

4.17. SPECIAL STATUS SPECIES

Federally listed and sensitive species are updated per Instruction Memorandum No. UT 2007-078 dated September 26, 2007 (Expires: 09/30/2008). The Updated Utah BLM State Director's Sensitive Plant and Animal Species Lists states the following:

"1. Sensitive Animal Species List. By this Instruction Memorandum, Utah BLM adopts the existing Utah Division of Wildlife Resources (DWR) *Utah Sensitive Species List*. This means that BLM will now use the official DWR list that is in place at the time of a given action. DWR updates this list on a regular basis so it will be important to consult the DWR web site at <http://www.wildlife.utah.gov> to ensure that you are using the latest list. Only those species or their habitat that occur on BLM administered public lands should be considered.

2. Sensitive Plant Species List. The existing state director's sensitive plant species list contained in IM No. UT 2003-027 is currently undergoing extensive peer review both inside and outside of BLM. That review has not yet been completed; therefore, the existing list (see IM No. UT 2003-027) will continue to be used until a new list has been developed. However, due to recent changes in the legal status of *Penstemon grahamii*, this species is now included on the existing plant list."

As of July 1, 2008, there are 13 federally listed, 2 candidate, and 32 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 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 4.17.1 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 the Proposed RMP and each alternative would affect key factors affecting species, as listed in Table 4.17.1. 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.

4.17.1. IMPACTS COMMON TO THE PROPOSED RMP AND ALL ALTERNATIVES

4.17.1.1. FIRE AND WOODLAND MANAGEMENT

Under the Proposed RMP and all of the alternatives, prescribed burning and public harvest of forest 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-footed ferret, 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 Cliffs soil endemics, referring to the general restriction of these plant species to specific soil types in the Book Cliffs area). In general, the Book Cliffs 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. If prescribed fires were to spread beyond their intended dense woodland target these fires

would have adverse impacts on special status species by directly destroying individual plants of special status plant species or by indirectly contributing to the risk of cheatgrass invasion, which is higher following a fire. Associated activities, such as fire line construction and off-road travel by necessary fire maintenance vehicles could also result in direct adverse impacts to the Book Cliff soil endemics via uprooting and or trampling.

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 (USFWS 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.

4.17.1.2. FORAGE ALLOCATION/LIVESTOCK GRAZING

Livestock grazing in both upland and riparian habitats would occur under the Proposed RMP and all alternatives. Livestock grazing may have a direct and/or indirect impact on special status plant and animal species. Historically, livestock grazing has had an impact on public lands by modifying vegetation, introduction of foreign plant species, and an increase in soil erosion.

Livestock may impact special status plant species through trampling and removal of above-ground portions, preventing flowering and seed set necessary for species survival. Livestock may also impact special status animal species through direct "take" and "harassment."

Proper management of livestock would reduce or eliminate the impacts to special status species from livestock grazing. Proper management would be attained through the implementation of the appropriate number of livestock, season of use, utilization, and monitoring to meet, exceed or make progress toward meeting the Rangeland Health Standards.

4.17.1.3. MINERAL AND ENERGY DEVELOPMENT

The Proposed RMP and all alternatives allow some level of mineral and energy development. Oil and gas development is 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 shrubby reed-mustard as this species is restricted to geologic formations containing oil shale. 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. 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 dust on the listed plant species currently is a problem, potentially affecting plant reproduction, in the existing oil and gas fields (Whittington, USFWS [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 this species, whereas other species' pollination vectors are not known within the VPA. Seed dispersal vectors are also unknown for most special status species within the VPA, but could be affected by habitat fragmentation due to road development. 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 Pariette cactus, Uinta Basin hookless cactus, White River beardtongue, Ute ladies'-tresses, 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 allowed an exception (a one-time exemption from a stipulation) if necessary for transmission lines, roads and surface occupancy. Any development within riparian zones could adversely affect the 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 0.75 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, White, 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 the Proposed RMP and 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 (and others, including white-tailed prairie dog and black-footed ferret) would include reduction in habitat, habitat fragmentation, and increases in noise and other human disturbances.

4.17.1.4. RANGELAND IMPROVEMENT

Construction of new rangeland improvement projects could have short- and long-term direct adverse impacts on some special status species from trampling by livestock due to trailing and construction of range developments. Short- and long-term indirect adverse impacts could also occur 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, because site examinations would be conducted prior to project approval.

Vegetation treatments, including Utah juniper (*Juniperus osteosperma*) 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.

4.17.1.5. RECREATION AND TRAVEL

The Proposed RMP and all alternatives would encourage recreation in the Book Cliffs area and allow a degree of OHV use. Identification of special recreation management areas (SRMAs) would provide beneficial impacts to special status species by providing focused recreation management on these lands and reducing impacts associated with dispersed recreation with minimal management. 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.

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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 implement "Best Management Practices for Raptors and Their Associated Habitats in Utah" (Utah BLM, 2006, Appendix A) 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, USFS, and NRCS and others as appropriate 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 the Proposed RMP and all alternatives:

- Cottonwood bottoms for Bald Eagle winter habitat along the Green and White Rivers, at Pelican Lake, and at the Cliff Creek Bald Eagle roost site would be protected.
- In cooperation with UDWR the BLM would maintain nesting habitat and maintain/enhance prey-base habitat for burrowing and Short-eared Owls.
- To provide primary food sources for the Ferruginous Hawk, the BLM would cooperate with UDWR to maintain and enhance white-tailed prairie dog and prey base habitat.
- The BLM would establish Protected Activity Centers (PACs) at all known Mexican Spotted Owl nest sites; maintain habitat to support small mammal populations as a prey base for Mexican Spotted Owls in occupied and suitable owl habitats; and retain large down logs, large trees, and snags as prey habitats in occupied and suitable Mexican Spotted Owl habitats.
- For Peregrine Falcons the BLM would protect and enhance riparian habitat in Pariette Draw, as well as along the Green River, White River, Bitter Creek, and other drainages.
- The BLM would manage the black-footed ferret consistent with the 1999 Black-footed Ferret Reintroduction Plan Amendment.

Table 4.17.1. Comparison of Potential Resource Decision Impacts within the VPA to Overall Species Threat for Federally Listed and BLM Sensitive Species

Common Name	Overall Species Threats	Potential Impacts Associated with Resource Decisions in the VPA
Black-footed ferret	Loss of prairie dog colonies on which they depend due to habitat loss and fragmentation, 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.
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 multilayered riparian habitat.	Any loss of multilayered 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, hybridization, increased concentration of salts and contaminants.	Any river depletion or change in Duchesne River, White River, or Green River stream flows 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.
White River beardtongue Barneby ridge-cress ¹	Cumulative effects of restriction to unique formations, with oil and natural gas development, and sheep and cattle grazing. Energy/mineral developments, livestock grazing, 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 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. Indirect effects include invasion of habitat by noxious weeds and other undesirable plant species resulting from surface disturbance in and adjacent to occupied and/or potentially suitable Barneby ridge-cress habitat.
Clay reed-mustard Shrubby reed-mustard	Cumulative effects of restriction to unique formations, with oil and natural gas development.	Potential impacts for shrubby reed-mustard are the same as described above plus the additional risk that the oil shale underlying the mustard's habitat leaves a strong possibility for future oil and gas development within the population centers. Clay reed-mustard grows in silty loam without a trace of oil shale.
Uinta Basin hookless cactus Pariette 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.

¹Found on tribal and private land. Not yet found on BLM land (personal communication with Clayton Newberry, BLM VFO, May 14, 2008).

4.17.2. PROPOSED RMP AND ALTERNATIVES IMPACTS

4.17.2.1. IMPACTS OF FIRE MANAGEMENT DECISIONS ON SPECIAL STATUS SPECIES

4.17.2.1.1. PROPOSED RMP AND ALTERNATIVES A, B, C, AND E

The Proposed RMP and Alternatives A, B, C, and E 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. The Proposed RMP and these four action alternatives would provide for prescribed burning on 104,525 more acres per decade than Alternative D (No Action). As a result, the Proposed RMP and the action alternatives would provide substantially more long-term beneficial impacts to special status wildlife species than Alternative D (No Action) due to a greater acreage of prescribed fire under the Proposed RMP and all action alternatives.

4.17.2.1.2. ALTERNATIVE D (NO ACTION)

Alternative D (No Action) 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.

4.17.2.2. IMPACTS OF FORAGE ALLOCATION AND LIVESTOCK GRAZING DECISIONS ON SPECIAL STATUS SPECIES

4.17.2.2.1. PROPOSED RMP

Under the Proposed RMP, up to 50% 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 245,607. Approximately 2,340 of these AUMs would only be temporarily allocated for wild horses because wild horses would be gathered and removed under the Proposed RMP. However, these AUMs would still be utilized through allocation in later planning processes. In riparian areas, stubble height would be initially identified as 4 inches, with 30% key herbaceous riparian species utilization unless bank stabilization goals were not met. In that case, minimum stubble height would be increased to six inches with a maximum of 20% key herbaceous riparian species utilization. The riparian grazing standards under the Proposed RMP differ from Alternative D (No Action) in that stubble heights are set at 3 inches (1 to 3 inches lower than the Proposed RMP) and that Alternative D (No Action) has no riparian key herbaceous riparian species utilization standards.

In general, grazing is a threat to all listed and most sensitive species, as described under Impacts Common to the Proposed RMP and All Alternatives (4.17.1). Under the Proposed RMP, 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 little difference in AUMs (less than 1%) between the Proposed RMP and Alternative D (No Action). Also, under the Proposed RMP, even 50% upland forage utilization would provide a threat to special status plant species, although this is less than Alternative D (No Action) which would not explicitly limit forage utilization. The risk of adverse grazing impacts to the Ute ladies'-tresses would remain unchanged from Alternative D (No Action), as both the Proposed RMP and Alternative D (No Action) would allow grazing to the extent that flowering parts could be removed.

The largest difference in grazing management between the Proposed RMP and Alternative D (No Action) would be that the Proposed RMP would restrict woody riparian species utilization whereas Alternative D (No Action) would have no such restrictions. Over the long term, restrictions on woody species utilization would provide beneficial impacts to riparian-dependent wildlife such as the Yellow-billed Cuckoo over Alternative D (No Action), 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.

4.17.2.2.2. ALTERNATIVE A

Under Alternative A, up to 50% 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. In riparian areas, stubble height would be initially identified as 4 inches, with 30% key herbaceous riparian species utilization unless bank stabilization goals were not met. In that case, minimum stubble height would be increased to six inches with a maximum of 20% key herbaceous riparian species utilization. The riparian grazing standards under Alternative A differ from Alternative D (No Action) in that stubble heights are set at 3 inches (1 to 3 inches lower than Alternative A) and that Alternative D (No Action) has no riparian key herbaceous riparian species utilization standards.

In general, grazing is a threat to all listed and most sensitive species, as described under Impacts Common to the Proposed RMP and All Alternatives (4.17.1). 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 little difference in AUMs between Alternative A and Alternative D (No Action). Also, under Alternative A, even 50% upland forage utilization would provide a threat to special status plant species, although this is less than Alternative D (No Action), which would not explicitly limit forage utilization. The risk of adverse grazing impacts to the Ute ladies'-tresses would remain unchanged from Alternative D (No Action), as both alternatives would allow grazing to the extent that flowering parts could be removed.

The largest difference in grazing management between Alternatives A and D (No Action) would be that Alternative A would restrict woody riparian species utilization whereas Alternative D (No Action) would have no such restrictions. Over the long term, restrictions on woody species utilization would provide beneficial impacts to riparian-dependent wildlife such as the Yellow-billed Cuckoo over Alternative D (No Action), 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.

4.17.2.2.3. 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 and big game; wild horses would not be allocated AUMs under this alternative) would be 244,034 or 2,094 AUMs (approximately 0.8%) less than under Alternative D (No Action). The riparian zone would be managed in a similar manner to the Proposed RMP and Alternative A except that key herbaceous riparian vegetation in riparian areas, other than the stream banks, would not be grazed more than 50% during the growing season, or 60% during the dormant season. The impacts of grazing, forage allocation and riparian grazing management decisions under Alternative B would be similar to those described for the Proposed RMP and Alternative A.

4.17.2.2.4. ALTERNATIVES C AND E

Under Alternatives C and E, up to 50% 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 the same as described for the Proposed RMP and Alternative A.

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

4.17.2.2.5. ALTERNATIVE D (NO ACTION)

Under Alternative D (No Action), 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. Alternative D (No Action) would continue the existing grazing risk for all special status species and not provide benefits for any of them.

4.17.2.3. IMPACTS OF MINERAL DEVELOPMENT DECISIONS ON SPECIAL STATUS SPECIES

Table 4.17.2 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 4.17.2 there are large differences in total acreages available for mineral/energy development among the alternatives as compared to Alternative D (No Action) (ranging from an 11% decrease under Alternative E to an 18% increase under Alternative B), and that the largest changes occur in the areas available for oil, gas, and 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 (No Action). These areas are population centers for the Book Cliffs 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 4.17.2. Differences in Acreages Available for Mineral and Energy Development under Each the Proposed RMP and Action Alternative as Compared to Alternative D (No Action)

Activity	Proposed RMP	Alternative A	Alternative B	Alternative C	Alternative E
Oil and Gas	+104,351 acres (+7%)	244,830 acres (+16%)	+283,367 acres (+18%)	+91,055 acres (+6%)	-36,569 (-2%)
Open Minerals	+2,088 acres (+1%)	27,695 acres (7%)	+45,253 acres (+12%)	999 acres (0.3%)	-43,018 (-11%)

4.17.2.3.1. PROPOSED RMP**4.17.2.3.1.1. Special Status Plant Species**

Under the Proposed RMP, areas open for mineral and energy development would increase by 7% in areas open for oil and gas leasing, and 1% in areas open for mineral development as compared to Alternative D (No Action). The number of acres open to oil and gas leasing on BLM administered lands within the VPA would be 1,640,381, and mineral materials 389,788 acres. As described in Impacts Common to the Proposed RMP and 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 Uinta Basin hookless cactus, Pariette cactus, and shrubby reed-mustard (*Schoenocrambe suffrutescens*). 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 Uinta Basin hookless cactus, Pariette cactus, clay reed mustard, shrubby reed mustard, Barneby ridge-crest, and White River beardtongue are expected to be high with oil, gas, and CBNG development.

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 20-acre to 40-acre well spacing. Under the Proposed RMP, 470,731 acres of desert shrub, 489,679 acres of sagebrush, and 483,249 acres of pinyon-juniper would be subject to surface disturbance from oil, gas, and CBNG development. The Proposed RMP proposes 12% more disturbance to desert shrub, 14% more to sagebrush, and 17% more to pinyon-juniper than does Alternative D (No Action).

4.17.2.3.1.2. Special Status Animal Species

Ferruginous Hawk

The minerals development land categorization proposed under the Proposed RMP 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.

The Proposed RMP would increase the proportion of areas surrounding Ferruginous Hawk nesting sites open to oil and gas development by approximately 4% when compared to Alternative D (No Action). The Proposed RMP and Alternative D (No Action) would also decrease the proportion of areas surrounding Ferruginous Hawk nesting sites subject to special stipulations (other than those prescribed specifically for Ferruginous Hawk) by 9% and 10%, respectively.

Mexican Spotted Owl

The minerals development land categorization proposed in the Proposed RMP 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.

The Proposed RMP would decrease the proportion of Mexican Spotted Owl canyon and forest habitat open to oil and gas development by approximately 22% and 15%, respectively, when compared to Alternative D (No Action). The Proposed RMP would decrease the proportion of Mexican Spotted Owl canyon and forest habitat subject to special stipulations by approximately 19% and 18%, respectively when compared to Alternative D (No Action). 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 the Proposed RMP 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.

The Proposed RMP would increase the proportion of Greater Sage-grouse brooding habitat open to oil and gas development by approximately 5% while decreasing the proportion of Greater Sage-grouse winter habitat open to oil and gas development by approximately 12% when compared to Alternative D (No Action). This alternative would also increase the proportion of Greater Sage-grouse winter and brooding habitat subject to special stipulations by approximately 23% and 29%, respectively when compared to Alternative D (No Action) (see Sage-grouse Tables 14 and 15 in Appendix H, Wildlife).

Outright losses, degradation and fragmentation of sagebrush habitats are suspected as the primary causes of Sage-grouse population declines throughout Utah (UDWR 2005). Although there are several factors that contribute to habitat loss (such as drought), development of oil and gas resources includes direct loss of habitat for well pads, roads, and pipelines. Vehicle traffic and noise disturbance on roads and at well sites during the drilling phase can have a negative effect (Connelly et al. 2004). Disturbances within 200 meters of lek sites resulted in loss of attendance at Sage-grouse leks (Braun et al. 2002). Sage-grouse continued to use highly fragmented habitats in some oil fields and reclaimed areas, but population levels were below numbers prior to disturbance (Braun et al. 2002).

Stipulations regulate timing and distance from lek sites of construction activities and are largely directed to avoid disturbance to Sage-grouse near leks during breeding or nesting periods. However, effects on habitats from roads, power lines, compressor stations, and pipelines remain following construction. Female Sage-grouse moved greater distances from leks and had lower

rates of nest initiation in areas disturbed by vehicle traffic (1-12 vehicles/day) (Lyon and Anderson 2003). Surface disturbance created by roads also facilitates spread of exotic plant species (Forman and Alexander 1998; Trombulak and Frissell 2000; Gelbard and Belnap 2003). The soil surface of disturbed areas is prepared and reseeded. The primary objectives of the reclamation are to control soil erosion, establish desirable vegetation and prepare for natural processes to restore the site. Although Sage-grouse may repopulate reclaimed areas, their numbers may not return to levels prior to disturbance (Braun et al. 2002).

White-tailed Prairie Dog and Black-footed Ferret

The minerals development proposed in the Proposed RMP 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. Minerals development 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.

The Proposed RMP would increase the proportion of white-tailed prairie dog habitat open to oil and gas development by approximately 5% when compared to Alternative D (No Action). This alternative would decrease the proportion of white-tailed prairie dog habitat subject to special stipulations by approximately 61% when compared to Alternative D (No Action) (see Table 16 in Appendix H, Wildlife).

Yellow-billed Cuckoo

Yellow-billed Cuckoo are generally associated with lowland riparian and cottonwood forest areas. A stipulation common to the Proposed RMP and 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 or sensitive riparian species.

Bonytail, Colorado Pikeminnow, Humpback Chub, Razorback Sucker, Roundtail Chub, Flannelmouth sucker, Bluehead sucker and Colorado River Cutthroat Trout

The minerals development proposed in the Proposed RMP would have long-term and short-term, direct and indirect adverse impacts on bonytail, Colorado pikeminnow, humpback chub, razorback sucker, roundtail chub, flannelmouth sucker, bluehead sucker and Colorado River cutthroat trout. The Soils and Water Quality Section (Section 4.17.2) concludes that although stipulations would mitigate the negative impacts of minerals development on water quality, the mineral development outlined for the Proposed RMP and 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.

4.17.2.3.2. ALTERNATIVE A

4.17.2.3.2.1. Special Status Plant Species

Under Alternative A, areas open for mineral and energy development would increase by 16% in areas open for oil and gas leasing, and 7% in areas open for mineral development as compared to Alternative D (No Action). The number of acres open to oil and gas leasing on BLM administered lands within the VPA would be 1,780,860, 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 Uinta Basin hookless cactus, Pariette cactus and shrubby reed-mustard 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 Uinta Basin hookless cactus, Pariette cactus, clay reed mustard, shrubby reed mustard, Barneby ridge-cress and White River beardtongue are expected to be high with oil, gas, and CBNG development.

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, 438,230 acres of desert shrub, 442,502 acres of sagebrush, and 429,882 acres of pinyon-juniper would be subject to surface disturbance from oil, gas, and CBNG development. Alternative A proposes 4% more disturbance to desert shrub, 4% more to sagebrush, and 3% more to pinyon-juniper than does Alternative D (No Action).

4.17.2.3.2.2. 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% when compared to Alternative D (No Action). This alternative 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%, respectively.

Mexican Spotted Owl

The minerals development land categorization proposed in Alternative 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 10%, respectively, when compared to Alternative D (No Action). Alternative A would decrease the proportion of Mexican Spotted Owl canyon habitat subject to special stipulations by approximately 12% but would increase Mexican Spotted Owl forest habitat subject to special stipulations by approximately 10%, when compared to Alternative D (No Action). 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.

Alternative A would increase the proportion of Greater Sage-grouse winter and brooding habitat open to oil and gas development by approximately 3% when compared to Alternative D (No Action). This alternative would also decrease the proportion of Greater Sage-grouse winter and brooding habitat subject to special stipulations by approximately 2% when compared to Alternative D (No Action) (see Sage-grouse Tables 14 and 15 in Appendix H, Wildlife).

Outright losses, degradation and fragmentation of sagebrush habitats are suspected as the primary causes of Sage-grouse population declines throughout Utah (UDWR 2005). Although there are several factors that contribute to habitat loss (such as drought), development of oil and gas resources includes direct loss of habitat for well pads, roads, and pipelines. Vehicle traffic and noise disturbance on roads and at well sites during the drilling phase can have a negative effect (Connelly et al. 2004). Disturbances within 200 meters of lek sites resulted in loss of attendance at Sage-grouse leks (Braun et al. 2002). Sage-grouse continued to use highly fragmented habitats in some oil fields and reclaimed areas, but population levels were below numbers prior to disturbance (Braun et al. 2002).

Stipulations regulate timing and distance from lek sites of construction activities and are largely directed to avoid disturbance to Sage-grouse near leks during breeding or nesting periods. However, effects on habitats from roads, power lines, compressor stations, and pipelines remain following construction. Female Sage-grouse moved greater distances from leks and had lower rates of nest initiation in areas disturbed by vehicle traffic (1 to 12 vehicles per day) (Lyon and Anderson 2003). Surface disturbance created by roads also facilitates spread of exotic plant species (Forman and Alexander 1998; Trombulak and Frissell 2000; Gelbard and Belnap 2003). The soil surface of disturbed areas is prepared and reseeded. The primary objectives of the reclamation are to control soil erosion, establish desirable vegetation and prepare for natural processes to restore the site. Although Sage-grouse may repopulate reclaimed areas, their numbers may not return to levels prior to disturbance (Braun et al. 2002).

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% when compared to Alternative D (No Action). This alternative would decrease the proportion of white-tailed prairie dog habitat subject to special stipulations by approximately 30% when compared to Alternative D (No Action) (see Table 16 in Appendix H, Wildlife).

Yellow-billed Cuckoo

Yellow-billed Cuckoo are generally associated with lowland riparian and cottonwood forest areas. A stipulation common to the Proposed RMP and 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 or sensitive riparian species.

Bonytail, Colorado Pikeminnow, Humpback Chub, Razorback Sucker, Roundtail Chub, Flannelmouth Sucker, Bluehead 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, roundtail chub, flannelmouth sucker, bluehead sucker and Colorado River cutthroat trout. The Soils and Water Quality Section (Section 4.17.2) concludes that although stipulations would mitigate the negative impacts of minerals development on water quality, the mineral development outlined for the Proposed RMP and 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.

4.17.2.3.3. ALTERNATIVE B

4.17.2.3.3.1. 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 and 12% in areas open for mineral development. The number of acres open to oil and gas leasing on BLM administered lands within the VPA would be 1,819,397 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 CBNG development. Alternative B proposes 10% more disturbance to desert shrub, 8% more to sagebrush, and 7% 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 the Proposed RMP and 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.

4.17.2.3.3.2. Special Status Animal Species

Impacts to the Ferruginous Hawk, Greater Sage-grouse, white tailed prairie dog, black-footed ferret, and Yellow-billed Cuckoo under Alternative B would be similar to those described for the Proposed RMP and 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 1%, respectively, when compared to Alternative D (No Action). Alternative B would decrease the proportion of Mexican Spotted Owl canyon and forest habitat subject to special stipulations by approximately 22% and 12%, respectively, versus Alternative D (No Action). 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 D (No Action).

Impacts to the Colorado River fishes would be similar to those described for the Proposed RMP.

4.17.2.3.4. ALTERNATIVE C

4.17.2.3.4.1. Special Status Plant Species

Under Alternative C, areas open for mineral and energy development would increase by 6% in areas open for oil and gas leasing, and 0.3% in areas open for mineral development when compared to Alternative D (No Action). The number of acres open to oil and gas leasing on BLM administered lands within the VPA would be 1,627,085, 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 CBNG development. Alternative C proposes 6% more disturbance to desert shrub, 1% less to sagebrush, and 2% 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 (No Action); 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.

4.17.2.3.4.2. 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% when compared to Alternative D (No Action). This alternative would also increase the proportion of Greater Sage-grouse winter and brooding habitat subject to special stipulations by approximately 11% when compared to Alternative D (No Action). This would have a beneficial impact when compared to Alternative D (No Action).

Alternative C would increase the proportion of white-tailed prairie dog habitat open to oil and gas development by approximately 3% when compared to Alternative D (No Action). This alternative would also decrease the proportion of white-tailed prairie dog habitat subject to special stipulations by approximately 17% when compared to Alternative D (No Action). This would result in impacts similar to the other 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%, respectively, when compared to Alternative D (No Action). This alternative would also decrease the proportion of Mexican Spotted Owl canyon and forest habitat subject to special stipulations by approximately 23% when compared to Alternative D (No Action) (see Tables 17 and 18 in Appendix H, 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 (No Action).

Impacts to the Colorado River fishes would be similar to those described for the Proposed RMP.

4.17.2.3.5. ALTERNATIVE D (NO ACTION)

Under Alternative D (No Action), 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, totaling 1,923,730 acres. Impacts under Alternative D (No Action) would be the same as described under Impacts Common to the Proposed RMP and All Alternatives.

4.17.2.3.6. ALTERNATIVE E

4.17.2.3.6.1. Special Status Plant Species

Under Alternative E, there would be a 2% decrease in the area open for oil and gas leasing, and an 11% decrease in the area open for mineral development when compared to Alternative D (No Action). The number of acres open to oil and gas leasing on BLM administered lands within the VPA would be 1,499,461, and mineral materials 344,682 acres. Under Alternative E, 418,869 acres of desert shrub, 371,960 acres of sagebrush, and 327,451 acres of pinyon-juniper would be subject to surface disturbance from oil, gas, and CBNG development. Alternative E proposes 0.4% less disturbance to desert shrub, 11% less to sagebrush, and 17% less to pinyon-juniper than does Alternative D (No Action). Impacts of mineral and energy development under

Alternative E are generally similar to those described for Alternative D (No Action); although, there are slight decreases in acreage available for mineral and energy development. The overall effect of Alternative E would be to slightly reduce the risk to endemics.

4.17.2.3.6.2. Special Status Animal Species

Alternative E would decrease the proportion of Greater Sage-grouse winter habitat open to oil and gas development by approximately 17% while increasing the proportion of Greater Sage-grouse brooding habitat open to oil and gas development by approximately 1% when compared to Alternative D (No Action). This alternative would also increase the proportion of Greater Sage-grouse winter and brooding habitat subject to special stipulations by approximately 12% and 21%, respectively when compared to Alternative D (No Action). This would have a beneficial impact when compared to Alternative D (No Action).

Alternative E would increase the proportion of white-tailed prairie dog habitat open to oil and gas development by approximately 1% when compared to Alternative D (No Action). This alternative would also decrease the proportion of white-tailed prairie dog habitat subject to special stipulations by approximately 52% when compared to Alternative D (No Action). This would result in impacts similar to the other action alternatives.

Alternative E would decrease the proportion of Mexican Spotted Owl canyon and forest habitat open to oil and gas development by approximately 17% and 2%, respectively when compared to Alternative D (No Action). This alternative would also increase the proportion of Mexican Spotted Owl canyon habitat subject to special stipulations by approximately 106% while decreasing the proportion of Mexican Spotted Owl forest habitat subject to special stipulations by approximately 10% when compared to Alternative D (No Action) (see Tables 17 and 18 in Appendix H, Wildlife). The combination of a decrease in oil and gas development within the Mexican Spotted Owl canyon habitat and an increase in protective measures within canyons would provide a substantial beneficial impact when compared to Alternative D (No Action).

Impacts to the Colorado River fishes would be similar to those described for the Proposed RMP.

4.17.2.4. IMPACTS OF NON-WSA LANDS WITH WILDERNESS CHARACTERISTICS DECISIONS ON SPECIAL STATUS SPECIES

4.17.2.4.1. PROPOSED RMP AND ALTERNATIVES A, B, C, D (NO ACTION), AND E

Protecting wilderness characteristics outside designated WSAs would provide direct and indirect beneficial impacts to special status species by precluding surface disturbance in these areas. Reducing surface disturbance limits erosion and decreases habitat fragmentation, noise, and traffic that can have adverse impacts on special status species. The Proposed RMP and Alternative E would manage approximately 106,178 acres and 277,596 acres, respectively, to maintain their wilderness characteristics. The Proposed RMP and Alternative E propose to manage these lands for their wilderness characteristics. Alternative E would be more beneficial to wildlife than the Proposed RMP primarily because Alternative E would include more acreage

and because Alternative E would manage these areas as VRM Class I (compared to VRM Class II under the Proposed RMP) and closed to oil and gas leasing.

4.17.2.5. 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 the Proposed RMP and 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 status species 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 4.17.3 below describes the range improvement management actions for each alternative.

Table 4.17.3. Rangeland Improvements for the Proposed RMP and all Alternatives

Activity	Proposed RMP	Alternative A	Alternative B	Alternative C	Alternative D (No Action)	Alternative E
Vegetation treatment (acres)	34,640	34,640	50,900	45,860	40,390	45,860
Fencing (miles)	68.5	68.5	368.5	129.0	65.0	129.0
Guzzlers/reservoirs	812	812	1,165	811	775	811
Wells/springs	51	51	78	87	74	87
Water pipeline (miles)	37.5	37.5	51.0	29.5	35.0	29.5

4.17.2.5.1. PROPOSED RMP AND 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.

4.17.2.5.2. ALTERNATIVE B

Alternative B would propose more vegetation treatments, fencing, and guzzlers/reservoirs than Alternative D (No Action). The greater amount of disturbance under this alternative from vegetation treatments, when compared to Alternative D (No Action), would result in potentially greater adverse impacts to special status plant species.

4.17.2.5.3. ALTERNATIVES C AND E

Alternatives C and E propose slightly more vegetation treatments and rangeland improvements than Alternative D (No Action). Impacts to special status plants would be similar to those described under alternative B.

4.17.2.5.4. 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.

4.17.2.6. IMPACTS OF RECREATION AND TRAVEL DECISIONS ON SPECIAL STATUS SPECIES

4.17.2.6.1. PROPOSED RMP AND ALTERNATIVES A, B, C, D (NO ACTION), AND E

Assignment and designation of Back Country Byways and SRMAs would have both beneficial and adverse impacts on special status species. Beneficial impacts would result from focused management of recreation in these areas. However adverse impacts would also result because of the increased visitor use—and associated disturbance from human presence, trampling of vegetation, etc.—that would likely occur following designation. The nature of long-term beneficial and adverse impacts on special status species in these areas would be the same among the alternatives as described in Impacts Common to the Proposed RMP and all Alternatives. However, the magnitude of these impacts would differ among the alternatives.

The Proposed RMP and Alternatives A and B would designate Seep Ridge, Book Cliff Divide, and Atchee Ridge Roads as BLM Back Country Byways. Alternatives C and E would not designate these roads as BLM Back Country Byways. This action is not specified under Alternative D (No Action). The Proposed RMP and all alternatives would manage Pelican Lake (1,014 acres) and Red Mountain – Dry Fork (24,259 acres) as SRMAs. Lands in Browns Park and Nine Mile Canyon would also be managed as SRMAs under all alternatives but the acreage would differ between some alternatives (Browns Park: 18,490 acres under the Proposed RMP; 17,000 acres under Alternatives B and D; 52,720 acres under Alternatives A, C and E; Nine Mile Canyon: 44,168 acres under the Proposed RMP; 44,181 acres under Alternatives B, and D; 81,168 acres under Alternatives A, C and E). Lands in Blue Mountain, the Book Cliffs, Fantasy Canyon, and the White River would be managed as SRMAs under some alternatives and not under others. Acreages would differ as well. Lands in Blue Mountain (42,758 acres), Fantasy Canyon (69 acres), and the White River (2,831 acres under the Proposed RMP and 47,130 acres under Alternatives C and E) would be managed as SRMAs under the Proposed RMP and Alternatives C and E. Alternative A would managed all of these lands as SRMAs except Fantasy Canyon and the White River would consist of 24,183 acres. Under Alternatives B and D these lands would not be managed as SRMAs. Lands in the Book Cliffs (273,486 acres) would be managed as SRMA under Alternatives A, C and E but not under the Proposed RMP and Alternatives B and D. The Proposed RMP and Alternatives A, C, and E would improve, develop, and/or sign up to 400 miles of non-motorized trails. Up to 800 miles of motorized routes would be improved, developed, and/or signed under the Proposed RMP and Alternatives A, B, and D.

With respect to travel management, the main difference between the Proposed RMP and the action alternatives and Alternative D (No Action) is in the amount of land available for Open and Limited OHV use. Total acreages available for OHV Open use under the Proposed RMP and Alternatives A, B, C, and E are similar, ranging from 6,202 acres under the Proposed RMP and Alternative A to 5,434 acres under Alternatives B, C, and E. In comparison, Alternative D (No Action) would allow 787,859 acres to be Open to unrestricted OHV use. Under the Proposed RMP and Alternatives A, B, C, and E, the number of acres designated as the more restrictive Limited category of OHV use are roughly similar, ranging from 1,326,024 under Alternative E to 1,659,901 under Alternative E. The Proposed RMP and Alternative A would designate 1,643,475 acres as Limited to designated routes while Alternative C would designate 1,353,529 acres as Limited to designated routes. In comparison, Alternative D (No Action) would designate 887,275 acres as Limited OHV use. Generally adverse OHV effects, such as trampling of either occupied or potential 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 the Proposed RMP and Alternatives A, B, C, and E, when compared to Alternative D (No Action). 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.

Although recreational hunting is carefully managed by the UDWR, impacts to species such as the Greater Sage-grouse and the White-tailed prairie dog could be exacerbated by recreational and travel activity.

4.17.2.7. IMPACTS OF SPECIAL STATUS SPECIES DECISIONS ON SPECIAL STATUS SPECIES

The RMP provides special status species designations for Sage-grouse and the Colorado River cutthroat trout. Therefore, only special status species decisions for these two species are addressed in this section.

4.17.2.7.1. PROPOSED RMP AND ALTERNATIVES C AND E

4.17.2.7.1.1. Greater Sage-grouse

Under the Proposed RMP and Alternatives C and E no surface-disturbing activities would be allowed year round within 0.25 miles of active Sage-grouse leks. From March 1 through June 15 (the brooding period) no surface-disturbing activities would be allowed within two miles of active Sage-grouse leks and no permanent facilities or structures would be allowed when possible. Finally, within 0.5 miles of known active Sage-grouse leks, the best available technology would be used to reduce noise. These measures would provide more benefits to Sage-grouse than Alternative D (No Action) which would only require buffers of 300 feet (Book Cliffs area) and 1,000 feet (Diamond Mountain area) and would not require noise reduction devices for operations occurring within 0.5 miles of known active leks.

4.17.2.7.1.2. Colorado River Cutthroat Trout

The Proposed RMP and Alternatives C and E 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, Bitter, and Upper Willow Creeks. Under Alternative D (No Action), Argyle Creek would also be included in this list. There would be no essential difference between the Proposed RMP and Alternatives C and E and Alternative D (No Action), except in the number and location of creeks available for the reintroduction of Colorado River Cutthroat Trout. The Proposed RMP and Alternatives C and E would be more beneficial to Colorado River cutthroat trout than Alternative D (No Action) because there would be more creeks available for reintroduction under the Proposed RMP and Alternatives C and E.

4.17.2.7.2. ALTERNATIVE A

4.17.2.7.2.1. Greater Sage-grouse

Alternative A would implement the *Strategic Management Plan for Sage-Grouse* (UDWR 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 through May 31) from 1 hour before sunrise to 3 hours after sunrise. Roads, fences, poles, and utility lines would not be constructed within 1,300 feet of a lek. Noise reduction according to best available technology would be used within 0.5 miles of a lek. The main differences between Alternative A and Alternative D (No Action) 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 Alternative D (No Action).

4.17.2.7.2.2. Colorado River Cutthroat Trout

Impacts to the Colorado River cutthroat trout would be as described for the Proposed RMP and Alternatives C and E because the decisions are the same.

4.17.2.7.3. ALTERNATIVE B

4.17.2.7.3.1. Greater Sage-grouse

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 1,300 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 Alternative D (No Action), although the lack of definition of "significant human disturbance" and the option for development within 1,300 feet of a lek leaves the possibility open that there would be no difference in Sage-grouse management between Alternative B and Alternative D (No Action).

4.17.2.7.3.2. Colorado River Cutthroat Trout

Impacts to the Colorado River cutthroat trout would be as described for the Proposed RMP and Alternatives C and E because the decisions are the same.

4.17.2.7.4. ALTERNATIVE D (NO ACTION)

4.17.2.7.4.1. Greater Sage-grouse

Alternative D (No Action) 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.

4.17.2.7.4.2. Colorado River Cutthroat Trout

Under Alternative D (No Action) suitable habitat would be provided and maintained to reintroduce Colorado River cutthroat trout in Upper Willow (Brown's Park), Beaver, Sears, Crouse, Tolivers, Davenport, Jackson, and Argyle Creeks as found applicable.

4.17.2.8. IMPACTS OF SOILS AND WATERSHEDS DECISIONS ON SPECIAL STATUS SPECIES

4.17.2.8.1. PROPOSED RMP AND ALTERNATIVES A, B, C, D (NO ACTION), AND E

Alternatives that incorporate decisions to protect water quality and reduce soil erosion would benefit special status plants and animals. The Proposed RMP and 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.

Alternatives C and E 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 (No Action) 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 the Proposed RMP and all of the action alternatives would provide more protection than Alternative D (No Action).

Alternatives C and E would provide the most protection for water quality and surface disturbance and therefore provide the greatest amount of indirect protection for special status species.

4.17.2.9. 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 within 0.5 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. The acreage and prescriptions for WSAs are the same for the Proposed RMP and all alternatives so these are not discussed below. The acreage and prescriptions for these areas would only change if these areas were released by congress.

4.17.2.9.1. ACECs

4.17.2.9.1.1. Proposed RMP

Under the Proposed RMP, Brown's Park (18,490 acres), the Lower Green River Corridor (8,470 acres), Nine Mile Canyon (44,168 acres), the Red Mountain – Dry Fork Complex (24,285 acres), Lears Canyon (1,375 acres), Red Creek Watershed (24,475 acres), and the Pariette Wetlands (10,437 acres) would be designated as ACECs (131,700 total acres). The benefits of ACEC designation, as described above, to special status species would be reduced under the Proposed RMP compared to Alternative D (No Action). The Proposed RMP would designate 20% less area as ACECs than Alternative D (No Action) (165,944 acres).

4.17.2.9.1.2. Alternative A

Under Alternative A, Bitter Creek (68,834 acres), Brown's Park (52,721 acres), Coyote Basin (87,743 acres), the Lower Green River Corridor and Lower Green River Expansion (10,170 acres), Nine Mile Canyon (48,000 acres), the Red Mountain – Dry Fork Complex (24,285 acres), White River (17,810 acres), Lears Canyon (1,375 acres), Red Creek Watershed (24,475 acres), and the Pariette Wetlands (10,437 acres) would be designated as ACECs (345,850 total acres). The benefits of ACEC designation, as described above, to special status species would be increased under Alternative A compared to Alternative D (No Action). Alternative A would designate 108% more area as ACECs than Alternative D (No Action) (165,944 acres).

4.17.2.9.1.3. Alternative B

Under Alternative B, Browns Park (18,474 acres), Coyote Basin (47,659 acres), the Lower Green River Corridor (8,470 acres), Nine Mile Canyon (44,181 acres), the Red Mountain – Dry Fork Complex (24,285 acres), Lears Canyon (1,375 acres), Red Creek Watershed (24,475 acres), and the Pariette Wetlands (10,437 acres) would be designated as ACECs (179,356 total acres). The total acreage of ACECs under Alternative B would be about 8% greater than under Alternative D (No Action) resulting in more beneficial impacts to special status species than Alternative D (No Action).

4.17.2.9.1.4. Alternative C

Under Alternative C, Bitter Creek (147,425 acres), Browns Park (52,721 acres), Coyote Basin (124,161 acres), Four Mile Wash (50,280 acres), the Lower Green River Corridor and Lower Green River Expansion (10,170 acres), Main Canyon (100,915 acres), Middle Green River (6,768 acres), Nine Mile Canyon (81,168 acres), the Red Mountain – Dry Fork Complex (24,285 acres), the White River (47,130 acres), Lears Canyon (1,375 acres), Red Creek Watershed (24,475 acres), and the Pariette Wetlands (10,437 acres) would be designated as ACECs (681,310 total acres). The total acreage of ACECs under Alternative B would be nearly four times greater than under Alternative D (No Action) resulting in more beneficial impacts to special status species than Alternative D (No Action).

4.17.2.9.1.5. Alternative D (No Action)

Under Alternative D (No Action), Browns Park (52,721 acres), the Lower Green River Corridor (8,407 acres), Nine Mile Canyon (44,181 acres), the Red Mountain – Dry Fork Complex (24,285 acres), Lears Canyon (1,375 acres), Red Creek Watershed (24,475 acres), and the Pariette Wetlands (10,437 acres) would be designated as ACECs (165,944 total acres).

4.17.2.9.1.6. Alternative E

The impacts of special designation decisions on special status species would be the same as discussed above for Alternative C because the management actions are the same, except that Bitter Creek would not be designated as an ACEC under Alternative E and that the non-WSA areas with wilderness characteristics would be managed for the protection of their wilderness values. Under this alternative, approximately 197,171 acres within the proposed ACECs would be managed under VRM I objectives, closed to mineral leasing and mineral materials disposal, excluded from ROW consideration, closed to commercial and private woodcutting, and closed to cross-country OHV travel. These management decisions would have long-term, beneficial impacts on special status species by either reducing or prohibiting surface disturbances within the non-WSA wilderness characteristics areas. This alternative would have more beneficial impacts on special status species than all other alternatives because it would manage potential special status species habitat with more protective prescriptions. However, it would manage fewer acres overall (681,310 total acres) for their wilderness characteristics than Alternative C.

4.17.2.9.2. WILD AND SCENIC RIVERS

4.17.2.9.2.1. Proposed RMP and Alternative B

Under the Proposed RMP and Alternative B, two river segments on the Upper Green River (22 miles) and Lower Green River (30 miles) with a tentative classification of scenic for both river segments would be considered for Wild and Scenic River designation. Though Alternative D (No Action) would also not identify any segments of the aforementioned rivers as suitable for Wild and Scenic River designation it would manage portions of Bitter Creek, Evacuation Creek, and the White River to protect the free flowing nature, outstandingly remarkable values, and tentative classification of the river. As a result, Alternative D (No Action) would have more beneficial impacts for special status species than the Proposed RMP and Alternative B.

4.17.2.9.2.2. Alternative A

Under Alternative A, the portion of the White River between the Colorado state line and the trust land boundary (44 miles) would be tentatively classified as "Scenic" (Segment A) and "Wild" (Segment B). Though Alternative D (No Action) would not identify any river segments as suitable for Wild and Scenic River designation it would manage portions of Bitter Creek, Evacuation Creek, and the White River to protect the free flowing nature, outstandingly remarkable values, and tentative classification of the river. As a result, Alternative D (No Action) would have more beneficial impacts for special status species than Alternative A.

4.17.2.9.2.3. Alternatives C and E

Under Alternatives C and E all segments of the aforementioned rivers would be considered suitable for Wild and Scenic River designation. This would result in reduced surface disturbance and adverse impacts to special status species along approximately 158 miles of river in the VPA. Long-term beneficial impacts to riparian dependent special status species would be greater under Alternatives C and E compared to Alternative D (No Action) due to the greater river mileage considered suitable for Wild and Scenic River designation. These alternatives would identify segments along the White River, Nine Mile Creek, the Middle Green River, Evacuation Creek, Bitter Creek, and Argyle Creek as suitable for designation into the Wild and Scenic River System. These management actions would have greater beneficial impacts on special status species than any of the other alternatives.

4.17.2.9.2.4. Alternatives D (No Action)

This alternative would not identify any river segments within the VPA as suitable for Wild and Scenic River designation. However, segments of Bitter Creek, Evacuation Creek, and the White River would be managed to protect the free flowing nature, outstandingly remarkable values, and tentative classification of the rivers.

4.17.2.10. IMPACTS OF WOODLANDS AND FOREST MANAGEMENT DECISIONS ON SPECIAL STATUS SPECIES**4.17.2.10.1. PROPOSED RMP AND ALTERNATIVES A, B, C AND E**

The Proposed RMP and Alternatives A, B, C, and E 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. The Proposed RMP would treat/harvest up to 546,152 acres of forest and woodland habitat. Alternatives A and C would treat/harvest up to 552,152 acres of forest and woodland habitat. Alternative B would treat/harvest 554,108 acres of forest and woodland habitat.

The Proposed RMP and Alternatives A, C, and E 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. The Proposed RMP and 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. The Proposed RMP and each 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.

The Proposed RMP and Alternatives A and B would initiate a proactive program of woodland management that 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 forests and woodlands for other resources on up to 343,110 acres outside of proposed ACECs. Alternative E would allow for the salvage of forest and woodland products outside proposed ACECs (242,602 acres) but would not allow these activities within proposed ACECs. Alternative E would also prohibit forest and woodland salvage on non-WSA lands with wilderness characteristics. 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% of "normal (maximum) basal area" until the culmination of mean annual increment, at which time the stand(s) would be cut again.

4.17.2.10.2. ALTERNATIVE D (NO ACTION)

Alternative D (No Action) would allow up to 88,200 acres of forest and 200,100 acres of woodlands to have treatments or be harvested.

These woodland and fire management treatments would have a varying degree of beneficial to adverse impacts 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.

4.17.3. MITIGATION MEASURES

The following mitigation measures would be implemented under the Proposed RMP and all alternatives:

Mineral and energy development in areas directly associated with Ferruginous Hawk nesting areas would be subject to special stipulations including buffers outlined in "Best Management Practices for Raptors and Their Associated Habitats in Utah" (Utah BLM, 2006, Appendix A) with modifications allowed as long as protection of the raptors is ensured.

Notices for oil and gas development and BLM-committed conservation measures would be applied to Utah's T&E species (see Appendix L).

The Proposed RMP and all alternatives would have stipulations and mitigation measures meant to protect and/or enhance existing Greater Sage-grouse habitat. The Proposed RMP and Alternatives C and E would not allow surface-disturbing activities year round within 0.25 miles of active Sage-grouse leks. From March 1 through June 15 (the brooding period) no surface-disturbing activities would be allowed within two miles of active Sage-grouse leks and no permanent facilities or structures would be allowed when possible. Finally, within 0.5 miles of known active Sage-grouse leks, the best available technology would be used to reduce noise. 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 miles 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 sunrise. Under 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 but would be designed to minimize, to the extent possible, bird collision and to minimize raptor perching within 2 miles of a lek. Alternative D (No Action) 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.

Construction and development around any Bald Eagle nests would be managed under the authority of the Eagle Protection Act, and under the auspices of Best Management Practices as

outlined in "Best Management Practices for Raptors and Their Associated Habitats in Utah" (Utah BLM, 2006, Appendix A) with modifications allowed as long as protection of nests is insured.

No surface occupancy would be allowed in the riparian zone under the Proposed RMP or 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.

Roads, buried pipelines, facilities and well pads should be designed and constructed down slope of populations, or suitable habitat, of special status species to eliminate effects of changes to water flows that can create erosion and/or sedimentation. In addition, roads, buried pipelines, facilities and well pads should be located outside of the 100-year floodplain, wherever feasible.

Where construction of roads and pads due to landscape constraints, or other resource impacts such as archeological sites, need to be upslope of habitat; site specific designs of buffers utilizing the landscape, berms, and engineered roads and pads construction measures will be initiated to eliminate concentrated water flows and sediment into habitats.

When buffers are utilized to protect habitat, the buffers need to be of sufficient width to allow road or facility maintenance and weed controls without jeopardizing the habitat.

Where habitat for special status species occurs adjacent to planned construction areas, temporary fencing will be used to prevent equipment from disturbing habitat.

Surface pipelines should be placed a minimum of ten feet from special status plants and habitat. Where resource impacts conflict and pipelines need to go through habitat, the pipelines will be placed ten feet from occurring plants and staked to prevent snaking in the habitat areas.

Small area closures using permanent fencing, signing, barriers, or other protective measures should be utilized to protect special status species habitat from off road travel or OHV use. Monitoring of off road travel and OHV use will determine the level of protection needed.

BLM would initiate the avoidance of key habitats with allotment permittees to protect special status species habitat during livestock herding and trailing activities or use of habitat areas for bedding or camp sites. (Key habitats are those that are deemed necessary for the conservation of the species, including, but not necessarily limited to Designated Critical Habitat, and other occupied or unoccupied habitat considered important for the species).

Supplements for livestock and range improvement projects, such as water developments and fences, would be planned to avoid concentrating livestock use on special status species habitat.

Where season of use by livestock is proven detrimental to special status species populations, BLM would initiate grazing plans using herding, deferment or rest rotation or other management activities, to lessen or deter impacts.

4.17.4. 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 Yellow-billed Cuckoo and the Ute ladies'-tresses.

4.17.5. 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.

4.17.6. IRREVERSIBLE AND IRRETRIEVABLE IMPACTS

Irreversible impacts (species loss) to special status species (plants and animals) within the VPA would not occur due to planning level decisions described in this document. Irretrievable impacts to special status species would occur due to minerals development and other surface-disturbing activities that would remove and fragment habitat. In particular, there could be irretrievable impacts to the Ferruginous Hawk population because Ferruginous Hawks appear to be more susceptible to disturbance because of their preference for solitude when nesting and their high dependence on primary prey species such as rabbits and/or ground squirrels (Bechard et al. 1990; White and Thurow 1985; Holmes et al. 1993; Olendorff 1993). Similar irretrievable impacts could also occur to other special status species that are sensitive to noise and disturbance, such as Sage-grouse, and/or of limited distribution such as narrow soil endemic plant species (e.g., Book Cliffs soil endemics).