4.15 SPECIAL STATUS SPECIES

There are 17 federally listed and 28 sensitive species within the VPA, which includes mammals, birds, reptiles, fishes and plants. Each of these species has different habitats, different ranges of distribution, and different susceptibilities to management activities. In contrast to other resources, special status species have limited distributions and key habitat requirements that might not be located or unable to be relocated elsewhere within the VPA. For this reason, total acres of surface disturbance under individual alternatives are difficult to interpret in the context of a special status species, without being placed in a context of the factors most important in managing individual species for either recovery or to prevent listing as threatened or endangered.

The methods used to analyze the impacts to special status species analysis were to first list the overall species threats, as defined in individual species' Federal Register listing packages (for federally listed species), or according to data provided by the BLM for sensitive species. How the management decisions in the RMP would contribute to a change in individual species' threats (either positively or negatively) was then identified. Finally, the risks of individual resource decisions contributing to species threats were evaluated, using both qualitative analysis and a selected subset of acreage data that would pertain to individual key special status species limiting factors. Table 4.15.1 below summarizes the overall threats and potential impacts of RMP alternatives' management actions on listed species. The remainder of this section describes how the specific management actions under each alternative would affect key factors affecting species, as listed in Table 4.15.1. Because, there is less information on sensitive species than listed species, most sensitive species are discussed in conjunction with those federally listed species sharing similar habitat and limiting factors. Sensitive species for which the RMP includes specific management prescriptions are individually discussed. These include the ferruginous hawk, burrowing owl, sage grouse and Colorado River cutthroat trout.

Impacts to listed species would occur if any of the resource decisions were to result in direct impacts to a listed or candidate species through "take," defined by the Endangered Species Act as "harm, hunting, wounding, killing, or harassment." Harassment includes activities resulting in increased stress during critical life history stages such as nesting, migration or wintering, loss or degradation of designated critical habitat, loss or degradation of occupied or potential listed species' habitat, or activities precluding or reducing the effectiveness of recovery goals or measures. Although other special status species are not regulated under the Endangered Species Act, impacts to these species were identified if they fell within one of the above categories.

Some decisions regarding resources would not affect special status species because they would neither change the status of current species threats nor affect recovery potential. The impacts from decisions concerning Cultural Resources, Lands and Realty, Paleontological Resources, Visual Resource Management, Wild Horse Management, and Wildlife and Fisheries Management would be negligible on special status plant and animal species in the Vernal Planning Area (VPA) and therefore will not be discussed further in this analysis.

Impacts from other resource decisions would affect special status species. Individual resource decisions that would have a combined potential effect on special status species and could not be separated were addressed jointly. Impacts from other resource decisions that would affect Special Status species include: Fire Management/Woodland and Forest Management, Forage Allocation/Livestock Grazing, Mineral Resources, Recreation and Travel, Riparian Resources, Special Designations, Special Status Species, and Soils and Watershed. Decisions relating to

these resources and resource uses would have a either a direct or indirect impact on special status plant and animal species in the VPA and be long term or short term in nature.

4.15.1 Impacts Common to All Alternatives

4.15.1.1 Fire and Woodland Management

Under all of the alternatives, prescribed burning and public harvest of timber products would occur. These impacts would occur in woodland, forest and desert shrub habitats, but not grassland or riparian habitats. As a result, fire would not be used in black-ferret, bald eagle, yellow-billed cuckoo, endangered Colorado River fish, or Ute ladies'-tresses habitat. Fire would occur in vegetation types occupied by the listed plant species other than the Ute ladies'-tresses (hereafter referred to as the Book Cliff soil endemics, referring to the general restriction of these plant species to specific soil types in the Book Cliffs area). In general, the Book Cliff soil endemics occur in sparsely vegetated habitats within the larger mapped vegetation types. Controlled prescribed fire would not likely carry in these habitats unless they had been invaded by cheatgrass or other annual weedy species or if prescribed fires spread beyond their intended dense woodland target. As a result, carefully controlled prescribed fire would not have a major adverse impact on the Book Cliffs soil endemics, and would have long-term beneficial impacts by preventing larger fires in adjacent woodlands that could spread through sensitive species habitat. Associated activities, such as fire line construction and off-road travel by necessary fire maintenance vehicles could impact the Book Cliff soil endemics.

Both fire and woodland harvest would likely occur in habitat used by the Mexican spotted owl, Canada lynx and sensitive bird species. The short-term effects of prescribed fire on the Mexican spotted owl and ferruginous hawk would be direct and adverse by removing the conifers used by these species. As long as some mature patches of trees were left in the vicinity, the long-term impacts of fire decisions on these species would be beneficial, by reducing the chance of catastrophic wildland fire. Catastrophic wildland fire is a key threat to the Mexican spotted owl. Use of prescribed burning, thinning treatments and any other activities that would result in a mix of age classes is supported by the FWS as being beneficial for the Mexican spotted owl (FWS 2001). Fire would have mixed effects on the Canada lynx, as this species requires an abundance of downed woody debris for denning, which would be removed by prescribed burning and would take decades to redevelop. Conversely, fire in decadent forest stands would restore habitat for the snowshoe hare, which is the main food for the lynx.

4.15.1.2 Forage Allocation/Livestock Grazing

Livestock grazing in both upland and riparian habitats would occur under all alternatives. Forage would be reallocated in areas in which there were demonstrated livestock-big game conflicts, but none of the alternatives would exclude grazing in special status species habitat. Grazing is a threat to all of the listed plant species and was identified as a key factor in the listing of these species. Grazing would have both direct short and long term adverse impacts on listed plant species through trampling and removal of the above-ground portions of the plants, preventing the flowering and seed set necessary for species survival. Grazing within the riparian zone would also have adverse effects on the yellow-billed cuckoo, as this species depends on the maintenance of dense multi-layered riparian habitat, which would be reduced by grazing of the mid-layer of woody species and the creation of cattle trails through riparian stands.

4.15.1.3 Mineral and Energy Development

All alternatives allow some level of mineral and energy development. Oil and gas development are identified as a key threat to the Book Cliffs soil endemics and was a major factor in their listing. Potential adverse direct effects of oil and gas developments include placement of facilities or roads within either occupied habitat or potential habitat necessary for the recovery of the species, resulting in an overall reduction in habitat and an increase in habitat fragmentation. This threat is particularly high for the clay reed-mustard and the shrubby reed-mustard as they are restricted to geologic formations containing oil shale, and for Graham's beardtongue, which is in severe decline. Indirect adverse impacts of oil and gas development within the listed plant species habitat include damage to plants from travel outside of designated roads, increases in road densities, and fugitive dust production with subsequent covering of plants by wind-blown soil. The clay soils on which these plants grow are highly susceptible to wind erosion, and surface disturbance increases the soil erosion potential. Deposition of wind-blown soil on the listed plant species currently is a problem, potentially affecting plant reproduction, in the existing oil and gas fields (Whittington, FWS[personal communication] 2003). Pollination vectors are not known for many special status plant species in the VPA. Studies on Ute ladies'-tresses (Sipes and Tepedino 1995) have shown that ground-nesting bees are important for pollination of these species, where other species pollination vectors are not known within the VPA. Seed dispersal vectors are also unknown within the VPA, but could be affected by population splitting due to road development (Specht 2004). Other indirect adverse impacts include the potential for introduction and spread of noxious and invasive weeds that would compete with the special status plants. The spatial layout of oil and gas facilities would disturb a large proportion of vegetation, when in the context of the landscape. Each area disturbed for the construction of a well pad or road increases the opportunity for weed invasions and disrupts the spatial continuity of vegetation communities. Also, activities such as road building would increase the access to sensitive areas on which Special Status Species are dependent for survival.

Oil and gas development would have both direct and indirect adverse effects on the Ute ladies'-tresses, the bald eagle, the yellow-billed cuckoo, the four Colorado River fishes and the Colorado River cutthroat trout. Although most of the riparian zone is listed as NSO, this stipulation could be waived if necessary for transmission lines, roads and surface occupancy. Any development within riparian zones could adversely affect the bald eagle, yellow-billed cuckoo and Ute ladies'-tresses through removal of riparian vegetation. Development of oil and gas wells requires water for both well drilling and extraction. Approximately 0.58 acre-feet of water would be required for each well. The source of this water is unknown, and each contracting company would identify its own water source and disposal methods for waste products. One of the main factors in the listing of the Colorado River fishes was the cumulative effect of water depletion within the Colorado River system, which includes the Green and Duchesne Rivers and their associated critical habitat. New depletions from these rivers or changes in the amount of water returned to the rivers would constitute an additional impact on the Colorado River fishes. Depending on where the depletions occur, riparian habitat supporting the Ute ladies'-tresses would also be adversely impacted by changes in hydrologic support. Loss of riparian habitat through streamflow changes is a key threat to the Ute ladies'-tresses. Wastewater disposal methods would be determined by each individual contracting company and are currently unknown. Any discharges of petroleum wastes into water bodies would negatively affect the special status fish. Boron and selenium are high in the local soils; the degree to which sediments containing these contaminants would enter water bodies is unknown. The potential for mineral development to

increase sedimentation is discussed in Section 4.15 Soil and Water Resources. Increases in sediments containing boron or selenium would adversely affect all of the special status fishes.

Under all alternatives, large areas associated with ferruginous hawk nesting sites, Mexican spotted owl habitat and greater sage grouse habitat would be open for oil and gas and mineral development. General adverse impacts to these species would include reduction in habitat, habitat fragmentation, and increases in noise and other human disturbances.

4.15.1.4 Rangeland Improvement

Construction of new rangeland improvement projects could have long-term indirect adverse impacts on some special status species if the projects result in moving livestock and wildlife into areas that had previously received little use. Conversely, special status species would benefit from rangeland improvements by improved dispersion of livestock and wildlife if animals are prevented from concentrating in their habitat, although dispersal of weeds into previously undisturbed areas would adversely impact some special status species. Direct impacts would depend on exact project locations, but in general, adverse impacts are projected to be minimal, since site examinations would be conducted prior to project approval.

Vegetation treatments, including western juniper control, prescribed burning, and seedings, would impact special status species, depending on the species, the number of exotic species within the area, overall ecological condition, and the likelihood that exotics would colonize the sites following treatment. Site examinations, to the extent feasible, would be conducted prior to treatments; however, due to the generally large size of such treatments, species might be overlooked and adverse impacts would result if species are uprooted during the physical procedures. Where canopies are opened and exotics are displaced in or near special status species habitat, beneficial impacts could result, as sites would be improved for establishment or recolonization by certain species.

4.15.1.5 Recreation and Travel

All alternatives would include designation of Backcountry Byways, would encourage recreation in the Book Cliffs area and allow a degree of OHV use. Designation of special recreation areas (SRMAs) would provide beneficial impacts to special status species by removing some areas from oil and gas or mineral development, with the associated impacts described above. Continued use of OHVs and development of trails would have adverse impacts on special status species by providing access to habitats where trampling, habitat fragmentation and illegal plant collecting could occur. Increased visitor use of recreational areas would adversely affect special status species through increased human disturbance.

4.15.1.6 Special Status Species

All alternatives have general raptor stipulations and mitigation measures meant to protect and/or enhance raptor habitats. Raptors would be managed under the auspices of Best Management Practices (BMPs), which would include implementation of spatial and seasonal buffers to disturbances in the vicinity of nesting raptors that would be tailored to the individual raptor species involved, and based on factors such as line of sight distance between nest and disturbance, type and duration of disturbance, nest structure security, sensitivity of the species to disturbance, observed responses to related disturbances, and the amount of other disturbances already occurring in the vicinity to reduce adverse impacts of minerals development on raptors.

These buffers would be comparable with the USFWS "Guidelines for Raptor Protection from Human and Land Use Disturbances" with modifications allowed as long as protection of the raptors is ensured. The BLM would also pursue a partnership between industries, local governments, the USFWS, UDWR, and others to establish a raptor management fund to be utilized for raptor population monitoring and habitat enhancement. The BLM would also cooperate with utility companies, UDWR, and the USFWS to prevent electrocution of raptors.

Additionally, under all alternatives:

- Cottonwood bottoms for bald eagle winter habitat along the Green and White Rivers, at Pelican Lake, and at the Cliff Creek would be protected.
- The BLM would cooperate with UDWR to maintain and enhance white-tailed prairie dog and prey base habitat to provide primary food sources for the ferruginous hawk.
- The BLM would manage the black-footed ferret consistent with the 1999 Black-Footed Ferret Reintroduction Plan Amendment.

TABLE 4.15.1. COMPARISON OF POTENTIAL RESOURCE DECISION IMPACTS WITHIN THE VPA TO OVERALL SPECIES THREAT FOR FEDERALLY LISTED SPECIES

Common Name	Overall Species Threats	Potential Impacts associated with Resource Decisions within the VPA
Black-footed ferret	Loss of prairie dog colonies on which they depend due to poisoning, agricultural conversion, and disease.	Changes in the prairie dog prey base within the Coyote Basin experimental population through conversion of open, sparse grassland to a different habitat type.
Canada lynx	Inadequate regulatory mechanisms to protect the species coniferous forest habitat which is important for denning (needs large woody debris), its snowshoe hare prey base (needs dense understory), and corridors for dispersal.	Forest practices that would remove large woody debris, dense understories, or fragment the Diamond Mountain coniferous forest dispersal corridor through roads, trails, or other barriers; forest practices that would provide for long-term maintenance of different -aged forest stands.
Bald eagle	Loss of riparian nesting and roosting habitat; environmental contaminants affecting reproduction.	Loss of large cottonwoods along the Duchesne, White, or Green Rivers for roosting or nesting; increased exposure to environmental contaminants such as boron, selenium, or organochlorides (complex compounds that are often associated with oil and gas by-products, herbicides, and pesticides).
Mexican spotted owl	Forested habitat loss due to even-aged stands, catastrophic wildland fires.	Forest practices that would develop even-aged stands of trees, catastrophic wildland fires, and loss of forested habitat within the steep canyons of the Book Cliffs area; forest practices that would provide for long-term maintenance of different-aged forest stands.
Yellow-billed cuckoo	Loss of multi-layered riparian habitat.	Any loss of multi-layered riparian habitat; activities that could prevent future development of dense riparian habitat.
Bonytail Colorado pikeminnow Humpback chub Razorback sucker	Cumulative effects of streamflow regulation and depletion, changes in temperature regimes, loss of connected floodplain habitat, competition with and predation by nonnative fish species, hybridization, increased concentration of salts and contaminants in the river.	Any river depletion or change in Duchesne River or Green River streamflows that would add to the cumulative impacts of all existing depletions, particularly in the designated critical habitat reaches; changes in tributary flows that could affect mainstem flows; increased salt or contaminant concentrations associated with flow depletion and/or increased sediments entering the two rivers.

Horseshoe milkvetch Graham beardtongue White River beardtongue	Cumulative effects of restriction to unique formations, with oil and natural gas development, and sheep and cattle grazing.	Direct placement of facility footprints or associated infrastructure on existing individuals or colonies, placement of facilities on potential habitat needed for the species' recoveries, grazing within the restricted habitat areas that tramples plants or prevents them from flowering, unrestricted off-road travel, wind erosion from high road densities and facilities in the highly erodible clay soils on which these species depend, potential loss of long-term reproduction capabilities due to habitat fragmentation.
Clay reed-mustard Shrubby reed-mustard	Cumulative effects of restriction to unique formations, with oil and natural gas development.	Same as described above plus the additional risk that the oil shale underlying the two mustards' habitat leaves a strong possibility for future oil and gas development within the population centers.
Uintah Basin hookless cactus	Energy/mineral developments, livestock grazing, stone collecting, and off-road vehicle use.	Direct placement of facility footprints or associated infrastructure on existing individuals or colonies, placement of facilities on potential habitat needed for the species' recoveries, grazing within the restricted habitat areas that tramples plants, unrestricted off-road travel.
Ute ladies'-tresses	Loss of riparian habitat through streamflow alteration, streamflow depletion, and invasion by noxious weeds; overgrazing; changes in stream dynamics allowing repeated new habitat creation.	Additional changes in streamflow through new consumptive use, increases or decreases in noxious weeds, increases or decreases in totals grazing allowed within riparian zones, discretionary authority to allow infrastructure within NSO designated riparian zones.

4.15.2 Alternative Impacts

4.15.2.1 Impacts of Fire Management Decisions on Special Status Species

4.15.2.1.1 Alternatives A, B, and C

Alternatives A, B, and C would have direct beneficial and adverse effects on special status species as described under Impacts Common to All Alternatives, although the impacts would generally be positive for species status over the long term. The greatest beneficial impact of prescribed fire on 156,425 acres per decade would be to restore habitat for the Mexican spotted owl and over the long term reduce the potential for catastrophic wildland fires in other sensitive species habitats. Adverse impacts would include mortality, and short-term loss of habitat. These three action alternatives would provide for prescribed burning on 104,525 more acres per decade than Alternative D – No Action. As a result, the action alternatives would provide substantially more long-term beneficial impacts to special status wildlife species than the No Action Alternative due to a greater acreage of prescribed fire under all action alternatives.

4.15.2.1.2 Alternative D – No Action

Alternative D allows for prescribed fire on 50,900 acres per decade (27,950 and 22,950 acres under the Book Cliffs and Diamond Mountain RMPs, respectively). The impacts of this alternative on special status species would be similar to those described above for the action alternatives, except that the impacts would be on a smaller scale.

4.15.2.2 Impacts of Forage Allocation and Livestock Grazing Decisions on Special Status Species

4.15.2.2.1 Alternative A

Under Alternative A, up to 50 percent of upland forage would be utilized by livestock, wild horses, and big-game species. The total number of AUMs (including livestock, wild horses and big game) would be 245,649 or 479 AUMs (approximately 0.2%) less than under Alternative D – No Action. In riparian areas, stubble height would be initially identified as 4 inches, with 30% woody species utilization unless bank stabilization goals were not meant. In that case, minimum stubble height would be increased to six inches with a maximum of 20% woody species utilization. The riparian grazing standards under Alternative A differ from the No Action alternative in that stubble heights are set at 3 inches (1 to 3 inches lower than alternative A) and that the No Action alternative has no riparian woody species utilization standards.

In general, grazing is a threat to all listed and most sensitive species, as described under Impacts Common to All Alternatives (4.15.1). Under alternative A, the risk of grazing impacts to the Book Cliffs soil endemics would be slightly less than those of Alternative D – No Action as grazing utilization would be monitored; however substantial grazing impacts to these species would still occur as there is no almost no difference in AUMs (0.2%) between Alternative A and Alternative D and even 50% upland forage utilization would provide a threat to these species. The risk of adverse grazing impacts to the Ute ladies'-tresses would remain unchanged from Alternative D, as both alternatives would allow grazing to the extent that flowering parts could be removed.

The largest change in grazing management between Alternative A and the Alternative D would be that Alternative A would restrict woody riparian species utilization whereas the No Action alternative would have no restrictions. Over the long term, restrictions on woody species utilization would provide beneficial impacts to riparian-dependent wildlife such as the bald eagle and the yellow-billed cuckoo over the No Action alternative, although it should be noted that grazing impacts would occur to these species as long as grazing was allowed in the riparian zone.

The increased grazing restrictions in the riparian zone to increase stream bank stability would have beneficial impacts on the Colorado River cutthroat trout and potentially the Colorado River endangered fishes by reducing sediment input into streams.

4.15.2.2.2 Alternative B

Under Alternative B, up to 60% of upland forage would be utilized by livestock, wild horses, and big-game species. The total number of AUMs (including livestock, wild horses and big game) would be 244,034 or 2,094 AUMs (approximately 0.8%) less than under the No Action Alternative. The riparian zone would be managed in a similar manner as for Alternative A. The impacts of grazing, forage allocation and riparian grazing management decisions under Alternative B would be the same as described for alternative A.

4.15.2.2.3 Alternative C

Under Alternative C, up to 50 percent of upland forage would be utilized by livestock, wild horses, and big-game species. The total number of AUMs (including livestock, wild horses and big game) would be 187,450 or 58,678 AUMs (approximately 24%) less than under Alternative D – No Action. The riparian zone would be managed in a similar manner as described for Alternative A.

Although grazing is threat to all listed and most sensitive species, the 24% reduction in AUMs would provide a substantial benefit to all species, and particularly reduce the risk of grazing impacts to the Book Cliffs soil endemics as compared to the No Action alternative. Other impacts would be the same as described for Alternative A.

4.15.2.2.4 Alternative D – No Action

Under Alternative D, upland forage utilization levels are unspecified. The total number of AUMs (including livestock, wild horses, and big game) would be 246,128. In riparian areas, stubble height would be initially identified as 3 inches, with an unspecified amount of woody species utilization. The No Action Alternative would continue the existing grazing risk for all special status species and not provide benefits for any of them.

4.15.2.3 Impacts of Mineral Development Decisions on Special Status Species

Table 4.15.2 presents a summary of the changes in acres open for mineral and energy development. The table displays differences in total acres as well as a percentage change in acres available for mineral and energy development (Standard Stipulations and Timing and Controlled Surface Use) as compared to Alternative D – No Action. As depicted in Table 4.15.2 there are large differences in total acreages available for mineral/energy development among the alternatives as compared to Alternative D (ranging from a 5 % under Alternative C to a 16 % increase under Alternative B), and that the largest changes occur in the areas available for oil,

gas, and tar sands mineral leasing. However, acres of development alone can be misleading unless placed in geographic context. Most of the increased oil and gas mineral development within BLM administered lands in the VPA would occur primarily in the Monument Butte - Red Wash Area, and secondarily in the East Tavaputs Plateau area. It is also important to note that the Hill Creek Extension (188,500 acres) was not leased in the Book Cliffs RMP and therefore it is not included in the acreage totals for Alternative D. These areas are population centers for the Book Cliff soil endemics and the Mexican spotted owl. Concentration of increased mineral and energy development within habitats of sensitive species whose major threat is oil and gas development would result in substantial adverse effects through direct take, potential harassment and by preventing recovery by development in unoccupied but suitable habitat.

TABLE 4.15.2. DIFFERENCES IN ACREAGES AVAILABLE FOR MINERAL AND ENERGY DEVELOPMENT UNDER EACH ACTION ALTERNATIVE AS COMPARED TO ALTERNATIVE D – NO ACTION

Activity	Alternative A	Alternative B	Alternative C
Oil, Gas, and Coal Bed Methane	+240,752 acres (+16%)	+283,367 acres (+18%)	+91,055 acres (+6%)
Special tar sands	+35,178 acres (+16%)	+42,175 acres (+19%)	21,609 acres (+10%)
Open minerals	+27,695 acres (+7%)	+45,253 acres (+12%)	+999 acres (+0.2%)
Oil shale	+7,889 acres (+3%)	+14,996 acres (+5%)	+1,713 acres (+0.5%)

4.15.2.3.1 Alternative A

4.15.2.3.1.1 Special Status Plant Species

Under Alternative A, areas open for mineral and energy development would increase by 16% in areas open for oil, gas, and coal-bed methane (CBM) leasing, 7% in areas open for mineral development and 3% in areas open for oil shale development as compared to Alternative D. The number of acres open to oil and gas leasing on BLM administered lands within the VPA would be 1,776,782, tar sands 252,665 acres, oil shale 317,374 acres, and mineral materials 415,395 acres. As described in the Impacts Common to All Alternatives, the increased minerals development would have multiple short-term and long-term, direct and indirect adverse impacts on special status plant populations within the VPA. These impacts include categorizing a large majority of special status plant habitat as open to mineral development. These designations would likely lead to an increase in road densities, a reduction in habitat through the installation of mineral development infrastructure, and an increase in habitat fragmentation. Increased road densities would also make access to remote areas easier for OHVs and could increase illegal collection of rare plants. Long-term adverse impacts would primarily be in the form of loss of habitat and direct destruction of individuals and populations, with the extent of impacts generally determined by the amount of activity. Other impacts that could occur would be genetic isolation of special populations and biodiversity loss. Impacts to seed dispersal and pollinators could

occur, but studies of these impacts within the VPA are limited and few conclusions can be drawn.

Locatable mining activities, including mineral exploration, development, and collection of building stone would continue to have a long-term adverse impact on certain special status plant species, particularly Uintah Basin hookless cactus (*Sclerocactus glaucus*), shrubby reed-mustard (*Schoenocrambe suffrutescens*), and Graham beardtongue (*Penstemon grahamii*) that occur in areas used for collecting building stone. Impacts from mineral mining are projected to be most severe within the areas in and near Wrinkles Road, Little Pack Mountain, and Big Pack Mountain that are currently mined and in areas where high potential has been identified for mineral occurrence. Impacts of increased oil and gas leasing are projected to be most severe within the areas in and near the Book Cliffs, on alluvial river terraces near the confluence of the Green, White, and Duchesne Rivers, and in Pariette Draw. The potential impacts to Uintah Basin hookless cactus, clay reed mustard (*Schoenocrambe argillacea*), shrubby reed mustard, Graham's beardtongue, and White River beardtongue (*Penstemon scariosus*) are expected to be high with oil, gas, and coal bed methane development. The overall impact from oil shale development is projected to be high for clay reed mustard because its primary habitat is on oil shale deposits.

Adverse impacts would be highest for special status plants where future development would occur in pinyon-juniper, sagebrush, and desert shrub communities. For comparative purposes, the alternatives are analyzed with an assumption of a 40-acre well spacing. Under Alternative A, 459,746 acres of desert shrub, 456,570 acres of sagebrush, and 448,439 acres of pinyon-juniper would be subject to surface disturbance from oil, gas, and coal bed methane development. Alternative A proposes 9 percent more disturbance to desert shrub, 6 percent more to sagebrush, and 9 percent more to pinyon-juniper than does Alternative D – No Action.

4.15.2.3.1.2 Special Status Animal Species

Ferruginous Hawk

The minerals development land categorization proposed under Alternative A would have multiple short-term and long-term, direct and indirect adverse impacts on ferruginous hawk populations in the VPA. These impacts would include categorizing a majority of areas associated with ferruginous hawk nesting sites as open for mineral development. These designations would likely lead to an increase in road densities, a reduction in habitat from the installation of mineral development infrastructure, and an increase in habitat fragmentation.

Alternative A would increase the proportion of areas surrounding ferruginous hawk nesting sites open to oil and gas development by approximately 2 percent when compared to Alternative D – No Action. These alternatives would also decrease the proportion of areas surrounding ferruginous hawk nesting sites subject to special stipulations other than those prescribed for ferruginous hawk by 9 and 10 percent, respectively.

Mexican Spotted Owl

The minerals development land categorization proposed in Alternatives A would likely have multiple short-term and long-term, direct and indirect adverse impacts on Mexican spotted owl populations in the VPA. These impacts include categorizing a majority of important Mexican

spotted owl canyon and forest habitat as open for minerals development. These designations would likely have impacts similar to those described for ferruginous hawks.

Alternative A would increase the proportion of Mexican spotted owl canyon and forest habitat open to oil and gas development by approximately 9 and 14 percent, respectively, when compared to Alternative D. Alternative A would decrease the proportion of Mexican spotted owl canyon habitat subject to special stipulations by approximately 12 percent but would increase Mexican spotted owl forest habitat subject to special stipulations by approximately 10 percent, when compared to the No Action Alternative Most of the increased oil and gas development, as well as the reduction in special stipulation designations, would occur in the canyon habitat immediately adjacent to designated critical habitat and in an area in which substantial suitable habitat for the Mexican spotted owl occurs.

Greater Sage Grouse

The minerals development land categorization proposed in Alternative A would have multiple short-term and long-term, direct and indirect adverse impacts on greater sage grouse populations in the VPA. These impacts include categorizing a large majority of important greater sage grouse winter and brooding habitat as open to minerals development. These designations would likely have impacts similar to those described for ferruginous hawks.

Alternative A would increase the proportion of greater sage grouse winter and brooding habitat open to oil and gas development by approximately 3 percent when compared to Alternative D. This alternative would also decrease the proportion of greater sage grouse winter and brooding habitat subject to special stipulations by approximately 2 percent when compared to Alternative D (see sage grouse Tables 14 and 15 in Appendix I - Wildlife).

White-tailed Prairie Dog and Black-footed Ferret

The minerals development proposed in Alternative A would have multiple short-term and long-term, direct and indirect adverse impacts on white-tailed prairie dog and black-footed ferret populations in the VPA. For this analysis it was assumed that black-footed ferrets are completely dependent upon white-tailed prairie dog towns for survival in those areas where they have been reintroduced into the VPA. Therefore, the impacts of minerals development on white-tailed prairie dog populations would be similar to the impacts on black-footed ferret populations.

Alternative A would increase the proportion of white-tailed prairie dog habitat open to oil and gas development by approximately 3 percent when compared to the No Action Alternative. This alternative would decrease the proportion of white-tailed prairie dog habitat subject to special stipulations by approximately 30 percent when compared to the No Action Alternative (see Table 16 in Appendix I – Wildlife).

Bald Eagle and Yellow-billed Cuckoo

Bald eagle and yellow-billed cuckoo are generally associated with lowland riparian and cottonwood forest areas. A stipulation common to all alternatives is that surface disturbing activities would not be allowed within 100 meters of riparian areas. This stipulation would protect these lowland riparian and cottonwood forest habitats from activities such as mineral development. However, an exception would be authorized if 1) there are no practical alternatives, or 2) all long-term impacts would be fully mitigated or 3) the activity would benefit

and enhance the riparian area. Any exception that would allow development or construction in the riparian zone would have adverse effects on listed riparian species.

Bonytail, Colorado Pikeminnow, Humpback Chub, Razorback Sucker, and Colorado River Cutthroat Trout

The minerals development proposed in Alternative A would have long-term and short-term, direct and indirect adverse impacts on bonytail, Colorado pikeminnow, humpback chub, razorback sucker, and Colorado River cutthroat trout. The Soils and Water Quality Section (Section 4.15.2) concludes that although stipulations would mitigate the negative impacts of minerals development on water quality, the mineral development outlined for each alternative would result in indirect, long-term adverse impacts to water quality through soil erosion, sedimentation, and the potential for petroleum discharges into surface water and would therefore adversely impact these fisheries. It is also currently unknown how minerals development would increase surface disturbances in selenium and boron-rich soils, which could indirectly increase these contaminants in waters supporting these fisheries.

The greatest impact to the Colorado River fishes would be that most of the new energy and mineral development would occur in the southern part of the VPA, in the proximity of the Green and White Rivers or their tributaries. Oil and gas development would change clean water discharge patterns into the rivers. Any new depletion from the Green River, particularly in a critical habitat reach would constitute a substantial impact.

4.15.2.3.2 Alternative B

4.15.2.3.2.1 Special Status Plant Species

Under Alternative B, areas open for mineral and energy development would increase 18% in areas open for oil and gas leasing, 12% in areas open for mineral development and 5% in areas open for oil shale development. The number of acres open to oil and gas leasing on BLM administered lands within the VPA would be 1,819,397, tar sands 259,662 acres, oil shale 305,736 acres, and mineral materials 432,953 acres. Additionally, 463,510 acres of desert shrub, 464,549 acres of sagebrush, and 443,217 acres of pinyon-juniper would be subject to surface disturbance from oil, gas, and coal bed methane development. Alternative B proposes 10 percent more disturbance to desert shrub, 8 percent more to sagebrush, and 7 percent more to pinyon-juniper than does Alternative D – No Action. Impacts of mineral and energy development under Alternative B are generally similar to those described for Alternative A, except that the increase in mineral and energy development is concentrated in the southern part of the VPA, which would place the Book Cliffs soil endemics at substantial risk and potentially result in jeopardy to listed species and/or the listing of previously candidate or sensitive species as threatened or endangered. The risks would be especially high for the listed and candidate penstemons and reed-mustards.

4.15.2.3.2.2 Special Status Animal Species

Impacts to the ferruginous hawk, greater sage grouse, white tailed prairie dog, black-footed ferret, bald eagle and yellow-billed cuckoo under alternative B would be similar to those described for Alternative A.

Most of the increased oil and gas development, as well as the reduction in special stipulation designations, would occur in the canyon habitat immediately adjacent to designated critical habitat and in an area in which substantial suitable habitat for the Mexican spotted owl occurs. Alternative B would increase the proportion of Mexican spotted owl canyon and forest habitat open to oil and gas development by approximately 9 and 14 percent, respectively, when compared to Alternative D. Alternative B would decrease the proportion of Mexican spotted owl canyon and forest habitat subject to special stipulations by approximately 22 and 12 percent, respectively versus Alternative A. The combination of both increased oil and gas development and a reduction in protective measures within canyons providing substantial suitable habitat potentially necessary for the species recovery would provide a substantial impact when compared to Alternative A.

Impacts to the Colorado River fishes would be similar to those described for Alternative A.

4.15.2.3.3 Alternative C

4.15.2.3.3.1 Special Status Plant Species

Under Alternative C, areas open for mineral and energy development would increase overall by 5%, with a 6% increase in areas open for oil and gas leasing, a 0.2% increase in areas open for mineral development and a 0.5% increase in areas open for oil shale development when compared to Alternative D. The number of acres open to oil and gas leasing on BLM administered lands within the VPA would be 1,627,085, tar sands 239,096 acres, oil shale 292,453 acres, and mineral materials 388,699 acres. Under Alternative C, 445,945 acres of desert shrub, 424,043 acres of sagebrush, and 404,772 acres of pinyon-juniper would be subject to surface disturbance from oil, gas, and coal bed methane development. Alternative C proposes 6 percent more disturbance to desert shrub, 1 percent less to sagebrush, and 2 percent less to pinyon-juniper than does Alternative D – No Action. Impacts of mineral and energy development under Alternative C are generally similar to those described for Alternative D; although, there are slight increases in acreage available for mineral and energy development. The overall effect of Alternative C would be to maintain the current condition that is one of continued risk for endemics.

4.15.2.3.3.2 Special Status Animal Species

Alternative C would decrease the proportion of greater sage grouse winter and brooding habitat open to oil and gas development by approximately 2 percent when compared to the No Action Alternative. This alternative would also increase the proportion of greater sage grouse winter and brooding habitat subject to special stipulations by approximately 11 percent when compared to the No Action Alternative. This would have a beneficial impact when compared to Alternative D.

Alternative C would increase the proportion of white-tailed prairie dog habitat open to oil and gas development by approximately 3 percent when compared to the Alternative D. This alternative would also decrease the proportion of white-tailed prairie dog habitat subject to special stipulations by approximately 17 percent when compared to the No Action Alternative. This would result in impacts similar to the other two action alternatives.

Alternative C would decrease the proportion of Mexican spotted owl canyon and forest habitat open to oil and gas development by approximately 1 and 3 percent, respectively when compared

to Alternative D. This alternative would also decrease the proportion of Mexican spotted owl canyon and forest habitat subject to special stipulations by approximately 23 percent when compared to the No Action Alternative (see Tables 17 and 18 in Appendix I - Wildlife). The combination of a slight decrease in oil and gas development within the Mexican spotted owl canyon habitat (1%) with a 23% reduction in protective measures within canyons providing substantial suitable habitat potentially necessary for the species recovery would provide a substantial impact when compared to Alternative D.

Impacts to the Colorado River fishes would be similar to those described for Alternative A.

4.15.2.3.4 Alternative D – No Action

Under the No Action Alternative, substantial mineral and energy development would still occur. There would be 1,536,030 acres of land open for oil and gas leasing, 387,700 acres open for mineral materials, 217,487 acres open for tar sands leasing, and 290,740 acres open for oil shale leasing, totaling 2,431,957 acres. Impacts under Alternative D – No Action would be the same as described under Impacts Common to All Alternatives.

4.15.2.4 Impacts of Rangeland Improvement Decisions on Special Status Species

General impacts associated with all of the alternatives would be the same as described in the Impacts Common to All Alternatives section. Such impacts would be either beneficial or adverse, depending on whether the improvements made for livestock grazing resulted in moving livestock out of special species status habitat or concentrating them in new habitats. The exact locations of the rangeland treatments are presently unknown. Therefore, the discussion below focuses only on how rangeland improvement decisions would affect special status plants as compared to Alternative D – No Action. Table 4.15.3 below describes the range improvement management actions for each alternative.

TABLE 4.15.3. RANGELAND IMPROVEMENTS BY ALTERNATIVE

Alternative	A	B	C	D
Vegetation Treatment (acres)	34,640	50,900	45,860	40,390
Fencing (miles)	68.5	368.5	129.0	65.0
Guzzlers/reservoirs	812	1,165	811	775
Wells/springs	51	78	87	74
Water pipeline (miles)	37.5	51.0	29.5	35.0

4.15.2.4.1 Alternative A

This alternative would decrease the amount of vegetation treatment and wells/springs, but increase the length of fencing and the number of wells/springs that would be developed in the VPA. The slightly less surface disturbance caused by vegetation treatments, when compared to Alternative D – No Action, would produce slightly less adverse impacts on special status plant habitat.

4.15.2.4.2 Alternative B

Alternative B would propose more vegetation treatments, fencing, and guzzlers/reservoirs than Alternative D. The greater amount of disturbance under this alternative from vegetation treatments, when compared to Alternative D, would result in potentially greater adverse impacts to special status plant species.

4.15.2.4.3 Alternative C

Alternative C proposes slightly more vegetation treatments rangeland improvements when compared to Alternative D. Impacts to special status plants would be similar to those described under alternative B.

4.15.2.4.4 Alternative D – No Action

Vegetation disturbance for rangeland improvements would occur under this alternative and result in both beneficial and adverse impacts as described under Impacts Common to All Alternatives.

4.15.2.5 Impacts of Recreation and Travel Decisions on Special Status Species

4.15.2.5.1 Alternatives A, B, and C

Assignment and designation of Back Country Byways would have both beneficial and adverse impacts on special status species. Beneficial impacts would include long-term protection of portions of these areas from some surface-disturbing activities such as minerals development, which would preserve special status species habitats in these areas. However, large portions of these SRMAs and areas associated with these BLM Back Country Byways and trails would be open for oil and gas development. Additionally, because increased visitor use is projected under these alternatives, some adverse impacts on special status species found within BLM Back Country Byway and SRMA areas would occur with additional recreational activities. Both long-term beneficial and adverse impacts on special status species in these areas would be much the same among the three action alternatives and similar to that described in Impacts Common to All Alternatives.

The main difference between the three action alternatives and the No Action Alternative is in the amount of land available for Open and Limited OHV use. Total acreages available for OHV Open use under Alternatives A, B and C are similar, ranging from 6,202 acres under Alternative A and 5,434 acres under Alternatives B and C. In comparison, the No Action Alternative would allow 787,859 acres to be Open to unrestricted OHV use. Under Alternatives A, B, and C, the number of acres designated as the more restrictive Limited category of OHV use are roughly similar, ranging from 1,659,901 acres for Alternative B to 1,353,529 acres for Alternative C. In comparison, Alternative D would designate 887,275 acres as Limited OHV use. Generally adverse OHV effects, such as trampling of either occupied or potential habitat special status species habitat, noise, habitat fragmentation, increased wind erosion in sensitive habitats would still occur but the risks of these impacts on special status species would be substantially reduced under Alternatives A, B, and C, when compared to Alternative D – No Action.

4.15.2.5.2 Alternative D – No Action

Under Alternative D, the BLM would not designate any new Back Country Byways and would continue to provide minimal management oversight for recreational use of the White River, Blue

Mountain, Fantasy Canyon or the Book Cliffs. The recreation decisions for these areas would continue as a relatively hands-off approach. Unrestricted OHV use would be allowed on 787,859 acres within the BLM administered areas of the VPA. The minimal management of OHV use would lead to declines of special status species and habitats as areas in the VPA become more popular for OHV recreation.

4.15.2.6 Impacts of Special Status Species Decisions on Special Status Species

The RMP provides special species designations for certain raptors, sage grouse and the Colorado River cutthroat trout. Therefore, only special species decisions for these three groups of species are addressed in this section.

4.15.2.6.1 Alternative A

4.15.2.6.1.1 Raptors

Alternative A would manage raptors under the auspices of Best Management Practices (BMPs) (see Appendix A) which would include implementation of spatial and seasonal buffers that the BLM has determined are comparable to the USFWS Guidelines for Raptor Protection From Human and Land Use Disturbances, and with modifications allowed as long as protection of nests is ensured. Seasonal and spatial buffers (including the USFWS buffers) are listed in Appendix M.

Alternative A would protect unoccupied raptor nests on new oil and gas leases for a period of 7 years as outlined in the BMP's, but would only protect unoccupied bald eagle, golden eagle, peregrine falcon, ferruginous hawk, and burrowing owl nests on existing oil and gas leases for a period of 2 years. This alternative would allow for permanent facilities and structures to be constructed within the spatial buffer of the unoccupied nest site if construction occurs outside of the breeding season and as long as the facility or structure does not cause the nest site to become unsuitable for future nesting. Non-permanent activities would be allowed within the spatial buffer of the unoccupied nest site during the nesting season as long as those activities are shown to be non-impacting to nesting raptors.

These measures provide both a greater degree of specificity and a greater degree of nest protection than under Alternative D – No Action, which generally allows only 2 years of nest protection. Under Alternative A, raptor nest protection for new oil and gas leases (without the additional BLM modifications) would meet the USFWS recommendations for nest protections; raptor nest protection would not meet the Guidelines for existing oil and gas leases. According to data supplied by the BLM, the USFWS believes that the ferruginous hawk population could be lost in the Uintah Basin without full 7-year protection for all nests. Under Alternative A, this impact would be the same as for the No Action Alternative and is described further under Alternative D.

4.15.2.6.1.2 Greater Sage Grouse

Alternative A would implement the Strategic Management Plan For Sage Grouse (State of Utah, June 11, 2002) as follows: Human disturbances within 0.6 mile (3,168 feet) of a sage grouse lek would be avoided during the sage grouse breeding season (March 1 to May 31) from 1 hour before sunrise to 3 hours after sunset. Roads, fences, poles, and utility lines would not be developed within 1,300 feet of a lek. Noise reduction according to best available technology

would be used within one-half mile of a lek. The main differences between Alternative A and the No Action Alternative would be that (1) Alternative A would provide a greater human protective buffer (3,168 feet) as compared to only 300 feet in the Book Cliffs and 1,000 feet in the Diamond Mountain area and (2) noise reduction devices would be used on machinery under Alternative A, whereas there would be none under the No Action Alternative.

4.15.2.6.1.3 Colorado River Cutthroat Trout

Alternative A would provide, maintain, and/or enhance habitat for the reintroduction of Colorado River cutthroat trout to Bitter Creek, Upper Willow Creek, Beaver Creek, Sears Creek, Crouse Creek, Tolivers Creek, Davenport Creek, Jackson Creek, and Sweetwater Creek and their tributaries. In comparison, Alternative D – No Action would provide and maintain suitable habitat for the reintroduction of Colorado River cutthroat trout to the same creeks mentioned above with the exception of Sweetwater, Argyle, Bitter and Upper Willow Creeks. There would be no essential difference between Alternative A and the No Action Alternative, except in the number and location of creeks available for the reintroduction of Colorado River Cutthroat Trout.

4.15.2.6.2 Alternative B

Alternative B would manage raptors at a less restrictive level than the USFWS raptor guidelines. Spatial buffers comparable to the USFWS guidelines would be implemented for nests of threatened and endangered raptor species and ferruginous hawks. Seasonal buffers would generally be less restrictive than the USFWS guidelines and modifications would be allowed but only as long as the protection of raptor nests were ensured. Other raptor species would be protected at a level less than those recommended by the USFWS. The impacts on raptors would be that there would be more beneficial protection-related impacts to raptors, when compared to Alternative D, but less than Alternatives A and C.

Sage grouse management would be as described for Alternative A, with the exception that restrictions would apply only to "significant human disturbance", developments may occur within 1300 feet of a lek and there would be no measures undertaken to reduce noise. In general, Alternative B would provide much greater protection for sage grouse than the No Action Alternative, although the lack of definition of "significant human disturbance" and the option for development within 1300 feet of a lek leaves the possibility open that there would be no difference in sage grouse management between Alternative B and the No Action Alternative.

Impacts to the Colorado River cutthroat trout would be as described for Alternative A.

4.15.2.6.3 Alternative C

Alternative C would implement the USFWS spatial and seasonal buffers for raptors as recommended in Table 2 of the Guidelines. Alternative C would offer similar protections to unoccupied raptor nests on new oil and gas leases as Alternative A and impacts to special status raptors would be similar to those described for Alternative A.

Alternative C would implement Connelly's Guidelines to Manage Greater Sage grouse Populations and Their Habitats that recommends no surface disturbing activities within 2 miles of active leks from March 1 to June 15 and no surface disturbing activities within 0.25 mile of active leks. No permanent facilities or structures would be allowed within 2 miles of active leks

when possible. As in Alternative A, Alternative C would require the installation of multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to reduce noise within 0.5 mile of known active leks. Alternative C would provide substantially greater benefits to the greater sage grouse than the No Action Alternative.

Impacts to the Colorado River cutthroat trout would be as described for Alternative A.

4.15.2.6.4 Alternative D – No Action

Alternative D would protect unoccupied golden eagle nests for 2 years on new oil and gas leases. No construction of surface disturbing activities that would adversely affect current use or limit or preclude potential future use of the nest would be allowed within the spatial buffer for the nest unless a permit to take is obtained from the USFWS. This alternative would also offer year-round protection to known peregrine falcon, ferruginous hawk, and bald eagle nests from construction or surface disturbing activities. However, these restrictions would not apply to maintenance and operation of existing facilities. On existing oil and gas leases, unoccupied bald eagle, golden eagle, peregrine falcon, ferruginous hawk, and burrowing owl nests would be protected for 2 years. Occupied nests for the 16 special status or sensitive raptor species outlined in the Diamond Mountain RPM would be protected from surface-disturbing activities in the Diamond Mountain area with species-specific spatial and seasonal buffers. A site-specific analysis would be completed before making modifications to the spatial or seasonal buffer to determine if terrain features adequately protect the occupied raptor nest site from a proposed surface-disturbing activity. Protection of occupied raptor nests in the Book Cliffs area would remain unspecified.

Alternative D would limit surface disturbance, exploration, drilling, and other minerals development activities from March 15 to June 15 and no drilling or storage facilities would be allowed within 300 feet of a lek in the Book Cliffs area. No surface-disturbing activities would be allowed in sage grouse nesting areas (a 2-mile radius of sagebrush vegetation type surrounding a lek) from March 1 through June 30 or within 1,000 feet of a lek in the Diamond Mountain area.

Impacts to the Colorado River cutthroat trout would be as described for Alternative A.

4.15.2.7 Impacts of Soils and Watersheds Decisions on Special Status Species

4.15.2.7.1 Alternatives A, B, C, and D

Alternatives that incorporate decisions to protect water quality and reduce soil erosion would benefit special status plants and animals. Alternative A would provide beneficial protection for soils and watersheds by limiting surface disturbance on slopes greater than 40% and requiring an approved erosion control strategy and design for activities on slopes of 21-40%.

Alternative B would have beneficial impacts on special status species by limiting surface disturbing activities on slopes greater than 20% by requiring an approved erosion control strategy and design.

Alternative C would provide beneficial protection by preventing disturbance to slopes above 40%, and requiring an approved erosion control strategy and design for activities on slopes of 21-40%.

Alternative D restricts surface disturbance for mineral activities only on slopes greater than 40%.

Protection of water quality, reduction of sedimentation in streams, and limits on surface disturbance would be beneficial to special status species, therefore all of the action alternatives would provide more protection that Alternative D – No Action. Alternative C would provide the most protection for water quality and surface disturbance and therefore provide the greatest amount of indirect protection for special status species.

4.15.2.8 Impacts of Special Designation Decisions on Special Status Species

ACECs, Wild and Scenic Rivers, and Wilderness would provide direct and indirect beneficial impacts to Special Status species. ACECs provide direct beneficial impacts through management prescriptions when they are focused on protecting wildlife, riparian resources, and special status species. They also provide indirect beneficial impacts if they preclude surface disturbance within portions of the ACEC by limiting erosion and decreasing habitat fragmentation, noise, and traffic. Wild and Scenic River recommended designations protect river corridors from mineral development and most other surface disturbing activities half-mile line of sight from centerline of the river thereby providing direct protection to Special Status Species within the river corridor. Wilderness Study Areas are closed to leasing unless they have prior valid existing rights and thereby provide direct beneficial impacts to Special Status Species.

4.15.2.9 Impacts of Woodlands and Forest Management Decisions on Special Status Species

4.15.2.9.1 Alternatives A, B, and C

Alternatives A, B, and C would allow public utilization of forest and woodland products as one tool for conducting vegetative treatments to achieve desired future conditions in these forest and woodland habitats. These Alternatives A and C would treat/harvest up to 552,663 acres of forest and woodland habitat. Alternative B would treat/harvest 554,108 acres of forest and woodland habitat.

Alternatives A and C would manage forests and woodlands to maintain and restore ecosystems to a condition in which biodiversity is preserved and occurrences of fire, insects, disease, and other disturbances do not exceed levels normally expected in healthy forests and woodlands. These alternatives would maintain relict stands of vegetation for biological and genetic diversity. Forests and woodlands would be managed under the principles of multiple use and sustained yield without permanent impairment of the productivity of the land and the quality of the environment; allow use of forest, woodland products, biomass, and certain vegetation products in areas specified for this use to meet RMP goals. Both of these alternatives would implement the National Healthy Forest Initiative and the National Fire Plan by conducting treatments to reduce fuel loadings, fire severity, and restoring historical disturbance regimes.

Alternatives A and B would initiate a proactive program of woodland management would be implemented for the salvage of forest and woodland products that are dead and/or dying due to, fire, disease, insect-kill or other disturbance with the management intent of promoting healthy forest and woodlands. Alternative C would allow for the salvage of forest and woodland products within proposed ACECs (242,760 acres) only when there is a threat to forest and woodlands or other resources in the ACEC. Alternative C would also allow for salvage of forest and woodland for other resources on up to 343,110 acres outside of proposed ACECs.

Alternative B would allow harvesting forest and woodland stands that have reached culmination of mean annual increment (growth begins to decrease). Stands would thereafter be grown and thinned to approximately 80 to 90 percent of "normal (maximum) basal area" until the culmination of mean annual increment, at which time the stand(s) would be cut again.

4.15.2.9.2 Alternative D – No Action

Alternative D would allow up to 88,200 acres of forest and 200,100 acres of woodlands would have treatments or be harvested.

These woodland and fire management treatments would have a varying degree of beneficial to adverse impact on special status plant and animal species. Treatments would be conducted to manage structure, composition, and function of vegetation, and consideration of how these attributes relate to the landscape. Fire suppression activities such as line construction would avoid plant sites as much as possible, resulting in slight to moderately adverse impacts depending on location and successful avoidance of sites. Maintaining forest and woodland habitats in a mosaic of seral stages would have beneficial impacts on most special status species by providing a diversity of habitats to meet the life history needs of those species that use these areas.

4.15.3 Mitigation Measures

The following mitigation measures would be implemented under all alternatives:

Mineral and energy development in areas directly associated with ferruginous hawk nesting areas would be subject to special stipulations including buffers comparable or less restrictive than those outlined in the USFWS "Guidelines for Raptor Protection from Human and Land Use Disturbances" with modifications allowed as long as protection of the raptors is ensured.

All alternatives would have stipulations and mitigation measures meant to protect and/or enhance existing greater sage grouse habitat. Alternative A would implement the Strategic Management Plan For Sage Grouse (State of Utah, June 11, 2002) as the baseline threshold. Alternatives A and B would result in the avoidance of all human disturbances within 0.6 mile of a sage grouse lek during the sage grouse breeding season (March 1 to May 31) from 1 hour before sunrise to 3 hours after sunset. In Alternative A roads, fences, poles, and utility lines would not be developed within 1,300 feet of a lek. Alternative B would allow development within 1,300 feet of a lek would be designed to minimize, to the extent possible, bird collision and to minimize raptor perching within 2 miles of a lek. Alternative C would implement Connelly's Guidelines to Manage Greater Sage grouse Populations and their Habitats that recommends no surface disturbing activities within 2 miles of active leks from March 1 to June 15 and no surface disturbing activities within ¼ mile of active leks. No permanent facilities or structures would be allowed within 2 miles of active leks when possible. Alternative D would limit surface disturbance, exploration, drilling, and other minerals development activities from March 15 to June 15 and no drilling or storage facilities would be allowed within 300 feet of a lek in the Book Cliffs area. No surface-disturbing activities would be allowed in sage grouse nesting areas (a 2-mile radius of sagebrush vegetation type surrounding a lek) from March 1 through June 30 or within 1,000 feet of a lek in the Diamond Mountain area. Alternatives A and C would require the installation of multi-cylinder pumps, hospital sound reducing mufflers, and placement of exhaust systems to reduce noise within ½ mile of known active leks. Alternative B would not require

special measures to reduce noise around leks while measures to reduce noise around leks would go unspecified under Alternative D.

Construction and development around any bald eagle roosts would be managed under the auspices of Best Management Practices (BMPs), which would include implementation of spatial and seasonal buffers comparable to the USFWS "Guidelines for Raptor Protection from Human and Land Use Disturbances " with modifications allowed as long as protection of roosts is insured.

No surface occupancy would be allowed in the riparian zone under any of the action alternatives unless 1) there are no practical alternatives; 2) all long term impacts would be fully mitigated; or 3) the activity would benefit or enhance the riparian areas.

4.15.4 Unavoidable Adverse Impacts

The specified mitigation measures would reduce impacts to special status species but would also still result in adverse impacts to the Book Cliffs soil endemics, ferruginous hawk, Mexican spotted owl and the threatened and endangered Colorado River fishes. Depending on the degree of restriction applied to riparian zone exemptions, unavoidable adverse impacts could also occur to the bald eagle, yellow-billed cuckoo and the Ute ladies'-tresses.

4.15.5 Short-term Use Versus Long-term Productivity

Construction of roads and well pads associated with mineral development would potentially provide a short-term use that would eventually result in long-term loss and fragmentation of special status species habitat. These activities would also increase the occurrence of noxious weed infestations competing for water and space with special status plants. Off highway vehicle use in the short-term would cause long-term loss of special status species through habitat disturbance, illegal collection of plants, and the indirect spread of noxious weeds.

4.15.6 Irreversible and Irretrievable Impacts

The ferruginous hawk population could be irretrievably lost due to impacts from surface disturbance for mineral development, habitat fragmentation, and habitat loss.