Dept of Transportation, Bend, OR - #261)

Page 551, first paragraph …[states] "BLM anticipates accommodating ODOT annual aggregate needs of 135,000 cubic yards in all alternatives. This analysis also assumes that the cost savings are "returned" to the region by additional roadway construction that ODOT would otherwise not be able to fund in the region." Please explain how the BLM estimated ODOT's annual aggregate needs at 135,000 cubic yards …The concept of "returned" savings is valid, but there is no assurance that the region would particularly benefit. ODOT works with a statewide budget and savings can apply regionally or statewide. The main concern with the …statement …from Page 551 is the assumption that the BLM will accommodate ODOT's annual aggregate needs. Yet on Page 453 in the second full paragraph the following statement is made: "Depending on the location, restrictions and closures could restrict or make some sites unavailable and may have the indirect effect of requiring the ODOT and other users or mineral materials to utilize alternative sources to meet demand." These two statements seem to be in direct conflict and ODOT requests clarification on this issue. Will the proposed RMP ensure that the BLM will be able to accommodate ODOT's annual aggregate needs or not? (Oregon Dept of Transportation, Bend, OR - #261)

On page 453 there are several indications that mineral sites will be subject to restrictions and closures, yet on page 551 there is a statement that BLM anticipates meeting ODOT's annual aggregate needs (135,000 cubic yards). BLM appears to have a clear understanding of the economic importance of publicly available mineral sources. However, is it possible that these limitations or closures could impact BLM's ability to meet ODOT's annual aggregate needs? Also, it appears that the RMP mineral allocation has been made on an acreage basis (page 52 indicates that all alternatives will allow for 396,185 acres for locatable mineral entry and 366,640 for mineral leasing). Is the BLM confident that it will be able to provide the needed annual volume (135,000 cubic yards) of quality rock within that acreage? (Oregon Department of Transportation, Bend, OR - #295)

Response: *It is the BLM's objective to meet ODOT's demand while mitigating conflicts with residents, recreation, and other management objectives Although the BLM intends to be responsive to mineral demand, it is possible that the demand will not be met due to conflicts and resource concerns. This clarification has been made in the FEIS.*

Military

98. The RMP should include a description of the military's mitigation measures for restoration.

We recommend that the EIS include: a description and assessment of the success of the mitigation restoration that has been completed by the military on the existing training facility; and…we recommend that the EIS include...specific mitigation measures proposed to offset impacts, including the projected acreage of restoration that is anticipated will be implemented on a yearly basis. This information should include generalized restoration plans including: a) plant species to be used, and from where the genetic stock is derived; b) patch size and density of planting consistent with the vegetation community to be restored: c) planting methodology including time of year; d) control of exotic vegetation; and d) monitoring and reporting. We recommend that locally collected native seed be used in the revegetation efforts (U.S. Fish & Wildlife Service, Bend, OR -#1304).

> ***Response:*** *This information is incorporated by reference in the PRMP. Specific and detailed guidelines are located in OMD's Integrated Natural Resource Management Plan, Integrated Cultural Resource Management Plan, the 1995 Environmental Assessment which was the basis for granting OMD's 10 year operating permit, and within the Terms and Conditions of the current permit itself. These documents are referred to in the PRMP and are available for review at the local BLM and OMD offices.*
>
> *Additional detailed guidance can be found in the PRMP Guidelines for Ecosystem Health and Diversity: Vegetation, Noxious Weeds, Ecosystem Condition and Assessment, Ecosystem Maintenance and Restoration, Special Status Plants, Old-Growth Juniper and Wildlife sections. The BLM and OMD intend to work closely together to implement restoration projects, mitigation (including some off-site mitigation), vegetation and wildlife trend studies, and long-term operations and restoration effectiveness monitoring. Use of adaptive management, project and operations monitoring, and incorporation of the latest research results will ensure use of the most effective current techniques available.*

99. The RMP should provide land for long-term military training activities.

We appreciate the effort to set land aside for military uses (and encourage further efforts to recognize the all-consuming importance of a well-prepared national defense) (Crook County, Prineville, OR - #179).

The goal of the Oregon Military Department is to obtain a long-term land use agreement with the Bureau of Land Management for the cooperative use of the Biak Training Center in Central Oregon. The Oregon Military Department requires a maneuver training area within the State of Oregon to train mechanized, mounted and dismounted National Guard units to support their State and Federal missions. Currently the Oregon Military Department has no other comparable training site to the Biak Training Center in Oregon. [Using] comparable out of state maneuver training areas [may result] in an overall decrease in the effective readiness of Oregon National Guard units to fulfill their mission requirements. The indirect consequence of the loss of effective maneuver training land within Oregon is a decrease of the Oregon National Guard's readiness to meet State and Federal missions and emergency plans. Consequently the BLM's proposed action affects the overall public health and safety and negative effects on National Guard readiness may present inconsistencies with State and Federal plans and programs. The BLM's purpose and need statement regarding the Oregon Military Department and National Guard inadequately addresses this goal. (Oregon Military Department, Salem, OR - #1308)

> ***Response:*** *The FEIS has additional language concerning the training goals of the OMD*

and the relationship of that training to national readiness and thus public health and safety. The DEIS/FEIS references in several places (Chapter 2, Chapter 3, Chapter 4) the important relationship of the long-term use of BLM-administered lands to meet that goal.

100. The RMP should not expand military training into the O'Neil area or Steamboat Rock areas…

because of the existing activities in the O'Neil area.

Because of the fact of the potential aggregate mining in addition to the military use, we, the surrounding neighbors, are not pleased with your proposal and can see no gainful use, to us, for BLM to move it [military use] from the Prong Horn area to here [O'Neil]. It just does not make any sense. The O'Neil Highway, the proposed highway of use for the military, has already become a "haul road" for the current private aggregate miners and, I can assure you, to all of us who live on or nearby that road, because of its current use, it has already become a road of great concern. Even users of this road that are not local residents to the road have a problem with the existing truck traffic. . . an entry road, for your proposed plan, needs to be brought in at the southwest portion of this proposal along with a bridge over the canal and a haul road. (Individual, Redmond, OR - #52)

What would moving the military into the upper portion of Redmond accomplish as far as abolishing the conflict with the surrounding residences? What is fair about this move? Why would BLM think that the surrounding neighborhood of Redmond would not mind having both the aggregate mining operations and the military operations within that area? What makes this area any different than the Prong Horn area? Why does BLM think that the currently proposed 1/8 mile buffer zone appear to be enough buffer? The surrounding area of this portion of the BLM has established homes on its boundaries; would not the same conflicts still be in place? (Individual, Redmond, OR - #52).

Because of the extensive aggregate use in the O'Neil area we, who live close by, have become increasing sensitive to the issue of the particulate fallout material, in the form of dust, from the current private aggregate miners, and we do not wish to add anymore of this into our area of living. . . I have given careful consideration to the BLM proposal of use on that land. I can guarantee you that the surrounding neighbors, myself included, believe it [moving military use to O'Neil area] would become something that we would not be able to live with . . . We are having trouble finding the reasoning behind this decision of the Plan. (Individual, Redmond, OR - #52).

Once again, because of the extensive aggregate use in the O'Neil area we are also dealing with the noise issue. This is also a very sensitive issue for the surrounding neighborhood. The heavy equipment used to mine the aggregate is noisy, and dusty, the rock crushers are noisy, and dusty, the processors are noisy, and dusty, the loaders are very noisy, and dusty, plus the trucks driving in and out, out and in, and up and down, down and up the O'Neil highway. The addition of the military gunfire along with the driving of military vehicles in and around that particular BLM property would cause a noise issue. We already have a noise issue with the current aggregate mining in this area and are not able to tolerate anymore of the same. The gun club, which is located to the south of the BLM property in question, can be clearly heard by all of the property owners in this area. What would added military gunfire do for the peace and quiet that we all thought we were purchasing when we moved into this area? Just how is the 1/8-mile buffer going to eliminate this possibility when this gun club is several miles away? (Individual, Redmond, OR - #52)

because of the impacts of military activity near residences.

Is BLM willing to compensate us [private property owners] for the dust, noise, road traffic, use of the canal etc. etc., all of the things that this proposal [moving military use to O'Neil] has the potential to bring us? (Individual, Redmond, OR - #52)

BLM is proposing that the BLM property due north of us (Steamboat Rock) be used on a three-year rotating basis by the military for training. With the substantial residential growth in this area, we question whether a MTA [military training areas] is a compatible use for this section of property…We would encourage MTAs to be designated to the east and southeast of the Bend/Redmond area because of the noise and traffic generated by military activities. (Individual, Redmond, OR - #281).

> ***Response:*** *Military use in the expanded area to the north of the current training area (O'Neil area) would be limited by not allowing heavy equipment within ¼ mile of private lands (with the exception of some limited use of the entry roads), by limiting firearm use to only undercharged blanks in simulations, (which are not as loud as conventional bullets), and by confining firearm discharge to a narrow window of time during a training exercise (for instance, five fifteen minute periods over the course of a weekend). Military use of the public lands accessed by the O'Neil Highway would be limited to about four weekends per year for light cavalry or infantry exercises.*
>
> *The O'Neil Highway is a paved State Highway. The entry road from the O'Neil Highway onto the public lands is a paved road for approximately 1/2 mile. Military use would be confined within 1/4 mile of residential properties within the public land boundary, with the exception of the aforementioned entry road. The military is required to perform dust abatement if road conditions warrant. The types of vehicles used to support these exercises are roughly the same size as conventional civilian vehicles like pickup trucks. The amount of time and extent of use would be light, consistent and compatible with uses permitted by law, and would not contribute to any extended increase in the traffic pattern currently on the highway. The military is removed from private lands and their equipment is equal to or more silent then conventionally equipped vehicles and firearms of the same size. Additional direction for activities related to noise is addressed in the Integrated Natural Resource Management Plan and the 1995 Environmental Assessment (EA titled: Fielding the Bradley Fighting Vehicle and Cavalry Fighting Vehicle and Other Proposed Federal Actions at the Central Oregon Training Site by the Oregon National Guard, March 1995).*
>
> *Thus, the military activities are not anticipated to contribute a continuous noise or dust source that would make a measurable contribution to the general noise and dust level of the area. The Steamboat Rock area has been dropped from the Preferred Alternative for military use in the PRMP. Upon further evaluation, the military determined that this area would not meet any identified training need due to the amount of private lands, the amount of roads that fragment the parcel, and the nature of the terrain. However, Military partnerships and/or specific training activities may be authorized in this area during the life of the RMP to help accomplish restoration or road and trail designation.*

101. The RMP should move military use away from the area south of the Deschutes County Fairground because this area is important for future community expansion.

The alternative proposals regarding military uses in the vicinity of the Redmond Urban Area are an extremely important issue for the future of the Redmond community. In that light, I strongly recommend that alternative No. 3 or a modified alternative No. 7 be implemented. It is very important that the military use area from the southeastern edge of the fairground south to the Pronghorn Development ant then west to the Burlington Northern railroad tracks be removed from the military use area. This could be an area for future community expansion. This expansion might encompass some building development but would also include the planning and construction of new roads to service the Redmond area and to connect Redmond to the Pronghorn Development and to the Powell Butte Highway (and the new Jeld Wen Resort in that area). (Individual, Redmond, OR - #88)

Response: *The Oregon Military and National Guard have been using the Biak Training area in the Bend-Redmond area for the last 50 years. The use of an area of sufficient size and complexity to support their training mission is a critical part of our national defense strategy. This is an important national objective that is met by the training area designated in the FEIS/PRMP. In addition to providing an important component of our national military readiness, the military has stewardship responsibilities for the area within which they train that are anticipated to be a long-term benefit to the lands, the resources, and the community. The Preferred Alternative in the DEIS/FEIS does move the current military training area boundary to an area that excludes the transportation corridor designated between Redmond and Bend, and includes – as with other private land adjacent to the training area – a ¼ mile buffer of limited activity. Military use of the area also does not preclude other future uses of the area, such as parks. Based on the recent urban reserve study completed by the City of Redmond, there are no anticipated needs for BLM lands for urban reserves. The Preferred Alternative includes designation of approx 320 acres south of the Deschutes County Fairgrounds for community expansion. Most of the Bend-Redmond area is classified for retention of land ownership, thus limiting the potential for potentially inconsistent uses over the next 10-20 years. Other uses may be available in the area to the community through the Recreational and Public Purposes Act.*

102. The RMP should more clearly specify terms and conditions for military use.

III: 125 - Oregon Military Department (OMD) requests that the BLM identify which specific roads within the Training Center will be closed and what if any exemption the Oregon National Guard (ORNG) will be given to use such roads for training activities. OMD cannot concur with BLM transportation management Objective 2TU-5 without knowing the Terms and Conditions being applied to military use and without identification of any inconsistencies between BLM and OMD/ORNG plans and programs. Additionally, closure of all roads, to include military traffic, as designated on Map S-2 will have detrimental effects on the ability of the ORNG to effectively use the Biak Training Center for military training activities. This issue is applicable to all BLM transportation management direction for all alternatives. OMD requests BLM consult and reach consensus with OMD prior to the determination of which roads are to be closed within areas designated as appropriate for military training activities. (Oregon Military Department, Salem, OR - #1308)

I: xxxv - While this document develops "Standards and Guides" regarding that long-term use, it does not identify for the OMD what training activities would be considered appropriate in the future for any specific land area. (Oregon Military Department, Salem, OR - #1308)
III: 20 - OMD concurs with Objective MU-1, the Rationale and Guidelines applicable to Objective MU-1 with one caveat. OMD's representative has repeatedly stated OMD's position to the BLM that OMD cannot adequately assess the land allocation decision of the BLM without also fully knowing the Terms and Conditions of such use. OMD continues to express its opinion and concern that land allocation, the defined length of use, and the Terms and Conditions of use are intrinsically related issues and cannot be adequately assess without full knowledge or consideration of all those factors together. OMD contends that BLM cannot fully and knowledgeably identify inconsistencies between BLM and OMD/National Guard plans and programs as required within 43 CFR ?1610.3 without consideration of all three factors together. (Oregon Military Department, Salem, OR - #1308)

III: 77 - OMD requests BLM under Guidelines for OHV Objective R-1 for the Bend/Redmond geographic area to state Guidelines applicable to military OHV use of the Biak Training Center and lands deemed appropriate for military training use. OMD cannot concur with this Objective without knowing the Terms and Conditions being applied to military use. (Oregon Military Department, Salem, OR - #1308)

III: 96 - OMD concurs with BLM transportation management Objective TU-4. OMD requests BLM to identify consistencies and inconsistencies between this objective and OHV Objective R-1 for the Bend/Redmond and Millican Plateau geographic areas regarding off highway military training uses. (Oregon Military Department, Salem, OR - #1308)

> ***Response:*** *The FEIS/PRMP includes clarification that current military conditions of use of the training area would be continued management direction carried forward under all alternatives. The FEIS also includes enhanced direction concerning travel management direction for administrative access. Additional analysis for approval of site-specific uses within newly designated areas would be required consistent with OMD and BLM requirements.*

103. The BLM should consider that the OMD cannot identify training needs for the Steamboat Rock area.

OMD is concerned about the appropriate military uses, local resident/community concerns, and encroachment issues regarding rotation area #1, the Steamboat Rock area [Volume 2 page 182]. This area is split by Lower Bridge Road and is adjacent to the Deschutes Wild and Scenic River Corridor and Crooked River Ranch. The OMD can identify no immediate training area requirement for this land allocation but is willing to assess the potential for use of this area. OMD's preference is to utilize areas 2 and 3. Areas 2 and 3 better fit within the design and intent of OMD's future training activities noting that OMD used Area 2 during the 2002 brigade training exercise. OMD concurs with BLM Military Use Objective 7MU-6 but requests that the BLM clarify its Guidelines, specifically vehicle use of the Steamboat Rock area [Volume 3 page 214]. This alternative is OMD's preference among all alternatives. (Oregon Military Department, Salem, OR - #1308)

> ***Response:*** *The Steamboat Rock area was dropped in the FEIS Preferred Alternative. Because no additional area was added for training, Areas 2 and 3 were re-designated "satellite areas" with specific guidelines for use designed to protect natural resources.*

104. The BLM should continue the management policy for allowing military use near the historic Wagon Roads.

Historic and current BLM and OMD management allows for military off road wheeled vehicle use in the vicinity of these roads [vol. II p. 80] -. OMD requests the continuation of this management policy and in turn can provide for additional specific mitigation actions within the Wagon Roads ACEC. Such a variance within this ACEC would be consistent with management direction common all action alternatives described on page 87. Such a continuation is also consistent to BLM's Allowable Uses as identified in Volume III, page 54, bullet 4. This Wagon Roads ACEC management direction is consistent with the Biak Training Center's current INRMP, ICRMP and SOP regarding the Horner Road and can be extended by OMD to the Bend-Prineville Road. Current Biak SOP calls for a restriction on the Horner Road to light wheeled vehicles only and in convoys of four or few vehicles together. (Oregon Military Department, Salem, OR - #1308)

> ***Response:*** *Management guidelines proposed for the Wagon Roads ACEC is consistent with the needs expressed by the military, therefore no changes were made.*

105. The BLM should recognize OMD's limited resources.

II: 197 - BLM should be aware and understand that the OMD only has limited resources to provide restoration. OMD's commitment is to range rehabilitation post military training activities. (Oregon Military Department, Salem, OR - #1308)

Response: *As with all cooperators and partners, the BLM promotes active partnerships based on each agency's legal authorities and opportunities.*

Forestry, Special Forest Products

106. The BLM should look at commercial timber sale areas identified in the plan that overlap with primary wildlife emphasis areas for consistency.

In the planning area map (Map 1) the BLM properties in T14S, R11E, Sections 19, 20 & adjacent areas are designated as commercial timber areas. What does the new plan have to say about this: We see no timber maps in the plan and would very much like to know what the BLM's timber sales plans are for this are. This designation seems inconsistent with the primary wildlife emphasis (Individual, Sisters, OR - #1326).

Response: *Commercial forestland is identified on DEIS/FEIS Map 1: Upper Deschutes Resource Management Plan Planning Area. The designation of commercial forestland in this plan is based on the biological timber productivity potential of the site (capable of growing 20 cubic feet of wood per acre per year). In this plan, this designation does not necessarily mean that timber production is the primary use of the land. The designation simply means that the area is capable of producing timber on a renewable and commercial basis. If a mechanical vegetative treatment or land clearing operation for an authorized road or powerline, for example, were to occur in the planning area, wood products could be harvested and sold or otherwise utilized if not specifically prohibited in the PRMP. Harvest of wood products in this way could occur anywhere in the planning area, regardless of commercial or non-commercial classification. In the specific area referenced above, primary emphasis for vegetative treatments in this area would be hazardous fuels reduction and ponderosa pine and watershed restoration. There is potential to generate some minor quantities of wood products from such treatments. Timber harvest and timber sales are considered a valuable tool to help achieve restoration and vegetation treatment objectives. Such treatments can be compatible with a primary wildlife emphasis.*

107. The BLM should specify timber outputs to provide quantifiable objectives.

According to the UDRMP 41,111 acres of commercial forestland in the La Pine block and 977 acres in the Northern area will be managed in a sustainable manner. However, specific timber outputs, based on the biological potential of the areas are not described in the planning documents. Failure to specify outputs of goods and services may prevent or deter managers from achieving quantifiable objectives. We strongly recommend that quantifiable objectives be stated in the Final RMP (Timber or Wood Products Industry, John Day, OR - #119).

Response: *Specific average annual probable sale quantities are specified in the DEIS Volume 1: Executive Summary, Table ES-3 Comparison of Alternatives 2-7 as well as in the FEIS.*

Technical edits to Land Uses

The FEIS has resolved the identified inconsistencies and clarified the specific language identified in the comments listed below:

Does "present management" [Allotment Categorization Criteria C6] mean "present domestic livestock grazing management?" If it does, it should be so stated. If not, "management" should be defined. (Individual, Pullman WA - #1373)

On Page 557, second sentence, under Mineral Uses, Salable Minerals, "In all alternatives, there would be a minimum of about 300,000 acres available for mineral uses." This

statement is misleading and does not take into account the numerous restrictions and the potential for discretionary closures that mineral sites will, according to the DEIS, be subject to. In addition, as mentioned on Page 450, ""There is no direct correlation between the number of acres available for mining and the amount of mining that would take place. What matters is where the economical high quality rock deposits are in relation to exclusion and avoidance areas, not how many acres are available."" The total acreage available for mineral uses could be far greater than 300,000 acres and still not meet ODOT's annual aggregate needs. The ability to meet ODOT's annual aggregate needs depends on the volume of quality rock in an area and accessibility to that rock. Conversely, the RMP could reduce the overall acreage available for mining from 300,000 to 5,000 acres and still meet ODOT's annual aggregate needs if those acres were appropriately located and distributed across the planning area. (Oregon Dept of Transportation, Bend, OR - #261)

One of the most accurate statements in this document as related to mining is found on Page 450 in the second paragraph. ODOT requests that this exact statement be used as a footnote on all of the charts and tables throughout the DEIS where overall acreage available for salable minerals is discussed: . . . "There is no direct correlation between the number of acres available for mining and the amount of mining that would take place. What matters is where the economical high quality rock deposits are in relation to exclusion and avoidance areas, not how many acres are available." For example, this statement should be a footnote on the bottom of Table 4-17 on the top of page 458. (Oregon Dept of Transportation, Bend, OR - #261)

On Page 355, under Minerals, in the fourth paragraph, the implication is that the mineral sites get double tagged for impacts to wildlife, because many mineral sites become recreation areas. Why is this cumulative impact covered under minerals as opposed to under recreation? (Oregon Dept of Transportation, Bend, OR - #261)

Glossary, Page l, definition of Salable Minerals: Within the definition of Salable Minerals the following statement is made, "low value mineral resources." The term "low value" is arbitrary and misleading. It should be made clear that, although less valuable than similar volumes of precious metals, salable minerals are a valuable commodity in this rapidly growing region. High quality aggregate, is not a "low value" commodity. (Oregon Dept of Transportation, Bend, OR - #261)

[T]he use of public mineral resources by ODOT is not a benefit to ODOT. Rather, public mineral resources being available for local and regional infrastructure benefits the taxpaying public in Oregon. (Oregon Dept of Transportation, Bend, OR - #261)

There are a number of maps showing various Alternatives and different boundaries based on the different management objectives. In reading the text and attempting to review the referenced maps and figures it becomes very confusing. ODOT requests that, based on the preferred alternative, one set of maps be produced. Specifically, as related to minerals, we request that a single map be produced of the entire planning area which is a compilation of all of the special areas off limits to mineral use from the Common to all Alternatives and including the additional restrictions based on Alternative 7. A single map with all of the areas that will be off limits to mining based on the known restrictions would greatly clarify what is and is not actually available. (Oregon Dept of Transportation, Bend, OR - #261)

The corner of land nearest Panoramic Estates (in T14S, R11E, Section 30) is designated as a 1/8 mile boundary closed to mineral material sales. Panoramic Estates, the original subdivision, is designated as Residential. Unfortunately, adjacent residential land has not been designated as 'Residential.' Were the residential areas correctly designated, the 1/8 mile boundary would extend further than show on Map S-28. This needs to be addressed. (Individual, Sisters, OR - #1326)

II: 13 - Change sentence to read as follows: "Noise and dust from training may disturb…"
II: 23 - Change sentence to read as follows: "The Oregon Military Department recently completed both an Integrated Natural Resources Management Plan and an Integrated Cultural Resources Management Plan that guide their resource activities within the permit area."
Change name to read: "Biak Training Center" [instead of] "BIAK training center in [multiple places in] all documents (Oregon Military Department, Salem, OR - #1308).
II: 87 - Change this sentence to read as follows: "Common to Alternatives 2-7 would be the use of at least a minimum of 21,000 acres within the core area of the Biak Training Center for long-term military use."

II: 113 - The italicized title to this paragraph should be deleted. The paragraph does not address area "classification type" or "type of training" as suggested by the title.

II: 118 - Change this sentence to read as follows: "Alternative 3 would provide about 8000 less acres for long-term military training." Delete that portion of the sentence stating that this is "roughly the same boundaries compared to Alternative 1."

II: 182 - Change this sentence to read as follows: "Three rotational training areas would be designated so that any one rotation training area would be available for training for a specific duration, estimated at three years per area." Change this sentence to read as follows: "Military use would be allowed in those areas identified for Alternative 6 as shown on Map 36."

II: 199 - Change this sentence to read as follows: "Military use would be allowed in those areas identified for Alternative 7 as shown on Map 36. The core training area under this alternative is approximately 27,934 acres"

II: 241 - OMD requests that the BLM insert after this sentence, for public clarity and consistency within this plan, a copy of the statement contained in the last sentence on page 356, paragraph 4: "Typically, military activities do not impact old growth juniper trees or snags."

II: 316 - Change this sentence to read as follows entering in the use of a colon: "The planning area has existing withdrawals for:" (Oregon Military Department, Salem, OR - #1308)

II: 462 - Change this sentence to read as follows: With the exception of public lands immediately east of the airport and adjacent to OMD's Central Oregon Unit and Training and Equipment Site (COUTES), the military would probably replace training currently done west of the North Unit Canal to the area north of Highway 126 to avoid conflicts with the Pronghorn Resort development.

II: 131 - OMD suggests the addition of a sentence to the end of this paragraph stating: "Public lands located immediately east of the airport but west of the Canal and adjacent to the OMD's Central Oregon Unit and Training Equipment site, which is OMD owned land, would be retained as part of the Biak Training Center."

II: 138 - Change this sentence to read as follows: "Alternative 4 would decrease the available area for long-term training from Alternative 1, the existing condition, by approximately 3,500 acres" (Oregon Military Department, Salem, OR - #1308).

II: 298 Change this sentence to read as follows: "The current Training Center boundary is displayed as Alternative 1 on Map 35."

II: 298 - Change this sentence to read as follows: "While use of the Training Center is expected to remain cyclical, the average annual training usage for the Biak Training

Center is expected to range around 12,000 man-days per year or on average less than 70 days per year given the current force structure within the Oregon National Guard. Of those 70 days, 15 days or 20 percent of the training days involve activities at developed training sites such as the Brett Hall and the Central Oregon Unit Training and Equipment Site (COUTES) and therefore occur on lands outside of the scope of the resource management plan."

II: 299 - OMD requests that the BLM also include information here under the heading of "Rehabilitation" that the OMD has both an Integrated Natural Resources Management Plan and Integrated Cultural Resources Management Plan. The OMD is a cooperator in BLM resource management goals and directions. The OMD rehabilitation program has been a long-term program with a continual expenditure of funds over the past 15 years. The OMD's rehabilitation efforts are reviewed by BLM and use BLM prescriptions for vegetation seeding. Under these programs, the OMD is a cooperator in noxious weed control and under the requirements of OMD's land use permit with the BLM, OMD also provides for wildland fire protection of training areas used during training activities.

II: 322 - OMD requests the BLM include the following sentence: "The OMD cooperates with BLM management of these historic roads and has voluntarily within its SOP restricted military traffic on the Horner Road by reducing the numbers and size of military vehicles allowed to use this route for training purposes."

II: 462 - Change this sentence to read as follows: "Alternative 7 is similar to Alternative 6 except that lands south of the BPA power line corridor and west of the North Unit Main Canal and Pronghorn Resort Road are removed/eliminated from the Training Center.

II: 464 - This paragraph can be deleted since it is redundant to information contained within Volume II, page 463, paragraph 8.

II: 547 - Change this sentence to read as follows: "Designating an adequate public land base for long-term military training provides the OMD opportunity to apply for congressional funding for major infrastructure development and projects to improve the Training Center; with construction and a gradual increase in training activities, the economic benefits are expected to gradually increase above the 2002 level. Natural resource projects, including range rehabilitation work and the development of an Integrated Wildland Fire Management Program, which will improve wildland fire protection, will provide additional economic benefit to the BLM and local community" (State of Oregon, Military Department, Salem – OR - #1308)

II: 552 - Change this sentence to read as follows: "The Biak Training Center cannot qualify for congressional funding of capitol improvement projects unless OMD obtains a long-term land use agreement of at least 30 years. Such improvements and upgrades will qualify the Training Center for a change in the National Guard Bureau's rating of the Training Center from a local training center to an intermediate training center. This change in rating will also enhance the OMD's ability to obtain additional funding for full time manpower and equipment to staff the Training Center. (Oregon Military Department, Salem, OR - #1308)

II: 113 - This sentence should be moved to the following "Buffer Areas" paragraph and changed to read as follows: "The Training Center boundary shall include a 1/4 mile wide buffer inside the boundary when that boundary is in direct contact with or within a 1/4 mile proximity to private property. Military training activities will be restricted to light dismounted training activities within this buffer zone and there shall be no discharge of blank ammunition within the buffer zone. This buffer zone however does not preclude vehicle movement to or from the Training Center along OMD-BLM designated roads through the buffer zone for access purpose to the Training Center. (Oregon Military Department, Salem, OR - #1308)

II: 214 (Table 2-1) - Under the heading of "Military" land uses, OMD requests that the BLM separate out the core training area land allocation and percentage from the rotational training area land allocation in this comparison of alternatives. This separation will better serve the public in understanding the land area allocations between the alternatives, especially in regards to Alternatives 6 and 7 (Oregon Military Department, Salem, OR - #1308).

OMD requests that the BLM insert after this sentence [in Vol 2, pages 241 and 356], for public clarity and consistency within this plan, a copy of the statement contained in the last sentence on page 356, paragraph 4: "Typically, military activities do not impact old growth juniper trees or snags." (Oregon Military Department, Salem, OR - #1308)

II: 299 - OMD requests BLM to define and clarify the statement "There are also restrictions on use of vehicles, excavation activity, and uses near private property." (Oregon Military Department, Salem, OR - #1308)

II: 319 - OMD requests the BLM include the following sentence: "The OMD has an Integrated Natural Resources Management Plan with the goal of protecting and preserving archaeological resources from damage due to military training activities and cooperates with the BLM's cultural resource management goals and direction." (Oregon Military Department, Salem – OR - #1308)

[In] the BLM's management direction statements common to all alternatives, both in Volume II and III, the Bureau states that any military land use agreement will ensure consistency with "environmental requirements." Yet the BLM does not provide a complete listing of those environmental requirements". (Oregon Military Department, Salem, OR - #1308)

II: 461 - OMD requests BLM to amend this sentence to include the following statement: Continuation of long-term use would be subject to periodic review of both the National Guard and BLM's standards and guidelines and review and monitoring of the National Guard's performance in meeting the standards and guides for the purpose of allowing for adjustments to training activities, mitigation programs, and overall State wide training goals and strategy. (Oregon Military Department, Salem, OR - #1308)

II: 463 - Change this sentence to read as follows: BLM and the OMD estimate that training would occur about 5 to 7 days per year in the rotational areas, which would reduce training days on the core training area to an estimated 48 days per year.

OMD concurs with Military Use Objective 6MU-6 but requests that the BLM clarify its Guidelines. The OMD is not "adopting" lands for purpose of rehabilitation. The Army's rehabilitation program is incidental and applicable only to lands that the military uses for training. Mitigation is a possibility but mitigation work must be clearly defined and correlated to military training actions to offset the environmental consequences of those activities. See comment concerning Steamboat Rock area, Volume II, page 182, paragraph 1. (Oregon Military Department, Salem, OR - #1308)

108. The OMD (Oregon Military Department) suggests specific changes and additions to the DEIS.

II: 26 - Change sentence to read as follows: "Public land use supports the military training purposes of the Biak Training Center where those activities are consistent with public natural and cultural resource objectives and provide a reliable long-term land base for training operations." (Oregon Military Department, Salem – OR - #1308)

> ***Response:*** *A modified version of this suggested edit has been included in Chapter 1 of the FEIS.*

II: 113 - OMD suggests moving this entire paragraph on "buffer areas" to page 53 and place this paragraph under "Military Uses" under Management Direction Common to all Alternatives. (Oregon Military Department, Salem – OR - #1308)

III: 112 - OMD suggests that BLM move this paragraph regarding "Buffer Areas" to "Management Direction Common to All Alternatives" Volume III, page 20 under the subheading "Military Uses."

II: 166 - OMD suggests deleting this entire paragraph per comments above regarding Volume II, page 113, paragraph 3 and page 149, paragraph 4. OMD also suggests that to be consistent between all alternatives, the buffer be retained at 1/4 mile. (Oregon Military Department, Salem, OR - #1308).

II: 149 - OMD suggests moving this entire paragraph on buffer areas to page 53 as per comment above regarding Volume II, page 113, paragraph 3. In combining these paragraphs, OMD also suggests deleting the following phase: "while equipment transport training are not." (Oregon Military Department, Salem, OR - #1308).

> ***Response:*** *The above four suggestions were not implemented into the plan. Each comment is about buffers and involves a request to consolidate text into Common to Alternatives 2-7 descriptions. Differences in the alternatives were intended in order to present a reasonable range of alternatives. Consequently consolidating the alternatives is not an appropriate edit nor would it affect the Preferred Alternative/PRMP.*

II: 251 - OMD requests that the BLM also include information here regarding the fact that the OMD cooperates with BLM management direction regarding control of noxious weeds and that OMD annual funds a noxious weed abatement program in accordance with BLM management goals and direction. (Oregon Military Department, Salem, OR - #1308).

> ***Response:*** *The BLM appreciates the cooperation of the OMD and other agencies in the important task of noxious weed management. However, consistent with CEQ guidance for the content of EISs (40 CFR 1500.2(b), 40 CFR 1500.4(b), and 40 CFR 1502.15) the BLM chose not to include this information. Noxious weed management is common to all alternatives and is mentioned in Chapter 2 and the relevant documents are included in Appendix B.*

II: 287 - OMD requests that the BLM also include information here regarding the fact that OMD cooperates with the BLM fire management program, that OMD is required by the existing permit to provide for wildland fire protection for training areas in use during training activities, and that OMD is currently working on an Integrated Wildland Fire Management Program as part of its effort to improve interagency cooperation regarding wildland fire control issues (Oregon Military Department, Salem, OR - #1308).

> ***Response:*** *The BLM appreciates the cooperation of the OMD and other agencies in the important task of fire management. Consistent with CEQ guidance for the content of EISs (40 CFR 1500.2(b), 40 CFR 1500.4 (b), and 40 CFR 1502.15) the BLM chose not to include this information. The OMD's fire management plan is incorporated by reference in this document.*

II: 588 - OMD recommends that the BLM include here a list of the Cooperating Agencies. (Oregon Military Department, Salem, OR - #1308)

> ***Response****: See Table 5-3 in the FEIS, Chapter 5, for a list of Issue Team Members and all agencies actively participating in the planning process.*

Recreation

Roads & Trails

Mixed Use Vs Separated Use

109. The RMP should provide for mixed-use recreation rather than separation of uses.

Cline Buttes is the one area that Alt 7 is a poor option. We do not feel that Alt 7 will adequately address the current or future needs for motorized use and we are very concerned that separate trails will create, not dispel, conflicts…dividing the available area into smaller segments of use for both motorized and non-motorized…will diminish the user experience to an unsatisfactory level. (Individual, Bend, OR - #192)

In regard to Cline Buttes: Separate systems for motorized and non-motorized is not realistic and a prescription for failure. It will polarize the users, decrease every ones area of usage, does not support a multiple-use philosophy, micromanages the area, and will increase conflicts among users. (Numerous individuals, OR - #1365)

All of the existing alternatives disproportionately reduce the mixed use and shared facilities. (Individual, Pacific, WA - #76)

Public lands are for all of us to use and closing it down for any one group is wrong.... Would it not be wise as land managers to use all trails for multiple uses? (Individual, Bend, OR - #1358)

All public lands, roads, trails, and ways should be open to all users. There is no place that should be inaccessible to all users no matter what their age or physical capabilities are. To create an area and agree with us there are many areas that separated users should be illegal. I have been sharing trails all my life and that is as it should be. This land belongs to all of us and each of us has a right to access it. (Individual, Bend, OR - #1345)

Mountain bike trails should also be open for hiking; exclusive use of a recreation activity should be very limited, vs. sharing trails. These public lands are public lands, not user club lands. (Individual, Prineville, OR - #1310)

> ***Response:*** *The Preferred Alternative does provide for shared use trails, including shared use direction in the Bend/Redmond, Steamboat Rock, North Millican, South Millican, and Millican Plateau areas. However, the desire for separated trail uses (by trail designation and/or allocation of specific use areas) was identified as an issue during the scoping process for the plan. This desire was specifically stated for several areas, including Cline Buttes. The recreation management strategy in the Preferred Alternative is based on providing a mix of uses and recreational settings across the planning area, including shared use and separated uses. The FEIS provides for greater shared use of trails in Cline Buttes by allowing shared use trail designation of the Tumalo Canal corridors outside the Tumalo Canal ACEC.*
>
> *The PRMP does not identify any trails or use areas as "mountain bike only." There are no restrictions to hiking on any trails or geographic areas in the UDRMP.*

110. The RMP should provide for separation of different recreational uses…

between motorized and non-motorized uses.

We believe that recreational use of OHV is a growing and legitimate use of many, but certainly not all areas of our public lands. In general, we support the direction contained

in Alternative 7, which attempted to work out resource conflicts with OHV uses by separating uses and designating motorized trail systems and specific areas where OHV recreation can occur. (Crook County Natural Resources Planning Committee, Prineville, OR - #1362)

The concept of separating recreational uses where possible is a good one, and Alternative 7 takes the right track by separating different uses by trail or trailhead when total separation by area is not feasible. This alternative, if chosen, will be an important step toward better management. (Individual, Sisters, OR - #1326)

The Clines Buttes area has been used for motorized recreation for more than 40 years, and remains a popular OHV area for many OMRA members in the planning area and throughout the state. The proposal for multiple recreation with non-motorized uses is not supported in the UDRMP for the Cline Buttes area. While under the right circumstances such a mix may be feasible in certain areas with intensive management, the Cline Buttes area lacks sufficient space and resources to accommodate both uses. Historic motorized use in the C.B. area demonstrates that the preferred alternative should maintain a large enough area to accommodate organized and unorganized winter use activities. (Oregon Motorcycle Riders Association, Portland, OR - #1302)

Proximity conflict is another recipe for failure in OHV management. We [Lobos Motorcycle Club] believe the preferred proposal, as well as the notes on the others, reflect a lack of proper consideration of this fact. The current concept of mixed or adjacent motorized and non-motorized uses in the Cline Buttes area will present a huge management problem. Successful land managers in Washington, Idaho and here in Oregon have told us they would never consider building in these conflicts. (Lobos Motorcycle Club, Clackamas, OR - #1301)

[We are concerned because] the Plan should create as much separation of motorized and non-motorized travel as possible, as far apart as possible. Once motorized vehicles are in an area they tend to go wherever they please, without regard for restrictions. Since enforcement will be difficult at best, we recommend that access points for the two types of traffic be widely separated and that the two different types of trails be far apart. (Individual, Sisters, OR - #1326)

I might say that OHV use is not compatible with Equestrian use. Even though these trails are multi use; it is a real safety hazard to share them with motorized vehicles (motorcycles, Quads etc.). It is also not safe to share trails on hillsides with blind corners with Mountain Bikes such as on the Gray Butte Trail. (Individual, Bend, OR - #201)

As an avid horseman, I do not care to share the same areas that are frequented by dirt bikes, quads, and SUVs. Contrary to the myth that these uses are compatible, I find the sound and smells of motorized equipment in a primitive setting to be detracting from the very reasons that I sought out the areas in the first place; peace and quiet, a sense of stepping back in time, wildlife and bird watching, and a semblance of solitude. (Individual, Bend, OR - #121)

OHV trails are not suitable for shared use. A non-mechanized recreationist, who might try to share the trails, must keep his eyes and ears open for fast approaching, helmeted and often leathered riders who must sometimes seem committed to intimidating the very land they ride over. Horses, dogs and children particularly, cannot share OHV trails, not to mention hunters, birders and Scouts. (Individual, Bend, OR - #258)

Hiking on roads and trail systems that are shared by motorized vehicles would not be considered a quality recreational experience by many of our hike leaders or the vast majority of our program participants, and are currently avoided where possible. (Bend Metro Park and Recreation District, Bend, OR - #1311)

between non-motorized uses.

The relatively large blocks of multi use and non motorized use proposed in Alternative 7 will make it easier for all users to understand boundaries and easier for the BLM to sign the boundaries between multiuse, non-motorized and private properties. We recommend creating separate trails for horses and cyclists in order to minimize conflict. As an example, there are currently very few conflicts between cyclists and horses on Deschutes National Forest land. This is due to the fact that the two uses are almost completely separated. (Central Oregon Trail Alliance, Bend, OR - #1303)

[We are concerned with the plan because] In any areas where different modes of traffic must co-exist, we note that mountain biking trails are destroyed rapidly by horses as well as by motorized vehicles. So in doing the detailed planning we ask you to consider separating bicycle from both horse and motorized traffic. (Individual, Sister, OR - #1326)

I don't think horses on the existing trails [at Horse Ridge] would be appropriate for two reasons: 1) use conflicts are more likely to occur on the narrow trails on the Ridge, and 2) one horse can easily do the damage of hundreds of mountain bikers and what with the soils being so soft, the trails could be damaged beyond repair too easily with heavy horse traffic. (Individual, Bend, OR - #28)

for example, a portion of the Cline Buttes area should be designated as a mountain bike "free-ride" area.

Free-riding is the fastest growing segment of mountain biking… [It] requires steep, technical terrain. Because of its ideal terrain and the fact that it often has good weather all winter, Cline Buttes frequently sees visitors from [many areas across the west]… The preferred alternative designates the upper elevations of the Cline Buttes block as a favorable area for mountain bike trails. It also calls for separate facilities for the different user groups. In accordance with the preferred alternative, we would like to propose that a small area on the upper east side of the main (southernmost) butte be set aside as a designated mountain bike free-ride area…The area we propose would be approximately defined by the private property boundary on the west and south sides, by the road to the top of the butte on the north side, and by the existing fence line or the lower section of the road on the east side. [This] would give the BLM several benefits in managing this area.

- Most of the area is too steep and loose for other recreational uses… other user groups sometimes find and use these trails, but they quickly realize it is unsuitable terrain. Unfortunately, significant damage is usually done to the tread in the course of these excursions.
- The mountain bike community (COTA in particular) will provide all the necessary labor to create and maintain any facilities in this area.
- Conflicts between the private landowners and recreational users (primarily motorcycles) have been high in this area. Motorcycles and horse frequently travel cross-country (i.e. off trail) and therefore are prone to crossing onto private property. Mountain bikers have no desire to ride off-trail. The soil is simply too loose in areas that do not have a prepared tread. For this reason, conflicts between mountain bikers and the private landowners will be extremely low. If the proposed area is designated mountain bike only, it will provide a buffer zone between the private land and the user groups that are at the highest risk of conflict with the private landowners.
- The mountain bike trails have very little visual impact. They cannot be seen from Cline Falls Hwy or Hwy 97.

Response: *A key component of the PRMP and a marked departure from the previous Brothers/La Pine RMP is the separation of motorized and non-motorized trail use. The Preferred Alternative identifies many areas for exclusive non-motorized use and other areas where motorized use would only be allowed on road, with trails for non-motorized uses (DEIS, Map 14 – Travel Management, Alternative 7; Map 21 – Recreation Emphasis, Alternative 7; FEIS, Map 4). The areas identified for these separate uses were in part*

identified based on ease of management, using separate blocks of public land or areas bounded by major roads.

However, providing separate trails in all areas may exceed BLM's ability to develop and manage designated trail systems or cause increased fragmentation and resource impacts. For these reasons, some areas such as the Millican Valley OHV area would be managed primarily for shared use on one trail system. The PRMP would restrict some portions of the North Millican portion of the Millican Valley OHV area to motorized and bicycle use seasonally. While this change is proposed to increase wildlife habitat effectiveness, it may provide greater equestrian and hiking opportunities that are seasonally separate from motorized use.

The DEIS/FEIS recognized the management intensity required to manage recreation use in the Cline Buttes area (see DEIS, Chapter 2, p. 199/FEIS, Chapter 2). This management intensity is in part due to the increasing number of visitors to the area and the increasing amount of residential and resort development occurring in the area. How well the proposed management strategy can be implemented is due to a variety of factors outside the scope of the RMP such as funding, staffing levels, use of volunteers, and willingness of the users to make the system work.

The DEIS/FEIS does not provide specific direction for areas where separate trails are provided for horses and cyclists. The DEIS/FEIS provides direction that the portion of Cline Buttes between Barr Road and Cline Falls Highway be managed for non-motorized trail use (DEIS, Chapter 2, Pages 201, 202; FEIS, Chapter 2). This direction calls for trails that serve hiking, mountain biking, and equestrian use; and for providing a loop trail that encircles the buttes. The DEIS/FEIS does not identify specific trails to be retained in a long-term non-motorized trail system.

In response to concerns about the need for separation of use for non-motorized users, the FEIS includes additional language that calls for emphasizing designated, non-motorized trail systems that provide opportunities for all non-motorized trail users (i.e., shared use trails), with provisions made for separating uses on different trail loops or by developing and communicating different trail design and maintenance standards for different use areas at a project or area specific level of analysis.

New and/or Designated Trails

111. The RMP should allow higher non-motorized trail density in the Tumalo area to reduce conflicts between users.

"The road and trail density goal for the main block [Tumalo] would be limited to a range of approximately 1.5 to 2.5 miles per square mile (including Sizemore Road, a paved public road thorugh the area)." Vol. 2, p. 208 . . . [This] trail density seems very low. Using the BLM maps I have for the Wierleske allotment I calculate the size as 800 acres, not 700 acres. For example, does this mean that 800 acres divided by 640 acres (a square mile) = 1.25 square miles? Using the maximum trail density of 2.5 times 1.25 = 3.13 miles of trail. . . this trail density would make it difficult to achieve the objectives of "several smaller loops" and connections to the "DNF" [as stated in Vol. 2]. Rock Springs Guest Ranch has a special use permit on the DNF (adjacent and to the west of the Wierleske allotment) covering 2500 acres. Trail densities for this area have been approved at a much higher level, at about 6.5 miles of trail per square mile [because of the area's unique topography and vegetation density]…A 1.5 to 2.5 miles of trail density would probably also cause conflicts among non motorized users (walkers, joggers, mountain bikers and equestrians) since they all would be confined to so few trails within this region. The quality of people's experience is diminished when you see, or run into, other people. This low trail density would also not allow for any rotation and variety of use of trails. For us, when

people are here for a week's vacation with the possibility of up to 14 rides during that week, multiple trails are important to provide variety, rotation of trails, and reduce the bottlenecks…. We disperse the rides to various routes. This not only provides for a better experience, but it is a safety issue. The heavy dust and bunching of horses creates an unsafe environment. (Rock Springs Guest Ranch, Bend, OR - #1299)

I am in favor of the…non-motorized trails around Cline Buttes …This provides me, a Bend resident, with a variety of opportunities [for non-motorized recreation] near my home. (Individual, Bend, OR - #1281)

> ***Response****: In the FEIS, road and trail system density goals for non-motorized trails in the Tumalo block were replaced with descriptive goals and standards for the trails in the area including the development of designated trails that: 1) provide year-round opportunities, 2) provide links to adjacent trail systems, 3) provide a variety of loops that offer a diversity of trail experiences and serve to disperse users, and 4) take advantage of scenic and interpretive opportunities.*

112. The RMP should provide additional motorized opportunities…

for 4-wheel drive trails and "rock crawling".

The draft RMP does not provide four wheel drive opportunities and that issue should be included in the plan. (Individual, Bend, OR - #192)

Is the lack of any mention of four-wheel-drive trails an oversight? If so or if not, these users should be included and their needs addressed in the final EIS. (Individual, Eugene, OR - #1312)

As an avid four-wheeler in Central Oregon I cannot find any reference in your [EIS] which mentions my form of recreation. I enjoy rock crawling in my four wheel-drive vehicle, as do many of my friends....All of the other rock climbing trails are on public lands in this nation. There are many areas that would be ideal for this recreation within your planning area. (Individual, Bend, OR - #1358)

for Off Highway Vehicle Trails.

Millican Plateau: Due to its low elevation, it is the only place in Central Oregon in the winter and draws riders from all over the Northwest. The area needs to be expanded like is shown in Alternative #2 in the NE area along the rimrocks of the Crooked River. There are existing trails there now that have fantastic view points. (Individual, Bend, OR - #1280)

Although I feel that the Preferred Alternative can be made to be acceptable once roads, trails and uses are clearly defined. . .I do not see that they are in the proposed alternatives; particularly in regards to roads and trails for motorcyclists, ATVs, and 4-wheelers.(Individual, Bend, OR - #1324)

Providing no opportunities for OHV use at Prineville Reservoir when use is currently there should be reevaluated. (Central Oregon Motorcycle and ATV Club, Bend, OR - #264)

Providing no opportunities for OHV use at Prineville Reservoir when use is currently there should be reevaluated. The plan simply offers too few opportunities and too many lock ups for the OHV community and the Crook County residents and tourists. (Individual, Bend, OR - #192)

Prineville Reservoir - Nothing is proposed there - that is not acceptable and should be relooked at for visual opportunities for OHV use also. (Individual, Portland, OR - #15)

The area surrounding the Prineville reservoir has historically been used for a variety of OHV uses. The preferred alternative proposes to displace this historic OHV use without any discussion of impact or mitigation on the adjacent Prineville community that includes Oregon Motorcycle Riders Association members and other OHV users. (Oregon Motorcycle Riders Association, Portland, OR - #1302)

We…feel that providing no motorized opportunities at Prineville Reservoir…is a mistake. There is use occurring in those areas currently, where will that use go? (Numerous individuals, numerous cities/states - #120)

> ***Response:*** *Rock crawling was identified as a recreation need and possible use of the North Millican OHV area in the Millican Valley OHV Area plan prepared in 1998. The FEIS continues this management direction and provides direction for development of a variety of motorized recreation opportunities, including technical four-wheel drive routes or rock crawling.*
>
> *The Preferred Alternative for the DEIS/FEIS designates lands surrounding Prineville Reservoir as "Limited to Designated Roads Only", and a portion of the area north of the Reservoir and east of the Crooked River as "Closed" to motor vehicles. The FEIS has added language that allows for development of limited OHV opportunities in this area. This limited development would be targeted to provide for local use with a play area and a short loop trail system in a definable area that can be limited in scope. The intent of this direction is to provide some OHV opportunities for the local residents on the north side of the reservoir while still maintaining the other recreation opportunities for non-motorized trail use provided for the in the Draft EIS.*

113. The RMP should allow for development of non-motorized trails.

[For all alternatives,] begin to develop non-motorized trail systems for mountain bikers, hikers and other non-motorized users. Developed trail systems will benefit those recreational users who are mountain bikers, from out-of-the-area, casual or infrequent local visitors, or those who lack the skills to competently navigate the local terrain. (Bend Metro Park and Recreation District, Bend, OR - #1311)

Maintaining public access to the largest areas of public land possible is also in line with President Bush's June 20, 2002 Executive Order on activities to promote personal fitness. This Executive Order, in part, directs Federal agencies to provide opportunities for "increasing the accessibility for physical activity, and reducing barriers to achieving good personal fitness." Under President Bush's Healthier US Initiative, administration actions to promote physical activity include ""the use of public lands and water."" Developing a network of non-motorized trails on BLM lands will eventually provide greater opportunities for encouraging personal fitness on public lands, and is a laudable goal. (Bend Metro Park & Rec District, Bend, OR - #1311)

Of particular interest to me is Horse Ridge. I would like to see the current mountain bike trail system preserved with the necessary changes made to skirt the fenced-off wilderness study area. The trail system gives mountain bikes riders, and a surprising number of hikers, a place to go during the late fall through early spring period. (Individual, Bend, OR - #28)

A sparse user-built [Mountain Bike] trail network currently exists on Horse Ridge. We would like the opportunity to expand the trail network at Horse Ridge in the future, but much more importantly we would like to protect the trails that already exist. (Central Oregon Trail Alliance, Bend, OR - #1303)

If the BLM decides to allow for mountain biking in the upper Cline Buttes block, there are a few issues that concern us: (1) Reroutes of existing trails. The last few yards of 2 of the existing trails cross onto private property and would require minor rerouting. (2)

Future development. We would like the ability to expand the free-ride trail network in the future. We would like the ability to develop cross-country trails, both in the proposed free-ride area and elsewhere in the Cline Buttes block, in order to increase the riding season for a wider segment of the cycling community. (3) Events. We would like events to be held to a minimum in this area. We want to ensure that promoters of any events that are allowed to occur in this area be required to repair any and all trails and facilities to the condition they were in before the event. (Central Oregon Trail Alliance, Bend, OR - #1317)

> ***Response**: The DEIS addressed the creation of developed non-motorized trail systems by designating areas as Non-motorized Exclusive and Non-motorized Emphasis. In addition, the DEIS provides trail system goals for most of these areas. The DEIS/FEIS (Chapter 2) recognized the benefits of a developed non-motorized trail system to serve both local and out of area visitors: "…The common objective is to increase the quality of recreation experiences by moving toward an overall designation of road and trail systems throughout the planning area, which, if implemented, would provide more consistent user information, and a consistent set of opportunities that can be accessed by both local and out-of-area visitors. Additional recreation opportunities through new trail development are emphasized both to increase diversity and to meet projected increases in recreation demand."(See DEIS, Chapter 2, page 89)*
>
> *The DEIS/FEIS calls for development of a designated, non-motorized trail system in the Horse Ridge area that would serve mountain bikes as well as other non-motorized uses. (See DEIS, Chapter 2, page 202, DEIS, Appendix A, Page 81; FEIS Chapter 2/PRMP)*
>
> *The FEIS does not identify specific future trail locations or adopt specific existing trails. A trail system would be designated following site or area specific analysis after the UDRMP Record of Decision (ROD) is approved. New PRMP language emphasizes designated, non-motorized trail systems that provide opportunities for all non-motorized trail users (i.e., shared use trails), with provisions made for separating uses on different trail loops or by developing and communicating different trail design and maintenance standards for different use areas at a project or area specific level of analysis*

114. The RMP should consider the need for a regional trail…

The UDRMP may need some overall direction or goals for coordination with regional trail plans of local jurisdictions - providing trailheads, links or trail corridors where needed. This direction could be added to the Transportation section of the plan, where the issue of regional trails is missing. (Deschutes County Bicycle/Pedestrian Advisory Committee, Bend, OR - #296)

It may be useful to show on a map the regional trail corridors that either exist or are planned both on BLM and the surrounding lands. (Deschutes County Bicycle/Pedestrian Advisory Committee, Bend, OR - #296)

between Bend and Redmond.

BMPRD is interested in connecting the city of Redmond with the city of Bend with a trail extending from the Pine Nursery area through BLM property to Redmond. We do not have a route identified for this trail, however, the need for such a trail and the potential development of a trail should be included in the plan. (Town/City, Bend Metro Park and Recreation District, Bend, OR - #1287)

Given our [Pronghorn's] general concern about the existing density of the network of roads and trails in the area near Pronghorn, we ask for continued collaboration regarding the development of any new trails in the area, and we support placement of a well thought out trail system between Bend and Redmond. (Business, Bend, OR - #901)

along the North Unit Canal.

Regarding the potential Bend to Smith Rock trail along the North Unit Canal, the idea makes a great deal of sense. The trail, if created, would give local and regional hikers, cyclists and runners a true long distance trail challenge. I also think the trail would become a tourist attraction much like so many Rails-to-Trails projects have become for other communities across the U.S. So we gain something by way of creating a new tourist attraction and provide locals a new recreational outlet with the trail's creation. (Individual, Bend, OR - #28)

For some it [North Unit Canal Trail] could be a commuting option from rural areas to Redmond and Bend, thus reducing traffic and air pollution. (Individual, Bend, OR - #8)

Additionally, it [North Unit Canal Trail] could be a draw for tourists looking for an active vacation. (Individual, Bend, OR - #8)

I'd like to add my support for the concept of a non-motorized trail along the North Unit Canal from Bend to Smith Rock State Park (and on to Madras). Such a trail could be a tremendous recreation and economic development asset for the region. Obviously it would provide opportunities for citizens of all ages to get exercise by bike and foot and thus improve their quality of life and health. Additionally, it [North Unit Canal Trail] could be a draw for tourists looking for an active vacation. (Individual, Bend, OR - #8)

I am writing to encourage the BLM to make the North Unit Canal a trail from Bend to Smith Rock. I think it is an incredible opportunity to create an off road experience on the East side of Bend and into Redmond. I see it being used for commuting as well as for recreation. It has been shown in other cities that off road trails increase the quality of life for the residents and visitors. (Individual, Bend, OR - #72)

We are writing to express our appreciation and support for the trail that would travel along the North Unit Canal from Bend to Smith Rock State Park. It would be a fantastic trail that would see an enormous amount of use. We would hope that it would be mixed use for hikers and mountain bikers - similar to the existing River Trail in Bend. (Individual, Unknown, - #6)

I would also like to voice my support for the development of the North Unit Irrigation Canal trail system. This would provide a unique way to travel between Bend and Redmond and possibly up to Smith Rocks where I recreate. The flat terrain would make that a good place to bring less athletic visitors to ride and still see a bit of the countryside. (Individual, Bend, OR - #1281)

I would also like to support the North Unit Irrigation Canal trail system because it would be a developed trail that a lot of people could use. With obesity in this country skyrocketing, an easily accessible trail that everyone feels comfortable using makes a big difference. (Individual, Bend, OR - #1279)

> ***Response:*** *The decision to allow creation of a designated trail with legal public access along the North Unit Canal is outside the scope of the UDRMP. The Bureau of Reclamation is the managing agency for the North Unit Canal. Any decision to designate the Canal as public access trail would be made by the BOR, in collaboration with NUID and others. However, the DEIS/FEIS Preferred Alternative provides general direction to support the creation of this regional trail, as does the FEIS as follows:*
>
> > *"The presence of the Wagon Road ACEC and the North Unit Canal provide opportunities for an understandable trail system that has regional trail potential and also high interpretive values…Work with BOR, NUID, Deschutes County, State Parks, OMD and others to designate and manage the North Unit Canal as a regional, non-motorized trail corridor."*

115. The RMP's limit on designated trails for commercial trail use would handicap operations that are located next to small areas of BLM that may not be a priority for designation of future trail systems.

[Common to alternatives 2-7 p. 479:] "Over the long term, as more designated trails (motorized and non-motorized) are developed, it is likely that this policy would direct annual recreation permits to larger areas with substantial trail systems. Smaller commercial operations and commercial operators that are tied to a specific location (e.g., small guest ranches) would have a harder time gaining permits if they are located adjacent to BLM lands that do not have designated trails and lack the ability to shuttle clients to larger BLM areas with designated trails." Part of the beauty of a destination vacation is being able to recreate from the base property. The horseback riding experience we provide cannot be duplicated by trucking people to another location. (Rock Springs Guest Ranch, Bend, OR - #1299)

> ***Response:*** *The FEIS places a limit on non-foot traffic commercial use by limiting new permits to designated trail systems. The FEIS recognizes this may have an impact on future new commercial operations. Those outfitter/guides that currently have a valid permit will continue to be able to operate within the parameters of their existing permit, with the PRMP objective of moving toward a designated trail system as quickly as is feasible. In general, designated non-motorized trails are planned for many areas, and the smaller blocks that may not receive designated trail planning efforts would tend to be smaller areas (e.g., 40 to 640 acres in size) that may not be as suitable for commercial use. Small parcels of BLM-administered land that contain the potential for trail links to adjacent trail systems may be an exception, and may receive trail designations to provide needed links.*

116. The RMP should address the needs of private property owners when designating trails.

The issue of the canal trail has a lot of the property owners very concerned. Why would BLM even consider such a proposal? Besides the fact that the property owners along the canal are going to be having their privacy infringed upon, they could possibly have two other things happen to them. One is the possibility of someone being hurt on the property along the canal. Who will be liable for that? Secondly, who will be policing this public walk? Who will be protecting the property owners from having crimes committed against them? Vandalism, rape, murder, assaults, just to name a few of the potential and realistic possible crimes that could be committed against these property owners. We are sure that anyone from BLM that owns property would not relish the possibility that strangers, of any kind, would be allowed to pass through their backyards, and do who knows what, and neither do the property owners along this canal. (Individual, Redmond, OR - #52)

All OHV trails should be routed around private property. Enforcement of non-shared use roads would reduce conflicts between highway vehicles, homeowners, and OHVs. Keeping OHVs on trails and off of roads is most desirable to reduce conflicts and safety hazards. (Individual, Unknown, #1297)

These private parcels we own in the Horse Ridge area need to be identified as such on all BLM maps. The maps should specify no public access without landowner permission. We have resisted fencing on these parcels; it would make grazing utilization difficult, invite vandalism and detract from the visual appeal of public lands. All planned roads and trails need to avoid private land. The RMP needs to allow for rerouting of roads that currently traverse private lands. In particular, our parcel at Dyer Well at the foot of Horse Ridge needs to have the road routed around it, not through it. The same applies to any new recreational trails that are built and mapped. Trails cannot be designated through private property. (Livestock Industry, Bend, OR - #1325)

All road and trail planning needs to avoid private land. The RMP needs to allow for rerouting of roads that currently traverse private lands. In particular, our parcel at Dyer Well at the foot of Horse Ridge needs to have the road routed around it, not through it. The same applies to any new recreational trails that are built and mapped. Trails cannot be designated through private property. (Domestic Livestock Interest, Bend, OR - #1325)

> ***Response:*** *The UDRMP does not designate the North Unit Canal as a trail. This designation is outside the scope of the RMP. A regional trail is a project that would have to through a future public approval process. Private property concerns would be addressed through project specific planning and design work if the BOR and NUID decide to designate the canal as a trail. Acquisition of any easements for trail use across private property would be dependent on any willing sellers.*
>
> *The vast majority of the North Unit Canal through BLM lands does not have any private property adjacent to it. The canal roads currently receive regular public use, although the amount varies depending on the location. Development of a trail along the canal may result in more effective barriers to unauthorized motorized vehicle use along the canal and increase the "policing effect" of dedicated and observant trail users who report suspicious activities. Designating trails on private property is also outside the scope of the UDRMP. The DEIS/FEIS provides direction for minimizing conflicts with private property owners and public land visitors by emphasizing non-motorized trails on Horse Ridge that avoid private parcels and allow continuation of existing trail use, and improvements that allow for easier pedestrian access and encourage day use and interpretive activities while minimizing conflicts with adjacent landowners where practicable.*
>
> *As implementation of the UDRMP allows, development of designated trail systems will provide a baseline condition that allows public land visitors to use trails that are in known and mapped locations that avoid private property.*

Access

117. The RMP should provide access…

for disabled persons.

. . . I would like to see more areas designated with disabled access - such as paved trails, paved parking lots, and some paved viewpoints, etc. Since you are going to be doing a lot of work in this area over the next few years, it would be really great to focus some attention on this issue. Too often people who are disabled are forced to just go to the big parks where they can roll down their window and feed a squirrel - they need to be able to get out into the wilderness too. (Individual, Bend, OR - #1279)

I recognize that some people have difficulty accessing the Badlands by foot, and I would strongly support creating a wheelchair accessible trail when funds permit. (Individual, Bend, OR - #53)

including trail easements across private land to reach landlocked public land.

"Develop trail easements or other appropriate access mechanisms from willing landowners to provide public access to Barnes Butte, the Powell Buttes, the Lower Crooked River (adjacent to Crooked River Ranch) and the Middle Deschutes River. (Individual, Bend, OR - #1296)

We'd love to hike up to the BLM public lands [on Powell Buttes] but they are land locked. Please pursue getting non-motorized access to these scenic public lands. (Individual, Prineville, OR - #1310)

at multiple points for non-motorized trail access across public land.

Many people live in Tumalo because of the public recreation options close by. The idea of riding your horse from your barn to miles of open space is very appealing and often why they bought their property out here. Our neighbors also ride, bike, walk and jog through our property to gain access to the public lands to the west of the guest ranch along our 1.25 mile border with the BLM. Our 660 acre property border has more than a dozen contiguous neighbors and they have neighbors around them that ride through them and us. This is another reason that we need multiple BLM/Rock Springs Guest Ranch access points. (Rock Springs Guest Ranch, Bend, OR - #1299)

for cross-country recreational and educational foot travel on and off designated trails.

[For all alternatives,] specifically state that cross-country recreational travel on foot is allowed under all alternatives. Allow recreational users (including Special Recreation Permit holders) who are traveling on foot the same access to all areas, without restriction to designated roads and trails that are open for mineral exploration, rock hounding, livestock grazing and hunting…. Other user groups on these BLM lands seem to be granted much greater access under all proposed alternatives. In the UDRMP: --374,365 acres are open under all alternatives to mineral leasing. Table ES-3 and Table 4-17 -- 331,677 (or greater) acres are available for rockhounding, Table 4-18 --228,685 (or greater) acres are available for livestock grazing, Table ES-3 --153,081 (or more) acres are available year-round for motorized vehicle use for recreation (multiple use with shared facilities), Table ES-3 and Table 4-22 --Nearly 97% of all the land in the management area is open for hunting (hunters are presumably not restricted to designated roads and trails.), Table 2-1 Yet, at most, 87,832 acres may be designated for exclusive non-motorized use management under Alternative 7 (Table 4-22). Given that non-motorized recreationists would be restricted to designated roads and trails, most of these acres are not actually accessible, but can only be explored visually as part of the landscape surround roads and trails. (Bend Metro Park and Recreation District, Bend, OR - #1311)

…the wording in the UDRMP draft appears to restrict hiking and other recreational programs to "designated roads and trails," implying that cross-country foot travel through BLM lands will be prohibited in the future. This may have some significant impacts on how our educational programs access local lands. We cannot discern whether this will be deleterious to educational goals, or not. (Central Oregon Community College, Bend, OR - #297)

An alternative [to restricting hiking to designated trails] would be to work with these organizations to educate program leaders to current management issues and concerns that a cash-strapped BLM is facing. In turn, our organizations could then help educate the public about these issues through our programs. Organized programs would also provide additional "eyes" in the field, possibly discouraging unwanted or illegal activities by the non-permitted general public. (Bend Metro Park and Recreation District, Bend, OR - #1311)

Other uses on these BLM lands will be granted much greater access under all proposed alternatives: 374,365 acres are open under all alternatives to mineral leasing. Table ES-3 (Pg. xxxix, Vol. 1) and Table 4-17 331,677 (or greater) acres are available for rockhounding, Table 4-18 228,685 (or greater) acres are available for livestock grazing. Table ES-3 (pg. xxxviii, Vol. 1) 153,081 (or more) acres are available year-round for motorized vehicle use for recreation (multiple use with shared facilities), Table ES-3 (pg. xxxix, Vol. 1) and Table 4-22 nearly 97% of all the land in the management area is open for hunting (hunters are presumably not restricted to designated roads and trails.) Table 2-1 (pg. 213). Yet, at most, 87,832 acres may be designated for exclusive non-motorized use management under Alternative 7 (Table 4-22). Given that OMSI students would be restricted to designated roads and trails, most of these acres are not accessible, but can only be explored visually

as part of the landscape surrounding roads and trails. Under all of the proposed alternative management plans, groups identifying themselves as "rockhounders" or "hunters" can presumably wander through more than 331,000 acres, but an organized science research group under an SRP would be limited to "only a few developed and maintained hiking trails?" that exist on BLM-administered lands in the planning area. Cows can graze on at least 228,685 acres, with their four feet and 1000 pounds vs. two feet and two hundred pounds maximum of most hikers. The ridiculousness of allowing cows unlimited access of the Upper Deschutes, but restricting low impact humans from hiking off trail is evident. (OMSI Science Camps, Redmond, OR - #1293)

Under a policy restricting all foot travel under Special Recreation Permit to designated roads and trails…hikers will concentrate on the few established trails, increasing our impact on the resource. Individuals using the few existing trails in the future will likely encounter more and larger hiking groups than they currently encounter, groups who previously would have been distributed to more remote areas. (Bend Metro Park and Recreation District, Bend, OR - #1311)

[The RMP should] Specifically state that cross-country travel on foot is allowed under all alternatives. Allow users who are traveling on foot the same access to all areas, without restriction to designated roads and trails, that are open for mineral exploration, rockhounding, livestock grazing, and hunting. (OMSI Science Camps, Redmond, OR - #1293)

Response: *The creation of a specific wheelchair accessible trail is outside the scope of the RMP, which establishes land use allocations and allowable uses rather than identifying specific trail locations or designs.*

BLM facility design falls under the Uniform Federal Accessibility Standards (UFAS), which is the interim "safe harbor" standard under the Americans with Disabilities Act (P.L. 101-336). This standard will be considered in any site design and development at the project specific level of planning and analysis. New trail construction within the Badlands is also subject to the BLM's 1995 Interim Management Policy for Lands Under Wilderness Review (H-8550-1). (See DEIS, Chapter 2, Page 50; Chapter 2/PRMP). Under this existing policy no new, permanent recreational trails are permitted, except those that are the minimum necessary for public health and safety in the use and enjoyment of the area's wilderness values and that are necessary to protect wilderness resource values. Unless this direction is modified, during site-specific analysis of the area, consideration for any new trail design standards will be guided by this direction.

In addition to the current direction to route trails around private property where possible, and to accomplish land exchanges to benefit recreation goals, the FEIS provides a specific goal for obtaining easements for trail access to public lands from willing landowners, in order to provide access to currently landlocked parcels or promote trail system continuity and regional trail development.

The DEIS/FEIS has no restriction to cross-country recreational and educational foot travel. The DEIS/FEIS Preferred Alternative does have a restriction against the issuance of special recreation permits for commercial use (trail dependent use such as group hikes, horse rides, etc.) on non-designated trails (DEIS, Chapter 2, Page 200; Chapter 2/PRMP). These activities have occurred (often without required permits) on non-designated trails, resulting in private property trespass and/or resource and social impacts.

In order to address the concerns related to commercial group use for hiking and/or educational groups, the FEIS provides direction to emphasize authorizing commercial annual use for hiking on designated trails, then consider non-designated routes (in areas where no trail systems have been designated) through the Special Recreation Permit process if these routes are mapped and do not present resource concerns or social concerns.

This provision will be made only for foot traffic, not for pack stock, mountain bike or motorized vehicle use. The FEIS also provides that for areas where a designated trail system is implemented, commercial use (including hiking) would be managed on this system in order to avoid creation of additional routes.

Motorized use closures

118. The RMP should change the recreation emphasis boundary in the Horse Ridge area to reduce damage from hill climbing.

Alternative 7 delineates the north slope of Horse Ridge (the 6516 - AB road) as the recreation emphasis boundary between Non-motorized Recreation Exclusive and Non-motorized Recreation Emphasis (See Map 21, T19S, R14E). This road is the source of major problems in illegal vehicle hillclimbing, one huge scar [of] which can be seen from Badlands Rock. Given...the Class 2 VRM class assigned to this area ...the recreation emphasis boundary should be moved slightly west to the 6516 road. This would be far easier and less expensive unit of land to manage. (Individual, Bend, OR - #1296.70300.530)

Response: *In general, the recreation emphasis and travel management designations in the DEIS/FEIS are based on identifiable boundaries such as roads, powerlines, canals, etc. By using identifiable boundaries, the public will have a greater understanding of the goals and policies that apply to each specific area. The DEIS/FEIS identifies Horse Ridge as an area Closed year-round to motorized use (DEIS, Map 14, FEIS, Map 3), including the area with the hill climb scar. In addition to this designation, the VRM Class 2 designation also requires that any management action on Horse Ridge, while being visible, must not attract attention. This plan direction is sufficient to fully consider and protect the visual resources on Horse Ridge.*

119. The RMP should consider alternate OHV management options, besides closure.

A) For every closure, create an opening. At the very least keep the status quo. If a trail must be closed (for instance the 10 miles of trails that is in dispute in the Badlands) then open 10 miles of trails somewhere else; B) Create new riding areas. Preferably as far away as possible from the public eye. Riding areas next to highways get notices and can become targets for anti-OHV groups; C) If new areas cannot be created, then expand existing areas; D) Open sections of hiking or mountain biking trails to motorized use once a year and rotate them. For example, identify 12 trails that are currently off-limits to motorized use and for one weekend each month open one of them to OHVs. Rotate through the 12 so that each month there is a special place to ride. Charge for the privilege or have a club host a poker run and donate a portion of the entry fees back to the BLM. You would have to post notices to hikers and publish a calendar but it would be a tremendous boost for the OHV community. This could also be useful if there are trails that need to be cleared before hikers can use them. (Individual, Powell Butte, OR - #245)

Response: *The DEIS/FEIS places limits on OHV use under the BLM's planning guidelines and National OHV Strategy by designating areas as either Open, Limited, or Closed. In the DEIS Preferred Alternative and the FEIS/PRMP, several areas were identified for new OHV trail development, including the Bend/Redmond block and the Steamboat Rock area. In addition, the DEIS/FEIS Preferred Alternative calls for expanding the OHV trail system in the Millican Plateau area. Opening non-motorized trails to motorized use once a year was not considered in the RMP – the benefit of such a limited rotational use is not marginal; particularly since no designated non-motorized trails yet exist in the planning area.*

120. The RMP should include (or continue) motorized use closures… throughout the planning area.

I support the preferred alternative… I support the concept of closing much of the project area to OHV use and understand the agency's mission to provide for some use through developed trail systems….[Off trail OHV use] fragment[s] habitats...displaces soil and destroys the A-soil horizon that is so important to the plant and animal community. (Individual, Redmond, OR - #1341)

Please deal with OHVs by designating the entire area closed except where designated open, and aggressively patrol to enforce this policy. Water quality, weed prevention, soil conservation, wildlife habitat, and low-impact recreation require it. (Oregon Natural Resources Council, Eugene, OR - #238)

I...am concerned about the level of off-road vehicle use that is proposed. Closing 22% of Resource Area lands to off-road use is good, but what about the other 78%? (Desert Survivors, Piedmont, CA - #1368)

We are...concerned that ... improved access allows ATVs to get into the area on a more regular basis, creating fire and wildlife hazards. As a result, we would like to be a part of the planning for trails in this area [NW planning area]. (Individual, Sisters, OR - #1326)

I would not be supportive of OHV use there [Whitaker Allotment] and I know some of my neighbors would agree. This will turn into a dirt-racing track for high school kids if not managed. We have already had several instances where kids spent the night out there with their OHVs and drank alcohol tearing up the area and leaving quite a mess. It is not large enough for unmanaged use. (Individual, Redmond, OR - #199)

The planning area is heavily roaded by all levels of routes, ranging from collector systems to user created "ways." This extensive road system reduces the effectiveness of wildlife management attempts, and we encourage the BLM to consider seasonal and area closures and other techniques to reduce the conflicts with wildlife. Achieving the desired habitat effectiveness of 70% on many key areas will be difficult or impossible without further access restrictions. (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

It seems to us that the closure of some BLM land to motorized vehicles is the proper thing to do…We live adjacent to some BLM land and have noticed that there is a Great Gray Owl that lives in our area, which is in the south section of Prineville Lakes Acres II...We have noticed that the Sagebrush Mariposa Lily grows in this area also. These are all items need to be protected. (Individual, Prineville, OR - #71)

Reduced use of motorized vehicles is good in most places. The wildlife and land is less impacted. But motorized use on existing open roads is fine. Closed roads should be preferably signed and monitored (Individual, Bend, OR - #180)

Recommended Changes to Alts. 2 - 7: Based on the uncertainty of the Habitat Effectiveness analysis to accurately assess wildlife impacts, the lack of a monitoring plan to assess plan success, or a strategy to provide for protection of natural resources if plan goals and objectives are not met, ODFW recommends seasonal closures to motorized OHV use to protect sage grouse and wintering big game resources for all alternatives in the following geographic areas: Badlands, Millican Plateau, and North Millican - December 1 to April 30 to protect wintering deer, elk and antelope. Horse Ridge, Prineville Reservoir, and Tumalo - December 1 to April 30 to protect wintering deer and elk. South Millican - December 1 to July 31st to protect wintering antelope and wintering, nesting, brooding, and rearing sage grouse… (Oregon Department of Fish and Wildlife, Bend, OR - #1298)

near the Deschutes River.

In the area where I live Deschutes County has established a Golden eagle habitat site. Special regulations guide building and use of the area to protect a nest along the Deschutes River at T15S, R12E, Section 1 SE quarter. I could not find in the Upper Deschutes Plan any reference to cooperative efforts to manage for similar goals on this BLM land north of Howells River Rim subdivision. Certainly this small piece of BLM ground west and east of the Deschutes River should be closed to OHV use year round to protect habitat not only during eagle nesting season but also year round to protect habitat for their preferred food source, jack rabbits. (Individual, Redmond, OR - #1341)

We own property along the Middle Deschutes adjacent to a parcel of BLM land in the vicinity of Odin Falls. . . the BLM land referred to is a dumping ground for trash and debris, a party area for the use of drugs and alcohol, shooting in an area that is posted "No Shooting," illegal hunting, trespass onto private property, destruction of private property, and overnight camping, to mention a few of the problems. We strongly support the designation of the BLM area adjacent to us as no motorized vehicles, the fencing and blocking of obvious access locations for vehicles, no hunting and shooting, no camping, and day use only." (Individual, Redmond, OR - #1334)

near Mayfield Pond.

The idea of relocating the open road away from Mayfield Pond is excellent and should reduce the vandalism in this lovely area. (Individual, Bend, OR -#201)

in the Redmond Caves parcel.

The decision to fence and ban motor vehicles from the 40-acre Redmond Caves parcel will go a long way toward protecting the caves on the land. The graffiti and trash problems have reached a crisis level and considerable effort will be required to restore the caves to their original condition. Caves restored and remaining in their natural condition is our [Willamette Valley Grotto] and the BLM vision for caves. (Willamette Valley Grotto, Portland, OR - #1354)

in the Badlands.

I prefer Alternative 3. I would find Alternative 7 more acceptable if it set aside more primary - emphasis wildlife lands as off-limits to motorized vehicles. Specifically I would like to see a year-round closure of the Badlands WSA to motorized vehicles. (Individual, Salem, OR - #252)

We are writing to support the proposed closing of the Badlands to motor vehicles. Motor vehicles are destructive to the fragile desert ecosystem and the wildlife. Additionally, the trash dumping, graffiti, tree cutting, and other recklessness could be eliminated by curbing access to the masses of people. People that have to 'work' harder to access the land generally take better care of it. There is so much land open to motor vehicle use east of Bend that this small, pristine area should be protected. Hikers do not like to hike in areas where they can be plowed over by stinky, loud, fast moving vehicles. We would not mind if the Badlands were left open to mountain bikes, as their impacts are fairly minimal. (Individual, Bend, OR - #61)

Please close the proposed Badlands Wilderness Area to OHV use. OHVs provide nothing to a natural area aside from noise pollution and air pollution. (Individual, Bend, OR - #49)

I think the Badland should be closed to motor vehicles to deter destruction and to make it a "quiet area". No one except ATV people enjoy the noise in a natural area. (Individual, Bend, OR - #1336)

I'd like to express my strong support for the proposal to close the Badlands to motorized use while improving year-round access to the Millican area for off-road vehicles. I hike regularly in Central Oregon, both in the mountains and in the deserts. This is a beautiful natural world, but difficult to enjoy when motors roar. Even when there is no sound of vehicles, it is distressing to see the damage caused when cycles and OHVs race up and down hillsides and across fragile terrain. (Individual, Bend, OR - #53)

The Badlands WSA is hammered by illegal OHV use and should be closed to all motorized use, year-round. A joint Dry Canyon-Route 8 trailhead and interpretive facilities should be developed outside of the WSA, and south of the 6521 road. This could serve as the Badlands portal and is consistent with the Bureau's Interim Management Policy for Lands Under Wilderness Review (IMP), and with reality. The BLM is completely failing in its charge to protect the Badlands WSA from impairment. (Individual, Bend, OR - #1296)

I fully support the closing of the Badlands to motorized vehicles, with strict enforcement. My experience is that while there are certainly many ATV drivers who abide by the current rules regarding road closures, there are far too many who blatantly ignore the rules and tear up the landscape. (Individual, Bend, OR -#19)

This is to strongly urge you to follow through with your plan to close all 34,000 acres of the Badlands to OHV use.... Totally banning all motorized use in this area is a must. As I'm sure you are well aware, there can be no "mixed use" in cases like these. The use of OHVs displaces all other uses---a case of the biggest and noisiest making the land untenable for anyone and anything else by destroying the fragile land and polluting the air by both exhaust and noise. (Individual, Bend, OR - #47)

I would like to see no motor vehicle access to the Badlands. I have seen numerous problems on the Badlands, from motorcyclists flagging and using trails cross country to ORVs going cross country to dumping to poaching junipers. (Individual, Bend, OR - #90)

I moved to Bend three years ago and visit the Badlands area each winter. We have lots of land devoted to hiking in the mountains but few areas in the desert. Since Bend popularity comes from being sunny, and the desert provides that climate that we all enjoy, we should do more to protect that valuable land and provide the public with a unique opportunity to experience this land as it was before we arrived. Please support the removal of vehicles from this fragile area and protect the desert from further ruin. (Individual, Unknown, - #74)

I frequently hike and mountain bike in the Badlands area. I was pleased to hear that 23 additional miles are proposed to be banned from motorized use. The peace and quiet of the Badlands is magnificent. It is a relief to have a place away from the noise of ATV's and gun shooting (typical of the Horse Butte Area). (Individual, Bend, OR - #9)

…I commend the BLM for finally closing the Badlands WSA to motorized recreation in order to ensure the preservation of wilderness values in the WSA as required by federal law and BLM policy… (Individual, Anchorage, AK – #1360)

Please make an effort to close the Badlands to OHV usage. This is such a beautiful place, and we cannot just let it be neglected to recreational use that destroys and defaces the natural beauty that is the Badlands. (Individual, Bend, OR - #1285)

…Specifically I would like to see a year-round closure of the Badlands WSA to motorized vehicles. (Individual, Salem, OR - #252)

I support the closing of the Badland Wilderness to OHVs. I walk in the area and enjoy the quiet and beauty. (Individual, Bend, OR - #81)

OHV use must not be allowed in the Badlands…Motorized use will continue to be accompanied by illegal looting and dumping. As the Bend area continues to grow, there is very little space left for wildlife and motorized vehicle use threatens this wildlife and can kill or drive the animals away (Individual, Bend, OR - #66)

I am in favor of the motorized closures in the Badlands… This provides me, a Bend resident, with a variety of opportunities [for non-motorized recreation] near my home. (Individual, Bend, OR - #1281)

Please support the drive to close this [Badlands WSA] fragile environment to motorized vehicles. The 'quiet' of the desert is enough noise. (Individual, Unknown - #6)

As a volunteer who has been active cleaning up the Badlands in the past I also do not care to pick up any more cans, bottles, tires, appliances and all the rest of the trash that is so easily hauled into this scenic spot via motorized equipment. (Individual, Bend, OR - #121)

For the past 20 years I have advocated the removal of motorized vehicles from the area known as the Badlands, currently a WSA area...All or most illegal activities were associated with motorized vehicles, such as off road travel damaging the sensitive growth and topography; fence cutting leaving gates open and or destroying allowing for cattle to get out and sometimes into dry pasture where they die; disrupting hikers wanting solitude; dumping trash, tree cutting and removing rock formations; destroying or defacing native creativity; shooting of livestock with rifle and bow; long term camping with dogs running loose; paching of wildlife (5 pt. bull this year and took only the head). (Clarno Cattle Company, Bend, OR - #203)

We support BLM's decision to remove motorized use from the Badlands WSA. We wish to note that the Badlands to many people includes Dry River Canyon as part of the Badlands…this addition 5000 acres has been an integral part of ONDA's proposed wilderness area for the past couple of years and we believe BLM should consider including these lands in the proposed non-motorized use area. (Oregon Natural Desert Association, Bend, OR - #1319)

in the Northwest area.

…the Northwest area should be managed for exclusively non-motorized use. In Alternative 7 it is shown only as non-motorized emphasis. Such non-motorized exclusive management is necessary in order to protect wildlife, old growth juniper and the much-needed non-motorized recreation experience that is otherwise disappearing in the area as Central Oregon is so rapidly developed. (Consultant, Legal Representative, Bend, OR - #1315)

[For the Northwest planning area], we generally support Alternative 7 in its recreation emphasis, but need more information. We support the emphasis on non-motorized trails in Northwest ('non-motorized rec. emphasis'). (Individual, Sisters, OR - #1326)

The SFPC [Sisters Forest Planning Committee] agrees with the primary wildlife management emphasis for the Northwest area, Smith Rocks and Tumalo. To make the transportation, recreation and wildlife management emphases consistent, this Northwest area, again, should be made non-motorized exclusive and closed to motor vehicle use year round. (Consultant, Legal Representative, Bend, OR - #1315)

The plan wisely recommends a limit on motorized traffic, keeping them to existing roads 'in the main block' (Holmes Rd to Forest Road 6360 + others as needed to get to trailheads) and to close the area [Northwest planning area] to all vehicles in winter (limited to designated roads seasonally). It is difficult to comment on how well this provision serves the plan's principles without knowing the exact number and location

of 'existing roads.' We would like a map of these so we can comment more fully, and we would like to be part of any road planning for this area. (Individual, Sisters, OR - #1326).

in the Southeast portion of the Planning Area.

"Motorized seasonal use periods should be implemented for Horse Ridge, and North Millican geographic areas to be "closed from December 1st to July 31st." Without a seasonal closure and effectively closing all local roads and trails, total road densities will exceed 1.5 mi/mi squared in 73 percent of the total area, and exceed 2.5 mi/mi squared in 54 percent of the area, respectively. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

In south Millican, it is key to the Plan to retain the existing seasonal closure (closed to motorized use from December 1 through July 31). (Wildlife Management Institute, Bend, OR - #1295)

South Millican OHV area is currently closed from Dec 1 to July 31. This coincides well with my grazing plan, as the yearling cattle are sold during the middle of August. This eliminates the conflict between cattle and rule-obeying OHV users. On my allotment, the trail system through its use of cattle guards and routing around wells minimizes impacts due to: vandalism of roads, fences, and water developments. OHV use on Pine Mountain out of the designated areas (Forest Service land) causes cut fences and destruction of roads and watering areas from OHV "cookies" eroding the ground. (Individual, Unknown - #1297)

Based on current road densities and level of fragmentation, [USF&W Service recommends the BLM] establish motorized seasonal use periods as closed from December 1 - July 31 within areas identified as primary wildlife emphasis for sage grouse. Review the road network and strategically close roads to both increase un-fragmented patches, as well as, provide for quality sage grouse habitats to reduce disturbance from roads and trails. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

ODFW supports the Preferred Alternative (7) with seasonal closure modifications to motorized vehicles on identified primary wildlife emphasis areas in the North Millican, Millican Plateau, and Prineville Reservoir geographic areas to protect wintering big game species. ODFW supports the motor vehicle restrictions and closures in the Badlands, Horse Ridge, and South Millican geographic areas to protect wintering big game and wintering, nesting, brooding, and rearing sage grouse in the South Millican geographic area. ODFW recommends these modified seasonal closures due to impacts that Off Highway Vehicle (OHV) activities have on wintering big game species and sage grouse. (Oregon Department of Fish and Wildlife, Bend, OR - #1298)

Other than restoration of sage steppe habitats, the main issue facing sage grouse and pronghorn in the planning areas is the negative impacts of motorized travel during the winter. The southeast portion of the planning area provides the only habitat within the planning area for sage grouse and provides some of the most important habitats for elk, deer and pronghorn. Because this area also is among the most popular for motorized recreation, the potential for adverse effects to wildlife is greatest in this portion of the planning area. (Wildlife Management Institute, Bend, OR - #1295)

in Dry River Canyon.

…I am deeply concerned that Alternative 7 will allow continued motorized access in the 5,000-acre area north and east of Dry River Canyon. This area was left out of BLM's original wilderness inventory but has been demonstrated to meet wilderness criteria for size, solitude and recreation opportunities, and its substantially natural condition. In addition, the area contains a variety of supplemental values including cultural sites and important habitat for a variety of wildlife species including raptors, sage grouse, Rocky Mountain elk and mule deer. Furthermore, when combined with the Badlands WSA, the

area represents a significant amount of roadless acreage which is becoming increasingly rare in Central Oregon. (Individual, Anchorage, AK - #1360).

Equally important is the fact that golden eagles and prairie falcons nest in Dry River Canyon. Given the proximity of the highway, it seems critical that public lands north of the canyon be designated for non-motorized use to minimize stress on these birds. Moreover, these lands are critical winter deer range and serve a vital migration corridor between Millican Valley and the Badlands. (Preservation/Conservation Organization, Bend, OR - #1319)

Response: *The Preferred Alternative places limits on OHV use under the BLM's planning guidelines and National OHV Strategy by designating areas as either Open, Limited, or Closed. The DEIS/FEIS places a large degree of restrictions on motorized use by removing all Open designations in the Brothers/ La Pine RMP and limiting motorized use to designated systems or closing some areas. The DEIS/FEIS Preferred Alternative closes approximately 23 percent of the planning area to motorized use (DEIS, Chapter 4, Table 4-22, Page 473; FEIS Chapter 2), this area increases to approximately 40 percent during the winter. The FEIS places further seasonal restrictions on motorized and bicycle use in the North Millican OHV area.*

The Preferred Alternative proposes various seasonal and year-round closures to motor vehicle use to minimize impacts to wildlife (DEIS, Map 14; FEIS Map 3). All action alternatives in the EIS propose to manage motor vehicle use on a designated road and trail system instead of having areas open to cross country travel. This plan decision provides great benefits for resource management, and places limits on motorized travel and access throughout the entire planning area. The DEIS/FEIS Preferred Alternative closes approximately 40 percent of the planning area to motorized use seasonally or year-round in part to achieve wildlife management or resource management goals. The FEIS provides seasonally limited trail opportunities for motorized use in North Millican, one of the most popular motorized recreation areas in the planning area. The Preferred Alternative attempts to balance wildlife management needs and public access/recreation demands in the fastest growing area in Oregon. The DEIS/FEIS Preferred Alternative does not preclude additional seasonal or area closures if needed to accomplish resource management goals.

The Preferred Alternative proposes to permanently close the 40-acre Redmond Caves parcel to motorized use, along with other allowable use guidelines to protect these cave resources. These allocations and guidelines are described in Chapter 2 of the DEIS/FEIS, Common to Alternatives 2-7 and in the PRMP, Special Management Areas, and includes restrictions on campfires, overnight use, geocache use, and motorized or mechanized vehicle use. During preparation of the Draft UDRMP, the 40-acre Redmond Caves parcel was fenced and temporarily closed to motor vehicles to control motor vehicle access through the development of a site specific environmental assessment (EA).

The DEIS/FEIS Preferred Alternative provides direction that Dry River Canyon be managed for non-motorized use (see DEIS Vol. 3, Appendix A, pp.224, 226; FEIS/ PRMP). The RMP does not identify a specific block of land in this area as "Closed to Motor Vehicles" in order to provide flexibility for routing of a larger loop, low density motorized trail system in the North Millican OHV area, while still providing non-motorized trail opportunities in the Dry Canyon area. ONDA's current proposal for a Badlands Wilderness includes approximately 5,000 acres of non-WSA, BLM-administered lands in the area. However, this 5,000 acre area occurs within the existing Millican Valley (North Millican) OHV area, which is a designated recreation management area currently. The area's lack of easily identifiable or enforceable boundaries makes designation of a specific closed area difficult.

In areas that are identified with a primary wildlife emphasis, and there is a large amount (acreage) of BLM administered lands with sufficient management authority over travel routes the habitat effectiveness would likely be 70 percent. However, in some geographic

areas the BLM manages small and/or highly fragmented land parcels and/or there are too many non-BLM travel routes that make meeting the 70 percent guideline impossible. The BLM would assess each geographic area independently, and determine the extent the guidelines could reasonably be applied. The PRMP includes language clarifying this direction for smaller, fragmented ownership blocks.

The Northwest Area is designated for motorized use on roads only (FEIS Map 3). The area has relatively few existing roads; however, in order to provide a mixture of recreation settings throughout the planning area and provide access for a wide variety of recreational interests, the DEIS/FEIS Preferred Alternative provides this management direction. The specific density and location of roads will be determined at the site level to meet natural resource management concerns. The DEIS/FEIS Preferred Alternative does provide non-motorized recreation opportunities in this area through the development of a non-motorized trail system. Further, to provide a balance of uses, the DEIS/FEIS Preferred Alternative closes the Tumalo Area to motorized use year-round (DEIS Map 14; FEIS Map 3).

The Badlands WSA is proposed to be designated as "Closed" to motor vehicles in the DEIS/FEIS Preferred Alternative (DEIS, Appendix A, Page 217). Administrative use of motor vehicles for public land management and grazing management (e.g., water hauling) would still be allowed under the provisions of the Interim Management Policy for Lands Under Wilderness Review.

121. The RMP should not reduce motorized use opportunities… in general or multiple areas.

...different trails designation will ultimately diminish our ability to see our public lands in person. Not all Americans are marathon runners and our vehicles are needed in order to enjoy the great outdoors instead of being cooped up in an 8x10 room. (Individual, Keno, OR - #169)

Our popular riding areas are showing the evidence of over use, yet to my knowledge, no new trails have been developed in over 5 years and the plan actually calls for reductions in trails. (Individual, Powell Butte, OR -#245)

With the restrictions and closures suggested in Alternative 7, there will be a shift in motorized use. By reducing opportunities, recreationists will be displaced. Since they cannot go west toward Bend, the assumption is that they will go further east. This has been an underemphasized and underestimated issue in the RMP draft and we feel it is a considerable problem. There are potentially many species, animal and plant that could be jeopardized along with the fact that further east is designated open, so the use will be mainly unmanaged. The Brothers La Pine Plan managed a much larger area than this plan is addressing, thus this plan puts additional significance on the small area sage grouse habitat in the plan vs. the larger area of concern outside the planning area. The management of the sage grouse leks that are further east could be impacted, thereby necessitating emergency closures to OHV use. (Individual, Bend, OR - #192)

The Central Oregon area is a destination for OHV and snowmobile use and BLM needs to recognize it as a viable use of public land in planning. Pushing use further east and risking more closures seems inevitable and unacceptable with the current plan emphasis. (Individual, Bend, OR - #192)

I am a person that loves to drive backcountry roads and am a responsible person that cleans up my trash and others as well, and I do not drive across country to tear up the land. If you must close up the lands, please consider an alternative permit system that would limit access, but not close it, or a revenue generating permit system. (Individual, Hillsboro, OR - #171)

Of course, as a motorcycle riding family we are unhappy with any closures. What worries me the most is that with fewer places to ride, there will be more damage done to those areas and then, like a self-fulfilling prophecy, people will point to motorcycles as the most damaging use. You must provide motorcycles with alternate riding areas, not just closures. (Individual, Bend, OR - #1329)

at Cline Buttes.

At Cline Buttes, leave the area east of Cline Falls highway open. We make extensive use of the old Tumalo canals. (Individual, Bend, OR -#1280)

The Tumalo canals are thought to be some of the best riding areas in the area and too important to the users to close. (Numerous individuals, OR - #1365)

in the Badlands.

I am writing about a possible closure of the badlands east of Bend...We love to ride these areas and would be devastated by the closure of these lands. Please reconsider your actions and think of all of us law abiding citizens who love the area and would be heart broken to see it close. (Individual, Eugene, OR - #63)

This area is not critical habitat or deer winter range and ODF&W did not have issue with usage in the Badlands. If wildlife concerns are minimal, it is not good management to close it to OHV use due to social issues unrelated to the use, i.e., fence cutting, garbage dumping, partying and illegal hunting. The issue is inadequate on-the-ground management by your agency. (Numerous individuals, OR - #1365)

in the Dry Canyon area.

Dry Canyon needs to remain open to OHV use. The canyons are beautiful to ride thru and its one of my highlights of the day when riding at Cline Butte. I have had one negative experience with an equestrian rider in five and a half years of riding here. I can show you where horses have done more damage to the trails than any OHV has. So if you are going to close it to OHV use it also should be closed to equestrian use. Dry Canyon needs to be part of designated OHV trail system for all to use. (Individual, Redmond, OR - #1348)

in the South and North Millican areas.

…The UDRMP provides no analysis of why such extreme closures [to South Millican] are needed to protect deer populations that other wildlife management professionals believe may currently exceed the carrying capacity for deer in the South Millican area. In fact, Oregon Motorcycle Riders Association members and others who have used the South Millican area for many years have documented the continued absence of deer from this area. The UDRMP fails to explain why a winter range closure is needed or appropriate under these circumstances. (Oregon Motorcycle Riders Association, Portland, OR - #1302)

The result of the preferred alternative for South Millican is to favor hunting and other uses over OHV uses, but the UDRMP does not discuss or analyze how a permanent winter closure is necessary or beneficial in the long run to wildlife, especially considering the cost to current and historic OHV uses and the minimal gain to limited deer populations (Recreation Organization, Portland, OR - #1302).

South Millican, by limiting many others BLM riding opportunities with significantly lower mile/trail density, the area should provide a longer season than what it currently has. Closure from December 1 thru July 31 is too long and with fire season staying around until October this area ends up being closed longer than just through July. This area needs to stay open thru March, as it is not a deer winter range concern. (Individual, Redmond, OR - #30)

The management people in charge [BLM staff] of maintaining some of the trails that will remain [open, in Alt. 7] already say they can't keep up with proper maintenance. If everybody is stuffed into smaller areas as the number of users grows, the remaining areas will be stressed even further. What will this lead to? We should be able to ride in South Millican Valley more of the year at least. (Los Lobos Motorcycle Club, Clackamas, OR - #1313)

In regard to South Millican: Issue team discussion of the area proposed an increase in the seasonal use that is not noted in Alt 7. August thru April would be a necessary addition to recreational opportunities considering all the recreational opportunities Alt 7 takes from motorized recreation and it would not negatively impact wildlife concerns. (Numerous individuals, OR - #1365)

in the Millican Plateau area.

Millican Plateau - the current eastern closure [to motorized use] should be eliminated to allow the promised trail expansion and an opportunity for a river vista included. (Individuals, OR)

Millican Plateau: Due to its low elevation, it is the only place in Central Oregon in the winter and draws riders from all over the Northwest. The area needs to be expanded like is shown in Alternative #2 in the NE area along the rimrocks of the Crooked River. There are existing trails there now which have fantastic viewpoints. (Individual, Bend, OR - #1280)

The closure of the northern tip of the Millican Plateau due to dumping and vandalism problems penalizes law-abiding OMRA members and other OHV users whose permit fees fund law enforcement and restoration activities in the Millican Plateau and other parts of the planning area. (Oregon Motorcycle Riders Association, Portland, OR - #1302)

in the La Pine area.

I object to the closure of the historically open designation of all BLM land bordering La Pine except the Rosland Play area and…I especially object as regards to snowmobiles. The Deschutes Nat. Forest wrote a Wild and Scenic River plan that would have imposed a similar closure a few years ago. Following a review of the Memorandum of Understanding between the Forest Service and The American Council of Snowmobile Association the USFS agreed to continue the open designation with a commitment from local clubs to monitor for damage or degradation. (Individual, Eugene, OR - #1312)

We …feel that providing no motorized opportunities at …the La Pine area is a mistake. There is use occurring in those areas currently, where will that use go? (Numerous individuals, numerous cities/states - #120)

The area south and East of La Pine is an ATV rider's dream offering many old logging roads and flat terrain to ride over...You would be making a grave mistake to [close La Pine to OHV use]. Rather, I would propose that you designate a large portion of BLM lands around La Pine as an ATV area and make riding there legal. I would urge you to expand ATV riding opportunities rather than curtail them. You would garner the support of the ATV Community and without question we would be willing to jump in and help develop these areas. (Individual, Dallas, OR - #287)

ODFW … recommends dropping the seasonal OHV closure in the La Pine geographic area for all alternatives (Oregon Dept of Fish & Wildlife, Bend, OR - #1298).

> ***Response:*** *The FEIS Preferred Alternative includes additional opportunities for motorized users. These include: additional opportunities for motorized trail development in the portion of the Tumalo Canals not included in the ACEC; additional opportunities north of Prineville Reservoir, and lifting seasonal closures in the La Pine area.*

Cline Buttes

The largest portions of the Cline Buttes area are provided for OHV trail development. Areas heavily fragmented by private lands (the area between Barr Road and Cline Falls Highway) were identified as being unsuitable for OHV trail systems over the long-term, and were of high interest from the public for separate non-motorized trails.

The area east of Cline Falls Highway in the Cline Buttes block was designated as Closed to motor vehicles (Map 3, FEIS). The intent of the DEIS/FEIS Preferred Alternative is to provide for multiple uses in the Cline Buttes area by designated easily definable areas for different recreation emphasis. The factors in designating this area as Closed to motor vehicles included the presence of the Deschutes River and raptor nest sites on the east boundary of the area, as well as the need to cross Cline Falls Highway to connect OHV trails in this area to any other public lands. The Dry Canyon area in Cline Buttes also experiences user conflicts and has similar resource concerns (raptors) that have led to the canyons being designated for non-motorized trails

The DEIS/FEIS Preferred Alternative does provide for OHV trails in the main portion of the Cline Buttes block (west of Barr Road). This would result in a loss of OHV riding opportunities in Cline Buttes, which was identified as an impact in the DEIS. The DEIS/FEIS provides language that allows greater flexibility for the BLM to maintain OHV trails in the main portion of Cline Buttes by allowing development of OHV trails within or alongside some of the abandoned canals in the southern portion of Cline Buttes (i.e., those canals outside the boundaries of the Tumalo Canal ACEC). There is a network of relic, unused irrigation canals between the communities of Tumalo, Redmond, and Sisters. The full extent of that network is not currently known but is estimated to be upwards of 15-20 miles. It is the intent of the BLM to manage those relic irrigation features for various uses that include both motorized and non-motorized activities. A small portion of the entire system has been identified as a proposed Area of Critical Environmental Concern (ACEC) because of the integrity of the system found at that location.

In response to concerns about the limitations on OHV use in the larger portion of Cline Buttes located west of Barr Road, the FEIS provides language that allows the Tumalo Canal trail system (outside of the Tumalo Canal ACEC) to be used as part of the OHV system. This would allow considerations of these areas that do not have good site integrity to be considered in the overall trail design.

Badlands WSA

The range of alternatives considered in the DEIS/FEIS provides several different management scenarios for the Badlands WSA, from opening the area to motorized use year-round on a designated system of inventoried routes to closing the area to both motorized and mechanized use. The area is a Wilderness Study Area and is relatively close to Bend. It has received increased levels of use, including motorized vehicle use off designated routes. In order to provide a mixture of recreation opportunities and to protect Wilderness values as required by BLM's Interim Management Policy for Lands Under Wilderness Review, the DEIS/FEIS Preferred Alternative closes the area to motorized use.

The Dry River Canyon area along State Highway 20 has been identified in the DEIS/FEIS Preferred Alternative as a non-motorized trail route. The area is currently closed to motorized use under the Millican Valley Plan consent judgment (Civil No. 98-29-ST). The narrow canyon tends to concentrate use and exacerbate user conflicts between motorized and non-motorized trail users. The canyon also has a raptor nest site, and generally faces seasonal restrictions to minimize disturbance to various raptors. The combination of these factors led to the decision to limit trail development to non-motorized in the Dry River Canyon. Keeping this area in a continued non-motorized trail status has few cumulative impacts, particularly in light of the larger, broad scale changes resulting from retaining

winter use in North Millican, expanding the Millican Plateau OHV area, and the Planning Area-wide travel management emphasis from Open designations to Limited or Closed designations

Millican Valley OHV Area

The DEIS/FEIS provides for a trail loop from Millican Plateau out to the Crooked River Canyon rim. The DEIS/FEIS Preferred Alternative will adjust the boundaries of the closure area along the Crooked River Canyon near Reservoir road to allow for a small amount of additional trail development; however, major areas of expansion for the Millican Plateau area will occur to the north and west, away from the Wild and Scenic River corridor. Various alternatives in the DEIS/FEIS identified different seasons of use for the South Millican OHV area. However, the Preferred Alternative kept the existing seasonal closure and the existing trail system in place. The limitations on trail density in other areas such as North Millican does not compensate or remove the resource issues in South Millican, which contains a Sage Grouse lek and nesting habitat. The Preferred Alternative attempts to provide greater winter use of North Millican and Millican Plateau areas for OHV to partially compensate for retaining the existing seasonal closure in South Millican.

La Pine

The DEIS/FEIS Preferred Alternative designates most BLM managed lands in the northern and southern portions of La Pine for motorized use on designated roads only (DEIS, Map 14 – Travel Management, Alternative 7; FEIS Map 3). This travel management designation moves all OHV trail use to a small block of land adjacent to the Rosland OHV play area.

The PRMP uses motorized closures as one of several management approaches for conserving wildlife habitats in La Pine. Many of the areas proposed for closure in this geographic area receive a considerable amount of deer migrating between their higher elevation summer range, and their lower elevation winter range. As a secondary factor, this area provides winter habitat for elk that is not available at the higher elevations on adjacent Forest Service-managed public lands. The FEIS Preferred Alternative removes the seasonal restrictions to motorized use on roads throughout the southern portion of the La Pine area and provides language that allows for development of limited trail connections in areas designated as Roads Only or Non-motorized Recreation Emphasis, in order to allow connections between use areas, or connections across BLM-administered lands to designated systems on other lands.

Rock climbing

See Archaeology, Caves.

Rockhounding

122. The RMP should consider additional rockhounding rules.

Summary of suggestions for rock hounding rules and areas:
1. Limit collecting to 200-250 pounds per year for each person, for each location.
2. All holes must be filled if digging outside of a high intensity rock hounding area.
3. Inside of a high intensity rock hounding area, holes must not exceed 3 feet in depth (compared to the original grade) when they are abandoned and must not have straight vertical walls. If you are planning to return to a hole and wish to leave the hole open, the digger must net or screen around the hole with plastic ribbon or fencing.
4. When digging, holes must be kept safe with no more than 1 foot of undercutting. Tunneling is prohibited.

5. Commercial claims and digging should be prohibited for materials that are unique and of limited availability. Commercial claims should be open for surface collecting if not being actively worked.
6. Clearly stated procedures should be established for the process of obtaining permits to collect beyond the legal limit.
7. Clearly stated procedures should be established for the process of establishing a "designated rock hounding area. Input and comment for future sites should be sought from the rock hounding community.
8. Future plan review should involve direct contact and notification of rock clubs in Oregon well in advance of the comment period and town meetings. (Mt. Hood Rock Club, City unknown, OR - #269)

Response: *The rockhounding regulations were modified in the FEIS/PRMP as follows: In all areas open to rockhounding, no person would be allowed to create or occupy excavations or holes that (1) undermine the root systems of trees, (2) enter into the ground at a non-vertical angle so as to create a tunnel or overhang or (3) have vertical walls that exceed a depth or height of four feet. Where holes or excavations exceed a depth of four feet, the walls of the hole or excavation would be required to be sloped to an angle not greater than 45 degrees from horizontal. All persons excavating, digging or otherwise removing soil to explore for, discover, or remove buried rock materials outside of designated rockhounding site boundaries would be required to completely fill all holes prior to departure from the digging site. The rockhounding collection limits were dropped because BLM is addressing this issue at the national level and may set limits for all BLM-administered lands nationally. Closing areas to the filing of mining claims is not an action that can be taken at the planning level. However, land withdrawal(s) from the location of mining claims can be recommended to the Secretary of the Interior to protect rockhounding sites for recreational use by the public.*

123. The RMP should increase rockhounding opportunities.

While I haven't been up to the Powell Butte area in quite a while, I notice on Page 13 Vol.3, it says continued designation for Powell Buttes, as RNA/ACECs. It states no collection of any rock materials for rock hounds. For one, I wasn't aware that rock hounding was illegal up in the region or maybe this is going to be a new rule. (Individual, Terrebonne, OR - #1357)

Response: *The DEIS/FEIS continues the current management direction that includes designation of three recreational rock collecting sites and designates one additional site. "Designation" means these areas are specifically managed for hobby or recreational rock collecting. However, rockhounding is allowed on all BLM-administered lands throughout the planning area except for those areas specified as closed to rockhounding in the RMP.*

124. The RMP should not have unnecessarily restrictive rules for rockhounding…

The current draft seeks to impose controls on the nature and amount of [rock] collecting in order to curb abuses. In general, the new regulations appear to be unnecessarily restrictive…. Fully filling the holes [from rockhounding] will lead to greater surface disruption as we search for viable material. Regardless of the area, it is small in comparison to the area and degree of disruption caused by other uses such as grazing and OHV usage. We are unaware of loss or damage to humans or animals from unfilled holes. (Mt. Hood Rock Club, City unknown, OR - #269)

...one of the activities I enjoy is rock hounding. It is appearing as if you want to confine rock hounds to 4 areas, I can understand how these areas would be great for tourists, but are no means places I would want to be restricted to. (Individual, Terrebonne, OR - #1357)

because the prohibition on digging in stream channels sets a bad precedent.

Don't make collecting rocks against the law in dry river or creek beds by prohibiting digging rocks out of them. This sets a bad precedent for other public land digging areas; who will enforce this anyway? (Individual, Unknown, OR - #1310))

because the collecting limits are too small.

The 50-pound collecting limit also is not warranted in most of the collecting areas. The average rock hound will drive for hours to get to a location . . . most of the surface exposures have been eliminated. We may take several trips without significant success before we find quality material. It is often years before we return to a location…500 pounds [the annual limit stated in the plan] of rock is the equivalent of approximately 9 (5 gallon) buckets or a chuck of rock that is 2.5 to 3 feet in diameter. This is really very little material on a yearly basis when compared to the amount of quality agate resource that is destroyed in normal quarry activity for building and road construction. (Mt. Hood Rock Club, City unknown, OR - #269)

because the hole-depth restriction is too shallow.

The four foot depth rule is not justifiable or reasonable in most prime collecting areas. In many areas, the prime material consistently lies in beds at a depth of 3 to 8 feet or deeper. Surface material has long since been removed by years of collecting. To enforce this rule would ensure limited success for diggers and a much greater area of surface disruption without harvesting the best of the available material.
For most of these areas, the area of disruption is very small in terms of total area of land that is effected …rock hounds should be given more leeway on these high intensity sites …Digging in or adjacent to open holes will naturally refill the previous hole while minimizing our effort and the total surface disruption. (Mt. Hood Rock Club, City unknown, OR - #269)

because the requirement to fill holes would lead to greater surface disruption.

The current draft seeks to impose controls on the nature and amount of [rock] collecting in order to curb abuses. In general, the new regulations appear to be unnecessarily restrictive…The four foot depth rule is not justifiable or reasonable in most prime collecting areas. In many areas, the prime material consistently lies in beds at a depth of 3 to 8 feet or deeper. Surface material has long since been removed by years of collecting. To enforce this rule would ensure limited success for diggers and a much greater area of surface disruption without harvesting the best of the available material. For most of these areas, the area of disruption is very small in terms of total area of land that is effected . . . rock hounds should be given more leeway on these high intensity sites…. Digging in or adjacent to open holes will naturally refill the previous hole while minimizing our effort and the total surface disruption. (Mt. Hood Rock Club, City unknown, OR - #269)

Response: *Rockhounding sites are managed for long-term recreational collecting opportunities. Allowing an individual or small group of individuals to completely remove a deposit (that exceeds the collection limits in size) of quality material is not consistent with this management objective. However, the limits have been dropped from the FEIS Preferred Alternative because the BLM is addressing this issue at the national level and state levels and is therefore deferred at the land use plan scale.*

The four-foot depth rule for holes has also been dropped and the requirements for filling holes have been modified. However, the FEIS Preferred Alternative requires vertical walls in holes or excavations to not exceed a depth or height of four feet. Where holes or excavations exceed a depth of four feet, the walls of the hole or excavation would be required to be sloped to an angle not greater than 45 degrees from horizontal. Under these guidelines it is permissible to dig holes that exceed a depth of four feet while minimizing health and safety hazards

to the rockhound. The Preferred Alternative does not require holes to be filled within the boundaries of designated rockhounding areas because numerous holes already exist that no one is responsible for filling and intense ground disturbance is expected in these areas. However, holes dug on BLM-administered lands outside the boundaries of designated rockhounding sites are required to be filled prior to departure from the area. There is much less need for holes dug outside of high intensity use areas to remain open for the benefit of other rock collectors.

Rockhounding would be restricted to surface collection within all stream channels in order to continue restoration efforts within stream channels on public lands and to comply with federal law. Many intermittent or ephemeral stream channels may not currently show expression of riparian vegetation. However, restoration efforts are focusing on improved watershed function that will capture and store water more effectively. As discussed on page 404 of the DEIS and in the FEIS, when infiltration is low and overland flow is high, peak flows result in stream channels and riparian vegetation being eroded. What may appear as a dry stream wash might actually support enough ground water and seeps to support riparian vegetation following restoration projects and improved watershed condition. In addition, as outlined in the DEIS/FEIS, the BLM must comply with the Clean Water Act and complete Water Quality Restoration Plans (WQRP) for streams not meeting State water quality standards. The WQRP identifies specific actions taken to improve water quality conditions. Allowing activities in stream channels, such as digging, that potentially degrade water quality by suppressing recovery of riparian vegetation or accelerating sedimentation, would be in violation of section 303(d) of the Clean Water Act. BLM Law Enforcement Officers would be authorized to enforce this use.

125. The RMP should balance hobby and commercial rockhounding use.

Commercial claims constitute the biggest challenge to the availability of the resources that are under consideration. A single season of commercial digging will do more damage to an area and remove more material than many years of uncontrolled hobbyist digging using had tools. Once an area is attacked by a track hoe, the remaining material is out of reach to everyone else. It is our [Mt. Hood Rock Club] opinion that the unique resources should not be able to be monopolized by self-serving commercial diggers. Provisions in the rules should allow non-interfering use by hobbyists on commercial claims on public lands. Commercial usage should not be allowed to eliminate a unique outcropping or resource. Commercial use requiring a permit opens the door to continued collection after a find has been made.

I would like to see rockhound areas that keep out the big backhoes and equipment but let people buy a permit to hand dig only. Have a permit that you need to buy a minimum amount, but there is also a maximum amount. If you want to control the number of permits, make it an over the counter application with a date cut-off. This does not have to be for all areas, but by not providing some you leave a large number of rockhounds out. People that have permits are their own police and teachers to educated would-be misusers. (Individual, Eugene, OR - #1286)

Response: *Mining claims may be filed on any lands that are not withdrawn from the 1872 mining laws. Rocks and minerals may not be collected from mining claims without permission from the claim owner. The availability of lands for the location of mining claims and the regulations for collecting on mining claims are not subject to change at the planning level. However, land withdrawal(s) from the location of mining claims can be recommended to the Secretary of the Interior to protect rockhounding sites for recreational use by the public.*

There are existing BLM policies for the use of mechanized equipment, explosives, and permits. A permit or authorization is required for the use of any mechanized equipment or

explosives to remove rock or mineral specimens on any BLM-administered lands including all designated rockhounding areas. A permit is also required for any commercial use of rocks collected from BLM-administered lands. Generally, commercial use permits would not be issued for the rockhounding sites designated in the RMP to emphasize recreational collecting opportunities. Other BLM-administered lands in the planning area would be eligible for commercial use permits. The collection (for personal use) of minerals, semi-precious gemstones, and common invertebrate fossils in reasonable amounts using non-mechanized hand tools does not require a permit from BLM. These existing policies are not modified by the RMP because no changes were identified to meet the purpose and need.

126. The RMP should clarify whether the rockhounding limits apply to each rock type, each site, across the planning area, or across the district.

The 500 pound limit per year portion of the rule does not specify if it is cumulative for all agate and thunder eggs or if it is 500 pounds for each classification of rock or digging area. Would the 500 pounds be extended to all of the Prineville district or does each planning area have it own limit? (Mt. Hood Rock Club, City unknown, OR - #269)

Response: *Collection limits have been dropped from the FEIS/PRMP. The BLM is addressing this issue at the national level and may set limits for all BLM-administered lands nationally.*

127. The RMP should provide the terms and conditions for the issuance of commercial use permits for rockhounding.

If you don't spell out the terms of how to get and for how much is allowed [rockhounding]and everything else then if I were to go and ask for a commercial permit, no one there knows what to do so the answer is usually no. (Individual, Eugene, OR - #1286)

Response: *The terms, conditions, and procedures for issuing commercial use permits are provided for in the Code of Federal Regulations (43 CFR Part 3600). Commercial use permits would be issued in the form of a mineral material sales contract and would require payment of fair market value for the rock materials. The management direction in the FEIS is to manage designated rockhounding areas for recreational or hobby collecting. Commercial use permits will generally not be issued for areas within the boundaries of designated rockhounding areas. For locations outside of designated rockhounding areas, commercial use permit requests will be evaluated on a case by case basis.*

Parking, trailheads, campgrounds

128. The RMP should consider the need for designated developed camping and day use areas within the planning area.

[Horse Ridge] would be a good place for a developed campground. (Individual, Gleneden Beach, OR - #278)

No [recreation] sites in the DEIS have been designated or maintained for group use, RV camping, picnicking, or day use activities on BLM managed lands within the planning area. For the most part, camping and picnic areas and other developed recreational opportunities are provided by National Forest Facilities, State Parks, or Bend Metro Park district areas. With the rapid population growth in Central Oregon, many communities are finding a shortage of developed parks for picnicking, trail use, and sports activities. (Business, Redmond, OR - #1332)

Our concern is that BLM management provides for urban day use for recreation users. This includes motorcycle and non-motorized use both off road and driving for pleasure. The Draft fills this need. (Individual, Terrebonne, OR - #18)

Trailhead parking and camping at the various units is a good idea. It keeps people in designated areas. But signs as to the type of use and where people can go will be critical. (Individual, Bend, OR - #180)

The creation of a trailhead [in the Cline Buttes block]. ..will reduce illegal activities such as dumping and recover much terrain into a more natural state. (Central Oregon Trail Alliance, OR - #1317)

Existing informal trailhead facilities should be moved off of Old Highway 20 (proximate to the 6561) Road and onto an existing impacted area adjacent to the road so as to provide safe access to Horse Ridge. (Individual, Bend, OR - #1296)

The land owned by the Oregon Department of Transportation off Highway 20 should be considered as a parking area for users of the recreation resources of Tumalo and Cline Buttes Units. The opportunity to park along a major highway will better serve Central Oregon residents. (Bend Metro Park and Recreation District, Bend, OR - #1287)

Response: *The plan does identify the general need for developed sites within the planning area; although site specific determination of where these facilities would be placed is generally absent. The DEIS/FEIS provides management direction Common to all Alternatives that: "New facilities may be developed when needed for public safety or to protect resources; development may include but would not be limited to trails, picnic tables, site designations, hardened and delineated parking areas, and permanent toilets; day use and group use area would be considered, with an emphasis on day use facilities that support areas with designated trail systems or interpretive features (DEIS, Appendix A; and in the FEIS/PRMP).*

129. The RMP should not provide for a parking lot on NW Homestead Way.

We...adamantly oppose the construction of a parking lot on NW Homestead Way. With present budget constraints, BLM funds could be directed to projects benefiting a much greater population (without the deleterious side effects of this parking lot proposal). The limited amount of parked vehicular traffic (an average of one car per week) does not warrant the construction of a parking lot. Since this proposed parking lot would not be visible from the county road, it would very much be an attractive nuisance. Some years ago, the area in front of our gate was used as a gathering place for high school students who spent their weekend evenings drinking beer, using drugs, and setting fires. We were able to eliminate this problem. A parking lot would be open invitation for this problem to resurface. (Individual, Redmond, OR - #281)

Response: *The DEIS/FEIS provides direction for managing access and development of trailheads and parking areas (which can be anything from a single pull-out to a hardened surface designed site). The demand for public access to the Middle Deschutes River, and the lack of understandable and signed river access was identified in the Analysis of the Management Situation as an existing issue. Without clearly defined parking and trailhead areas, public land visitors will face increasing difficulty reaching public portions of the river, and the ability of the BLM to provide visitor information will be lessened. The DEIS/FEIS identifies the need to construct parking and trailhead areas away from private residences to the extent feasible to reduce conflicts with neighbors.*

The specific location of parking areas is outside the scope of the EIS. In general, the DEIS/FEIS supports providing parking and trailhead facilities off major paved roads, with the exception of major State Highways, where the number of ingress/egress points may need to be limited in the future due to traffic volumes or road improvements. The DEIS/FEIS also directs that parking areas or trailheads that require the use of residential or minor subdivision roads be avoided, in order to reduce conflicts with residents.

The DEIS/FEIS calls for development of one or more trailheads to serve the Horse Ridge area. The specific location of these facilities will be determined at a site specific or area plan level of analysis.

The management of the Northwest Block calls for development of a non-motorized trail system. The concept of linking a trail system in the Northwest Block to a larger system on adjacent Crooked River National Grassland helps to provide greater recreation opportunities while minimizing the trail density and fragmentation within a moderately sized (5,000 acre) area of BLM managed land. Again, the specific location of trailheads and trails will be determined at the site specific or area plan level of analysis.

130. The RMP should prohibit camping within 10 miles of towns

All areas within 10 miles of the urban growth boundaries and city/town limits should be closed to camping (overnight occupancy) unless within a designated camping area. This will reduce illegal occupancy, trash dumping, human waste contamination, law enforcement patrol needs. (Individual, Prineville, OR - #1284)

Response: *The DEIS/FEIS does prohibit overnight occupancy in some specific areas such as the Redmond Caves parcel and certain ACECs. The issue of larger area camping closures was considered during the planning process; however, in consultation with BLM Law Enforcement staff, it was recognized that camping was not causing resource damage and trash dumping. Existing laws and regulations were felt sufficient to address illegal occupancy. Closing large areas to camping would provide few remedies to these problems. Few actions, other than closing BLM lands within 10 miles of towns to all motor vehicles at all times (or to motor vehicle access in the evening hours), would address these problems. Further, many BLM-administered lands located well outside of cities or towns have a high degree of dumping and illegal occupancy problems.*

Some BLM-administered lands closest to major cities were closed to motor vehicles year-round in the DEIS/FEIS Preferred Alternative. However, closing all BLM lands to all motor vehicle access or to vehicle access in the evening was not determined to be within a reasonable range of alternatives. To a large degree the DEIS/FEIS Preferred Alternative is based on the need to control or prohibit motor vehicle access in the outlying portions of the planning area to achieve wildlife management objectives. With this in mind, closing all areas close to cities and towns would result in an unreasonable restriction on public access and recreation opportunities. If implemented, the PRMP's direction to provide redesigned road networks and fewer (and more manageable) access points may help manage evening road use and increase patrol effectiveness in the future. If funding is available to implement the transportation and recreation portions of the plan, many problem areas will be addressed by becoming better managed, attractive areas valued by the community for their recreation infrastructure and opportunities.

Special Recreation Permits

131. The RMP should restrict commercial recreation use…

in the Horse Ridge Area because of wildlife and other concerns.
We recommend that no special recreation permits for trail dependent annual use should be issued for Horse Ridge. No motorized events should be held on roads on Horse Ridge. Trail degradation would be severe and require many hours of maintenance. Commercial use would have higher impact on wildlife in the area. (Central Oregon Trail Alliance, Bend, OR - #1303)

Also on Horse Ridge, I think the soils and the wildlife habitat make it an unsuitable place for large athletic events and competitions. (Individual, Bend, OR - #28)

Allowing two events per month of two days each is too much in this fragile environment. The impact to natural resources and to the experience of other users at Horse Ridge will

degrade as the size of user groups increase. The only sustainable use at Horse Ridge will occur by individuals or small groups attempting to enjoy the desert environment and wildlife. This is not an appropriate location for commercial use, events or races. (Central Oregon Trail Alliance, Bend, OR - #1303)

in Special Management Areas and other areas heavily visited by the general public.

In WSAs, ACECs, RNAs, and areas already heavily visited by the general public, commercial [recreation] use should be limited to no more than one trip per day. Commercial party size should be limited to 12 persons in WSAs, in fact, all parties commercial or private should be limited to 12 persons in WSAs to reduce impacts. Leave No Trace, Inc. has found, through extensive research, that the larger the party size, the greater the impact. (Individual, Prineville, OR - #1283)

Response: *The DEIS/FEIS does provide management direction for commercial/group use at Horse Ridge, requiring a permit for group use of over 12 participants and limiting special recreation events to two events per month (DEIS, Chapter 2, Page 201; FEIS, Chapter 2). Since these uses would be authorized under permit, the conditions of each permit can be adjusted to provide for user safety, to maintain or rehabilitate trail or road conditions, or respond to other resource or recreation concerns. A blanket restriction to commercial or group use of future designated trails in the area would not provide for multiple use or meet the existing demand for events such as footraces that exists in the area.*

132. The RMP should state that educational groups do not need special recreation permits because they are not commercial operations.

Though not specifically addressed in the plan, implicit is interpretation defining Central Oregon Community College (COCC), an educational institution, as a commercial operation when pursuing special permits. We find this determination illogical as well as inaccurate. COCC is as much a steward of the land as is the BLM. We teach in our classes and programs the kind of respect and stewardship that benefits and assists the BLM with their land management efforts. This is done in both the credit programs and the non-credit recreational classes. As a non-profit educational institution helping to promote conservation and responsible land use among our students, we suggest we be considered a partner of the Bureau of Land Management. (Central Oregon Community College, Bend, OR - #297)

Response: *The definition of commercial operations is in BLM regulations and applies Bureau-wide. Commercial use is defined (43 CFR Section 2932.5 (1) (i)) as recreational use of the public lands and related waters for business or financial gain. When any person, group, or organization makes or attempts to make a profit, receive money, amortize equipment, or obtain goods or services, as compensation from participants in recreational activities occurring on public lands, the use is considered commercial. An activity, service, or use is commercial if anyone collects a fee or receives other compensation that is not strictly a sharing of, or is in excess of, actual expenses incurred for the purposes of the activity, service or use. Use by scientific, educational, and therapeutic institutions or non-profit organizations may be considered commercial under the above (and other) criteria. The definition of commercial use (for Special Recreation Permit management) is included in the FEIS.*

133. The RMP should continue to allow special recreation use permitted events in South Millican.

The South Millican area historically supported special use permits for a variety of OHV and other uses. The connection between South Millican and the OHV areas in North Millican is ignored by the UDRMP. With an adequate analysis, the UDRMP would show that special use permitted events could continue in South Millican, be served by existing connections to North Millican, and support proposed environmental protections in the preferred alternative. (Oregon Motorcycle Riders Association, Portland, OR - #1302)

Response: *The DEIS/FEIS Preferred Alternative proposes to close the South Millican area to motorized events (DEIS, Volume 3, Page 229; PRMP). The DEIS/FEIS Preferred Alternative also proposes to close the North Millican area to motorized events from December 1 through April 30th (DEIS, Volume 3, Page 225; PRMP). The restrictions in North Millican follow similar policy developed in the earlier Millican Valley OHV Area plan and provide for less intensive group use during periods of concern for wildlife, including sage grouse, deer, elk, and pronghorn. Similar concerns exist for the South Millican area. While there may be some opportunity to link events between North and South Millican during the period that both areas are open to motorized use, the presence an active sage grouse lek in South Millican make this area less suitable for large group events (either motorized or non-motorized). The South Millican area represents historic sage grouse habitat that is now on the fringe of their range. Grouse numbers have steadily declined in South Millican due to numerous concerns including juniper encroachment and habitat loss, predation, and human disturbance. The agency is required to take affirmative action to help prevent the need to list the sage grouse as an endangered species. In addition, the presence of multiple county roads and checkerboard land ownership decrease opportunities for group events. The FEIS Preferred Alternative provides opportunities for Special Recreation events year-round in the Millican Plateau area.*

134. The RMP should provide interim guidance for Special Recreation Use permit holders until a designated trail system is finalized.

The plan needs to be modified to allow for our [Rock Springs Guest Ranch] continued use of the Wierleske allotment until such time that we can work with the BLM to develop and authorize these designated trails and add them to the BLM's transportation system. (Rock Springs Guest Ranch, Bend, OR - #1299)

[Common to alternatives 2-7, vol. 2 p. 479]: "Over the short term all annual special recreation permits for trail use would not be renewed until such use was authorized on designated trails that are part of BLM's transportation system…" Rock Springs Guest Ranch has had Special Recreation permits form the BLM since 1991 and has operated a horseback riding program on the Wierleske allotment since 1969 . . . Our business has been built around a riding program that is dependent on the adjacent BLM parcel for trail rides and to access our other permit riding areas on Deschutes National Forest (DNF) and Crown Pacific properties …The implementation and approval of a designated trail system could be years away. Elimination of our permits, even over the short term, will block our access to our other permitted riding areas. A cancellation or non-renewal of our permit until the "designated trails" are implemented would devastate our business. If Special Recreation Permits under these plans are only to be issued for use on designated trails, then the existing permittees (Rock Springs Guest Ranch and Equine Management) should be given a reasonable time frame for this system to be put in place. (Rock Springs Guest Ranch, Bend, OR - #1299)

Response: *The DEIS/FEIS provides direction that trail dependant commercial use be allowed only on trails that are part of BLM's designated trail system. In general, commercial, annual use permits should include a specific, mapped trail system, where the use can be monitored and managed under BLM's national permit guidelines. Based on review of the DEIS, comments have arisen regarding restricting commercial trail use through annual use permits to designated trails only. The concerns raised include the desire to have no restrictions on foot travel (i.e., hiking) use by commercial entities and the desire to allow existing commercial equestrian trail ride permit holders a reasonable period of time to operate under their existing permits while a designated trail system is implemented by the BLM.*

In addressing concerns over hiking use by commercial entities, the FEIS would allow interim commercial foot-travel use on non-designated trails or cross-county, under permit review and approval process. However, once a designated trail system is implemented in an

area, commercial foot travel will be limited to the designated trail system. The FEIS retains the prohibition for commercial use of non-designated trails for motorized, mechanized, and new pack stock/equestrian annual use permits. The FEIS addresses the concerns of existing permitees by including language that existing permittees who are renewing valid permits will be allowed to continue operating on the same non-designated trails that they currently use. This use would be restricted to designated trails as soon as is reasonably practicable, when area specific plans define the trail system.

135. The RMP should consider potential for conflict when offering multiple Special Recreation Use permits in the same area.

"SRPs would be required for all organized group activities involving greater than 20 participants." [Vol. 2, p. 200] -- During our peak season in the summer, group sponsored outings to this small area [Wierleske allotment] would definitely create user conflicts with our operation. (Rock Springs Guest Ranch, Bend, OR - #1299)

Response: *The issuance of a commercial Special Recreation Permit does not preclude public use of an area, including group use or special events. The potential for conflict is based on several variables, including group size, type of activity, time and frequency of use, and for trail use – the specific design and layout of the trail system. The potential for conflict among multiple user groups is possible, it is difficult to address at the RMP level because the RMP does not identify specific trail systems. The potential for conflicts between different commercial users and between commercial use and non-commercial group use would be addressed both at the plan implementation stage where trails and trailheads are designated, and at the permit review process for commercial and group use. However, the DEIS/FEIS does require permits for group use over a certain size threshold, which does provide an opportunity to address potential conflicts.*

Technical edits to Recreation

The FEIS has resolved the identified inconsistencies and clarified the specific language regarding the following comments:

The plan notes there should be a trail to be created linking 'southwest of main block' with FS Road 6360. Also a link from Sisters trails identified by CATS to access the road to Alder Springs Trailhead. We would like to know more about specific locations for trailheads and trails, and especially for any area open to motorized traffic. (Individual, Sisters, OR - #1326.

…we noted that the definition of "non-motorized recreation emphasis" on page 33 is poorly worded and not understandable. (Crook County Natural Resources Planning Committee, Prineville, OR - #1362)

Recreation section of Table ES-3 uses rounded number when rest of table is not rounded. Also see Recreation Management Emphasis, Alt. 4. Numbers don't agree between tables ES-3 and Table 4-22. (Bend Metro Park and Recreation District, Bend, OR - #1311)

Transportation, Utilities

General

136. The RMP should more clearly describe lands available for transportation needs.

The Guidelines on page 233 are also not clear in describing what lands would be used for "community expansion" as opposed to open space and highways. There is also no explanation why other lands could not be used for transportation needs. No adopted

and State-acknowledged transportation plans which would use this land are identified. (Consultant; legal representative, Bend, OR - #1315)

> ***Response:*** *The "community expansion" lands that can be used only for parks and other open space purposes (highways are a ROW in the transportation section) are located in the second bullet under Guidelines as being south of the north boundary line of Township 16. These lands are identifiable on the DEIS Map 34 Alternative 7: Lands Ownership and Acquisition Map; FEIS Map 6.*
>
> *There is some overlap between land ownership classifications (such as community expansion) with the transportation corridor designated in the Preferred Alternative. The lands along the railroad tracks south of Redmond - sometimes called the "sawtooth lands" are classified in the Preferred alternative for community expansion with a specific limitation on those uses, in the case the land was transferred to or administered by another public entity such as the county or the city. This area is overlapped by the designation of a regional transportation corridor. This corridor was specifically identified at the time of DEIS as an important component of an interim strategy to alleviate the potential failure of the Yew Street interchange. At that time, it was the city and county intention to utilize a Regional Problem Solving process to amend their Transportation System Plans to include this corridor, identifying an actual road alignment in a subsequent analysis process. Since the publication of the draft, the Oregon Dept. of Transportation has contracted a refinement study of the U.S. Highway 97 corridor south of Redmond. This refinement study will go beyond the scope of the analysis conducted for the Yew Street interchange failure, and may include new concepts for the transportation corridor designated in the FEIS. Since this corridor continues to be a potentially important facet of future transportation solutions south of the City of Redmond, it is included in the FEIS Preferred Alternative.*

137. The RMP should be more specific about how sprawl impacts will be avoided.

"Page 568 last sentence in the first paragraph - ""Under this alternative, land use measures would be applied to control any development on the land adjoining the roadway corridor to prevent any future sprawl impacts."" The potential for sprawl between Bend and Redmond as a result of the 19th Street extension is a major concern. It might be prudent to be more specific about how sprawl impacts would be avoided. Who has jurisdiction, and through what mechanisms will sprawl will be avoided? Zoning? Comprehensive plans?" (Oregon Department of Transportation, Bend, OR - #295)

> ***Response:*** *The DEIS, on page 512, describes how the use of lands in the 19th Street-Deschutes Mkt. Rd transportation corridor- if transferred to ownership or administration to either state or local jurisdiction - would be limited to development only as parks and open spaces along the Highway 97 corridor between Bend and Redmond. As noted in the DEIS/FEIS, maintaining those lands in public ownership to prevent Bend and Redmond "growing together" has been a major objective of the land ownership classifications. In addition, the FEIS Preferred Alternative requires reasonable mitigation for granting new rights-of-way that could include vacating some existing rights-of-way to reduce the overall road density in the area. (See DEIS/FEIS Chapter2; DEIS, Appendix A/PRMP). It should be noted that, although the transportation corridor involves both BLM and private lands, the mitigations identified in the DEIS/FEIS are specific only to BLM-administered lands. This is, in part, because of the scale of decision being made in the PRMP compared to the scale of decisions generally made by the County during land use actions. The designation of this corridor is the first step in a long series of public actions and decisions that would occur prior to any actual transfer of specific rights-of-way or construction of any transportation facilities. The measures necessary to prevent sprawl between Bend and Redmond depend largely upon the exact location or alignment of a facility, a decision outside the scope of this EIS. If the final alignment were west of the railroad tracks, the mitigations necessary to prevent sprawl would be very different, and probably more dependent upon state land use*

mechanisms, than mitigation needed to prevent sprawl on federal lands east of the railroad tracks. An additional site-specific analysis – including alignment-specific mitigation – would be required by federal and state agencies prior to actual granting of a right-of-way or construction of a roadway.

Roads

138. The RMP should mention that Crook County is constructing a road, potentially across public land, to connect Juniper Canyon/ Davis Loop area into Highway 27.

We also note with concern that Crook County is presently planning construction of a road connecting the Juniper Canyon/Davis Loop area into Highway 27, potentially across BLM lands or possibly through a portion of the Wild and Scenic River corridor around the Crooked River. The absence of any mention of this plan gives us pause. (Crook County, Prineville, OR - #179)

Response: *The placement of individual/specific roads is outside the scope of this EIS. The designation under the Preferred Alternative does not preclude application for the public facilities described. Crook County did not include information about a proposed road location to be considered in the FEIS.*

139. The RMP should recognize Highway 31 and the junction with Highway 97 as designated for motorized travel with support facilities as needed to support such use.

"Our interests focus on our future management of the Oregon Outback National Scenic Byway (OONSB…Although the program is not a preservation program, we feel the designation deserves special management consideration for visitors' visual anticipation as to viewing pleasant foreground along Highways 31 and 97…our comments on your draft relate to the Outback Scenic Byway: As the Byway is intended and marketed nationally as a major scenic experience for the American public, we would support that alternative which best recognizes Highway 31, as well as its junction with Highway 97, for motorized travel and open to such use, with support facilities as needed to support such use. (Business, Lake County Chamber of Commerce, Lakeview, OR - #89)

Response: *The area adjacent to Highway 31 and the junction with Highway 97 would be available for support and interpretive uses to support the Oregon Outback Scenic Byway under all alternatives considered in the DEIS/FEIS.*

140. The RMP should not designate Dusty Dirt Road as a collector road.

The current plan calls for Dusty Dirt Road to become a "collector" road with possible improvements and anticipated increased traffic. I oppose this plan for the following reasons: A portion of [Dusty Dirt] road runs through my private property, and is, therefore, a private road, not a public road. It is inappropriate to designate a privately owned road as public, or to designate private property as a public recreation area. At the very least the plan should be amended to end the road at my property line. Dusty Dirt Road was never a real road and never existed on any map before the Hickmans moved here and began to use it. There will be an adverse environmental impact [from designating Dusty Dirt Road as a collector across my private land]. We are already experiencing problems with littering, illegal trash dumping, illegal woodcutting, illegal off-road traffic, illegal and/or dangerously inappropriate campfires. These problems will only become worse if the public is encouraged to utilize this access route…There is no need for this [Dusty Dirt] road to access any portion of the public area between Sisters, Redmond and Bend. The best access is off Barr Road. All neighbors already have an easement across this land. (Individual, Bend, OR - #187)

Response: *Dusty Dirt Road is not a collector in Alternatives 3-7. The current map does not indicate that this road is a collector (FEIS, Map 2).*

141. The RMP should note that Highway 97 will eventually require a frontage road to reduce direct access onto the highway.

Page 551, 6th paragraph - It is important to note that ultimately, Hwy (US) 97 will require frontage road in order to reduce direct at-grade accesses onto the highway . (Oregon Department of Transportation, Bend, OR - #295)

Response: *The placement of individual/specific roads is outside the scope of this EIS. Although frontage roads are one possible outcome, they have by no means been demonstrated through specific analysis to be the inevitable outcome.*

Rights-of-way

142. The RMP should designate the Oregon Outback National Scenic Byway as a right-of-way exclusion area.

[W]e recommend adding the [Oregon Outback National Scenic] Byway to the list of designated right-of-way exclusion areas. (Business, Lake County Chamber of Commerce, Lakeview, OR - #89)

Response: *As a state highway, Highway 31 is a major arterial; consequently, designation as a right-of-way exclusion area is inappropriate. Moreover, because it is a state highway, BLM does not have sole jurisdiction with regard to placement of ROWs. Scenic and other values would be considered when granting specific rights-of-way to Highway 31.*

Administrative Access

143. The RMP should consider administrative access needs… for grazing permittees.

Designation of Horse Ridge as closed to all motorized traffic - as property owners of several large acreages in Golden Basin, we are opposed to the complete exclusion of motorized vehicles. Our grazing allotment covers the same area, and we require administrative access to our allotment. Past road closures have made checking cattle, fence, range conditions, water hauling, and changing pastures difficult. Further closures would compound the effect. (Domestic Livestock Industry, Bend OR - #1325)

Of critical importance to me is the part of the plan that deals with the BLM Wierleske allotment referred to in the plan as the Tumalo Block - 700 acre parcel south of Tumalo Reservoir Road . . . it is a critical piece to Rock Springs Guest Ranch since it provides the only access corridor to our other permitted riding areas on the Deschutes National Forest and Crown Pacific timberland.
. . . Would Rock Springs Guest Ranch have vehicular access [in the Tumalo Block] to fulfill our obligations for grazing permits, fence repair and maintenance, and emergency evacuation in case of an accident? (Rock Springs Guest Ranch, Bend OR - #1299)

During the OHV closure period I need access to roads (not OHV trails) to manage the cattle. From the DEIS it was not clear if only trails would be restricted, or roads for all vehicles. A restriction on all vehicles on all roads would be impractical as it would block individuals from legal access to their private property. Hopefully road restrictions would only be enacted after consultation with either the private landowners who may need access or permittees who need to manage their cattle. (Individual, city/state unknown - #1297)

Response: *Reasonable administrative access for permittees has always been anticipated under all alternatives. The FEIS/PRMP includes additional language to clarify the general conditions under which that access would be allowed. For allotment management, permittees would be allowed reasonable access to attend to the business of administering their permits. Motorized access to attend to emergency situations would also be allowed.*

Maps

144. The RMP should include new and/or better maps…

that more clearly show the existing and proposed transportation system.

The plan wisely recommends a limit on motorized traffic, keeping them to existing roads 'in the main block' (Holmes Rd to Forest Road 6360 + others as needed to get to trailheads) and to close the area [Northwest planning area] to all vehicles in winter ('limited to designated roads seasonally'). It is difficult to comment on how well this provision serves the plan's principles without knowing the exact number and location of 'existing roads.' We would like a map of these so we can comment more fully, and we would like to be part of any road planning for this area. (Individual, Sisters, OR - #1326)

We support Alternative 7's transportation concepts [in Northwest planning area] but need more information about specifics and ask the BLM to correct errors in the mapping of roads.(Individual, Sisters, OR - #1326)

that do not imply the general public has access across private land.

We are especially concerned and confused about the transportation provisions because Map S-7 shows our driveway and our own private utility roads as connecting public roads to BLM roads. These should not be shown as roads and certainly are not 'existing roads' available for motorized travel. We have strong concerns about this issue. [note attachment]. (Individual, Sisters, OR - #1326).

These private parcels we own in the Horse Ridge area need to be identified as such on all BLM maps. The maps should specify no public access without landowner permission. We have resisted fencing on these parcels; it would make grazing utilization difficult, invite vandalism and detract from the visual appeal of public lands. (Domestic Livestock Interest, Bend, OR - #1325)

Response: *The DEIS/FEIS specifically notes guidance to avoid or relocate roadways that are not public rights-of-way to avoid dead ending into private lands, and otherwise to discourage trespass on private lands. Many utility rights-of-way and driveways across public lands are currently open to the public, unless otherwise specified in the right-of-way grant. During specific area analysis, these "local" roads under BLM jurisdiction would be evaluated as part of the overall transportation system. Decisions would be made at that time whether those roads are needed for public access. Private parcels are intended to be so reflected. The specific parcel referenced above (and mentioned by landmark later in the comment letter) is identified as private lands on the planning maps. The location of private lands has been updated regularly for this planning process and as a matter of general BLM business, including the area around Horse Ridge. If specific discrepancies are brought to our attention and are verified, the map will be changed accordingly. Throughout this planning process, BLM has been updating and correcting the maps including the road system. Specific future designations of trailheads, and other uses would be open to public participation.*

Technical edits to Transportation

The FEIS has resolved the identified inconsistencies and clarified the specific language in the following comments.

Page 551, 7th paragraph - would suggest the following revision: The Oregon Department of Transportation has been involved in several studies and highway improvement projects in this area in recent years. The project known as the Glacier Highland Couplet project has recently been approved by ODOT and involves the construction of an east-west one-way couplet utilizing Glacier and Highland Avenues through downtown Redmond. This project will include redesigning the intersection of OR126 and Hwy 97. (Oregon Department of Transportation, Bend, OR - #295)

Page 522 - Second paragraph under Alternative 2 -- in addition to resolving traffic problems at the Yew Avenue interchange, the proposed transportation corridor from south Redmond to Deschutes Junction could (if the proposed alignment is located west of the railroad) help reduce at-grade direct access to the highway by providing alternative access for properties adjacent to US 97. (Oregon Department of Transportation, Bend, OR - #295)

In several sections, Sizemore road is described in the plan as a paved public road, it is not paved and it is a rough gravel road that gets limited use. (Rock Springs Guest Ranch, Bend, OR - #1299)

> ***Response:*** *Sizemore Road is paved, gravel and native surfaced road and is correctly identified on the transportation map as a county road. It is relatively heavily used and well developed in comparison to the majority of BLM roads in the local area.*

Land Ownership

Acquisition

145. The RMP should identify specific parcels for acquisition…

in multiple areas.

The SFPC [Sisters Forest Planning Committee] agrees with the proposed acquisition of private lands in the Tumalo, Northwest and Badlands areas. Additional acquisition would also be good in the southern Cline Butte area so that there would be a connection between the wildlife management locations in the Tumalo area and the area east of the Cline Falls Highway. (Consultant/Legal Representative, Bend, OR - #1315)

...if private parcels between Tumalo and Cline Buttes units were acquired, an uninterrupted recreational resource could be attained. (Bend Park & Recreation District, Bend, OR - #1287)

in the Tumalo area.

The following comments are specific to the Tumalo Management area and particularly T16S, R11E, S 16, 17, 20 & 21. My grazing permit, Harsch #5007, is within this area and protection of this area is of tremendous concern to me...Land acquisitions: Map 34, Alt. #7. I have noted that you have the Tumalo Irrigation District 240 acres plus their nearby 40 acre parcels and the ODOT land pinpointed for acquisition. That would be acceptable. I made several offers on the TID land in 2001; they sold me 150 acres, but refused to sell all 390 acres to me. My vision for the land is to keep it as it is now, for horseback riding and hiking and wildlife (Domestic Livestock Interest, Bend, OR - #1338).

At the January 6 meeting of the Bend Metro Park and Recreation District board meeting, the board of directors voted 4-0 to request the BLM add Tillicum Ranch to the exchange list. Tillicum Ranch is owned by the BMPRD and is located immediately adjacent to the BLM Tumalo unit off of Couch Market Road. Tillicum Ranch is approximately 200 acres in size and holds tremendous value in increasing the ability to manage wildlife resources in the Tumalo Unit Area. (Bend Metro Park and Recreation District, Bend, OR - #1287)

The following characteristics of these areas [in Tumalo area], as described in the preferred alternative (Alt 7), are what lead me to believe they warrant a Land Tenure Zone-1 designation: "General Areas Desirable for Acquisition" – Map 34 identifies the gap between the Tumalo Management Area and the southern edge of the Cline Buttes Management Area as a "General Area Desirable for Acquisition." I assume the reason for this designation is the clear importance of this area as a habitat connection and corridor for wildlife movement, not only between BLM management areas, but also as a linkage to the Deschutes National Forest. Habitat connections such as these - between forest and high-desert habitats - are extremely important and increasingly rare given ongoing development patterns. (Individual, Bend, OR - #1351)

in the Northwest planning area.

We strongly approve of the plan to 'infill' the BLM owned areas [in the Northwest planning area] to create a contiguous resource area. (Individuals, Sisters, OR - #1326)

in the Powell Buttes area.

We would like to see more public land on…Powell Buttes and would recommend these lands be classified as Z-1 to increase chances this may occur. (Individuals, Prineville, OR - #1310)

The idea of obtaining land to connect to the larger portions of the BLM is a great idea. The greatest need is in the Powell Buttes, if there is going to be continued use of the Buttes. (Individual, Bend, OR - #180)

Although private in holdings surrounded by BLM are a lot more expensive, I hope the team develops a priority list of desirable tracts to possibly acquire, beyond the Z-1 zones. (Individual, Prineville, OR - #1310)

in the Prineville Reservoir area.

Consolidation of parcels as identified in the DEIS (lands along the north side of Prineville Reservoir and adjacent to the WMA) would help maintain habitat effectiveness on adjoining deer winter range. In addition, the three parcels identified on the attached map would provide similar resource benefits and should also be considered for consolidation. (State of Oregon, Department of Fish and Wildlife, Bend, OR - #1298)

> ***Response:*** *Tillicum Ranch is not a desirable private property to acquire for the following: a) it extends out into private parcels that surround it on three sides, b) it would not further wildlife corridor goals, c) it does not block up public lands, and d) its end development may be better suited to urban park than wildlife habitat or key recreational links.*
>
> *The other parcels identified in the comments remain acquirable in the FEIS, although they may not be priority acquisitions. The reasons for prioritizing acquisitions are for scenic, recreation, and wildlife resource values. Acquisitions or easements would be for the purpose of obtaining access to these isolated parcels, acquiring other non-developed lands and reconfiguring the public land pattern to one more useable for the public. Acquisition in combination with the Z-2 classification provides the manager with more options to favorably reconfigure the land pattern. Specific parcels are identified on the land ownership map for the Preferred Alternative and in the acquisition section of the plan.*

146. The RMP should not identify Reynolds Pond as an acquisition priority.

…[W]hy are you trying to acquire Reynolds Pond? (Individual, Redmond, OR - #1361)

> ***Response:*** *Reynolds Pond and the surrounding area are already BLM-administered public land, so no acquisition is necessary.*

147. The RMP should identify no more parcels as desirable for acquisition.

On the issue of land ownership, the mention of land acquisitions by a Federal Agency seems ludicrous, in that there is not enough time or money to properly manage the land under BLM management right now. I think that with the limited resources that are available now - and with budgets being what they are in the future - the thought of land acquisitions should not be an item that is even open for consideration. (Individual, Redmond, OR - #122.70100.88)

> ***Response:*** *Acquisition is provided for under the Federal Land Policy and Management Act of 1976, as Amended, Title II.*

148. The BLM should streamline the process for acquisition of private lands.

Until the process for BLM acquisition of private lands is streamlined, these properties [Horse Ridge area] are a vital part of our ranching operation. We would be very interested in trading these parcels and eliminating these in holdings. But under current guidelines, it is an expensive cumbersome process no one is anxious to undertake. (Domestic Livestock Interest, Bend, OR - #1325)

> ***Response:*** *The process for Acquisition and Exchange is set by the Federal Land Policy and Management Act of 1976, and is thus outside the scope of this EIS.*

149. The RMP should identify land along the scenic byway on Highways 31 and 97 as Z-1 (to retain or acquire).

Our interests focus on our future management of the Oregon Outback National Scenic Byway (OONSB) . . . Although the program is not a preservation program, we feel the designation deserves special management consideration for visitors' visual anticipation as to viewing pleasant foreground along Highways 31 and 97 . . . our comments on your draft relate to the Outback Scenic Byway: We recommend that the lands associated with the Byway be put into the retention in BLM management status...we are hopeful that the lands within the Byway management corridor and within view of visitors fall with your zone I as suitable for long-term ownership.
…Under land ownership, we support your terminology that applies to private land parcels to be acquired as applicable to the Byway management corridor…We support the General area desirable for acquisition per alternative 7. We would support acquisition of the private lands within the Byway corridor, including the private lands one mile south [a]long Highway 31. (Lake County Chamber of Commerce, Lakeview, OR - #89)

> ***Response:*** *Lands are primarily classified for retention (Z-1), or retention with the option to exchange in these corridors. The emphasis to block up and provide for a wildlife corridor would complement the county's emphasis on the Byway. The private lands identified for acquisition are consistent with the letter.*

Retention

150. The RMP should identify specific public land parcels to retain in public ownership…

in the Cline Buttes area.

An area on the east side of Cline Butte near Eagle Crest is shown as Zone 2, but it should be Zone 1 since it is next to private land which is shown to be acquired. (Consultant/ Legal Representative, Bend, OR - #1315)

...I want to bring to your attention...an apparent error in the preferred alternative's land tenure zone designation...on the west side of the Cline Buttes Management Area. Map 34 [attached] shows that almost all of the Cline Buttes Management Area is proposed for Zone 1 designation. However, for some unexplained reason, two distinct areas are identified for Zone 2 designation: (1) BLM lands west of Fryrear Road, and (2) BLM lands along the southern edge of the Management Area in Township 16S, Range 11E north of Hwy 20... The following characteristics of these areas, as described in the preferred alternative (Alt 7), are what lead me to believe they warrant a Land Tenure Zone-1 designation: Peck's Milkvetch ACEC - Map 7 shows that, under the preferred alternative, both of these areas are within the proposed boundaries of the Peck's Milkvetch ACEC expansion area. It does not seem appropriate to consider trading out of lands that are within ACECs and I noticed that all existing ACEC areas are designated as Zone 1…. The western third of the Cline Buttes Management Area, including the area west of Fryrear Road, is designation as a "Secondary" wildlife management emphasis area [on Map 29], while most of this Management Area received a "Minor" wildlife emphasis designation. It seems like areas receiving this elevated emphasis designation should be retained and I noticed that most other areas in the "Secondary" category are in Land Tenure Zone 1… Priority Old Growth Juniper Restoration area - Map 6 identifies the area west of Fryear Road as a "Priority Old Growth Juniper Restoration" area. I noticed that all other areas receiving this designation are also in Land Tenure Zone 1. (Individual, Bend, OR - #1351)

in the Northwest area.

The Northwest area should be in Zone 1, since adjoining private lands are shown to be a priority for acquisition. (Consultant/Legal Representative, Bend, OR - #1315)

...the entire Northwest Management Area is identified as a "General Area Desirable for Acquisition", presumably for its importance as a key habitat linkage between National Forest lands to the west and north and BLM lands to the south and east. This Management Area is also designated as a "Primary" Wildlife Management Emphasis Area in the preferred alternative. Yet, it too is given a Land Tenure Zone 2 designation. I hope you will reconsider this designation. An area that is of primary importance to wildlife and a key habitat connection should remain in BLM ownership. (Individual, Bend, OR - #1351)

We suspect that old information on land ownership may have led the staff to recommend Z-2 for some of these lands. It is true that some sections are a bit of a patchwork, but the BLM pieces do create a wildlife corridor along Squaw Creek. If any one of these patches is traded away, the corridor will be interrupted. And there is no unoccupied private land near these patches to trade for BLM sections. We feel very strongly that this area is important to wildlife and would like to be kept informed about any land sales or transfers under consideration…We recommend they [lands in Northwest planning area] all be designated Z-1. Over 95% of the land is deer, elk, and eagle habitat. It is well forested and makes excellent habitat for a variety of animals. (Individual, Sisters, OR - #1326)

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of the land is deer, elk, and eagle habitat. It is well forested and makes excellent habitat for a variety of animals. (Individual, Sisters, OR - #1326)

> ***Response:*** *As a result of the Issue Team meetings and comments like this one, all but several smaller isolated and peninsular parcels in the Cline Buttes area and the large block of the Northwest area and several smaller parcels with specific resource values have been changed from Z-2 in the DEIS to Z-1 in the FEIS/PRMP.*
>
> *Several stringer parcels in the Northwest area remain designated for exchange (Z-2) for private parcels that are more favorable. The selection of these parcels was based on maintaining management options to better reconfigure the public land pattern to create a wildlife and recreation corridor, block up, and eliminate public lands that no longer have the resource qualities desired in this plan.*

151. The RMP should identify more public land parcels as Z-1, to be retained in public ownership.

Alternative 7 is the most extreme of the alternatives, having fewer Zone 1 lands and more Zone 2 and Zone 3 lands in combination than Alternatives 2-6, making sales and exchanges more likely . . . [Alt. 7] lacks clear public safeguards to preserve public values in the face of private land speculation. (Consultants/legal representatives, Bend, OR - #1315)

If the BLM decides to allow for mountain biking in the upper Cline Buttes block, there are a few issues that concern us…Future land exchanges: we would like all of the land in the upper elevations of the Cline Buttes block to be designated Z-1. (Recreation Organization, Bend, OR – #1317)

Response: *Modifications to the Preferred Alternative (7) in the FEIS/PRMP have changed the amount of public lands classified as Z-1 to approximately 324,000 acres, making it comparable to Alternatives 4 and 5; Z-2 to 63,000 acres, comparable to Alternatives 4 and 5; Z-3 to 15,000 acres, comparable to alternatives 1 and 6; and community expansion to less than 4,000 acres, comparable to Alternative 3.*

The upper elevations at Cline Buttes are classified as Z-1 in the Preferred Alternative. Isolated and peninsular public parcels to the east that do not have clear public access have been classified as Z-3.

Exchange

152. The RMP should allow for land exchanges in the Cline Buttes and O'Neil areas.

Within the greater boundaries of this project [Cline Buttes area] are several 40-acre parcels that are owned by the Bureau of Land Management (BLM). We [The Buttes Development Group] would like to consolidate some of these parcels into our destination resort and at the same time facilitate the consolidation of BLM properties as well. Given that the BLM is in the process of reviewing the plans for the area it seems that the time is fortuitous to address this in a manner that will minimize impact to all parties involved. The BLM parcels, as they are would impede access through the resort. And at the same time the resort would impede access to, and use of the BLM parcels. The parcels I'm referring to are located in sections #17, 20, 21, 29 & 30. They are shown in greater detail with X's on the attached map....Such a transaction could enable all parties to consolidate holdings and to maximize the access and uses. (Business, Bend, OR - #12)

...I currently own 187 acres that adjoins this particular proposed site [O'Neil area]…. Should the preferred proposed BLM Plan become enacted, I would like to be able to trade that property with BLM for 187 acres next to the Prong Horn Development to ensure

myself to be free of the issues that I have just addressed [regarding moving military use to O'Neil]. (Individual, Redmond, OR - #52)

Response: *The parcels of public land identified in the Cline Butte comment were, for the most part, identified for exchange. These parcels did not benefit wildlife and recreation and other resource values, nor improve the public land pattern. Specific parcels are identified on the land ownership map for the Preferred Alternative and in the disposal section of the plan. Parcels adjacent to Pronghorn development were not classified for possible exchange in the Preferred Alternative.*

Disposal

153. BLM should dispose of small isolated parcels

We are in favor of these small isolated parcels being disposed by BLM. We also favor these parcels being sold to adjacent landowners to keep the management of these lands together. This disposal helps the BLM consolidate management objectives and it helps the private landowners with their ranch activities. (Business, Prineville, OR - #13)

When the Draft proposal becomes a working document, we have a 40-acre BLM isolated parcel of land within our ranch. This parcel is located in Township 15 S Range 17 E Section 24, NE of NE. When it becomes available for title transfer from the BLM, we want to buy this 40-acre parcel. Due to the location, this piece of property would have no value to any other landowner. Road systems and very steep terrain in this area limit access. Besides, it is a juniper encroached determent to the watershed and needs management, which is not coming from BLM because the parcel is so far from other BLM property. (Business, Prineville, OR - #13)

> ***Response:*** *The process for acquisition and exchange is provided for under the Federal Land Policy and Management Act of 1976. Specific parcels are identified on the land ownership map for the Preferred Alternative and in the disposal and acquisition section of the DEIS/FEIS.*

Community Expansion

154. The RMP should not provide for community expansion south of La Pine's Unincorporated Urban Area.

Please do not expand the Community Expansion south of the existing Urban Growth Boundaries of La Pine. There is a nice boundary that is appealing to the eye and for the wildlife transition area. (Individual, La Pine, OR - #1306).

> ***Response:*** *The Preferred Alternative does not propose Community Expansion land designation outside of the Unincorporated Urban Area boundary.*

155. The RMP should identify a specific parcel as Z3 or community expansion.

"Map 34 [Alt. 7], I think is the best choice with a small change. Reclassify the parcels west of the current Urban Growth Boundary (T22S & R10E) from a Zone 1 to either a Zone 3 or community expansion. (Individual, La Pine, OR - #1306)

> ***Response:*** *These specific parcels have riparian and wildlife values and remain Z-1 in the Preferred Alternative of the FEIS.*

156. The RMP should examine specific use provisions for potential exchanges at Cline Buttes as community expansion.

…public lands to be provided for "community needs" include lands for a park between

Eagle Crest Phases II and III. The SFPC [Sisters Forest Planning Committee] questions such specific provisions for land exchanges with particular private parties without full disclosure of all the matters being considered for that property. (Consultants/legal representatives, Bend, OR - #1315)

> ***Response:*** *As a result of the Issue Team meetings and comments like this one all but several smaller isolated and peninsular parcels have been changed from Z-2 to Z-1 in this area. The DEIS/FEIS did not mention a specific exchange with any specific private group, but rather focused on its location and future conditions of use. The objective of Z-2 lands is to acquire land in a more favorable land pattern, which may involve or require disposal of those public lands not in that land pattern.*

157. The RMP should acknowledge the State of Oregon's right and interest to select in lieu lands, and recognize that lands identified for community expansion are prime candidates for this selection.

"In 1995 the Department [of State lands] and the Oregon state office of the BLM entered into an agreement concerning the disposition and selection of Oregon's remaining in lieu lands. . .these federal public domain lands are available to Oregon for selection in order to fulfill obligations stemming from the Oregon Admission Act of 1859. Once selected and patented to state ownership in care of the department, these lands become assets of the Common School Fund to be managed to produce revenue to support K-12 schools in our state. We note that all the alternative provide for areas planned for "Community expansion." There are lands that the Department considers as prime candidates for future in lieu selections. Therefore we respectfully request the Final Plan acknowledge the State of Oregon's right and interest to select such areas and the Bureau's obligation to assist in processing them to the Department. (State, Oregon Dept. of State Lands, Salem, OR - #1309)

> ***Response:*** *The FEIS/PRMP contains more than 10,000 acres of lands classified as disposal with over 3,000 acres classified for Community Expansion that could fulfill the State's entitlement for in-lieu selection lands.*

158. The RMP should use more accurate population estimates for Redmond and reduce the community expansion lands available to the city.

…the need [for Community Expansion lands] is described as Redmond being 5,500 acres short of what it needs for further development, based on a 20-year population forecast (see Volume 2, p. 548) [that] . . . has been revoked by the County after an appeal by the SFPC [Sisters Forest Planning Committee] to the Land Use Board of Appeals (LUBA). See the attached SFPC brief, County materials and LUBA decision. A further population analysis is in process and the preliminary analysis shows that the City of Redmond has greatly exaggerated its proposed population forecast, and thus its need for additional acreage. . .even if the City of Redmond were accurate in its population and acreage forecasts, there is no reason why such land could not be found on existing private and county lands surrounding Redmond. (Consultants/legal representatives, Bend, OR - #1315)

> ***Response:*** *While the latest figures of the Deschutes County 2000-2025 Coordinated Population forecast have been revised in the April 15, 2004 draft, public lands still continue to be an increasingly desirable source of land for urban growth and infrastructure to support such growth. Proximity is a major factor in the case for Redmond as the City of Redmond has significant blocks of BLM-administered lands adjacent to their core developments that are needed for future infrastructure development. The amount of lands designated as Community Expansion has been reduced as a result of the Issue Team meetings, comments like this one, and discussions with Redmond and Deschutes County about the urban reserve study. As a result of the final urban reserve study, it appears that the lands identified for*

community expansion between the City of Redmond and the North Unit Canal will not be needed for urban reserve in the next 10-20 years. Therefore the lands have been reclassified to Z-1.

159. The RMP should review land tenure designations within the Bend – Redmond geographic area to accommodate community expansion needs.

As a sitting member of the "Land Owners" issue team, I felt we had built a consensus, not only among our own group, but also among the other issue teams. When the teams were consolidated, and the remaining members joined, the community expansion needs were virtually eliminated; this, I feel, should be reviewed, with a substantial reinstatement of the land zoned Z-3 and designated "community expansion". (Individual, Redmond, OR - #68)

…in regard to the 318 acres of land located on 19th street just south of the county fairgrounds in Redmond…this land belongs to BLM and is set aside for community expansion.
The city of Redmond is interested in the property for community expansion to be used for utility purposes. We are currently undergoing an engineering study and updating our Facility Plan for Redmond's Wastewater Utility. Although Redmond's engineering study is not yet complete, it is estimated that Redmond would need an estimated 25 acres for wastewater facilities with possibilities of additional land needed for irrigation purposes. (City of Redmond, Redmond, OR – #1323)

I am writing to express my concern about the lack of public lands available for community expansion...The area most affected is located south of the Redmond Airport and Deschutes County Fairgrounds, and east of Hwy 97; presently, approximately 6000 acres are designated "community expansion lands." This area (T15S-R13E) is being reduced to approximately 559 acres, of which 318 is being earmarked for "Fairground expansion", the remaining acreage is being recommended for Z-1 designation (highest priority for "retention"). This property, currently managed by BLM, was used by the military, which recently removed approximately sixty tons of garbage during its annual exercises. This area presently housing "class-7" soils would be a valuable resource for the City of Redmond as it looks to viable alternatives in evaluating the expansion of its urban boundaries; alternatives, including expansion into irrigated farmlands, and other less desirable areas. In closing …I would urge you to consider leaving a larger area available for disposal under the Z-3 "community expansion" classification... (Individual, Redmond, OR - #68)

The Central Oregon Regional Park Association (RPA) has identified an area south of the Deschutes County fairgrounds that provides the ideal location for the establishment of regional park facilities...currently these lands are designated by BLM as "community expansion." Under Alternative 7 these lands would be designated as "Z-1" (retain). The proposed change in the federal designation would create significant additional impediments to our plan to develop a regional park facility. As a result, we are writing to request that Alternative 7 in the [DEIS] be revised to reflect the Z-2 designation for these lands. Zone-2 designation provides the RPA with the flexibility to move forward and work with BLM to establish a regional park. (Business, Redmond, OR - #1332)

Response: *The needs for public lands to provide for these public uses are reflected in all the alternatives. The amount of land dedicated to Community Expansion was significantly reduced in the Preferred Alternative (7) to less than 4,000 acres, making it comparable to Alternative 3. These changes were developed with the participation and consensus of the issue team and representatives of the City of Redmond, Deschutes County, and the State of Oregon. (See also: "South Redmond Regional Problem Solving (RPS) Process, Planning Commission Public Hearing Staff Report," Deschutes County, April 22, 2004;*

Oregon Military Department to MerrieSue Carlson, Governor's Office, March 24, 2004; and Response to Comments by Chuck McGraw, City of Redmond, March 2004.) These responses support that the amount of lands designated as Community Expansion should be adequate to provide for community needs in the next 10 to 20 years.

160. The RMP should reconsider the lands available for community expansion based on legal authorities and urban growth boundaries.

A primary concern of the SFPC [Sisters Forest Planning Committee] has been the BLM's provision for "community expansion" for the City of Redmond… the EIS mentions no legal authority of the BLM to consider such "community expansion." Furthermore, there is no need identified though such need is generally discussed at page 19 of Volume 2. That reference incorrectly describes the BLM lands as adjacent to Redmond's core developments. In reality, the BLM land is to the east and south edges of the city. Stimulation of private land speculation should not qualify as "community expansion." (Consultant/Legal Representative, Bend, OR - #1315)

Response: *Community Expansion is specifically mentioned in FLPMA, Sales, sec 203 (a) (3), and Exchanges, sec 206 (a). Community Expansion was also the designation use from the previous RMP, and has an established history in BLM RMPs.*

"Core" in the context of the plan refers to areas where public developments are occurring. The public lands are adjacent to an airport, fairgrounds, golf course, and close to an industrial park, all of which have had recent construction activities. The public lands are also adjacent to county owned lands that are for development purposes of some type. Finally, the public lands are adjacent to a major public highway, county road, and city roads.

The purposes of designating these parcels as Community Expansion were for anticipated expansion of the fairgrounds, sewage treatment facilities, airport safety, parks, and other such community needs. Land speculation on the adjacent private lands is for private uses, while the community expansion designation on public lands is for community purposes.

161. The BLM should designate community expansion land for the Oregon Outback Rural Fire Protection District.

O.O.R.F.P.D. [Oregon Outback Rural Fire Protection District] is a newly formed fire district located in North Klamath County. We are requesting that we are able to secure a section of property located within our district for the purpose of a Fire House/ Community Center. In addition, we plan to install a Heli-pad for emergency purposes. At this point, we are looking for an adequate amount of property (50 acres) not only for today, but also to comply with our 20-year projection for the community. The property of interest is located in…T23S, R10E, Section 27, adjacent to and east of Beal Road and West of BLM road 3386. (Place based group, La Pine, OR - #1316)

Response: *The designation under the FEIS Preferred Alternative does not preclude application for the public facilities described.*

Public Health & Safety

Dumping

162. The RMP should consider closing additional roads to discourage dumping.

Just a note to let you know that there is an access road at the end of Teton that gives access to BLM and where the dumping is going on....If you close the access roads in this area; it will keep folks from using it as a dumpsite. (Individual, Prineville, OR - #58)

Response: *In general, the DEIS/FEIS provides direction for the restriction or elimination of user-created travel-ways leading to habitual dumping areas. More specifically, Teton street, a subdivision road within Prineville Lake Estates is outside of BLM jurisdiction. However, because the DEIS/FEIS directs that adjacent BLM-administered lands will be closed to motorized vehicles, the BLM and this subdivision would work together to close this BLM access point to motorized vehicles and the associated public land dumping.*

163. The RMP should provide increased emphasis and direction to prevent trash dumping on public lands.

Dumping of garbage is a perennial problem on public lands, and part of our concern about inadequate levels of funding and staffing for enforcement. Several considerations should be made to reduce this abuse. Cooperative funding for the Crook County Sheriff to increase patrol density would help, since garbage dumping is a violation of both federal and state laws. The County has indicated a willingness to set up a "free dump" day at the County landfill in conjunction with organized clean-up efforts for the public lands. There is opportunity to use inmates from the local youth correctional facility for clean-up under agreement with the BLM to extend the clean-up efforts. Educational efforts to make people aware of the extent of dumping should be undertaken. Partnerships with local companies should be undertaken to remove larger metal dumps, such as refrigerators, old cars, etc. Once cleaned, efforts should be made to restrict access to the more heavily abused areas. In some cases such as the Crooked River corridor, volunteer groups could pick up and consolidate trash to be removed by helicopters during fire crew training. We recommend increased emphasis and direction for protecting our public lands from this obnoxious type of violation. (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

Response: *The BLM agrees that dumping on public lands is a serious management issue, including concerns over impacts to natural resources, social experiences, visual quality, and threats to public health and safety (for a more complete discussion see DEIS/FEIS, Chapter 3). The BLM currently conducts several major public land cleanups a year utilizing the Community Justice Program, BLM staff, and volunteers. Prineville BLM also presently removes approximately 80 cars a year (a lack of funding restricts further vehicular disposal). These efforts require considerable staff time and money.*

Despite these ongoing efforts, dumping on BLM land continues as a byproduct of population growth, increased development in rural areas adjacent to BLM land, increasing costs for legal trash disposal, and a lack of dispersed opportunities for legal trash disposal (i.e. transfer stations). Much of the trash on BLM-administered land includes tires, vehicles, and household appliances. Presently these items are relatively costly to dispose of. In addition, without additional funding for heavy equipment, closure of BLM access roads (i.e. fences and boulders) used by dumpers will be difficult. Additional cooperative efforts to educate the public and enforce existing laws are needed. However, without substantial long-term commitment to address the dumping issue from numerous government agencies at the local, state, and federal level, the cause, and therefore the results of public land dumping will remain extremely difficult to address.

The DEIS/FEIS Preferred Alternative does identify twelve sites as especially problematic and prioritizes these areas for cleanup. The DEIS/FEIS calls for the restriction or elimination of user-created travel-ways leading to habitual dumping sites.

Firearm Discharge

164. The RMP should contain language that will allow Oregon Department of Fish and Wildlife personnel to use firearms in an official capacity on BLM managed lands that have firearm restrictions in place.

...the draft plan does not contain language that specifically allows Oregon Department of Fish and Wildlife [ODFW] personnel to use firearms in an official capacity on BLM lands where firearm restrictions are proposed. ODFW recommends the Record of Decision include a provision that allows ODFW to utilize firearms for wildlife management purposes on lands where public no-shooting restrictions apply. (State of Oregon, Department of Fish & Wildlife, Bend, OR – #1298)

> ***Response:*** *We have modified exceptions to firearm discharge closures to better address the needs of non-BLM government personnel acting in an official capacity. The FEIS now reads: "Firearm discharge closures will not apply to: …2. Other government personnel in emergency situations."*

165. The RMP should designate areas near residential development "closed to all firearm discharge"…

in general.

While I know people need…places to practice shooting, I am completely in favor of the [shooting] closures proposed by Alternative 7 - I think shooting should be taken as far away as possible from urban areas and designated trail areas. (Individual, Bend, OR - #1281)

We support the EIS direction to reduce indiscriminate shooting in areas close to population development. (Crook County Natural Resource Planning Committee, Prineville, OR - #1362)

near La Pine.

We are writing this letter in regards to our request for a "no shooting zone" on an area of the pipeline that does on Hwy. 31. We are having people shooting directly toward our homes. There are a lot of deer around that area, and people don't realize that there such danger for us, or they just don't care. We are outside a lot, and we have grandchildren out playing, and it is creating a real safety hazard for us to even be outside our homes. We have talked to the natural energy and gas transmission . . . they have a sub-station there and are concerned about it getting shot also. [For] this small section of right-of-way, you are either shooting across Highway 31, at our homes, or at the transmission substation. We are requesting for this area a "no shooting zone", parts of section 27, 26, 35 & 34. (Individual, La Pine, OR - #92)

Map 37 &/or 38 [pertaining to all alternatives]:..property north of Burgess Road (Wickiup Junction) and east of the Little Deschutes River to Hwy 97 should be CAFD [closed to all firearm discharge] on BLM property (T21S / R10 & 11E). There are homes located near or adjacent to BLM properties that have been in harms way during target practice and during hunting season. The line of sight is impossible to see past a few hundred yards. I personally have cattle on my land and I move them out of harms way. I ended up with a dead buck on my property and when the State Trooper was called I was informed that it could be very difficult to catch poachers in this area. It is also hard to determine if poaching is occurring when it is difficult to determine if it is only target practice. (Individual, La Pine OR - #1306)

I am writing in regards to get a no shooting zone off of Hwy 31 by the gas line. Me and my fiancé bought property out there and plan on raising a family there. It scares me that

my child might be outside when someone is shooting towards our house, and could be killed. Please understand that people already shoot towards our property and I would hope that we could get that stopped. Parts of section 27, 26, 35, and 34. (Individual, La Pine, OR - #93)

In regards to trying to get a no shooting zone off of a gas pipe-line that goes in on Highway 31. We have people shooting directly at our homes and I'm scared someone will be killed. . . this little section of right-of-way, you are either shooting across Hwy. 31 at our homes or the transmission sub-station. We would really like to get this in a no-shooting zone - parts of section 27, 26, 35 & 34. (Individual, La Pine, OR - #91)

near the Deschutes River.

We live at CRR [Crooked River Ranch] and BLM has a long narrow section of land between us and the road behind. Our dilemma is the shooting and hunting on such a narrow space close to homes, livestock, and children on 3 sides...We have strong concerns about the safety issue. We hunt and are not opposed to hunting just for the safety of all that live on the sides of this narrow area. Please, is there any way to post no shooting in this area? (Individual, Terrebonne, OR - #50)

Because the range of most deer hunting rifles' bullets is at least two miles, I am asking that the area within close proximity to homes, children and livestock be made a 'no shooting safety zone.' People can bow hunt there as much as they want as far as I am concerned. When I asked one of your staff about this I was told to make a proposal with definable boundaries. So, it would seem to me that all shooting should be banned above the lower rim of the Deschutes River Canyon, and that this area be made a 'no shooting safety zone. (Individual, Terrebonne, OR - #4)

Second, we support the ban on firearm discharge on this BLM parcel [near Tetherow Crossing]. Hunting would not be safe due to housing density. This is a relatively small area of BLM land, and a high-powered rifle's bullet can carry very far. Over the past fifteen years, the land surrounding the BLM parcel has been almost entirely developed, now surrounded by single-family dwellings. Without exact knowledge of the placing of these homes, shooting in this area is not safe. In addition, any hiker or equestrian would be in peril. There are few natural backdrops to use as "stops" for target practice, and the entire area is covered with rock, making ricochets inevitable. (Individual, Redmond, OR - #281)

When I asked one of your staff about this I was told to make a proposal with definable boundaries. So, it would seem to me that all shooting should be banned above the lower rim of the Deschutes River Canyon, and that this area be made a 'no shooting safety zone'. (Individual, Terrebonne, OR - #4)

near the Bend Sewage Treatment Plant.

Public Safety …I support closing the area in T17S, R12 and 13 E, near the City of Bend Sewer Treatment plant. I have seen target shooters shooting toward the plant totally ignoring its presence less than 100-150 yards away. (Individual, Bend, OR - #1273)

near the Badlands.

Numerous times guns have been fired close to our house. Sometimes we are afraid to be outside for fear of a stray bullet hitting one of us. People shooting their guns out in the Badlands have increased as the years go by. The last couple of years have been especially nasty with people shooting firearms during various times of the year - not just during hunting season. As more and more people move out to this area and build on land that borders the Badlands it seems that it would be wise to stop all firearm use before someone gets hurt or killed. (Individual, Bend, OR - #90)

in the Northwest area.

[On the subject of Safety,] we disagree with Alternative 7 and recommend this [Northwest planning area] be a no hunting zone. We support the proposal to have no shooting in the Northwest except while legally hunting, in contrast with permissible shooting at any time. What hunting season(s) does the BLM recognize? We ask that the BLM consider allowing no shooting at all in the western areas of the Northwest, due to adjacency of dwellings. (Neighborhood closest to T14S, R11E, Section 19 is organizing to declare ourselves a no hunting zone and will ask that BLM apply that rule in the adjacent area). (Individual, Sisters, OR - #1326)

Response: *The DEIS/FEIS established a citizen-driven firearm discharge closure process to address concerns over target shooting and hunting on parcels of BLM-administered land near residential areas. The process includes guidelines that "provide a mechanism for adjacent landowners (including private landowners and public entities) to request no shooting buffers on adjacent BLM lands." (DEIS/FEIS, Chapter 2). The process initially requires local citizens and elected officials to agree upon, and codify into county regulations, firearm discharge closures within the aforementioned residential areas. With private land closures in place, citizens and appropriate local governments may then request a complementary closure on adjacent BLM-administered land. Explicit guidelines on establishing the boundaries of the closure areas were also provided in the DEIS/FEIS. This approach was viewed as preferable because: 1) closures would be citizen-based, emphasizing public awareness, input, and debate, 2) closures would be geographically explicit, protecting as much firearm discharge opportunity as possible, 3) adjacent governments would be involved, improving communication and cooperation between agencies, and 4) the initial amount of area closed by BLM would be greatly reduced, thereby improving implementation. (DEIS/FEIS Chapter 2).*

A one-quarter mile wide no-shooting buffer around all large blocks of BLM-administered land within the planning boundary was considered but eliminated from detailed analysis. Also, a BLM-managed shooting range option was considered, but was also eliminated from detailed analysis. Refer to the Public Health and Safety section on pages 210 – 212 of Volume 2 of the Draft EIS (FEIS, Chapter 2) for a detailed discussion of the reasons these options were eliminated.

Along with general comments, BLM also received a number of site-specific firearm discharge closure requests that are addressed below. In evaluating these closures BLM considered if the request qualified under PHS Objective 1-3 (High levels of recreational use, recreation experience, and impacts to developed facilities, or natural and cultural resources), or if it was preferable to defer a requested closure to the residential closure process because of the reasons outlined above. No changes were made to the Draft Preferred Alternative because either the Draft EIS had already identified a closure in the area, or the requested closures did not meet established criteria. All requested closures could potentially qualify for a residential closure under the conditions described above. The following details the evaluation of each of the proposed closures.

Near La Pine – The requested closure areas are not receiving high levels of recreational use, the area is not being managed for a particular recreational experience, nor are the natural, cultural, or managerial resources presently being impacted by firearm discharge. This includes the gas pipeline which does not appear to have been impacted by firearm discharge and whose construction seems relatively resistant to potential future firearm discharge impacts.

Near the Deschutes River – The Middle Deschutes Wild and Scenic River (MDWSR), adjacent to Crooked River Ranch, is presently closed to target shooting (DEIS/FEIS, Chapter 2) and would remain so as directed in the DEIS Preferred Alternative (Volume 3, Appendix A, Page 100). The comment included a request for a closure to all firearm discharge "above the lower rim of the Deschutes River Canyon." However, the MDWSR is a large area,

and with the exception of the Steelhead Falls area, is presently receiving moderate levels of recreational visitation. The area does not appear to be negatively impacted (including resource, social, and managerial resources) by ongoing legal hunting. In addition, the need for continued deer population controls is underscored by a large ungulate population crash during the 2002-2003 winter.

The DEIS/FEIS Preferred Alternative proposes to close the parcel near Tetherow to all firearm discharge because of high levels of recreational visitation, because the area is to be designated as non-motorized exclusive and is managed for a particular recreational opportunity, and because of concerns about impacts to natural resources.

Near the Badlands – The DEIS/FEIS Preferred Alternative proposes to close all of the Badlands WSA to firearm discharge unless legally hunting to complement the non-motorized exclusive recreation emphasis. This will be carried forward in the FEIS.

In the Northwest area – Within the Northwest block, a single isolated parcel, the Fremont Canyon Bouldering Area, was proposed to be closed to all firearm discharge in the DEIS (Volume 3, Appendix A, Page 100), and would remain so in the FEIS because of concerns over high levels of recreational visitation and impacts to natural resources, to complement the non-motorized exclusive designation in the Recreation section, and provide appropriate recreational opportunities. Two isolated parcels, both 40 acres in size, were proposed to be closed to all firearm discharge in the DEIS (Volume 3, Appendix A, page 100), but are now proposed to be closed to firearm discharge unless legally hunting in the FEIS. The change was made because these parcels are not heavily visited, because there are no immediate threats to natural resources related to firearm discharge, and to retain as much hunting opportunity as possible.

Two additional isolated parcels bordering adjacent USFS lands were proposed to be closed to firearm discharge unless legally hunting in the DEIS (Volume 3, Appendix A, page 100); however the FEIS now proposes that no firearm discharge closures would be implemented in these two areas. The primary reason for this change is because the relatively large adjoining USFS lands are not closed firearm discharge; BLM management was altered to agree with the USFS, the major landowner in the immediate area. In addition, these lands are not receiving high levels of recreational visitation, nor is firearm discharge presently threatening natural resources in the area.

Finally, the main Northwest block was proposed to be closed to firearm discharge unless legally hunting in the DEIS (Volume 3, Appendix A, page 100); however the FEIS now proposes that no firearm discharge closure be implemented in this area. The primary reason for this change is because the area changed from non-motorized exclusive in the DEIS to non-motorized emphasis in the FEIS. In addition, these lands are not receiving high levels of recreational visitation, nor is firearm discharge presently threatening natural resources in the area.

166. The RMP should close areas along the Highway 31 Scenic Byway corridor to firearm discharge.

We support the "Closed to Firearm Discharge unless legally hunting" for the Byway corridor along Highway 31. (Business, Lake County Chamber of Commerce, Lakeview, OR - #89)

Response: *Motorists along Highway 31 are protected by state and federal laws prohibiting firearm discharge over state highways. No additional restrictions to firearm use along Highway 31 were considered in the FEIS.*

167. The RMP should address the need to control firearm discharge in eagle habitat and nesting areas.

In the area where I live Deschutes County has established a Golden eagle habitat site. Special regulations guide building and use of the area to protect a nest along the Deschutes River at T15S, R12E, and Section 1 SE quarter. I applaud the plan for recognizing the need to control shooting in this area even if our reasoning differs. The plan appears to do it to protect local residents and I believe as important an issue is protecting prey species for the eagles and perhaps the eagles themselves. I should mention that I have used this area for shooting myself and have even harvested a deer here, and I will miss that opportunity, but I understand the need for change here. (Individual, Redmond, OR - #1341)

[The Whitaker Allotment] is important eagle habitat as there is a golden eagle nest across the river from use on the west canyon rim. The area used to support jackrabbits important as eagle food. Kids have been constantly shooting out there the last few years and I don't know if any rabbits are left. (Individual, Redmond, OR - #199)

> ***Response:*** *There are some existing seasonal closures (of all firearm discharge) around eagle nesting areas that are continued in the Preferred Alternative. Beyond protection of natural resources, the isolated parcels along the Middle Deschutes river (identified in these public comment letters) are being closed to all firearm discharge year-round because of concerns over high levels of recreational visitation by non-firearm discharging members of the public, and because these isolated parcels will be managed as non-motorized exclusive with recreation emphasis.*

168. The RMP should set an area aside as a no hunting area in the fall to provide increased safety for horseback riders.

I would like to suggest that a BLM area be set aside during September, October, and November (the best months to ride horseback) as a "No-Hunter" Zone as it's very unnerving to ride during hunting season. Please consider this for at least one BLM area. (Individual, Bend, OR - #1336)

> ***Response:*** *The DEIS/FEIS Preferred Alternative would close approximately 3 percent of the planning area to all firearm discharge (DEIS, Chapter 2, Page 215; FEIS, Chapter 2); these areas would provide all visitors with some areas where no shooting will occur even during hunting seasons. BLM parcels closed to all firearm discharge have been intentionally spread throughout the more urbanized sections of the planning area to provide appropriate recreational opportunities (people living in urban areas are expected to be more sensitive to the activity of firearm discharge than people living in rural areas). In addition, the areas closed to all firearm discharge have also been closed to motorized use; combining these two types of closures complement each other, and reduce user conflicts (see DEIS rationale Volume 3, Appendix A, page 101).*

169. The RMP should address the creation of shooting closures except during hunting season for specific areas.

It is extremely dangerous to ride [horseback] anywhere near the open road on weekends due to irresponsible gunfire. Many trees have been shredded due to being used for target practice. On several occasions I have had stray bullets whistle past me. I would strongly suggest the whole Mayfield block be closed to shooting except during hunting seasons when legal hunting would be allowed. (Individual, Bend, OR - #201)

I understand BLM's stance on wanting to close this area [Steamboat Rock Area] off to just smaller off road vehicles and shut down target practicing. It is nice that BLM considered hunting season as the only reason to discharge a firearm in this area… (Individual, Terrebonne, OR - #1357)

[I]...have been thinking about a way to save the Steamboat Rock for the future…. It would protect the top of the buttes...by shutting down all roads coming in or going out of Steamboat Rock, stopping all shooting [except]...open up hunting if it has to be… (Individual, Unknown - #198)

Shooting should be limited to hunting …only in all of the BLM. There [are] very few safe places to shoot. And damage to the trees and the land is extensive. (Individual, Bend, OR - #180)

> ***Response:*** *The DEIS/FEIS Preferred Alternative would close approximately 20 percent of the planning area to firearm discharge unless legally hunting (DEIS, Chapter 2, Page 215; FEIS, Chapter 2). These closures would allow hunting of waterfowl, upland game, big game, and furbearers during specific seasons, and hunting of "unprotected mammals and birds" year-round. As with the closures to all firearm discharge, these closures have been paired with a closure to motorized use, because the two types of closures complement each other and reduce user conflicts.*

170. The RMP should not prohibit predator hunting in the Badlands.

[I understand other closures, but]…to create a de facto wilderness area (Badlands) and then close it to firearms except during designated hunting seasons ignores the coyote and other predator hunting that goes on year-round and makes no sense to me. (Individual, Bend, OR - #1273)

> ***Response:*** *The DEIS/FEIS Preferred Alternative closes the Badlands WSA block to firearm discharge unless legally hunting; this designation will allow for legal hunting, including hunting of "unprotected mammals and birds" year-round, which includes the hunting of coyotes and some other predators.*

171. The RMP should make a distinction between rifles and shotguns when developing firearm discharge closures.

I think you should consider rifles as opposed to shotguns. The range of a rifle is much greater. In fact, I think shotguns should not be a consideration on open land but only in high-density parks, picnic grounds or where people gather in numbers. Us sportsmen are losing too much hunting areas as it is. (Individual, Bend, OR - #45)

Per Alternative 7 you might want to consider maybe "Preferred Alternative - Closed to Firearm Discharge unless Legally Hunting" on BLM…shooting of a shotgun for the taking of quail, squirrel, etc. would not cause harm as would bow hunting would not cause harm to personal property either. I definitely do not want to limit people, including myself, the right to shoot those _____ gophers and moles on their property. (Individual, La Pine, OR - #1306)

> ***Response:*** *See Alternatives Considered but not Analyzed in Detail (DEIS/FEIS, Chapter 2). BLM regulations only apply to BLM-administered lands and would therefore not affect firearm discharge on private property.*

172. The RMP should limit firearm discharge to designated areas only.

Please designate safe shooting areas for target shooting. Sign the rest of the area at entry points as to designated shooting areas and close the rest of the area to shooting for the safety of other users and residents. (Individual, Bend, OR - #201)

Shooting should be limited to…designated sites only in all of the BLM. There [are] very few safe places to shoot. And damage to the trees and the land is extensive. (Individual, Bend, OR - #180)

> ***Response:*** *See Alternatives Considered but not Analyzed in Detail (DEIS/FEIS, Chapter 2).*

173. The RMP should consider Recreation and Public Purposes Act leases for target shooting facilities near Redmond and Prineville.

The Redmond Rod and Gun Club intends to apply for a lease of approximately one quarter section of land for the purpose of planning, developing, and operating a multi-use shooting facility. The outdoor range complex will have significant beneficial effect for the regional community, law enforcement training, youth education as well as mitigate future damage to public lands managed by the Bureau of Land Management. . . . With a larger parcel we could add the usage of Blackpowder firearms, archery and develop a state of the art firearms training facility to meet the needs of regional law enforcement. The RR&GC believes that a parcel of land along Highway 126 either north or south on the western border of Crook County would fulfill our needs and falls with the guideline of Alternative 7 (preferred alternative) of the Draft Upper Deschutes RMP. (Redmond Rod & Gun Club, Redmond, OR - #197)

Another step that might be taken would be the creation of a local rifle/shotgun range close to Prineville through special use permit or concessionaire. The Redmond Gun Club is relatively close and available, but having a local range might reduce some of the dispersed plinking, and increase safety of public land users. (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

> ***Response:*** *The Recreation and Public Purposes Act (R&PP, See Alternatives Considered but not Analyzed in Detail, DEIS/FEIS Chapter 2) provides means whereby certain groups can apply to construct and manage developed target shooting ranges. Consideration of site-specific target shooting range applications is made within the R&PP application process but is outside the scope of this EIS.*

174. The RMP should allow for changes in areas closed to firearm discharge based on enforcement and monitoring.

Shooting: Please keep closures limited. Total closure areas in plan seem reasonable, along with seasonal closures. However, the plan should allow for changes in each of these areas, based on BLM monitoring and BLM ability to enforce these closures. Please work closely with BLM law enforcement before finalizing these closures. (Individual, Prineville, OR - #1310)

> ***Response:*** *The FEIS/PRMP will be periodically reviewed to determine if new information or changing conditions would indicate a need to modify areas closed to firearm discharge.*

Archaeological Resources

175. The RMP should allow surface collection of artifacts.

Native American artifacts in the form of arrowheads and other flakes are scattered widely over all of Eastern Oregon. Current rules make it illegal to collect or possess these items . . . A better alternative would be allow surface collecting of exposed material and encourage reporting a description of surface finds and their GPS location to a central data bank. (Mt. Hood Rock Club, Unknown, OR - #269)

> ***Response:*** *Congressional legislation over the past 100 years has established a policy to prevent the loss and destruction of archaeological resources and sites on public lands. It defines prohibited activities and can impose civil and criminal penalties. This Resource Management Plan is required to follow the direction provided by those Federal laws. It does not supercede it. Therefore, such an alternative is beyond the scope of this planning document.*

176. The RMP should clarify the definition of "Significance of Heritage Property," and reconsider the designation of low Significance of Heritage for Stout Cave.

On page 100, Table 2-15, Priority ranking of at-risk significant archaeological resources, the contents that make up the "Significance of Heritage Property" are missing from the document. There is no explanation of the meanings of items A, B, C or D. We cannot determine what the rankings are for Redmond and Stout caves. (Willamette Valley Grotto, Portland, OR - #1354)

The COCTF [Central Oregon Conservation Task Force] does not accept the relatively low Significance of Heritage for Stout Cave. By the admission of the BLM, the agency has not completed archaeological inventories on caves in the region. On page 100, Table 2-15, priority ranking of at-risk significant archaeological resources, the contents that make up the "Significance of Heritage Property" are missing from the document. There is no explanation of the meanings of items A, B, C or D. We cannot determine why the BLM regards Redmond and Stout caves as relatively low Significance of Heritage. The COCTF considers the archaeological history of Stout Cave to be seriously at risk. (Central Oregon Conservation Task Force, Portland, OR - #280)

> ***Response:*** *A, B, C, and D represent the evaluation criteria for eligibility to the National Register of Historic places as promulgated in section 60.4 of Part 60 of Title 36 of the Code of Federal Regulations (36 CFR 60.4).*
>
> *Unlike the historic features listed in DEIS, Table 2-15 on page 100, Redmond Caves, Pictograph (Stout) Caves, and Steelhead Falls have not been evaluated for their significance and eligibility to the National Register. Consequently, their significance and eligibility status is based largely on subjective judgments that place them at a lower rating level. Generally, the majority of prehistoric archaeological sites when evaluated as eligible for inclusion to the National Register are considered so under criterion "D".*
>
> *The National Register criteria for evaluation will be included with Table 2-15 in the FEIS.*
>
> *The significance of Pictograph (Stout) Cave is based on its current qualifications for listing with the National Register of Historic Places and requests for information about the significance of the cave from tribal governments.*

177. The RMP should protect caves from damage.

The graffiti and trash problems have reached a crisis level and the COCTF would like to plan with the BLM and the City of Redmond to restore the [Redmond] caves to their original condition (Preservation/Conservation Organization, Portland, OR - #280)

The SFPC [Sisters Forest Planning Committee] supports the closure of caves and closure of bolted climbing routes in order to protect pictographs. (Legal/Consultant, Bend, OR - #1315)

The [Willamette Valley] Grotto finds it unimaginable the BLM would consider sport rock climbing in Stout Cave in Alternatives 2, 3, and 4. On page 543, Archaeological Consequences, the document says, "Currently, all caves within the planning area have not been inventoried to determine their resource values." How can the BLM risk damage to undiscovered archaeological history by promoting a usage clearly adverse to the resource? With the USFS policy on Road 18 to ban sport climbing, an opposing BLM policy would certainly undermine the Forest Service position. (Willamette Valley Grotto, Portland, OR - #1354)

> ***Response:*** *The DEIS/FEIS Preferred Alternative closes Pictograph (Stout) Cave to establishment of bolted climbing routes and seasonally for bat hibernacula.*

The BLM manages resources and considers activities under a multiple-use policy in order to, among other directives, protect resources and provide diverse recreational and educational opportunities within the capabilities of ecosystems. In an effort to fulfill that mission for Pictograph (Stout) Cave, the BLM has required special recreation permits for groups, groups could not exceed more than eight people), and group visits would be limited to three per day. In addition, the BLM has implemented seasonal closures, prohibited use of chalk, bolts and other climbing hardware, and initiated many other protective measures. The intent of those measures is to allow people the freedom to pursue certain recreational and educational opportunities, while at the same time, protecting the cave's resources.

178. The RMP should refer to Pictograph Cave as Stout Cave.

Throughout the document the BLM refers to Stout Cave as Pictograph Cave and only four times as Stout Cave. It was our [Willamette Valley Grotto's] understanding from previous communications with the Prineville BLM that you were trying to re-establish the historical name as Stout Cave (Preservation/Conservation Organization, Portland, OR - #1354).

Response: *The Geographic Names Board has not officially changed the name of Pictograph Cave to Stout Cave. Therefore, the correct reference should be Pictograph (Stout) Cave.*

179. The RMP should not allow installation of sport climbing (bolt protected) climbing routes in Pictograph (Stout) Cave in all alternatives.

Major inconsistencies are present between the list of Significant Caves in the study area (page 15, showing Horse Butte Indian Cave, Pictograph Cave and Redmond Cave currently designated as significant) and some of the alternatives for Pictograph Cave which would result in unlawful damage to this cave. For example, the alternatives on pages 111, 157, and others would permit unlawful damage by installation of climbing bolts in parts of this Significant cave. While these are not the currently preferred alternatives, such unlawful provisions must be stricken from all alternatives. (Individual, Nashville, TN - #87)

Response: *The DEIS/FEIS provides a reasonable range of alternatives that respond to public land issues and needs. The issue of whether sport climbing routes should be allowed in caves has been a management issue for decades. In the UDRMP planning area, the issue has been present since the early 1990s, both in caves managed by the USFS and BLM. Clearly, there is a demonstrated interest in rock climbing at these lava tubes, the routes established at these sites are often highly technical, challenging routes in a setting that does not exist elsewhere. Special characteristics of this climbing include the rock texture, unusual foot and hand holds, location, steepness, cool temperature, protected aspect, unusual ambianc, and quiet setting in a high desert environment.*

The establishment of a rock climbing route does not necessarily constitute unlawful damage to cave resources. The placement of bolts is not specifically identified as a prohibited act under Section 7 of the FCRPA. Cavers, search and rescue organizations, etc. do, in some instances, place bolt protected anchors in caves. Access to other caves in the planning area is accomplished by steel ladders and concrete installed by the managing agency. Impacts to cave resources, including biological, cultural, and recreationa,l are somewhat dependent on the location and extent of route development.

The establishment of sport routes does change the recreation setting at a cave site, by increasing visitation and introducing some level of man-made features (bolts and hangers, quick draws). This can affect the experience of solitude and sense of discovery that are inherent at Pictograph (Stout) Cave. In order to maintain this recreation setting and reduce the risk of damage to cultural resources, the Preferred Alternative does prohibit the placement of bolt protected climbing routes. However, it is reasonable to consider other

alternatives (as was done in the Road 18 Caves EA prepared by the USFS, Deschutes National Forest in 2001).

The FEIS has resolved the identified inconsistencies and clarified the specific language addressed in the following comments:

The changes we seek in text are on page 223 of the First Nations of the Region section of the Social Setting discussion. The Confederated Tribes of the Warm Springs Reservation of Oregon would feel more comfortable if the following modifications were made: In the first sentence of the first paragraph, drop the word "small" so that it reads?, they occasionally encountered groups of Indian people. . .In the second sentence of the first paragraph, replace the word "contacted" with "came in contact with" In the last sentence of the first paragraph, insert the words "bands and" between "tribal" and "groups" so that it reads . . .primary tribal bands and groups:. . .In the fifth sentence of the second paragraph, replace the word "simply" with "may have" so that it reads . . .; one group may have out-competed another for resources;. . .In the sixth sentence of the second paragraph, insert the word "current" between "the" and "archaeological", replace the word "confirm" with "suggest", replace the word "were" with "has been", and insert the word "identified" between "settlements" and "in" so that it reads . . .What the current archaeological record does suggest is that,. . ., there has been few if any permanent settlements identified in the Upper Deschutes Planning Area. . .In the fourth sentence of the first paragraph of the Indigenous Traditional Lifeways and the Cultural Landscape section, drop the words "but not all, groups of" and replace the word "prehistoric" with "precontact" so that it reads. . .A typical seasonal round for some Indian people living in precontact Central Oregon. (Confederated Tribes of Warm Springs, Warm Springs, OR - #1300)

On page 81, Management Direction Common to Alternatives 2-7, the document says, "The use and/or possession of chalk or visually apparent hand-drying agents would also be prohibited in Significant/Nominated Caves," but later on page 199, this same sentence appears in the description of Alternative 7. The statement appearing only in Alternative 7 implies the BLM would allow chalk under the other alternatives. We [Willamette Valley Grotto] feel this is a mistake. In fact, from a cave point of view, Alternatives 5, 6, and 7 are the same (Preservation/Conservation Organization, Portland, OR - #1354).

Visual Resources

180. The RMP should include the recognition of the Oregon Outback National Scenic Byway as a national designation deserving special management action.

Our interests focus on our future management of the Oregon Outback National Scenic Byway (OONSB)…Although the program is not a preservation program, we feel the designation deserves special management consideration for visitors' visual anticipation as to viewing pleasant foreground along Highways 31 and 97…our comments on your draft relate to the Outback Scenic Byway: We found no recognition of the fact that the Byway exists and recommend the BLM reflect this national designation and federal/state program. (Lake County Chamber of Commerce, Lakeview, OR - #89)

Response: *The DEIS/FEIS does identify the Oregon Outback National Back Country Byway as a Key Observation Point (DEIS, Page 291;FEIS/PRMP), which was used to develop the visual resource management policy (i.e., VRM Classes) in the Preferred Alternative.*

181. The RMP should eliminate the proposed visual designation for Horse Ridge.

The Visual Designation for Horse Ridge is vague, not supported well in the text, and should be excluded from the final version. It seems adversarial to farming/ranching and is sufficiently protected by current Deschutes County Zoning. Another costly management project for administration by the BLM. All these lands are currently zoned EFU by Deschutes County, which affords inherent protection. BLM is charged with administering the land, not designating zoning codes. (Domestic Livestock Interest, Bend, OR - #1325)

> ***Response:*** *The DEIS identifies Visual Resource Management Classes for all BLM-administered lands in the planning area (DEIS, Map 22). This is consistent with BLM National Policy (BLM Manual 8400) and FLPMA direction to identify and protect visual values on public land. Horse Ridge is a highly visible landform that provides a backdrop of views from many locations, including the skeleton fire area, eastern portions of Bend, and portions of the Badlands WSA. Public lands on Horse Ridge are thus seen by many recreationists, travelers on State Highway 20, and many others. Given the high visibility of the area and the sensitivity of many viewers, particularly the public recreating in a natural setting, it is appropriate to assign a VRM Class 2 designation to the area. This designation is consistent with Class 2 designations made for Powell Buttes and Cline Buttes, which also form a highly visible backdrop to natural areas and communities.*

182. The RMP should enhance scenic viewing opportunities for motorized vehicles at Prineville Reservoir and along the Oregon Outback Scenic Byway.

I feel that there was little attention focused on the Prineville Reservoir area. Nothing has been proposed for this area and it needs to be looked at for visual opportunities of motorized use. What will BLM do with the uses that currently exist there? (Individual, Redmond, OR - #30)

Prineville Reservoir - Nothing is proposed there - that is not acceptable and should be relooked at for visual opportunities for OHV use also. (Individual, Portland, OR - #15)

…OMRA members pay [with permit fees] for a quality recreational opportunity and should have adequate access to visual resources in this area [Millican Plateau] along with other uses managed by the lead agency. The UDRMP fails to discuss how OMRA members and other OHV users will be integrated into the planning process to ensure access to these resources. (Oregon Motorcycle Riders Association, Portland, OR - #1302)

Our interests focus on our future management of the Oregon Outback National Scenic Byway (OONSB)…Although the program is not a preservation program, we feel the designation deserves special management consideration for visitors' visual anticipation as to viewing pleasant foreground along Highways 31 and 97…our comments on your draft relate to the Outback Scenic Byway: We would support only Visual Resource Management Class I for lands within the Byway corridor and do not support alternatives 2-7. We support alternative 6 or 7 that places a primary emphasis on wildlife management along Highway 31 that would enhance visitors' wildlife viewing. (Business, Lake County Chamber of Commerce, Lakeview, OR - #89)

> ***Response:*** *Travel management in the DEIS/FEIS Preferred Alternative surrounding Prineville Reservoir is focused on providing roads for motor vehicle use and trails for non-motorized use. This management approach seeks to balance wildlife management needs as well as integrate recreation management goals between BLM, BOR, and State Parks. The DEIS/FEIS Preferred Alternative provides direction for limited development of OHV opportunities north of Prineville Reservoir; howeve,r this direction is oriented toward providing opportunities for local residents and not as a larger OHV system that would draw*

many visitors and provides for scenic viewing opportunities of the Crooked River Canyon from the Millican Plateau area.

State Highway 31/Outback Byway was identified as a Key Observation Point and used as a basis for developing Visual Resource Management Classes in the DEIS/FEIS. The designation of the highway corridor as a VRM Class 1 area is not consistent with BLM's National Visual Resource Management Policy (BLM Manual 8400). VRM Class 1 designations are limited to Wilderness Areas and certain other congressionally designated areas.

183. The RMP should assure protection of visual resources from all types of recreation and development.

Our public lands, especially public lands that are elevated or in river canyon areas, need to have their scenic quality protected and not mutilated or degraded by vehicle or mountain bike trails or communication towers. Over time, the visual scars on BLM landscapes increase. Please turn this trend around by including scenic resources in any proposal that may affect scenic quality. (Individual, Prineville, OR - #1310)

Response: *The DEIS/FEIS identifies Visual Resource Management Classes (VRM) for all BLM-administered lands in the planning area (DEIS, Map 22). This is consistent with BLM National Policy (BLM Manual 8400) and FLPMA direction to identify and protect visual values on public land. VRM Classes provide management goals for preserving and rehabilitating scenic resources on public lands. These management goals apply to all land use decisions that the agency makes. Further, the BLM's national policy is to meet or exceed VRM Classes – seeking to achieve a better visual resource condition than the RMP goal.*

The process used to establish VRM Classes is explained in DEIS/FEIS, Appendix H. Public lands that are elevated (such as the major buttes in the planning area) or the river canyons both were used in developing VRM Classes due to the high public interest in these areas, their high visibility, and their inherent visual quality and diversity.

General comments on alternatives

The following comments address the merits of specific alternatives and why they should or should not be selected as the Preferred Alternative. These comments include some rationale for the respondent's opinion, and were considered by the agency in developing the Preferred Alternative in the FEIS. They did not require specific responses.

184. The BLM should be congratulated for using the Greater Sage Grouse and Sagebrush Steppe Ecosystems Management Guidelines in all alternatives.

We are particularly pleased that common to all alternatives in the draft Plan is a commitment to implement the Greater Sage Grouse and Sagebrush Steppe Ecosystems Management Guidelines (BLM IB No. OR-2000-334). (Preservation/Conservation Organization, Bend, OR - #1295)

Sage Grouse Restoration: The Service supports and encourages the implementation of projects within "Priority Sage Grouse Restoration Areas" that maintain and restore the sagebrush steppe plant community, particularly in areas that optimize conservation of the sage grouse. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

185. The BLM should select Alternative 1 because none of the other alternatives address OHV use and growth.

None of the alternatives address the real OHV issues, so my vote goes to Alternative plan #1. I think the BLM recreation department needs to work closely with COMAC and the

OHV users; together I think we can come up with designated trail systems that work. (Individual, Redmond, OR - #1348)

Until this management plan has a defined plan for OHVs and addresses OHV recreation growth and resolves any conflicts that may exist, (including funding of the implementation of the OHV plan) I would have to register as being in favor of alternate plan #1, "No Change". (Individual, Bend, OR - #1346)

186. The BLM should not select Alternative 1 as it fails to consider the risks of no action.

As described in the draft documents, the "no action" alternative is unacceptable as it fails to meet the stated purpose and need for the RMP and fails to consider the risk of "no action" to livestock grazing, timber harvesting, recreational use, wildlife habitats and socio-economic values, including the reduction of risk associated with catastrophic wildfire. (Timber or Wood Products Industry, John Day, OR - #119)

187. The BLM should select Alternative 2…

because the other alternatives are too restrictive.

In my opinion, I strongly prefer Alternative #2 if change is to be made. I would rather have number 1 but I do realize that man plays a part into this. I also see the other alternatives being too restrictive. (Individual, LaPine, OR - #236)

As Alternative 2 leaves most of land open to most of the land users that is the one my friends and I support. (Individual, Bend, OR - #1345)

because it leaves the most public land open to all recreational users.

I am an avid four-wheeler and support Alternative 2 as it leaves more public lands open to all recreational users including my family and me. (Individual, Bend, OR - #1358)

I'm in favor of Alternate #2, leaving public lands open for outdoor recreation of all types. Please - don't close or restrict any more land; it's really nice to know that I can go & hunt, hike, ride or drive in my country & state, without further closures. (Individual, Bend, OR - #115)

I am for Alternative 2 and for multiple uses on the land. I think there should be as many multiple uses as possible in your final draft. We enjoy using our jeep, hiking, and camping in these areas. (Individual, Roseburg, OR - #32)

The impact of changing currently OPEN areas to designated roads and trails affecting over 38% of the planning area is a dramatic management shift and one that will hugely affect OHV use. Alternative 7 would decrease OHV opportunities and increase non-motorized opportunities without documenting need for the shift. This direction does not provide enough opportunities for the growth of OHV recreation….This [20% annual] growth is not reflected in the opportunities for the next 10-20 years of this plan. (Individual, Bend, OR - #192)

for a variety of reasons.

I support alternative #2 for the following reasons:
1. You are not now protecting the subject put forward by the study.
2. ORV vehicles
3. Range management
4. Wildfire protect by habitat
5. Resident herd of elk next to W.S.A.

6. Historical sites
7. Rockhunting areas
8. Wood cutting
9. Fire
10. Camping
11. Moving area of road
12. Vehicles to other areas (Cline Butte and West of Redmond). You need to put your energy into protecting what you have [and] not add more projects until you do. (Individual, Redmond, OR - #1361)

188. The BLM should not select Alternative 3.

II: 131- OMD does not concur with or support BLM Alternative 3. OMD considers Alternative 3 as not meeting the purpose and need. See comment above regarding Volume II, page 13. As noted in the BLM's analysis of environmental consequences, Volume II, page 463, rehabilitation efforts will be impaired and the quality of the natural resources will be reduced and negatively impacted to unmanageable levels by Army and BLM standards. (Oregon Military Department, Salem, OR - #1308)

II: 149 - OMD does not concur with or support BLM Alternative 4. OMD considers Alternative 4 as not meeting the purpose and need. See comment above regarding Volume II, page 13. As noted in the BLM's analysis of environmental consequences, Volume II, page 463, rehabilitation efforts will have to be "more intensive" and consequently more prone to failure and the quality of the natural resources will be reduced and negatively impacted to unmanageable levels by Army and BLM standards. Additionally, the BLM states on page 463 that training activities "may be modified" without stating what will be the environmental requirements for this alternative which would require modification of training activities. (Oregon Military Department, Salem, OR - #1308)

189. The BLM should select Alternative 7…

because it protects ecosystem values.

The limited access and use proposed in Alternative 7 will help protect and preserve the land and its ecosystems and make it safer and more beautiful for those of us who do use and respect it. (Individual, Bend OR - #292)

I am writing in support of Alternative 7 as recommended… Alternative 7 provides recognition of the importance, and the practical long term protection, of the environmental resources of Central Oregon. The economic growth of Central Oregon is now firmly based on the value of Central Oregon's environmental resources. Protection Central Oregon's watersheds, native species, woodlands and visual resources is now as important as was the harvesting of area natural resources was when first settled… I support the key aspects of Alternative 7 which serve to . . . protect critical species habitat . . Alternative 7 puts in place a plan that protects and benefits the native species of Central Oregon in a manner consistent with allowing low impact use by local residents and visitors... (Individual, Wellesley Hills, MA - #117)

because of its focus on protecting wildlife habitat.

ODFW supports the general direction and management guidelines presented in the Plan (pp. 44-46, Table 2-2)…Alternative 7 makes sensitive species habitat a priority for protection and restoration, which ODFW supports. (Oregon Dept of Fish & Wildlife, Bend, OR - #1298)

We support Alternative 7 in its recommendations for wildlife and vegetation [in the Northwest area]. We are very pleased that this area is designated for primary wildlife emphasis. We see many deer, elk, eagles and other raptors, as well as numerous non-

predatory birds. We have also seen the occasional bobcat, cougar, river otter, and badger. Except for deer, the larger animals do not adapt well to encroachment and need acreage of undeveloped land for habitat. The plan should serve this primary emphasis on wildlife, but other features of the proposal do not seem to do so. (Individual, Sisters, OR - #1326)

Our interests focus on our future management of the Oregon Outback National Scenic Byway (OONSB) . . . Although the program is not a preservation program, we feel the designation deserves special management consideration for visitors' visual anticipation as to viewing pleasant foreground along Highways 31 and 97 . . . our comments on your draft relate to the Outback Scenic Byway: We support alternative 6 or 7 that places a primary emphasis on wildlife management along Highway 31, which would enhance visitors' wildlife viewing. (Lake County Chamber of Commerce, Lakeview, OR - #89)

The approach taken in Alternative 7 to implement a road and trail system in North Millican that reduces road and trail density to no greater than 1.5 miles per square mile and, equally importantly, emphasizes retention of large, unfragmented blocks (preferably 2000 acres or greater) of habitat throughout the area is essential to achieving the wildlife goals of the Plan. In the interim while this road and trail system is developed and other existing roads and trails are closed and rehabilitated, we support Alternative 7's retention of existing seasonal closures (December 1 through April 30). (Preservation/Conservation Organization, Bend, OR - #1295)

because it protects the Badlands.

I think that the BLM is doing a good job protecting the Badlands with the preferred alternative. This area is really beautiful and unique and should be protected from vandals and OHV users. This is a great area to go and look at geologic formation and to walk. I think that for people with Multiple Chemical Sensitivity Disorders removing exhaust and other fumes from this beautiful area is very important. (Individual, Bend, OR - #1279)

because it protects old-growth juniper.

I am writing to voice my enthusiastic support of alternative 7, the preferred alternative for the Upper Deschutes Resource Management Plan and EIS. With this plan our ancient Juniper woodlands will finally receive the attention and respect they so rightfully deserve. Public lands in Central Oregon will be healthier and safer areas to enjoy in the near future. (Individual, Bend, OR - #17)

We both strongly encourage you to adopt the preferred alternative. The old growth junipers are a unique resource for our heritage, future-generations, and they help make the Bend area unique. The preservation of this land is of vital importance. (Individual, Bend, OR - #182)

because it is flexible, balanced, and meets a diversity of needs.

I want to congratulate you and your staff for putting together a very good plan. What I like most about the plan is its honest and clear-headed recognition of problems and its flexibility in the solutions it proposes. I like the "alternative system of problem resolution" and Alternative 7 seems like a balanced solution to the major problems addressed in the proposal. (Domestic Livestock Industry, Bend, OR - #27)

WMI [Wildlife Management Institute] believes that the Preferred Alternative (Alt. 7) presents the best vision for future management of BLM lands in Central Oregon and represents the best balance of land uses. Key components of this vision for WMI are an emphasis on management of vegetation and wildlife source habitats to restore an historic range of variability and the high proportion of lands managed for >70 percent habitat effectiveness. (Preservation/Conservation Organization, Bend, OR - #1295)

Oregon Department of Fish and Wildlife understands the need for certain firearm restrictions and supports the measures in the Preferred Alternative that allow for hunting during all hunting seasons, including year around hunting for species that have no closed season. The Preferred Alternative strives to strike a balance between meeting public safety requirements, while maintaining recreational opportunities for hunting on most land within the planning area. (Oregon Department of Fish and Wildlife, Bend, OR - #1298)

As a general approach, Alternative 7 is a move in the right direction for this land. Alternative 7 preserves public ownership of a large proportion of the BLM land, has the strongest gun restrictions of any alternative, and designates a high proportion of the area for primary wildlife management. (Individual, Salem, OR - #1326)

We [Confederated Tribes of Warm Springs] support the concept of Alternative 7 and look forward to the future when this direction will be further implemented during on-the-ground projects and activities. (Tribal, Confederated Tribes of Warm Springs, Warm Springs, OR - #1300)

We agree with the BLM Preferred Alternative - Alternative #7. In our opinion Alt 7 provides the best system to meet the diverse needs of folks wanting to use BLM lands. (Individual, Terrebonne, OR - #18)

Alternative #7 appears to offer the best set of compromises. (Individual, Terrebonne, OR - #186)

I am in favor of the preferred alternative, Alternative 7. I feel it gives the best balance of land uses and a reasonable separation of recreational users. (Individual, Terrebonne, OR - #185)

. . . the authors of this comment [Mt. Hood Rock Club] fully endorse the stated objective of the proposed plan (Objective MN-4) . . . It is important to our group to maintain the rock and mineral resources available in this resource management area. We favor balanced and rational protection of the environmental resources. (Mt. Hood Rock Club, City unknown, OR - #269)

because it allows voluntary relinquishment of grazing permits.

…I encourage the BLM to continue its creative and constructive efforts with local government and the interested public to develop a livestock grazing management matrix which allows for voluntary grazing permit retirement and takes into account the interrelationships of recreation, changing land use practices, and livestock grazing on and around Central Oregon's public lands. (Individual, Anchorage, AK - #1360)

We appreciate the effort to develop a matrix to evaluate grazing impacts on allotments. We appreciate the effort to retire grazing allotments through voluntary closure. (Crook County, Prineville, OR - #179)

I very much favor Alternate 7 whereby the allotment would become a Reserve Forage Allotment or grazing would be discontinued but only if the permittee voluntarily relinquished the permit. . . By voluntarily relinquishing a permit an operation may be able to purchase water and expands on deeded acreages. This option fits our program and desired direction of beef production. (Clarno Cattle Company, Bend, OR - #203)

Voluntary reductions in grazing, or relinquishment of permits is fair and equitable. If a rancher is forced to give up a grazing allotment, they should be reimbursed. (Individual, city/state unknown - #1297)

because it has a negligible effect on my grazing operation.

The preferred Alternative 7 seems to have negligible negative impact on my grazing with one possible exception (the sage grouse situation which I have addressed below) and so Alternative 7 is also my preferred Alternative. (Domestic Livestock Industry, Bend, OR - #27)

because it allows for continuation of traditional multiple-use utilization of resources.

Alternative 7 provides the closest correlation with the statement of purpose and need in the Draft RMP…it also offers mechanisms for continuation of traditional multiple-use utilization for livestock grazing, mining and timber production. (Timber/Wood Products Industry, John Day, OR - #119)

because it provides for separation of recreational uses.

A key item is to separate [recreation] users to reduce conflicts. The Draft meets this objective. (Individual, Terrebonne, OR - #18)

[The UDRMP] in part restricts OHV access to sensitive high desert areas including the Badlands. While this protection falls short of Wilderness protection, it is a step in the right direction and the BLM is to be congratulated for recognizing that ATV, 4x4 and motorcycle use in the high desert is not compatible with hikers, horses, and mountain bikes, not to mention wildflowers and little critters. (Traditional Mountaineering, Bend, OR - #95)

because it promotes use on designated trail systems in wilderness areas.

I support the key aspects of Alternative 7 which serve to…promote the use of wilderness areas on predefined trail systems…. (Individual, Wellesley Hills, MA - #117)

because it restricts illegal dumping.

I support the key aspects of Alternative 7 which serve to…restrict illegal dumping…. (Individual, Wellesley Hills, MA - #117)

190. The BLM should select Alternative 7 after making some modifications.

The Oregon Military Department provides its reserved endorsement of the UDRMP-EIS and specifically a reserved endorsement of the BLM's preferred alternative, Alternative 7. The Oregon Military Department has reservations concerning the UDRMP-EIS and the alternatives based on what this Department interprets as weaknesses and inconsistencies within the UDRMP-EIS. (Oregon Military Department, Salem, OR - #1308)

I support the propositions in Alternative 7 with some modifications and clarifications [to the recreation section]. (Individual, Bend, OR - #1296)

While there is no question that BLM recognizes the increase in demands that are occurring, the preferred alternative seems to be more focused on the past ten years of change versus the next ten years. For that reason, [ONDA] would support elements of Alternative 7 and…Alternative 6. (Preservation/Conservation, Bend OR - #1319)

191. The BLM should select Alternative 7 as it reflects the collaboration between the agency (BLM) and community partners.

MTO [Malheur Timber Operators] Membership Supports Alternative 7: Alternative 7 provides the closest correlation with the statement of purpose and need in the Draft RMP,

and is most reflective of the collaboration between agency planners and community partners who participated throughout the planning process. (Timber/Wood Products Industry, John Day, OR - #119)

192. The BLM should not select Alternative 6 or 7 because these alternatives would have economic effects on individual grazing operations and the local economy.

We are objecting to Alternatives 6 and 7 because those alternatives impact grazing on our BLM allotment property. We see nothing in the Draft Plan regarding compensation to us for our loss of rights for which we have paid. We support Alternatives 1 and 2 and believe that grazing has been beneficial to the economic base of the community. (Quail Valley Ranch LLC, Salem OR - #298)

Environmental Consequences

Ecosystem Health & Diversity

General or multiple environmental effects

193. The FEIS should contain additional information, data, analyses or discussion on environmental impacts of the Preferred Alternative.

We [EPA] have rated the preferred alternative EC-2: EPA identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts. The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS U.S. Environmental Protection Agency, Seattle, WA - #1426).

> ***Response:*** *The information, data, analyses, or discussion requested is included in the FEIS. The EPA identified two areas of concern in its comment letter: a) water quality, and b) air quality. These considerations were addressed in general terms in DEIS/FEIS Chapter 4. In most of these responses the requested information, analysis, or discussion can be found in the DEIS. Some clarification was added in the FEIS.*

194. The RMP should provide more analysis of effects on microbiotic soil crusts.

BLM should recognize that microbiotic crusts play a role in a functioning ecosystem... The BLM should also recognize that recent literature and a new Technical Reference (TR 1730-2), issued in 2001, provide further insight into the impacts on biological crusts from livestock and other factors such as wildfire, the imprints of man, climate events, insects, rodents and other grazing herbivores. (Northwest Environmental Defense Center, Portland, OR - #1370)

The RMP fails to satisfy the NEPA requirement that it address the environmental consequences of the proposed action by failing to sufficiently discuss the impacts of grazing and other activities on microbiotic crusts which are important in stabilizing soil, fixing nitrogen, increasing soil fertility, increasing growth of higher plants and, in some areas increasing water infiltration. This is in spite of the significant part played by microbiotic crust as indicators of rangeland health and its substantial sensitivity to livestock grazing and other disturbances. [See RMP Vol 2, p.286]. (Northwest Environmental Defense Center, Portland, OR - #1370)

Response: *The importance of microbiotic crusts was discussed in Chapter 3 of the DEIS/FEIS, in several places in the Ecosystem section (see DEIS, Vegetation starting on p. 235; Soils starting on p. 283; and Biological Soil Crusts starting on p. 284). The effects of various actions on biotic crusts were also discussed the DEIS/FEIS. In the Soils section of Chapter 4 DEIS/FEIS, we acknowledge that "activities such as livestock grazing, hiking, horseback riding, mountain biking, and dispersed camping" affect soils (and thus soil crusts), but their effects are relatively minor compared to those from motorized use. The effects analysis, therefore focuses on motorized actions. Biological soil crusts are monitored during rangeland health assessments of livestock grazing allotments.*

195. The RMP should provide more analysis of the value of snags and decayed wood.

The critical value of snags and decayed wood need to be more fully recognized and considered. See Rose, C.L., Marcot, B.G., Mellen, T.K., Ohmann, J.L., Waddell, K.L., Lindely,D.L., and B. Schreiber. 2001. Decaying Wood in Pacific Northwest Forests: Concepts and Tools for Habitat Management, Chapter 24 in Wildlife-Habitat Relationships in Oregon and Washington (Johnson, D.H., and T.A. O'Neil. OSU Press. 2001) http://www.nwhi.org/nhi/whrow/chapter24cwb.pdf. (Preservation/Conservation Organization, Eugene, OR - #238)

Response*: The importance of snags and decayed/downed wood was described in the issues and development of specific objectives and guidelines (DEIS, page 31: Objective V – 6; and page 38: Objective W – 3; FEIS/PRMP). These objectives were developed using current literature recommendations, including the reference cited in this letter, in the development of the management guidelines outlined in Volume 3 (page 39). See the References section for a complete list of sources used in the preparation of the FEIS/PRMP.*

The effects analysis also considers the value of snags and downed wood resources by using the cavity – excavator habitat influence index process (Volume 2, page 357), developed by Gaines et al. (2003).

196. The RMP should provide more analysis of the effects resulting from motorized use.

The information regarding road and trail densities, location of roads and trails and mileage available on BLM land is not used by the specialists in their reports. In fact, what was stated was that "information was unavailable" regarding OHV usage. With that stated, it would seem impossible for BLM to analyze consequences. Upon studying the environmental consequences in chapter four, current OHV use and how it affects vegetation, soils, wildlife or recreation was not found. Without that basis it seems BLM will be unable to determine impacts. (Individual, Bend, OR - #192)

The data used to project growth of motorized recreation does not speak to what is actually happening on BLM land in Central Oregon. Use levels are not described which makes the decisions and allocation of uses and assessment of needs inaccurate. The document does not show enough analysis of OHV growth, usage or demand to support the preferred alternative. (Individual, Bend, OR - #192)

. . . this [Dusty Dirt Road] area is part of the Tumalo winter deer range and this herd will be adversely affected at a particularly vulnerable time of the year by increased winter traffic. This area also is one of the few remaining areas for the threatened Peck's milkvetch. Increased off-road traffic (illegal but inevitable of on-road traffic is encouraged) will seriously threaten this species. (Individual, Bend, OR - #187)

...the UDRMP fails to truly address the impact of OHV access and travel on public lands in that only about one-fifth of the area under consideration is actually closed to such use....the BLM proposes to sacrifice four-fifths of the area under consideration to OHV activities. (Individual, Berkeley, CA - #86)

Response: *Effects on soils and vegetation caused by motorized recreation/travel, as well as other mechanized/motorized operations, are described in the Environmental Consequences Chapter in the DEIS pages 335-348 and in the FEIS. Because detailed information is not available regarding road and trail mileage or exact location of roads and trails, it was only possible to compare the relative effects of these activities in each alternative, rather than obtain absolute quantifiable information such as number of acres affected in each. Effects for motorized recreation and travel were described in a qualitative manner rather than through a quantitative analysis.*

Off-highway vehicle access on public lands is addressed in the Transportation and Utilities section of the DEIS, Volumes 2 and 3

As previously described, the comment on Dusty Dirt Road addresses the technical edit that marks a section of private road as a collector on a map. This map has been corrected in the FEIS.

Vegetation

197. The RMP should consider new information available on juniper.

The Draft doesn't adequately address the juniper woodlands transition and development. The juniper woodlands expansion is occurring not just because the natural fire frequency cycles have been disturbed. New research indicates that the expansion is occurring because of other circumstances that the BLM hasn't addressed completely…the BLM has yet to show any concerns regarding this matter. The BLM has already made up its mind. New information is available on this issue from Professor Lee Eddleman, 1994 Western Juniper Woodlands Science Assessment. (Individual, Prineville, OR - #1314)

Response: *There are a variety of factors for the rapid expansion in density and range of western juniper in the last 100 years. The interruption of the natural fire regime is one primary factor but several other factors are also involved. Livestock grazing, climatic change, human developments, off-road travel, agriculture, introduction of non-native species, and other factors have all contributed to substantial changes in the structure and composition of native vegetation. The 1994 Eddleman publication cited, as well as Miller, Agee, Hall, Hopkins, Franklin, and others contain important information and research results regarding changes/trends in shrub-steppe, juniper woodland, and forest plant communities (citations from all of these researchers and others have been used in the document – see References section in the DEIS/FEIS). Change factors are discussed in the Affected Environment, under Vegetation and Disturbance Relationships, beginning on page 235 of the DEIS and in Chapter 3 of the FEIS. A more detailed discussion of changes/trends is also included in the Environmental Consequences Chapter under Vegetation (DEIS, page 327), especially under the Alternative 1 discussion of effects. The 1994 Eddleman publication has been re-reviewed and additional information has been included regarding western juniper expansion factors in the Final EIS in the Affected Environment (Chapter 3).*

198. The RMP should address carbon dioxide assimilation.

The Draft information doesn't cover any aspects of CO2 assimilation. New information indicates that the western juniper is the best carbon sink vegetation in the planning area. CO2 assimilation should be a part of vegetation management strategy. The analysis has yet to incorporate this very important issue into the planning process (Individual, Prineville, OR - #1314)

Response: *The Environmental Consequences chapter discusses effects of prescribed fire and mechanical treatments on woody vegetation, including effects on carbon dioxide assimilation and carbon dioxide (CO2) release on DEIS, page 343. Additional information has been incorporated to elaborate on and clarify carbon dioxide effects in the FEIS. The BLM recognizes the important role of long-lived woody vegetation, such as juniper, pine,*

sagebrush, and other woody species, regarding carbon dioxide assimilation. Carbon dioxide assimilation is one of many factors to consider in developing a multi-faceted vegetation management strategy.

199. The RMP should examine the effects of private land use on juniper development.

The Draft summarizes the history and development of western juniper woodlands in the planning area . . . the Draft excludes the effects that private land uses have on juniper development. The Draft doesn't provide enough research information on the juniper seed germination process. (Individual, Prineville, OR – #1314)

Response: *The RMP discusses direct and cumulative effects of private land development on old-growth juniper woodlands (see Chapter3 and Chapter 4). Human land uses and their effects on increases in western juniper range and density has also been discussed in the draft (Affected Environment page 239-240). Additional information regarding factors influencing juniper seed germination and early juvenile growth has been incorporated into the FEIS/PRMP.*

Wildlife

200. The RMP should more accurately analyze how wildlife habitat is affected…

for cumulative effects of management activities.

Activities that can adversely impact sage grouse and their habitat include agricultural conversion, rangeland conversion, including herbicide and mechanical treatments, off-highway vehicle use, livestock management including grazing and seeding, juniper encroachment, exotic species, wildfire, prescribed fire, structures, including fences, and recreational use. All of these activities occur within the Planning Area. The draft EIS should analyze the direct, indirect, and cumulative effects of the above mentioned affects to the sage grouse population in the Planning Area, and discuss mitigation to offset adverse impacts. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

ODFW management objective for the North Paulina Winter Range is to maintain 5,500 deer, which is 20 percent higher than ODFW's population estimate of 4,400 wintering mule deer for the past three years. Furthermore, the management objective for the North Paulina Winter Range has not been met in the past 18 years. ODFW believes the following cumulative factors play a large part in this outcome:
- Increased year round recreational motorized activities including OHV use;
- Increased residential development in winter range;
- Increased Hwy 97 traffic that bisects summer and winter range;
- Decreased summer and transition range forage due to a denser forest canopy;
- Managing for homogenous stands of black bark ponderosa pine across large acreage on the winter range. 70+ year old trees tend to be evenly spaced with a raised canopy, which does not provide cover or forage;
- Loss of cover and forage from recent wildfires;
- Fuel and Forest Health treatments that significantly affect maintenance of recommended deer cover forage conditions;
- An older cohort of bitterbrush that may be putting most of it's productive energy into plant maintenance rather than annual leader growth;
- Predation and poaching… (Oregon Department of Fish & Wildlife, Bend OR - #1298)

to evaluate the adequacy of sage grouse conservation plans.

The UDRMP EIS should analyze impacts resulting from the multiple uses proposed in the alternatives to assess the adequacy of the plans to conserve the sage grouse. Information regarding status of sage grouse within the Planning Area and monitoring

information on the condition of the range would be necessary in assessing project impacts to this species. We are concerned that without a thorough analysis of effects to sage grouse, activities under the UDRMP may further degrade important sage grouse habitat. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

by the paving of Millican Road.

Millican Road: This road decision was removed from the EIS process by legislative direction. However the BLM needs to be aware and plan for the changes in use that will develop once the reconstruction and paving is completed. In addition to truck traffic on the route, recreationists will likely use the more accessible area for hunting, rock-hounding, hiking, biking, and OHV use. The Millican road will degrade wildlife capabilities of the area. An analysis of effects of the Millican Road should be included as part of the cumulative impact assessment in the UDRMP EIS. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

. . . the BLM needs to be aware and plan for the changes in use that will develop once the reconstruction and paving [of Millican Rd.] is completed. Granted, there will be extensive truck traffic on the route, but increasing numbers of recreationists of all kinds will likely use the more easily accessible area for hunting, rock-hounding, hiking, biking, OHV, etc. This could increase conflicts with wintering game populations and special species such as sage grouse. Impacts and changing management conditions from this improved transportation facility does not seem adequately considered in the DEIS. (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

by livestock grazing.

ODFW management objective for the North Paulina Winter Range is to maintain 5,500 deer, which is 20 percent higher than ODFW's population estimate of 4,400 wintering mule deer for the past three years. Furthermore, the management objective for the North Paulina Winter Range has not been met in the past 18 years. ODFW believes …Significant livestock utilization of bitterbrush annual leader growth on winter range [and other factors]….. play a large part in this outcome. (Oregon Department of Fish & Wildlife, Bend OR - #1298)

by the "Highline" irrigation ditch.

The following comments are specific to the Tumalo Management area and particularly T16S, R11E, S 16, 17, 20 & 21. My grazing permit, Harsch #5007, is within this area and protection of this area is of tremendous concern to me. . . There is one environmental impact that has not been considered, probably because you are not aware of it. The Tumalo Irrigation District irrigation ditch known as the "Highline" serves my ranch and other ranches and travels through 16-11-21. TID is proposing to bypass this ditch and put that irrigation water into a 2 mile pressurized pipeline, which would run across private land and would dry up the Highline ditch. That would eliminate 2 miles of ecosystem that the wildlife has used for water, forage and habitat for probably 50 years or more. The old Ponderosa pines will probably eventually die. TID doesn't plan to run water in that ditch in the future, after a few monthly runs to "harden off" the trees. Wildlife will be dependent upon farm ponds. (Domestic Livestock Interest, Bend, OR - #1338)

by juniper removal.

In reference to the juniper woodlands management the report did not give enough analysis in the effects or impacts of tree removal. How is this going to impact wildlife? How will it affect multiple use users of BLM properties? (Individual, Redmond, OR - #30)

by military training activities, specifically the military's proposed rest-rotation system.

The [US Fish & Wildlife] Service is concerned that the Preferred Alternative will increase the impact of military training on wildlife and their habitat across a significantly larger area. There is not sufficient information to determine whether the three year rotational scheme will allow the vegetation and damage to soils sufficient time to recover. The UDRMP states that the military could provide funding to help restore areas that are "heavily impacted by recreational activity," to restore soil conditions, juniper removal, road rehabilitation, assist BLM in deterring vandalism, and clean up of dumping across a broader area. We are unable to determine the effectiveness of this proposed mitigation to utilize military funds and partnership to restore and revegatate areas due to the lack of information in the UDRMP as to what this proposal consists of. (U.S. Fish & Wildlife Service, Bend, OR - #1304)

Response: *The DEIS/FEIS adds to the cumulative effects analysis for sage grouse and other focal species, as well as source habitats described in the DEIS. In the FEIS, the analysis includes reasonably foreseeable future allowable uses that would be conditioned in the RMP, such as road and trail densities and vegetation management actions, and recognition of additional actions being taken by other agencies or on lands adjacent to BLM-administered lands in the planning area. Site-specific analyses conducted for future actions such as seeding projects and herbicide treatments will address the direct, indirect and cumulative impacts of these activities on focal species and source habitats.*

The DEIS/FEIS has a guideline that states the BLM will work with ODFW and OMD to develop a habitat management plan for pronghorn and other species (in the Bend/Redmond Block). This guideline will be modified to be a "Multi-Species (including sage grouse) Habitat Conservation Strategy," and will include other partners (i.e., USFWS) and apply to other geographic areas (i.e., Millican Plateau, North Millican, etc.).

In addition, the DEIS/FEIS describes the existing Management Guidelines for the Greater Sage-Grouse and Sagebrush-Steppe Ecosystems (2000). These guidelines will direct actions completed under the RMP to avoid degrading habitat and contributing to the need to list sage grouse under the Endangered Species Act until a state-wide conservation strategy for sage grouse has been developed and implemented.

Information regarding the status of sage grouse is included in Chapter 3(Affected Environment, Wildlife) of the DEIS/FEIS. Monitoring of the condition of the sage grouse source habitat will be included during the site-specific plan implementation analysis.

The BLM is aware of and understands the effects that the paving of Millican-West Butte Road can have on wildlife. Specifically, as described in the Environmental Consequences section of the DEIS, "regional travel management considerations can have greater impacts than local travel routes because of the roads' larger size and higher amounts of traffic." In addition to traffic and the actual land lost to the footprint of the road, construction activities on roads such as Millican Road can adversely affect wildlife by either altering habitat conditions or increasing the potential for disturbance through subsequent human use of the road and the areas it accesses. Finally, because of the significance of the influence of the Millican-West Butte Road on wildlife habitat, it was included specifically in the habitat effectiveness and road influence modeling.

Although many activities, such as motorized vehicle use, lead to deer population declines, the BLM recognizes that decadent and declining bitterbrush is one contributing cause (DEIS, page 264 and in the FEIS). While fire suppression is one reason for the decadent and/or unavailable nature of bitterbrush, livestock utilization may also be a reason.

The main factor causing heavy livestock use of bitterbrush is season of use; grazing

when grasses are dormant but bitterbrush is green (late summer) can result in heavy use on bitterbrush. The BLM regularly monitors livestock utilization of forage and when bitterbrush is present we record use on it. In many cases the primary use is by wild ungulates. The ODFW and others occasionally monitor use of bitterbrush and inform the BLM of any concerns. The grazing regulations (43 CFR 4180) direct the BLM to modify livestock grazing management "following consultation, cooperation, and coordination with…the State [and others] …when management practices are not meeting the land use plan [or other plan] objectives." The existing land use plan supports such changes: "Seasonal restrictions will be applied to mitigate the impacts …on important seasonal wildlife habitat. Examples of the major types of important seasonal wildlife habitat are crucial deer winter range [etc.]" (p. 97, Brothers/La Pine RMP). Since existing policy allows (and directs) changes in livestock use to protect bitterbrush, additional guidance was not developed in the UDRMP. The BLM welcomes submissions of scientifically credible monitoring data in support of rangeland health evaluations.

The actions of the Tumalo Irrigation District are outside the scope of this analysis. Due to the rapid growth of the area, changes in water locations for wildlife are becoming increasingly frequent. Changes such as those suggested here may also result in additional water available in Tumalo Creek for longer time periods during the summer. New residential and ranching developments can also contribute to new water sources. Site-specific project proposals will be analyzed as part of implementation and project-level analysis.

Effects of vegetation management that involves mechanical and prescribed fire treatment, including tree thinning/harvest, were discussed in DEIS, Chapter 4. Ecological and physical effects on plant communities and soils were discussed in detail in the DEIS, Vegetation and Soils sections on p. 327 through 348. There is no question that cutting and removal of trees can result in effects on other resources and obvious changes to the landscape. From a human perspective, these effects can be perceived as positive or negative, depending on what the affected resource is and, sometimes, depending on whom the individual observer is. Mitigation measures to manage effects of vegetation management actions where they may affect other resource values are included in the Vegetation and Fuels/Fire Guidelines.

The most obvious effects of tree cutting or burning, with respect to casual public perception, are visual. Aesthetic considerations will be factored into project design to soften this impact in high visibility or visually sensitive areas. Vegetation management also has implications for recreation management and the recreationist's experience. Visual Objectives and Guidelines are described in the DEIS/FEIS. Recreation Objectives and Guidelines, with respect to vegetation management, are also described in the DEIS/FEIS.

The DEIS analysis provided a summary of the effects that the forest products program would have on wildlife resources because the effects would be associated with the goal and objectives of other program actions such as fuels treatments and priority restoration treatments. T the DEIS did not provide an analysis of the proposed fuels treatments or priority restoration work, but this analysis has been added to the FEIS.

In Volume 3, Environmental Consequences, the DEIS identifies the range of direct and indirect effects of military training on wildlife resources (page 356); however, the exact impacts depend on the type of exercise, the duration of the exercise, and the length of time between activities. In general, these training operations can affect plant communities and can result in habitat loss or alteration due to changes in the environment. The FEIS added additional references to the environmental requirements the military must meet under their own regulations, as well as clarifying the terms and conditions of their use in specific areas. Federal level wildlife protections are in place and would also guide the type and length of training around sensitive habitat and species. The rotation system was altered in

the FEIS/PRMP Preferred Alternative to include: 1) more detail on the continued uses; 2) a coordinated evaluation of baseline conditions for restoration and; 3) extended areas to be utilized on a rotating schedule based on training needs and site conditions.

201. The RMP should clarify which action is affecting wildlife when recreation occurs in mineral sites.

On Page 355, under Minerals, in the fourth paragraph, the implication is that the mineral sites get double tagged for impacts to wildlife, because many mineral sites become recreation areas. Why is this cumulative impact covered under minerals as opposed to under recreation? (OR Dept of Transportation, Bend, OR - #261)

Response: *The use of mineral sites by recreationists (target shooting and OHV riding) was not covered as a cumulative impact but as an indirect effect of mining activities. The use of mineral sites was addressed in this manner because the recreational uses described in this section (and related impacts) regularly do occur at these sites after mineral development.*

Fish, Amphibians

202. The RMP should assess the effects of plan actions on fish and amphibian habitat.

...the BLM's finding that its activities do not impact fishery resources [v.2 p.275] completely ignores the fact that bull trout, which are found in the planning area, have been listed as threatened due to limitations to: "1) spawning, rearing, foraging, or over-wintering habitat to support existing...local populations; 2) movement corridors necessary for maintaining migratory life history forms; and/or 3) suitable and historically occupied habitat that is essential for recovering existing local populations that have declined, or that is needed to reestablish local populations required for recover" [see p.277]. Further, the numbers of redband and brown trout and other fish species are critically low in certain locations in the planning area, in part, due to "poor" habitat conditions and "lack of cover," [see] p. 274. As a result of the BLM's conclusions regarding the lack of impacts of its management actions on fishery resources, the RMP fails to adequately assess the plans effects on fish habitat and what, if anything, BLM plans to do about the continued degradation of such habitat. The RMP, for example, fails to describe or even identify surface disturbing activities or make anything more than a passing reference to mitigation for such impacts (Preservation/Conservation Organization, Portland, OR - #1370).

The Service is concerned with potential project impacts to the Oregon Spotted Frog (Rana pretiosa), a candidate for listing under the Endangered Species Act. The EIS should analyze direct, indirect and cumulative effects on riparian and shallow water zone health, restoration, retention and expansion in regards to livestock management, wildland and prescribed fire activities, realty transactions, contaminants use, and exotic species introduction and control as they relate to spotted frogs and spotted frog habitat. Additional information regarding the current status of the spotted frog population, maps of known oviposition sites and habitat condition monitoring data along waterways within the Planning Area would be useful in assessing project impacts to this species. (U.S. Fish & Wildlife Service, Bend OR - #1304)

Response: *The FEIS has enhanced the effects analysis relating to fisheries and the Oregon spotted frog and other riparian-dependent species. The analysis is focused on effects to those species from proposed decisions being made in the Plan. These decisions include land use allocations and conditions of use, but do not authorize specific actions*

Riparian areas, water quality

203. The RMP should use Riparian Condition Assessment ratings for more than just the 19 areas shown in the DEIS.

Page 409 - Table 3-8 (page 280) shows that Riparian Condition Assessment ratings have been completed on 19 areas. Therefore, there is incomplete or unavailable information on the hundreds of other riparian areas in the planning area. (Individual, Pullman, WA - #1373)

Response: *All perennial streams and many intermittent streams within the planning area have had Proper Functioning Condition Assessments completed. On many of the other stream channels that contain riparian areas but are not perennial streams, they may not have had Proper Functioning Condition Assessments conducted on them, but that does not mean there is no information on them. Many riparian areas have been documented through field notes and photographs by various BLM personnel. However, documentation and information on all riparian areas within the planning area is not available as it is virtually impossible to inventory all seeps and spring that support riparian vegetation on over 400,000 acres of public land in the planning area. That level of data-inclusive inventory is not necessary to support the land use-level decisions made in the FEIS/PRMP.*

204. The alternatives should reflect that livestock grazing is not the only activity that can affect riparian areas.

...the plan specifically identifies livestock grazing, mining, recreation and timber harvest as potentially impactive of riparian areas, all management strategies focus on the modification of grazing activity. To identify the need for modification of grazing permits as the only solution to reducing riparian degradation seems premature...the issue has apparently been prejudged, although in fact, recreational use may cause equal or greater damage than livestock to sensitive areas. (Crook County, Prineville OR - #179).

Response: *The two portions of the plan that identify only livestock grazing as a solution to improved riparian vegetation conditions are "Common to All Alternatives" (DEIS, pg 47) and "Alternative 1" (DEIS, pg. 66). This is due to the fact that these reflect baseline management conditions mandated by BLM policy and those portions of the Brothers/La Pine RMP that are not revised by this RMP. All action alternatives (Alts 2-7) consider effects on riparian areas from various other actions. For example, discussions on vegetative treatments, both upland and within the riparian area (DEIS, pg. 404-405; FEIS, Chapter 4) describe how western juniper affects the hydrologic cycle, increases peak flows, and erodes channel banks and riparian vegetation. Additionally, the DEIS/FEIS describes how conifer expansion into riparian areas competes directly with riparian vegetation. Management direction throughout the DEIS/FEIS for Alts 2-7 consider vegetative treatments to improve upland and riparian area conditions. Similar effects from Recreation, Motorized Roads and Trails, (DEIS pg. 406) and from Transportation and Access Management (DEIS pg. 407) are discussed.*

Based on the assumed effects to riparian areas from each activity (vegetative treatments, recreation roads and trail, transportation and access, and grazing management), each alternative is analyzed for the effects to riparian areas from these different uses (DEIS, pg 409-418; FEIS, Chapter 4). Guidelines for all action alternatives also identify development of more site-specific Riparian Conservation Areas (RCAs) where proposed activities may adversely affect riparian processes and functions. The guidelines outline possible activities as including juniper management, livestock grazing, roads, trails, new rights-of-ways, and rockhounding. The PRMP also identifies management direction to restore riparian communities.

Land Uses

General

205. The Land Use section of the RMP should address effects on land uses from designation of a new transportation corridor.

General comment for the land use section (starting on page 439) - Not sure why designation of new transportation corridors is not discussed under the land use section - as those designations will likely result in land use changes. (Oregon Department of Transportation, Bend, OR - #295)

> ***Response:*** *The effects of designating the corridor are included in the Transportation and Utilities section. Other resources also consider the effects of this corridor designation in Chapter 4 of the FEIS.*

Livestock grazing

206. The RMP should provide more analysis of the effects resulting from livestock grazing.

...in the event BLM cannot obtain relevant information to make a determination on environmental impacts [of grazing], it must include a summary of existing credible scientific evidence and its evaluation of foreseeable impacts based on theoretical approaches or if the information is simply unavailable the EIS must indicate this. 40 CFR 1502.22. (Northwest Environmental Defense Center, Portland, OR - #1370)

...The RMP conflicts with NEPA by failing to assess the impacts on the environment of maintaining existing livestock grazing levels. This is a violation of NEPA which requires federal agencies to determine environmental consequences before taking action. The NEPA process must occur "early enough so that it can serve practically as an important contribution to the decision making process and will not be used to rationalize or justify decisions already made." ([NEPA] Reference Guide at 1502.5. (Northwest Environmental Defense Center, Portland, OR - #1370)

The RMP is contrary to 43 CFR 1610.4-1 by failing to adequately identify the cause of the degraded rangeland condition of the planning area. Based on the increase of weed cover, the number of water quality limited streams, the decline of native wildlife species, the large number of sensitive species, low native grass and high shrub cover, the rangelands of the planning area are in poor condition. Rather than identify current or even recent livestock grazing and other uses as the cause of these problems, the RMP refers to "past" grazing [V.2, p.296]. (Northwest Environmental Defense Center, Portland, OR - #1370)

> ***Response:*** *The BLM makes determinations of the environmental effects of livestock grazing on a site-specific level during rangeland health assessments (per 43 CFR 4180). This includes an assessment of the land's ability to maintain existing livestock grazing levels. The BLM is on a schedule to complete them all by 2008. Alternative 7 provides a method for integrating these assessments into the planning process so that BLM managers can easily consider them along with other factors.*
>
> *Since NEPA requires concise documents and we were proposing no changes to season, duration, or intensity of livestock use, we did not include a summary of the effects of these types of actions. A summary of effects of different grazing systems was included in the Brothers/La Pine RMP, and is not being revised by this FEIS. The general effects of livestock grazing on the environment are discussed in Chapter 4 of the DEIS, (effects on soils p. 348, wildlife p. 352, fisheries p.402, and numerous other locations in this chapter) and Chapter*

4 of the FEIS. The BLM policy under all alternatives is to promote and maintain proper livestock grazing management.

207. The RMP needs to analyze the effects of alternatives that eliminate livestock grazing on wildlife, the environment, recreation, and other resource values.

One fourth of my forage comes from intermingled private and BLM lands. If [my] BLM [grazing] permit was revoked, I would have no choice but to subdivide my land and sell to hobby ranchers, or recreationalists...I would be forced to fence my private land from BLM lands. To maintain my herd, I would have to remove the native species (sage brush) and plant highly productive non-native grasses [on my private land]. This would have negative consequences for sage grouse, deer, and antelope which use my land. The newly fenced property would be posted to keep all trespassers out: bicyclist, motorcyclist, hang-gliders, rock-hounds, hunters, or hikers. Private roads without easements through my property would be locked. The visual resource would change. As the DEIS is written, none of this will need to happen, and these consequences were correctly pointed out in Chapter 4. I have a fear that some environmental groups do not realize that if the grazing is severely curtailed in the name of sage grouse protection, their habitat will be even further reduced by the only options left for landowners. (Individual, OR - #1297)

The effects of livestock grazing on environmental resources are extremely variable, depending primarily on the season, duration, and intensity of use. The UDRMP does not propose to change season, duration, or intensity of livestock grazing use, therefore, the effects of these actions were not considered since they would occur under all alternatives.

Existing policies direct the BLM to consider the environmental effects of livestock grazing and to manage livestock grazing such that environmental resources are maintained or enhanced. Therefore, there was no need for the BLM to develop a duplicate process in the DEIS. The assessments and resultant changes in management are conducted on a site-specific basis, rather than during a broad-scale land use planning effort. It was not possible to complete the detailed assessments prior to, or in conjunction with, the DEIS, but the Prineville District BLM is scheduled to complete assessments on all grazing allotments by 2008 (DEIS Vol. 2, page 12). Completed assessments and the schedule are available for public review upon request.

While BLM did not believe it was necessary to develop a duplicate process for detailed ecological assessments, we did feel it was important to help provide direction for BLM managers to weigh the potential for conflicts (ecological, social, and economic) and decide how to reduce conflicts. The formula to estimate conflict takes into account a variety of factors, including but not limited to recreation, wildlife habitat, WSA values, cryptogamic soil crusts, water quality, and noxious weeds. The "Grazing Matrix" gives the BLM flexibility to consider additional factors and potential interactions between factors.

208. The grazing allotment categorization process does not fairly assess allotment conditions.

Do all of the criteria [for allotment categorization, Page 294 and Appendix G] have equal weight? The answer is almost certainly no…and in reality, a criteria's weight sometimes could vary by allotment…There is almost certainly "double counting" among some of the criteria. For example: a) the "busy roads" (C4) is in the vast majority of cases associated with "Recreation conflicts" (C3), b) "adjacent land use" (C4) is very similar to "other uses" (C3), c) if an allotment was determined to be a "M" for C1, it would also be a "M" for C6.

There have been no rangeland health assessments on approximately 115 allotments. Therefore, the "M" category (in over 100 allotments) for criteria C1 means "unknown"

because the health assessment has not been completed. If, and when, the assessments are completed, it is a reasonable assumption that at least some of the allotments will fall into the "I" category for criteria C1. To summarize, the "total" management category should not be stated (at least for I's and M's) until the "health assessment" has been completed for a particular allotment. To accomplish this, suggest making a separate table showing only the Rangeland Health Assessment progress for each allotment. (Individual, Pullman WA - #1373)

> ***Response:*** *None of the individual criteria are mathematically derived, and the weight of the criteria can vary by allotment and by year. Therefore the "total" categorization for any given allotment is a subjective estimation and not an actual average. In addition, current data is not always available on allotment conditions, so the BLM must rely on old data or acknowledge that conditions are "unknown." We have modified the Livestock Grazing Management Summary Table in the FEIS so that there is a "U" (unknown) for C1 when Rangeland Health Assessments have not been completed. Allotments will still be given an overall categorization regardless of whether there is complete information for all categories.*
>
> *The allotment categorization worksheet is a tool to assist BLM managers in deciding how much priority to place on management of a particular allotment and this tool was incorporated into the Alternative 7 process for estimating potential for conflict in allotments. While the allotment categorization process and categories for individual allotments were described in the DEIS, they are not being modified during this planning effort. The BLM will consider the points made in the comment as it modifies the categorization process in the future.*

Military

209. The RMP should identify the effect BLM actions have on military readiness and ability to perform state and national missions.

II: 356 - OMD requests that the BLM identifies and includes under the topic of direct effects that BLM actions have direct effect on the allowable area and type of military training activities to occur within that area. This indirectly affects the readiness and safety of soldiers in the performance of their state and national missions. Indirect effects also include changes to existing OMD plans and programs in that new BLM requirements and environmental regulations will require OMD to update and change its existing plans and programs to conform to new BLM guidelines. While the BLM's plan focuses on direct and indirect effects to natural and cultural resources, a key element of NEPA is the determination of "the degree to which the proposed action affects public health and safety" (40 CFR 1508.27(b)(2)). The Oregon National Guard's readiness indirectly effects the public health and safety of the citizens of Oregon. Additionally, the BLM must advise the OMD within this plan of any inconsistencies between the UDRMP and ORNG plans in accordance with 43 CFR 1610.3-1 as well as identify those inconsistencies to the Governor of the State of Oregon in accordance with 43 CFR 1610.3-2(e). Consequently, the OMD considers the BLM's development of the direct and indirect consequences of this plan on military readiness and the subsequent safety of the citizens of Oregon as being deficient (Oregon Military Department, Salem, OR - #1308).

> ***Response:*** *Designated acres in the main training area are roughly the same as in the current situation and in roughly the same locations, with the exception of a portion of A which was moved north of highway 126. The extended area concept matches the existing uses in areas D and E with the permitted uses in 2 and 3 respectively. The effect should be no change from the existing training scenario. The allowable area and type of military training activities to occur within that area are roughly the same. The readiness and safety of soldiers in the performance of their state and national missions should remain the same. Consequently, "the degree to which the proposed action affects public health and safety" will not be changed. The Preferred Alternative in the DEIS and in the FEIS expands the*

area currently available to the military and has been designed with OMD participation specifically to meet those needs. The FEIS reflects the indirect effect on public health and safety.

210. The RMP should provide more analysis of the effects resulting from military training activities.

We believe in multiple use, however,...The National Guard operates their activities on our allotment, as well, which while being necessary, can be very hard on the crested wheat seed grass on the gas line. Even the roads that are out there are so heavily traveled, that the dust is a challenge (Domestic Livestock Industry, Powell Butte, OR - #1340)

We recommend that the EIS include: 1) a complete analysis of the direct, indirect, and cumulative impacts associated with the military activities including long term affects of tracked vehicles and other training activities on soils, vegetation, and wildlife, including impacts to pronghorn antelope winter range (U.S. Fish & Wildlife Service, Bend, OR - #1304).

Response: *The FEIS includes additional analysis related to the effects of military use on wildlife habitat.*

211. The RMP should include a discussion of the historic and economic importance of military training in Central Oregon.

II: 226 - OMD requests that this discussion of the local area history include information regarding military training use and development in Central Oregon during World War II. For example, the military developed or expanded many of the current airport facilities in use by the local communities today. The military built many facilities still in use today, for example the Great Hall at Sunriver. Such facilities owe their origin to historic 20th century military training activities in Central Oregon and such activities provide economic input to the local economy as well as supported national interests during wartime. (Oregon Military Department, Salem, OR - #1308)

Response: *The requested information has been added to the FEIS.*

212. The RMP should not close the Steamboat Rock area to full size vehicles, because this would reduce the area's usefulness for military training activities.

...while the BLM provides for the allocation of remote rotational training areas in Alternatives 6 and 7, within the Standards and Guides contained within Volume III, the BLM designates the Steamboat Rock area as being "closed to full size vehicles", thus simultaneously closing this area to most potential military training activities. . .BLM designates other lands for military use but then under BLM recreational or transportation management direction also either restricts off highway vehicle use to designated roads and trails or designates most roads for potential closure, effectively cutting access to those areas at some future time. Based on these examples, the Oregon Military Department can provide only a limited and reserved endorsement of the BLM's Draft UDRMP-EIS as currently written. (Oregon Military Department, Salem, OR - #1308)

III: 214 - 4th Bullet regarding Steamboat Rock, closing this area to "full size vehicles" precludes this area from any military training use and effectively closes this area to the military. (Oregon Military Department, Salem, OR - #1308)

Response: *Military use of the Steamboat Rock area has been dropped from the FEIS Preferred Alternative. Upon further evaluation, the military determined that this area would not meet any identified training need due to the amount of private lands, the amount of roads that fragment the parcel, and the nature of the terrain. However, military partnerships*

and/or specific training activities may be authorized in this area during the life of the PRMP to help accomplish restoration or road and trail designation.

Recreation

General

213. The effects analysis is flawed because the RMP did not include important information about motorized road and trail densities.

The information regarding road and trail densities, location of roads and trails, and mileage available on BLM land, is not used by the specialists in their reports. In fact, what was stated was that "information was unavailable" regarding OHV usage. With that stated, it would seem impossible for BLM to analyze consequences. Upon studying the environmental consequences in chapter four, current OHV use and how it affects vegetation, soils, wildlife or recreation was not found. Without that basis it seems BLM will be unable to determine impacts. (Individual, Bend, OR - #192)

Crucial information which should have been available, and which should have formed the basis of the selected alternative, was either not obtained or [not] used by specialists. For example: road and trail densities, locations, and mileages; impacts of current use. We hope that more of this information is appropriately integrated into the final. (Blue Ribbon Coalition INC., Idaho Falls, ID - #1367)

Response: *Besides the Millican Valley OHV area, most of the planning area does not contain any designated road or trail systems. Because of this, the DEIS takes a broad analysis approach that considers the acreage allocated to various uses, including motorized trail systems.*

Complete and detailed information on mileage and densities of roads and trails is not available, particularly given that most portions of the planning area do not have designated road or trail systems. Road and trail densities were calculated for each geographic area based on the data available. However, to assume these constitute "systems" that provide quality recreation opportunities is not completely accurate.

The analysis of Alternative 1 reflects the effects of local roads (i.e., the complete set of road and trail data available) on wildlife resources. The FEIS provides additional analysis of road and trail mileage or general opportunities under Alternative 1 (no action) and the final Preferred Alternative based upon the designation of an interim transportation system.

Effects of motorized use closures

214. The RMP should include more analysis of the effects to the motorized use community from closing roads and areas to motorized use…

throughout the planning area.

The preferred alternative significantly and detrimentally impacts motorized recreation in the planning area…the cumulative impacts of each individual limitation and closure to motorized recreation in the planning area were not adequately discussed or analyzed . . . the UDRMP fails to comply with NEPA by omitting any discussion of mitigation measures for reducing or eliminating motorized recreational opportunities for Oregon Motorcycle Riders Association members and other citizens, including Oregon Motorcycle Riders Association members whose property is adjacent to or near the impacted locations… (Oregon Motorcycle Riders Association, Portland, OR - #1302)

The UDRMP should also analyze the balance between continued use in the North Millican area and increasing limitations and closures in other parts of the planning area such as the Badlands. The North Millican area is one of the critical geographic regions for OHV use in the planning area and the state of Oregon for OMRA [Oregon Motorcycle Riders Association] members. The UDRMP needs to provide a clear explanation of how OHV uses in this area will be protected and integrated into the management effort during the interim period following adoption of the final UDRMP and the implementation of the proposed trail system. (Oregon Motorcycle Riders Association, Portland, OR - #1302)

Economic impacts of OHV use [were] not fully analyzed. Four-wheel drive experience [was] not adequately analyzed or provided for within the plan. (Individual, Portland, OR - #15)

...important consequences of implementing the presented alternatives (including the [preferred alt.]) were not discussed or analyzed as required by NEPA. For example: Displacement of recreation and its related impacts to other areas; decrease in opportunity as the OHV populations expands; impacts of changing from an open system to a designated trail system. (Blue Ribbon Coalition Inc., Idaho Falls, ID - #1367)

All of the reasons for keeping the motorized public out of the area have nothing to do with law abiding citizens enjoying the desert beauty. From the issue team meetings it appears there was no objection from ODF&W regarding wildlife; it appears the closure is strictly social and COMAC must take issue with the rationale used to restrict our use. (Individual, Bend, OR - #192).

We [Lobos Motorcycle Club] would propose that the process generally should properly consider and describe the impacts to the OHV community including the terrible resource impacts from over-concentrated use that will grow out of the periodic closures (like South Millican), permanent closures, and restrictions as proposed. (Lobos Motorcycle Club, Clackamas, OR - #1301)

[Regarding] Horse Ridge, North Millican, Millican plateau, Prineville reservoir and the rest of the UDRMP: if you close trails where will the users go? All of these areas have trails that help to spread out OHV use, if you close all the land you propose the OHV areas will get condensed and what do you think will happen to that land then? Over use? Maybe they will move to someplace where they aren't supposed to be. We need more OHV areas not less. We need designated trails so we don't ride where we aren't supposed to be. (Individual, Redmond, OR - #1348)

The BLM has been closing OHV areas and not opening up bigger, new areas to accommodate the rising amount of OHV users. You should open more areas to lessen the impact on existing areas. Closing any area, without opening new ones, just causes heavier usage on the remaining ones. (Individual, Redmond, OR - #1282)

With the restrictions and closures suggested in Alternative 7, there will be a shift in motorized use. By reducing opportunities, recreationists will be displaced. Since they cannot go west toward Bend, the assumption is that they will go further east. This has been an underemphasized and underestimated issue in the RMP draft and we feel it is a considerable problem. There are potentially many species, animal and plant that could be jeopardized along with the fact that further east is designated open, so the use will be mainly unmanaged. The Brothers La Pine Plan managed a much larger area than this plan is addressing, thus this plan puts additional significance on the small area sage grouse habitat in the plan vs. the larger area of concern outside the planning area. The management of the sage grouse leks that are further east could be impacted, thereby necessitating emergency closures to OHV use. (Individual, Bend, OR - #192)

I am writing in protest of Alternative 7 of the Upper Deschutes Resource Management

Plan. This "Preferred Alternative" would close large areas of Crook Co. to motorized traffic. American citizens have seen far too many perfectly good roads closed for no good reason. All existing roads should remain open for continued use. Closure of these roads would only limit access to a few elitists. Older and disabled Americans would be discriminated against in access to public land if Alternative 7 is adopted. All taxpayers should be allowed access to Public Lands. I urge the BLM to adopt Alternative 1 "No Change" until a less extreme plan is proposed. Public Land should remain Public. (Individual, Beaverton, OR - #31)

in the Millican area.

The closure of the northern tip of the Millican Plateau due to dumping and vandalism problems penalizes law-abiding OMRA members and other OHV users whose permit fees fund law enforcement and restoration activities in the Millican Plateau and other parts of the planning area. The preferred alternative proposed to retain extreme seasonal closures [in South Millican], leaving OHV users with access to this popular area only 4 months of the year. These four months include August, September, October and November, the hottest and driest periods for South Millican. The result is a serious reduction in OHV opportunities and greater potential for environmental impacts through soil damage. These impacts are not adequately discussed or analyzed in the UDRMP...The EIS also fails to mention that for several years preceding the development of the UDRMP, Oregon Motorcycle Riders Association members and other OHV users participated with BLM to develop management strategies concerning OHV use in the North Millican area. These efforts showed that opening South Millican in the winter would mitigate the effect of reducing trail densities as proposed in the preferred alternative. (Oregon Motorcycle Riders Association, Portland, OR - #1302)

in the Dry Canyon area.

The Dry Canyon area along Highway 20 should not be closed completely to motorized recreation, and the UDRMP fails to adequately analyze or discuss impacts from such an extreme closure, or explain why some minimal access to vistas and areas around the Dry Canyon cannot be maintained for OMRA members and other OHV users. Similarly, the cumulative impacts of these proposed closures have not been addressed. (Oregon Motorcycle Riders Association, Portland, OR - #1302)

in the La Pine area.

The closure [to OHV use] of all BLM land around La Pine is unwarranted and unnecessary. There is nothing in the affects analysis regarding this issue. The reasoning for closure that we have heard has been wildlife concerns. It seems reasonable to provide a corridor for wildlife without such a dramatic closure to all the La Pine residents currently accessing public land. Where is the planning for the affected population and the impacts analysis for it? (Individual, Bend, OR - #192)

The preferred alternative proposes seasonal closure of a significant portion of the La Pine management area (the southern third). This restriction will seriously limit access to motorized use areas adjacent to La Pine, as well as access from La Pine to the Rosland OHV Play area and the motorized recreation areas in the Deschutes National Forest. The UDRMP fails to discuss or analyze these impacts…[and] fails to address mitigation of these impacts, which can be provided without significant environmental impact in the preferred alternative by dedicated access to the La Pine urban area, as well as a small number of corridors through the southern third to the Rosland and Deschutes motorized recreation areas. (Oregon Motorcycle Riders Association, Portland, OR - #1302)

Closure of historically open designation in all of BLM land bordering La Pine, except Rosland Play area is not possible to implement with current resources or necessary for wildlife concerns. Wildlife does not need all of the planning area. Area residents will be

dramatically impacted without due cause. (Numerous individuals, OR - #1365)

Response: *The DEIS/FEIS Preferred Alternative provides for increased OHV use in the Millican Valley area by allowing some winter use in the North Millican area and keeping an expanded Millican Plateau area open year-round. The DEIS identifies that the loss of trail miles in the North Millican area and in Cline Buttes will concentrate users and decrease the quality of the recreation experience (DEIS/FEIS, Chapter 4).*

The FEIS provides additional direction for limited designation of OHV opportunities in the Prineville Reservoir, La Pine, and Cline Buttes areas that may disperse use somewhat. However, the FEIS also provides additional direction for some seasonal route or area closures within the North Millican area to achieve a wildlife habitat effectiveness of 50 to 60 percent. The analysis of effects takes into account these changes.

The DEIS/FEIS Preferred Alternative provides a balance of use between motorized recreation, non-motorized recreation, other land uses, and natural resource management needs. Riding areas were retained in the Millican area and new trail designations are planned for the Cline Buttes, Bend/Redmond, Steamboat Rock, and La Pine areas.

The DEIS/FEIS recognizes that, with the increased population growth and the growth in OHV use, this use will likely move further east (DEIS/FEIS, Chapter 4). However, the DEIS also recognizes the growth in demand for non-motorized trails on BLM-administered lands and the current lack of any designated non-motorized trails maintained for public use.

In part, no new motorized trails have been developed over the past 5 years due to the uncertainty about where to focus limited resources pending completion of the PRMP. However, the BLM has purchased and arranged construction of several under crossings/culverts and rerouted trails to maintain trail links across the newly paved Millican/West Butte Road.

In order to meet multiple resource needs, the DEIS/FEIS moves BLM's management strategy away from "Open" designations to providing for motorized use only on designated roads and trails. If implemented, the DEIS/FEIS Preferred Alternative will ultimately result in greater amounts of maintained and understandable trail systems available to the public.

Effects of reducing trail density

215. The RMP should analyze the effects of trail density limitations on motorized recreation.

The UDRMP fails to adequately analyze…the OHV trail density limitation of 1.5 miles of trail per square mile. There is no discussion of analysis of how this density will work considering the winter closure of South Millican and the recent paving of West Butte Road which has segmented the area's OHV trail system and created serious management and safety issues for OHV use. The trail density reduction and other restrictions and closures in the preferred alternative will significantly worsen impacts to other resources and increase congestion and use conflicts. The UDRMP makes a limited recognition of this problem but the actions proposed in the preferred alternative fail to take these issues into account or discuss any potential mitigation. (Oregon Motorcycle Riders Association, Portland, OR - #1302)

The UDRMP proposes to limit management of motorized recreation in the Skeleton Fire area to a few main roads…and limit the trail density for motorized use. Under these circumstances, the trail density needs to be flexibly sited and managed to accommodate for the topography in the Horse Ridge area. The UDRMP fails to discuss how Oregon Motorcycle Riders Association and other OHV users will be impacted by these limitations, and makes no provision to mitigate these impacts through flexible siting and development of trail density throughout the management area. (Oregon Motorcycle

Riders Association, Portland, OR - #1302)

The UDRMP fails to adequately analyze . . . the OHV trail density limitation of 1.5 miles of trail per square mile. There is no discussion of analysis of how this density will work considering the winter closure of South Millican and the recent paving of West Butte Road which has segmented the area's OHV trail system and created serious management and safety issues for OHV use. The trail density reduction and other restrictions and closures in the preferred alternative will significantly worsen impacts to other resources and increase congestion and use conflicts. The UDRMP makes a limited recognition of this problem but the actions proposed in the preferred alternative fail to take these issues into account or discuss any potential mitigation. (Oregon Motorcycle Riders Association, Portland, OR - #1302)

> ***Response:*** *In the FEIS, the non-motorized trail density limitation of 1.5 miles per square mile has been replaced with a broader menu of goals for transportation management and wildlife habitat management in the North Millican area. The management prescriptions for this area include unfragmented patch sizes, road and trail density, road and trail avoidance of areas around sage grouse leks, as well as plan revisions between draft and final EIS that call for some seasonal closures or a less expansive trail system in this area seasonally. The impact analysis assesses these limitations to OHV and other recreational use of the area.*
>
> *The ongoing paving of Millican-West Butte Road is recognized as an impact to the recreational use of the area by increasing the numbers and variety of recreational visitors to the area. However, the Millican- West Butte Road project and the reduction of road and trail density do provide similar opportunities to consolidate use and link both sides of the West Butte Road by a limited number of grade separated trail crossings. The issue of concentration of users on a small trail system has been identified in the DEIS/FEIS. To some degree, expansion of the Millican Plateau area, coupled with year-round use of the North Millican area (or some part of this area) will provide greater trail system opportunities than currently exist. The retention of some trails in Cline Buttes and development of additional designated trails in the Bend/Redmond and Steamboat Rock areas provides some additional use areas. Further, the FEIS provides slightly greater opportunities for trail links or trail loops/play areas to serve local needs in the Prineville Reservoir and La Pine areas.*

Effects of growth of motorized recreation

216. The RMP should address the growth and future demands for OHV use.

The UDRMP/EIS preferred alternative as written does not address the need to accommodate growth in motorized recreation. Readily available sales statistics will tell you that ATV sales are outstripping all other recreational sales nationally. Rafting and canoeing are also fast growing pursuits in Oregon . . . this recreating public requires more space, not less. (Individual, Eugene, OR - #1312)

I don't see how this management plan can be completed without knowing what percentage of BLM land users are in each of the user groups, and how often these users recreate on BLM land. This plan touches on growth in some user groups, but there is nothing on the projected growth of OHV recreation. (Individual, Bend, OR - #1346)

The Plan will not accommodate current use in Cline Buttes, and does not address increased use/demand for the life of the plan. This is not logical, and it is not good scientific problem solving. (Numerous individuals, OR - #1365)

The data used to project growth of motorized recreation does not speak to what is actually happening on BLM land in Central Oregon. Use levels are not described which makes the decisions and allocation of uses and assessment of needs inaccurate. The document does not show enough analysis of OHV growth, usage or demand to support

the preferred alternative. (Individual, Bend, OR - #192)

I do not believe the plan is realistic because it does not address the needs of a burgeoning OHV community. It is a fact that sales of OHVs are increasing. It is a fact that riders from all over the state come to Central Oregon to enjoy East Fort Rock and Millican. (Individual, Powell Butte, OR - #245)

The UDRMP/EIS preferred alternative as written does not address the need to accommodate growth in motorized recreation. Readily available sales statistics will tell you that ATV sales are outstripping all other recreational sales nationally. Rafting and canoeing are also fast growing pursuits in Oregon . . . this recreating public requires more space, not less. (Individual, Eugene, OR - #1312)

The plan does not address future demands for OHV use. Nowhere in the plan did I find facts or figures on economic values that each user group provides to the local economy? The population is growing and with it OHV use, why is the BLM reducing OHV opportunities? Closing the Badlands isn't management, but I think it will influence Congress and the BLM isn't supposed to do that. (Individual, Redmond, OR - #1348)

As a concerned citizen and recreationist I would like to be on record as supportive of motorized recreation on BLM lands in Central Oregon...Our use is increasing approximately 20% annually with sales of OHV equipment listed at $18 billion annually - the increasing use is not reflected in the severe limitations to OHV use on BLM land. (Numerous individuals, numerous cities/states - #120 and #1365)

BLM, USFS, Oregon State Forestry and even private landowners need to reflect on their civic responsibilities to accommodate the increasing need for outdoors motorized recreation. Decreasing opportunities in the face of increasing demand will result in an administrative nightmare with over-use and substantial damage to the small areas reserved for such use, and rampant unauthorized use in restricted areas. Rather than reduce the amount of recreation lands or compromising future opportunities for such lands….please work with local OHV groups to establish, maintain, police and improve more such recreational opportunities. (Individual, Cheshire, OR - #153)

> ***Response:*** *Anticipated demand for OHV use is addressed in Volume 2 of the DEIS. The FEIS has added information on OHV use statistics and impacts to OHV use (FEIS, Chapters 3 and 4). The FEIS includes additional information about sales trends for OHVs. The Preferred Alternative represents what the BLM feels is a balanced response to the growing demands of all types of recreation. While motorized uses are increasing, so are a wide variety of non-motorized uses. The land base on which to conduct these activities, however, is not increasing. As more private lands in the area are developed, the effective size and availability of these public lands continuing to support increasing recreation uses everywhere threatens the ability of those public lands to support other mandated uses as well. The face of Central Oregon is rapidly changing and the way recreation uses are managed must also. The focus of the Preferred Alternative is to provide quality recreation experiences for all users in various combinations across the planning area. To effectively accomplish this vision, we anticipate continued work with all user groups, including motorized groups, to resolve conflicts and implement the plan.*

Effects of mixed recreation on motorized users

217. The RMP should address the effect of mixed recreation use in the Cline Buttes area.

The UDRMP does not discuss or analyze how the intensive management that will be needed to support the mix of uses will be provided by BLM. Likewise, the UDRMP fails to address the impact on OMRA or other OHV users by introducing conflicting uses to

Cline Buttes in the manner proposed by the preferred alternative. (Oregon Motorcycle Riders Association, Portland, OR - #1302)

> ***Response:*** *The DEIS/FEIS recognizes the management intensity required to manage recreation use in the Cline Buttes area. This management intensity is, in part, due to the increasing number of visitors to the area and the increasing amount of residential and resort development occurring in the area. How well the proposed management strategy can be implemented is due to a variety of factors outside the scope of the RMP – including considerations such as, funding, staffing levels, and use of volunteers.*
>
> *The recreation management strategy for Cline Buttes in the DEIS/FEIS Preferred Alternative is based on providing a mix of uses. None of these alternatives propose to close the majority of Cline Buttes to OHVs. The BLM is not introducing conflicting uses to Cline Buttes – those conflicts are occurring now as identified in the AMS (pages 168 – 170). Public input reflected a strong desire to have separate trail opportunities for different types of users. The recreation management strategy is based in part of providing a different management emphasis in areas that are easily distinguished from each other, using major roads as the boundaries. This strategy will allow for more effective communication of the different management emphasis in the area. The largest portions of the Cline Buttes area are provided for OHV trail development. Areas heavily fragmented by private lands (the area between Barr Road and Cline Falls Highway) were identified as being unsuitable for OHV trail systems over the long-term and were of high interest from the public for separate non-motorized trails.*

Effects of juniper treatments on trails

218. The RMP should consider the effects of juniper treatments on recreation trails.

Juniper Woodlands management, if pursued as aggressively as proposed will severely decrease the opportunities for a successful and desirable trail system in North Millican. By harvesting so many of the trees the net result will be a flat canvas to develop a trail system. Experience has proven straight trails are speed trails and OHVs cover the ground too quickly as opposed to winding trails through vegetation. For a system to succeed it must be done with thought, proper design and rider satisfaction as a priority (Recreational Organization, Bend, OR - #264).

If the BLM decides to allow for mountain biking in the upper Cline Buttes block, there are a few issues that concern us - juniper thinning. Loss of trees will reduce the visual separation of the mountain bike trails from other user facilities. Loss of trees will inhibit the ability to maintain a narrow tread. Loss of trees will increase the visual impact from highway (Recreational Organization, Bend, OR -#1317).

> ***Response:*** *The most obvious effects of tree cutting or burning, with respect to casual public perception, are visual. Aesthetic considerations will be factored into project design to soften this impact in high visibility or visually sensitive areas. Vegetation management also has implications for recreation management and the recreationist's experience. Effects of vegetation management that involves mechanical and prescribed fire treatment, including tree thinning/harvest, are discussed in DEIS/FEIS, Chapter 4. Juniper treatments have the potential to impact existing and future designated trails by blocking routes, creating adjacent safety hazards, or degrading the visual quality of a trail corridor. The PRMP provides juniper treatment guidelines to address trail use issues.*

Effects to motorized users from paving Millican Road-West Butte Roads.

219. The RMP should disclose how paving Millican-West Butte Road will affect recreational use in the area, and how BLM plans to

mitigate the effects.

The paving of . . . [West Butte Rd.] will be very detrimental to our [OHV] trail system and we have concerns about how BLM will mitigate these concerns. There should be analysis of the cumulative effects to the users this will provoke. (Individual, Bend, OR - #192)

The paving of West Butte Road affects the OHV system and the plan does not address it. The paving of this road will be very detrimental to our trail system and we have concerns about how BLM will mitigate these concerns. There should be analysis of the cumulative effects to the users this will provoke. (Central Oregon Motorcycle and ATV Club, Bend, OR - #264)

Response: *The paving of Milican-West Butte Road is not an action proposed by the BLM in the RMP and therefore is not addressed as a direct effect of the plan allocations. However, it is recognized as a cumulative effect in the DEIS/FEIS, Chapter 4. For the Preferred Alternative, the DEIS/FEIS identifies the combined effect of the increased access provided by the paved road and the reduction in roads and trail route miles for the OHV area will likely result in increased conflicts between motorized trail users and other recreationists in the area. The DEIS/FEIS Preferred Alternative calls for development of a new designated trail system in North Millican, to allow for year round use. It is assumed that this system will be routed across Millican/West Butte Road at safe locations, including the two new culverts recently installed as part of the road paving project and any future grade separated trail crossings.*

Effects of military and mining activities on recreation

220. The BLM should provide more analysis regarding the effects of military and mining use on recreation.

Where is the BLM study on the effects of how the military, mining and public use will co-mingle? I failed to find where this issue has been addressed in your manual. The thought of taking a leisurely trail ride on my horse and riding into the path of one of the military tanks or having to dodge an aggregate truck, filled with rock, whizzing past me is not a very pleasant thought. These lands are owned by the people, not the military, and most definitely, not the aggregate industry. The fact that the aggregate industry has taken over the road that I live on, using it as their haul road, makes for the problem of not being able to ride my horse, bike or go for a walk down that road, and then, the thought of having to deal with this on BLM property does not give me a thought that would be in approval of the BLM Plan, in fact, the thought is quite contrary (Individual, Redmond, OR - #52).

Response: *The cumulative effects of mining and other uses or activities are discussed in Volume 2, page 456 of the DEIS and in the FEIS. The RMP will not authorize any specific mining operation and is only making land allocations that are available for mineral uses. Thus, the occurrence and locations of future mining operations are unknown and the cumulative effects of mining and other uses (including military and public use) can only be discussed in general terms in the DEIS/FEIS. If an application is made for a new mineral material site, a site-specific environmental analysis will be conducted to determine if the new site will be authorized. As part of this process, the cumulative effects of the mining operation and other uses in the area would be addressed in detail.*

Public Health & Safety

221. The RMP should address the firearm discharge status of lands acquired during or after the Record of Decision.

The land behind me is in a land trade with Young's ranch and will soon be open to the public. Which is ok with me, but we do have a problem. As an example, we have a lot of off road vehicles, trucks and motorcycles in use day and night. There is also shooting on that BLM land and believe it will increase once the land is more open which I believe is a

big hazard for people in this area walking on the trails. Most people are afraid to walk on the BLM land right now because of the shooting. (Individual, Bend, OR – #1288)

> ***Response:*** *Although the "Young's ranch" (Little Deschutes Land Exchange EA) land exchange is not yet completed, the BLM does expect this property will be exchanged within the life of the Plan, and be placed under BLM-administered public ownership. The DEIS/FEIS Preferred Alternative designates existing adjacent BLM parcels as closed to all firearm discharge. Because of this adjacent designation, if this parcel does move to BLM ownership, FEIS direction would close this additional parcel to all firearm discharge.*

Social and Economic

222. The RMP should address the economic effect of OHV use to the local economy.

I did not notice any discussion or analysis of the economic impact to the local area regarding OHV use in Central Oregon. Are you aware that over $18 billion was spent on OHV sales annually nation wide. This is a big number and one that cannot be ignored. This amount is not even covering four-wheel drive enthusiasts. Central Oregon is known for its outdoor activities and tourism. In my encounters of riders using the trail systems in Central Oregon, a majority of riders come from the valley, as well as out of state. These people are buying gas, groceries, staying in motels, and eating out in restaurants. This draft is not complete without addressing this issue. (Individual, Redmond, OR - #30)

I can think of over 50 people employed at various dealers and small shops in Bend alone and with the closing of trails and riding areas the work will thin out because less people will ride, unit sales will drop and parts sales will slow down….I know that closing more riding areas in Central Oregon will effect jobs, with the fires and the loss of regular races at Madras MX track this last year it hit me so hard to had to shut my shop down…what about the rest of the employees that will be out of luck and standing in the unemployment line or leaving our community? There is a bigger picture than just closing a few trails; this industry is too competitive to lose yet another vital piece of the puzzle - the people who ride. (Individual, Bend, OR - #110)

The news of more land use [closures] always saddens me for I own and operate a small off-road shop in the Portland area. I have been in the off road industries for almost 20 years, and have watched the sport grow in popularity while the area to use keep getting smaller and smaller. It always seems that the public is the last to hear of the [closures]. I employ two people at this time and do a lot of business with vendors and customers from the Bend area. I have been hearing a lot of rumors of getting some off road racing back to the Millican area. The news was something that I was looking forward to, as [it] would be a great opportunity for my business. Reducing the area to use off road vehicles greatly affects my ability to continue to do business. (Individual, Portland, OR - #21)

> ***Response:*** *Additional information on OHV sales and demand has been added to Chapter 4 of the FEIS.*

223. The RMP should describe the economic benefits of mineral use to the taxpaying public.

On Page 3, of Volume 2, the second bullet in the Purpose and Need section reads: "Provide a predictable, sustainable flow of economic benefits within the capabilities of the ecosystem." Mineral use definitely ties into economic benefits and the use of these resources to improve and maintain the transportation system in Central Oregon is key to continued quality of life in this rapidly growing region. A quality transportation system in good repair is essential for economic viability and continued growth in an area. As we have discussed many times, the use of public mineral resources by ODOT is not a benefit to ODOT. Rather, public mineral resources being available for local and regional infrastructure benefits the taxpaying public in Oregon. (Oregon Dept of Transportation, Bend, OR - #261)

Response: *The importance of mineral materials to society and infrastructure is discussed on pages 12 and 296 of Volume 2 of the DEIS and in the FEIS. The text in the FEIS/PRMP has been strengthened to reflect (1) the positive effects and importance of aggregate materials to society and the economy and (2) the benefits that free use of aggregate materials from public lands provide to taxpayers. See Chapter 4 of the FEIS/PRMP for more specific information.*

224. The RMP should accurately characterize the population of Crook County and the importance of public lands to the residents.

While the rapid population growth of Bend and Redmond are called out for special consideration, the special circumstances related to the distribution of population around Prineville are ignored. In fact, although Prineville is the only incorporated population center in Crook County, the majority of county residents live outside the city limits. Thus, any discussion of population growth and any projection of its potential impact on BLM lands, which limits itself on to the City of Prineville, is incomplete. The area around Prineville is of critical concern and must be examined in the context of its potential impact upon federal lands and federal lands' corresponding potential impact on that area. We would note that principle sources of economic data available to the agency (IMPLAN and Oregon Employment Dept. statistics) are readily available on a county-by county basis. These data sets should be examined independently of regional data. (Crook County, Prineville, OR - #179)

In that section labeled "Revenue Sharing with Local Governments" an analysis of PILT (Payment in Lieu of Taxes) revenues provided to local government by the federal government fails to consider that PILT revenues to county General Funds have been sharply impacted in recent years by the interaction between payments made to counties under P.L. 106-393 and PILT payments. Among the nine counties in Oregon, Crook County is the most severely impacted...thus, the statement that BLM lands contribute an estimated $126,000 annually based on a quarter ownership of public lands located within the county is grossly inaccurate. Presentation of accurate data is very important in this plan since in the selection of competing alternatives BLM is required to consider costs and benefits not only to the agency and to the public, but to local government as well. In the section labeled "income," data is reported on a regionalized basis - a reporting error that sharply distorts the county-by-county distribution of wealth. The characterization of the regional population as "relatively wealthy" retirees and in-migrating baby-boomer population may be accurate fro Deschutes County, but is not characteristic of Crook County. Likewise, dismissive commentary that transfer payments throughout the region are about the same as for the state fails to capture the substantially higher dependence of Crook County residents (who are significantly older than Deschutes County residents, according to the census) on those payments...this broad generalization risks understating the importance of use of the public lands for subsistence purposes by residents of the respective counties. (Crook County, Prineville, OR - #179)

In the section regarding industries, data regarding Deschutes and Crook Counties are once again aggregated, consequently masking the enormous difference between the two counties. Where wood products is indeed becoming a "niche" industry in Deschutes County, it remains a vibrant and vital part of the Crook County economy, accounting for an estimated 13 percent of employment countywide in the last Oregon Department of Employment Report. In addition, two secondary wood-products manufacturers are among the top five employers in the county. This is an industry that, while in decline, can hardly be characterized as "niche" in this county, as it is characterized in the plan. (Crook County, Prineville, OR - #179)

Unemployment in Crook County is among the highest in the State, and it would be helpful to show how the various alternatives contribute to the creation of jobs, particularly in the contracting area. (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

The DEIS is deficient in identifying the [social and economic] costs and benefits of the various alternatives as they apply to Crook County. While there is some information about the different socio/economic conditions applicable to Deschutes County and Crook County, there seems to be little explanation about how those Counties are affected by the separate alternatives. Crook County has shown recent growth along with our neighbors, but our values remain largely rural and agrarian. Protection of open spaces, local businesses, and family are important, and separate us from our rapidly growing neighbors. We will never have the kinds of recreation developments as those year-round large scale opportunities near Bend, such as ski areas and other winter sports developments, mountaineering, etc. Prineville Reservoir is our major destination recreation area, and we have supported certain continued development in that area. But by and large, the citizens of Crook County and other users tend towards more undeveloped uses including fishing, hunting, and firewood gathering, hiking driving for pleasure and OHV use. (Crook County Natural Resources Planning Committee, Prineville, OR – #1362)

We also note with complete puzzlement the extremely limited reference to a University of Oregon study (2001 Upper Deschutes RMP Social Values Survey) commissioned specifically for purposes of analyzing the social and economic importance of the planning area - a study which we had expected would be used to craft alternatives. Such reference as there is appears on page 232 and reports data regionally rather than locally. We believe the use of regional rather than local data strongly distorts the actual understanding of how public lands are used by specific communities. (Crook County, Prineville, OR - #179)

> ***Response:*** *Population trends for Crook County have been added to the FEIS/PRMP. Unemployment statistics have been added in the FEIS. Cultural differences between Crook and Deschutes Counties have been added to the FEIS.*
>
> *Information from the 2001 Upper Deschutes RMP Social Values Survey was used to supplement the social component of the Analysis of the Management Situation (AMS). The key findings from the survey have been incorporated into the social and economic sections of the FEIS.*

225. The RMP should have given more consideration to social and economic impacts.

We note with concern that mid-process in the development of the RMP, the active use of the workgroup on Economic and Social impacts (as well as land use impacts) was downgraded/discontinued. This leads us to believe that economic considerations were not given parity in the consideration of alternatives vis a vis other component considerations. (Crook County, Prineville, OR - #179)

> ***Response:*** *Social and economic concerns were given considerable attention throughout the planning process and in the DEIS/FEIS. The socio-economic work group involved and gave feedback on the social values survey report and on measures to be used for the contractor hired to do the social and economic analysis. Due to the complexity of the contractor's socio-economic analysis and the time frames for completing the DEIS, the final meeting was cancelled and members asked to file comments on the socio-econ report with their comments on the DEIS.*

226. The RMP should accurately disclose the effects of BLM action on private land use rights.

The BLM is misleading issue team members by stating that their use of public lands won't affect private land use rights. BLM land use management activities do in fact affect private land use rights. The reason why this occurs is because the BLM, given enough time and resources, can completely change the character of a specific area…which

can lead to the redefining of that area. A newly defined area generally initiates state and county land use zoning changes that will apply to that particular area. The South Millican area can be used as an example. The BLM has improved wildlife habitat in South Millican. These efforts have changed wildlife conditions. As a result, Deschutes County implements a new wildlife area combining zone for the same area. It turns out the new zoning code contains specific standards that take away private land use rights. The Oregon Department of Fish and Wildlife regularly opposes conditional use permit approvals …often required for home construction in rural areas [and] a permit denial occurs quite often due to wildlife concerns brought forth by ODFW. This state agency also defines wildlife areas and highly influences rural county zoning requirements (Individual, Prineville, OR - #1314).

Response: *The BLM has a responsibility to manage its lands in a way that will not contribute to the threatened or endangered listing of any species and will support Oregon wildlife population management goals. Management of wildlife populations are the responsibility of the State of Oregon and, under state land use laws, counties must consider the state's wildlife resources in their comprehensive management plans for how to zone private lands. While the FEIS Preferred Alternative supports those population goals and provides suitable habitat, the establishment of allocations, objectives, and guidelines under which to manage federal wildlands for wildlife habitat is too far removed from any specific impacts to private lands to be meaningfully analyzed. There is no change occurring to any state or county designation as a result of the Preferred Alternative.*

227. The RMP should avoid estimations of the potential cost savings to ODOT from the use of mineral materials from public lands.

…[Pages 557-558 discuss the]…value of the [aggregate] material…The DEIS document goes on to cite the 1998 ODOT report and potential savings obtained by stimulating competition…[and] calculate some potential and or assumed savings. Making these estimates of savings may be a bit of a stretch and somewhat misleading…The issue of calculated savings is dependent on numerous factors that play into the conditions necessary to achieve maximum savings. Presenting dollar figures might be misleading and could result in controversy. It would be difficult for anyone to argue or dispute, that the availability of a viable public site for a public project will increase competition, but to attempt to put a specific dollar figure on the savings resulting from that competition might not be prudent. ODOT would suggest not quantifying estimated potential savings in the DEIS. Using the ODOT report and associated figures as an example may be appropriate, but the factors involved in making the calculations in the ODOT report may not be applicable, thus making the estimated savings questionable within the context of the RMP. (Oregon Dept of Transportation, Bend, OR - #261)

Response: *The DEIS/FEIS estimates the potential cost savings to ODOT to analyze the socio-economic effects of the alternatives with respect to minerals. ; This is a requirement for RMPs. The assumptions and unknowns behind these estimates are presented in the FEIS so that readers are aware of how reasonable and applicable the estimates are.*

228. The RMP should address the economic and educational effects of rockhounding.

The plan also fails to realize the past and future contributions to amateur geologists and collections and explorers in the development of resources and the advancing of scientific discoveries. We bring areas and resources to the attention of the scientific community and public that have not been previously noted. (Dating back to the John Day Fossil Beds.) (Mt. Hood Rock Club, City unknown, OR - #269)

Page 459, Common to All Alternatives, Par. 3 lists the negative effects of rock hound access without including the positive economic and educational impacts. The first and most obvious benefit involves the economic impact of collecting on tourism. There is also

a political and scientific impact of shared appreciation of the vast area of Eastern Oregon that is invisible to most people in the western part of the state. People need a reason to get away from the stresses of modern day living and to be able to appreciate the unique beauty that is available in Eastern Oregon. Rock hounding serves this purpose. We also bring a bit of solid wonder and reality back to the high-speed electronic age. (Mt. Hood Rock Club, City unknown, OR - #269)

> ***Response:*** *The indirect economic and educational effects of rockhounding opportunities have been added to the FEIS. This includes discussion of contributions to tourism and the local economy and the potential for important scientific discoveries.*

229. The RMP should consider the disproportionate effects of public land use restrictions on the growing minority population in Crook County.

In the discussion related to ethnicity, it is barely mentioned that the non-White population of Crook County is growing. Conspicuously absent is any mention of the disparate economic condition of the minority population, which may well utilize public lands to a greater degree (and thus be more burdened by regulation). (Crook County, Prineville, OR - #179)

Of particular concern is how the public lands are used for subsistence purposes. The draft RMP dismisses subsistence use with the following statement: "Of all respondents, 11 (1.6 percent) indicated that they rely on BLM-administered lands as their sole means of income."" This statement highly distorts the economic importance of public lands for a segment of the Central Oregon population. The same study which BLM uses to downplay the economic value of public lands also states that a remarkable ""43 percent of low income residents rely on BLM lands for subsistence." Yet, we cannot find this statement called out anywhere in the analysis, nor do any of the alternatives address the importance of preserving subsistence use of the land. Since this very statistic was called out by Crook County during the planning process, we can only assume that the plan's drafters are deliberately ignoring its significance. We are particularly concerned about statistics such as this because of the disparity in income between residents of Crook and Deschutes Counties, a fact which is well documented in the 2000 census, the Central Oregon Community Investment Plan and the U of O study. (Crook County, Prineville, OR - #179)

> ***Response:*** *The percentage of low income residents that rely on BLM-administered lands for subsistence has been added to Chapter 4 of the FEIS.*

230. The RMP should consider the economic value of Special Recreation Permits.

…while tourism and recreation have this important regional role, the BLM lands within the planning area do not serve as primary tourist destinations." [Vol. 2, p. 554]: In fact, Rock Springs Guest Ranch attracts visitors from all over the world to Central Oregon because of its summer family vacation programming. The core of this program is daily horseback riding that takes place on BLM land. The economic value of what we do is significant . . . we employ 50 staff [during the summer]. . . to take care of 50 guests, a mix of adults and kids. Twelve to fifteen fulltime staff as well as ten additional part time staff are employed year round. Less than 8 percent of our clients during this summer program come from Oregon and Washington, so a high percentage of our clients use air transportation to get to Central Oregon. Most of our clients also partake of other paid recreation activities in the area like golf, white water rafting and Wanderlust tours (canoeing, caving, nature hikes, etc.)…The guest ranch experience makes available to persons all over the United States and the world access to properties held in trust by the United States government for the benefit of the citizens. Most of these people do not have the knowledge, equipment or time to pursue these activities on their own. We are open

year round and outside of the summer program we operate as a conference facility. (Rock Springs Guest Ranch, Bend, OR - #1299)

Response: *BLM-administered lands combined with the overall landscape of Central Oregon are a significant reason why people choose to live in the region. The BLM-administered lands in the study area are valued highly, particularly by local residents. Tourism is very important to the economies of Central Oregon, however, the statement in the DEIS, Vol. 2 on p. 554 holds true, "BLM-administered lands within the planning area do not serve as primary destinations," with the possible exception of wintertime OHV recreation. As supported by the comment, tourists are traveling to Central Oregon to enjoy the multiple benefits and activities offered by facilities such as what is described in this comment that may happen to include some activities on BLM-administered public lands.*

Letters from Cooperators

DESCHUTES COUNTY

Board of Commissioners

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Tom DeWolf
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April 19, 2004

RECEIVED
APR 23 2004
BLM PRINEVILLE DISTRICT

Robert Towne
Deschutes Field Manager
Bureau of Land Management
Prineville District Office
3050 NE 3rd Street
Prineville, Oregon 97754

Re: Draft Upper Deschutes Management Plan and EIS

Dear Mr. Towne:

The Deschutes County Board of County Commissioners (Board) appreciates the opportunity to submit comments responding to testimony received during the comment period on the Draft Upper Deschutes Resource Management Plan and Environmental Impact Statement (UDRMP-EIS). We offer these comments as an interagency cooperator in the UDRMP-EIS planning process. Our staff has participated in the planning process since its inception as members of the Intergovernmental Team and the Transportation, Lands and Socio Economic Issue Teams. In addition, the County has worked with the BLM, Oregon Department of Transportation, the Oregon Military Department, the City of Redmond, and the Governor's office in a South Redmond Collaborative Planning Group (SRCPG).

This collaborative group started meeting in the fall of 2000 to address competing land-use interests south and east of the City of Redmond. The immediate issue was the City's concern that traffic snarls would lead the Oregon Department of Transportation (ODOT) to put a crimp on new development near the Yew Avenue interchange on US97. The different agencies recognized they all had a stake in the outcome but had different land use and transportation decision processes. Coordinating these planning efforts provided better use of resources and coordination decision making especially with the BLM Upper Deschutes Resource Management Plan process

The SRCPG has met regularly during the past three years to improve decision-making by collectively sharing data and streamlining the decision making process. The SRCPG recommended that the County move forward with adopting a transportation corridor (to contain the future solution) into the County Transportation System Plan. The Board supports the BLM's preferred Alternative #7 which includes the recommended corridor. Within the corridor there are several road alignment options, both east and west of the railroad tracks, ranging from local roads to principal arterials. The BLM's UDRMP process does not decide among the particular east and west road alignments within the corridor. Instead, the actual alignment will be determined in a future collaborative planning process.

Quality Services Performed with Pride

The Board generally supports the Land Tenure Zones/Land Acquisitions designations in the Preferred Alternative (Alternative 7). Alternative 7 will provide the land needed for Community Expansion for the rapidly growing City of Redmond. The identified Community Expansion needs include:

- Expansion for the Deschutes County Fairgrounds - identified by the Deschutes County Fairgrounds and Expo Center
- Site for Redmond sewer facility south of the current UGB - identified by the City of Redmond
- Land to the east of the Redmond UGB for housing, and commercial and industrial lands - identified in the Redmond Urban Reserve planning work conducted by Redmond and Deschutes County.
- A transportation corridor south of Redmond - identified through the SRCPG collaborative planning work
- Land east of La Pine for sewer expansion and a potential general aviation airport - identified in the La Pine Special Sewer District Master Plan and the 2002 La Pine Airport Feasibility Study.

Alternative 7 meets all of these identified needs for Community Expansion. However, additional analysis of the area needed for the Redmond Urban Reserve has shown that the BLM land east of Redmond, north of Highway 126 and west of the COI irrigation canal will not be needed for Community Expansion during the 10 year planning horizon of the Upper Deschutes Resource Management Plan. Therefore, this area could be designated as Z-1 or Z-2.

The Board also supports the designation of *General Areas Desirable for Acquisition* in Alternative 7. This is especially important in the La Pine area for blocking up deer migration corridors, riparian areas and enhancing opportunities for recreation and forest management.

In addition, we offer the following specific responses to issues raised in comment letters received by the BLM.

Letter Number 68 from John Pewther.
This letter states that the amount of Community Expansion land south of Redmond should not be reduced as proposed.

The land south of Redmond designated for community expansion is adequate to meet the transportation planning, fairgrounds expansion and sewer expansion needs according to the City of Redmond, the SRCPG and the Fairgrounds for the 10 to 15 year planning period of the UDRMP-EIS.

Letter Number 1332 from Central Oregon Regional Park Association.
This letter requested additional land for community expansion to the south of Redmond that could be used for a regional park facility. The letter requested that more land south of Redmond be designated Z-2 to allow for a regional park.

The Board understands that even if the land is designated as Z-1 as proposed, the Central Oregon Regional Park Association could work with the BLM under the Recreational and Public Purposes Act which allows non profit organizations to lease and eventually acquire title to lands for recreational uses.

Letter Number 88 from Edward Fitch, Bryant Emerson & Fitch.
This letter said that Alternative 7 required modification to include the planning and construction of new roads to service the Redmond area and to connect Redmond to the Pronghorn development and to the Powell Butte Area.

The County Community Development Department and other agencies have participated in the South Redmond Collaborative Planning Project with the BLM and have recommended a corridor (referenced by Mr. Fitch) to be adopted into the County Transportation System Plan. As recommended, the corridor (and Alternative 7) does include the possible connections to 19th St. and Quarry Avenue referenced in Mr. Fitch's letter.

A secondary connection to the Pronghorn development does not need to be included in the BLM plan. Pronghorn developers can apply for any new road rights-of-way in the same manner that they secured approvals for their primary access across BLM land to Powell Butte Highway. Depending on when they reach the build out threshold that requires a permanent secondary access road, they are not precluded from to connecting to a corridor road the County may identify within the next 10 years through Regional Problem Solving. By not designating secondary access in the BLM UDRMP, they are not tied to a particular right-of-way. Any new road on federal land will require National Environmental Policy Act (NEPA) review in addition to review by Deschutes County.

Letter Number 901 from High Desert Development Company.
This letter requested that Pronghorn be designated as a direct participant in the County Regional Problem solving effort that resulted from the South Redmond Collaborative Planning Group coordinated by the state.

The County expects that the South Redmond Collaborative Planning Group (SRCPG) efforts will result in an official Regional Problem Solving study area approved by the Department of Land Conservation and Development. If approved, an inclusive list of stakeholders, including Pronghorn, will be will assembled to help define the goals and tasks of the project and to participate appropriately.

Letter Number 1315 from Sisters Forest Planning Committee (SFPC).
This letter states the land identified for Community Expansion for Redmond is excessive considering the County population forecast which was appealed by the SFPC population analysis.

Based on initial population estimates and work done by OTAK, a consultant for the City of Redmond in their urban reserve planning project, the county and the city supported designation of the BLM land east of Redmond extending to the COI irrigation canal as Community Expansion. Subsequent analysis shows this land is not needed for the Redmond Urban Reserve during the 10 to 15 year planning horizon for the Upper Deschutes Resource Management Plan.

Therefore, the Board recommends that the BLM land that is east of Redmond, north of Highway 126 and west of the COI canal be designated as Z-1 or Z-2 and not as Community Expansion. It is likely that eventually Redmond will have needs that will require use of this tract of BLM land. But the current planning does not show that there will be a need for development on these lands in the next 10 to 15 years.

Thank you for the opportunity to present these comments.

Sincerely,

Deschutes County Board of Commissioners

Michael M. Daly, Chair

Dennis R. Luke, Commissioner

Tom DeWolf, Commissioner

Cc: Sisters Forest Planning Council
Ed Fitch
Central Oregon Regional Park Association
High Desert Development Company
Molly Chaudet

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APR 28 2004

BLM PRINEVILLE DISTRICT

OREGON MILITARY DEPARTMENT
HEADQUARTERS, OREGON NATIONAL GUARD
1776 MILITIA WAY
P.O. BOX 14350
SALEM, OREGON 97309-5047

April 16, 2004

SUBJECT: Response to letters regarding the Upper Deschutes Resource Management Plan/EIS

Ms. MerrieSue Carlson
2146 NE 4th Street
Bend, Oregon 97701

Dear MerrieSue,

This letter is written to address concerns of the Oregon Military Department (OMD) regarding the content of five letters submitted to the Bureau of Land Management (BLM) during the public review period for the draft Upper Deschutes Resource Management Plan and Environmental Impact Statement (UDRMP/EIS). The South Redmond Area Collaborative Planning Group (SRACPG) met on March 30, 2004 to discuss these five letters, which were selected by the BLM for discussion because they have potential impacts to members of the Group. The OMD representative, Bill McCaffrey, was out of the state at the time of the meeting. Consequently, OMD presents within this letter its view and concerns regarding the five subject letters.

Of primary concern are letters from Mr. Scott Denney and Mr. Ed Fitch, suggesting changes to access routes connecting the City of Redmond and Pronghorn Resort. Mr. Denney alludes to Pronghorn Resort "… discussions with the BLM to date regarding future scenarios for the placement of our permanent secondary access to the resort". Although we can surmise that such access will connect with Hwy 97 to the west, the BLM has not been forthcoming about such discussions, even though it has simultaneously worked with the SRACPG to establish a US Hwy 97 Study Corridor. Mr. Ed Fitch, in his letter, goes even further than Pronghorn Resort by advocating a direct road connection between "the Redmond Airport to Pronghorn and the new destination resort planned by Eagle Crest in the Powell Butte area". OMD has consistently advocated to the SRACPG that Pronghorn Resort transportation issues be considered in a comprehensive, regional transportation plan. OMD has also expressed the opinion that Pronghorn's secondary access route, if a direct link to Redmond and the airport, will eventually become the primary access route to the resort, as implied by Mr. Fitch. The concept of a direct link to Redmond is contrary to the stated intent of the resort developer when the Conceptual Master Plan (CMP) was filed with the County in 2000. The CMP expressed the developer's intent to maintain an indirect route from Powell Butte Highway in order to create a "remote" feel for the resort. The BLM addressed these issues in an Environmental Assessment prepared prior to granting approval of a primary access route to the resort. OMD believes construction of a regional east-west transportation corridor connecting Redmond and Pronghorn Resort with the proposed new Jeld Wen Eagle Crest Resort near Powell Butte, as now being proposed, could adversely affect military training operations in that area, particularly if the route selected is the County R2477 road along Morrill Road.

The BLM also received letters from Mr. Kevin Curtis, Mr. John Pewther, and the Central Oregon Parks Association. These letters address the need for additional land southeast of Redmond for future fairgrounds expansion or park development. It is difficult for OMD to assess concerns expressed in these letters without knowing the specific location of the 318 acres proposed for this development.

AGI-ENV
SUBJECT: Response to letters regarding the Upper Deschutes Resource Management Plan/EIS

In accordance with the provisions in the draft UDRMP/EIS, and as previously addressed by the SRACPG, OMD intends to discontinue use of BLM land west of the Freight Wagon Road. This includes the nominal 640 acres of Section 33, Township 15 South, Range 13 East. OMD wants to retain existing training land west of the NUID Main Canal and within Sections 26, 34 and 35 of Township 15 South, Range 13 East, as well as those lands west of the Canal and north and east of the BPA power line within Section 3, the east half of Section 4, and Section 9, Township 16 South, Range 13 East. As stated to the SRACPG, our intent is to vacate lands we foresee being untenable for military training due to fragmentation and development. It is important, however, to retain areas cooperatively designated by the SRACPG as suitable for military use within the Preferred Alternative (Alternative 7) defined in the UDRMP/EIS. In particular, the remaining area west of the Canal is some of the limited land approved for tracked vehicle use. Additionally, retaining that area allows OMD to relocate its south Bailey Bridge to a new location at the junction of the BPA power line right-of-way and the NUID Main Canal. Removal and relocation of the south Bailey Bridge are addressed in a previously-approved BLM Environmental Assessment granting Pronghorn Resort a primary access route to the Powell Butte Highway. OMD has been a cooperator in all these planning efforts and has reached an accommodating compromise that acknowledges continued development while allowing fulfillment of the National Guard's training mission. OMD will vacate approximately 2,360 acres of land between the City of Redmond and Pronghorn Resort in this effort. OMD believes there are 318 acres within this vacated area that could reasonably satisfy a need for regional park land if the stakeholders agree to such use.

Lastly, Mr. Denney has suggested that Pronghorn Resort be designated as a participant on the SRACPG. OMD believes the private owners of Pronghorn Resort should have the same status as other private property owners, and can express their opinions and exercise their influence through elected local representatives who control the agencies having member status on the Group. OMD believes the SRACPG should consult with the Resort, as needed, and is free to consult with any other private group or association in accordance with paragraph 12 of the Planning Group Charter.

The Oregon Military Department wishes to continue its cooperative work and representation within the SRACPG. While such major transportation issues like the South Highway 97 Corridor Study have little effect on military training operations, topics and issues raised within these five letters illustrate the continued need for OMD to be a consistent and participating SRACPG member. Our ability to maintain an effective training site and provide realistic training opportunities rests in our ability to address these issues and their potential impact to future military training in central Oregon.

Copies of this letter are being distributed directly to the following members of the South Redmond Area Collaborative Planning Group: Ms. Mollie Chaudet, BLM; Mr. Chuck McGraw, City of Redmond; Mr. George Read and Mr. Steve Jorgensen, Deschutes County; Mr. Ed Moore, ODOT; and Mr. Mark Radabaugh, DLCD.

Sincerely,

J. Michael Caldwell
Colonel
Deputy Director

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Proposed Upper Deschutes Resource Management Plan and Final Environmental Impact Statement

Volume 2 – Chapters 4 and 5 and Summary of Public Comments

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