

APPENDIX B: BIOLOGICAL EVALUATION

Introduction

This biological evaluation (BE) addresses the potential impacts of the White River National Forest Travel Management Plan (TMP) on Forest Service Rocky Mountain Region (R2) sensitive species that occur or have the potential to occur on the White River National Forest. This document supplements the biological evaluation (BE) produced for the White River National Forest Land and Resource Management Plan (Forest Plan) (USDA Forest Service/White River National Forest 2002a). The list of regional-forester-approved sensitive species was updated on November 3, 2003 and April 30, 2007. These updates incorporated many changes to the 1994 list. For the species that remained on the 2006 list, most of the information contained in the forest plan is considered accurate and appropriate for this Travel Management Draft Environmental Impact Statement BE. This document tiers to the forest plan BE. Information included in the forest plan BE is not repeated here except for clarification purposes. This document adds information for those species included on the updated list that were not included on the 1994 list. The purpose of this BE is to document the likely effects on Forest Service listed sensitive species from the forest-wide travel management plan proposed action. The action area for this BE are lands within the White River National Forest boundary. Decisions based on this document would pertain to National Forest System lands; lands under other ownerships would not be affected by the proposed action or other alternatives and are not discussed further.

The BE is evaluated based on the projects' purpose and need and alternatives. The assumptions are the same as stated in the BA. Note the term decommissioning also includes system routes to be decommissioned and/or user-created routes to be rehabilitated.

Species Considered and Species Evaluated

Table BE-1 displays the species from the 2007 R2 sensitive species list that are known or suspected to occur on the White River National Forest and their primary habitat associations.

Table BE-1. Habitat associations for sensitive species evaluated in the White River travel management plan

Species	Habitat Classification				
	Mixed mountain shrub	Forest	Mountain grass or forb	Riparian	Alpine
Mammals					
Townsend's big-eared bat	P	P	P	P	
Spotted bat	P	P	P		
Wolverine	P	P	P	P	P
River otter*				P	
American marten		P		P	S
Fringed myotis*	P	P			

Species	Habitat Classification				
	Mixed mountain shrub	Forest	Mountain grass or forb	Riparian	Alpine
Birds					
Northern goshawk	S	P	S	P	
Boreal owl		P			
Sage sparrow*	P				
Ferruginous hawk			P		
Greater sage grouse*	P				
Northern harrier*	S		P	S	
Olive-sided flycatcher		P			
Black swift				P	
American peregrine falcon*	S	P	P	P	S
White-tailed ptarmigan*				S	P
Bald Eagle	S			P	
Loggerhead shrike	P		P		
Lewis' woodpecker				P	
Flammulated owl		P			
American 3-toed woodpecker		P			
Purple martin	S	P	S		
Brewer's sparrow*	P				
Columbian sharp-tailed grouse*	P		S	S	
Amphibians					
Boreal toad				P	
Northern leopard frog				P	
Fish					
Colorado River cutthroat trout				P	
Roundtail chub*				P	
Bluehead sucker*				P	
Flannelmouth sucker*				P	
Mountain sucker*				P	
Invertebrates					
Great Basin silverspot*				P	
Plants					
<i>Carex diandra</i> *				P	
<i>Eriophorum altaicum</i>				P	
<i>Cypripedium parviflorum</i>		P			
<i>Eriophorum chamissonis</i> *				P	
<i>Eriophorum gracile</i> *				P	
<i>Ptilagrostis porteri</i>					P
<i>Armeria maritima</i>					P
<i>Astragalus leptaleus</i> *					P
<i>Astragalus wetherillii</i> *	P				

Species	Habitat Classification				
	Mixed mountain shrub	Forest	Mountain grass or forb	Riparian	Alpine
<i>Cirsium perplexans</i> *	P				
<i>Draba exunguiculata</i> *					P
<i>Draba grayana</i> *					P
<i>Ipomopsis globularis</i>					P
<i>Machaeranthera coloradoensis</i>			P		P
<i>Parnassia kotzebuei</i>				P	
<i>Penstemon harringtonii</i>	P				
<i>Phacelia scopulina</i>	P				
<i>Ranunculus karelinii</i> *				P	
<i>Thalictrum heliophilum</i> *	P				

P= Primary habitat

S= Secondary habitat

*= Species not included in the BE for the forest plan, June, 2002.

Environmental Baseline for the Species Evaluated

Most of the activities that affected the White River National Forest occurred prior to the issuance of the Forest Plan and were described in the BA/BE for that document. Some additional development for natural gas has occurred on the western portion of the forest; however, other activities have been minor and have not changed the basic appearance or function of the forest. Since the approval of the forest plan, several areas of the forest have seen wide-spread beetle epidemics that have affected large areas of forested stands in both spruce and lodgepole pine. These epidemics currently are centered around the Fourmile Creek/Baylor Park area, Vail, Triangle Park, and Summit County.

Evaluated Species Information

Basic life history information for sensitive species included in the BE for the forest plan was based on the 1994 regional forester list of sensitive species. The species retained from the 1994 list that are on the 2007 updated list of the R2 sensitive species are described in detail in the BE prepared for the forest plan. This document adds information for the species new to the 2007 list. The spatial scale of the proposed action covers all portions of the forest. Therefore, all sensitive species known or suspected to have habitat on the White River National Forest are evaluated in this document.

Mammals

North American Wolverine

The North American wolverine (*gulo gulo luscus*) is discussed in the BE for the forest plan; life history and other general information can be found in that BE (USDA Forest Service/White River National Forest 2002a). This species is susceptible to disturbance from human use of its habitat, especially during the maternity denning period. Winter recreation use in the general vicinity of a female with young has caused the female to move her young up to 6 miles in one Idaho study (Copeland 1996). Most researchers indicate that wolverines need large areas undisturbed by human intrusion to be the most successful in maintaining populations. One of the three major risk factors identified for

this species is disturbance to individuals through human interaction (USDA Forest Service/White River National Forest 2002b). Travel management has the potential to affect wolverine through human disturbances.

Short of specific information concerning wolverine habitat management needs, management aimed at maintaining lynx in an area will also serve to maintain conditions suitable for wolverine. The White River National Forest incorporated a wide range of lynx management direction into the forest plan that will also benefit the wolverine. This direction includes goals, objectives, strategies, standards, guidelines, and specific management area direction, all geared at maintaining and improving lynx habitats and populations. Much of these direction items guide travel management either directly or indirectly.

Summer

Table BE-3. Wolverine habitat forest-wide analysis of roads and trails, by use type, by alternative

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.56	0.56	0.50
Mechanized	0.20	0.20	0.16
Motorized/mechanized	0.76	0.76	0.66
Foot/horse	0.36	0.36	0.39
Total	1.13	1.13	1.05
Scheduled for decommission (reduction in density)	0.00	0.25	0.32

**Approximately 3574 square miles of potential habitat were analyzed for this species.*

Alternative F maintains the current authorized level of use for motorized, mechanized, and foot and horse access across the forest. Alternative G reduces both motorized (by 234 miles) and mechanized (143 miles) while increasing foot and horse access by 95 miles. Because of planned decommissioning and rehabilitation of travelways, both F and G would result in fewer miles of roads and trails than under the current, existing situation.

Winter

Wolverines have expansive home ranges that cover a variety of habitats. The most critical time is late winter for females with young. During this time, females appear to be very sensitive to human intrusions into their habitats and may take drastic measures to move their young from areas used by humans (USDA Forest Service/White River National Forest, 2002a). None of the alternatives vary in the overall total areas that are considered practical for motorized or non-motorized use across the forest. Approximately 288,000 acres (13 percent) of the forest is practical for access during the winter (slopes less than 30 percent and canopy cover less than 40 percent). More than 87 percent of the forest would remain relatively “human-free” during the winter months under all alternatives.

New, expanded technology and uses have the potential to change the level of protection that steep, inaccessible terrain currently provides across the forest. Specifically, access by helicopter, snowmobile, or snowcoach for skiing or other forms of winter recreation uses has the potential to jeopardize areas currently considered secure from these human impacts. Proposed projects promoting these types of uses will be carefully reviewed under the BE process for potential impacts on wolverine prior to being approved.

Determination

There would be no direct habitat changes to potential wolverine habitat through implementation of the proposed action under any alternative. The implementation of the lynx direction across the forest will provide for the general protection and enhancement of wolverine habitat including issues specific to travel management during the summer months. None of the alternatives vary in the overall practical access to the forest during the winter months. All alternatives have the potential to allow human access into some areas that may be critical to females with young. This access and subsequent disturbance has the potential to displace females with young. Considering that more than 87 percent of the White River National Forest would remain relatively human-free during most winters (including most of the higher elevations that are preferred by nursing females), there should be adequate secure areas to provide for the needs for any breeding female wolverine displaced by human activity in the portions of the forest with access. The determination for wolverine for all alternatives is **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

American Marten

The American marten (*Martes americana*) is covered in the BE for the forest plan; life history and other general information can be found in that BE (USDA Forest Service/White River National Forest 2002a). The marten is an interior forest species highly dependent on mesic, late-successional forests with complex physical structure on or near the ground (USDA Forest Service/White River National Forest 2002b). The primary risk factor for this species associated with NFS management is vegetation management, specifically timber sales that affect late successional forest stands. Increased road mileage is a potential risk factor when it leads to an increased potential for trapping pressure. Trapping for martens is no longer legal in the state of Colorado, so this risk factor and its tie to road mileage is no longer appropriate for consideration. The proposed action under any of the alternatives of this draft environmental impact statement would not affect the quantity or quality of late successional stands across the White River National Forest. No new road or trail construction is proposed. Neither summer nor winter disturbance impacts from general recreation use of an area are identified in the literature as an important risk factor for martens.

Summer

Changes in the amount and type of use of roads and trails within the forested lands on the White River National Forest were evaluated to assess the level of changes that may occur depending on the alternative (table BE-4).

Table BE-4. Travelway densities by alternative for lands within the forested habitats for American marten on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.47	0.47	0.42
Mechanized	0.20	0.20	0.17
Motorized/mechanized	0.67	0.66	0.58
Foot/horse	0.35	0.35	0.36
Total	1.01	1.01	0.95
Scheduled for decommission (reduction in density)	0.00	0.00	0.25

Approximately 2226 square miles of potential habitat were analyzed for this species.

Within forested American marten habitats, alternative F decreases mechanized access by approximately 5 miles forest-wide, while increasing foot/horse use by 4 miles. Alternative G decreases motorized travelways by 110 miles and mechanized by 69 miles. This alternative increases foot/horse by 39 miles. Planned decommissioning of travelways would reduce open travelway density in all the alternatives when compared to the current, existing situation.

Winter

An analysis was completed for habitats that could possibly support marten populations on the White River National Forest. This analysis originally identified forested lands that serve as snowshoe hare habitat but these same lands would also serve as a good comparison of marten habitats (table BE-4W). Winter open motorized uses would be decreased slightly under alternative G, while F remains similar to Alternative A.

Table BE-4W. Designated winter travelway miles and play area acres by alternative for marten habitat on the White River National Forest

Type of use	Alternative A	Alternative F	Alternative G
Motorized Prohibited areas	526,372	526,372	526,372
Restricted -Motorized Routes	210,096	210,096	246,362
Open Motorized Areas	380,142	380,142	343,876

Includes approximately 1786 square miles of marten habitat.

Normal recreation use has not been identified as a risk factor for the American marten from either motorized or non-motorized uses during either summer or winter. There is a potential for individual martens to be killed while crossing roads throughout the forest. This potential is expected to remain the same regardless of the alternative, and it may be slightly less than under the existing situation because of the decommissioning of many unauthorized roads and trails under all alternatives. No other impacts on martens are expected to occur from the proposed action or any of the alternatives. The determination for all alternatives is **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

River Otter

The river otter (*Lontra canadensis*) was not covered under the BE for the forest plan.

The river otter mainly inhabits large river systems in riparian habitats that traverse a variety of other ecosystems ranging from semi-desert shrublands to montane and subalpine forests. The otter requires permanent water of relatively high quality and with an abundant food base of fish or crustaceans. Overhanging vegetation is essential for otter habitat. Other habitat features that may be important include the presence of ice-free reaches of stream in winter, water depth, stream width, and suitable access to shoreline. Dens usually are holes in the bank or abandoned beaver lodges with the entrance under water. Basking sites are stream banks. Otters do not hibernate, and they mate in the winter or early spring, probably March and April in Colorado. Total gestation has been estimated at 290 to 375 days; young are born in April and May. The river otter once lived in most of the major drainages of Colorado and was subsequently extirpated. Starting in 1976, Colorado initiated restoration efforts in several drainages; transplants have now been made in several rivers. An historical occurrence of river otters was documented in Rio Blanco County on the White River (Barrett and Overly 1992, Fitzgerald et al. 1994). In 2003, an avid local fisherman reported an otter sighting on the South Fork of the White River, and otters were reported along the Eagle River at Avon in the late 1990s. Anecdotal records also report otters along the Colorado River near Glenwood Springs and on Main Elk Creek, just below the forest boundary, in Garfield County.

The analysis for otter included all lands within one-half mile of the major river systems associated with the forest (table BE-5).

Table BE-5. Travelway densities by alternative for lands within potential river otter habitat on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.17	1.17	1.14
Mechanized	0.20	0.20	0.24
Motorized/mechanized	1.36	1.36	1.39
Foot/horse	0.44	0.44	0.40
Total	1.80	1.80	1.79
Scheduled for decommission (reduction in density)	0.00	0.37	0.28

Approximately 54 square miles of potential habitat were analyzed for this species.

Authorized uses in alternative F are similar to alternative A. Alternative G reduces motorized by 1 mile, increases mechanized by 1.5 miles and decreases foot/horse by 2 miles. Planned decommissioning and rehabilitation of travelways would reduce open travelway density in alternatives F and G when compared to the current, existing situation.

The forest plan and other agency direction include significant protection for riparian areas, which would be the primary habitat for river otter on the White River National Forest. This direction includes watershed conservation practices (WCP) direction, riparian protection standards and guidelines for grazing (USDA Forest Service/White River National Forest 2002a, page 2-11), and standards for protection of sensitive species and their habitats (USDA Forest Service/White River National Forest 2002a, page 2-19).

Winter

An analysis of winter use in potential river otter habitat indicates that authorized uses under alternative F are similar to alternative A. In alternative G, open motorized use in potential river otter habitat would be reduced by 70% while restricted motorized use would increase by 37%.

Determination

The riparian protection direction coupled with the lack of direct habitat alterations under the proposed action, the overall reduction in road and trail densities over the existing situation, and the low likelihood of river otters currently residing on the forest all indicate a low likelihood of detrimental impacts on this species under any of the alternatives. There is a slight chance that individual otters using suitable habitats on the forest may be killed while attempting to cross existing roads adjacent to the larger river systems on the forest or may be harassed by anglers or river floaters. For these reasons, the determination for all alternatives is **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

Fringed Myotis, Spotted Bat, and Townsend's Big-eared Bat

Fringed Myotis

The fringed myotis (*Myotis thysanodes*) was not covered by the BE for the forest plan. The fringed myotis apparently is not common in Colorado and is found in ponderosa pine, pinyon-juniper woodlands, greasewood, oakbrush, and saltbush shrublands up to 7,500 feet. These bats begin to forage shortly after sunset, although most of their activity occurs a couple of hours after dark. Foraging occurs along lake edges, creek bottoms, and over intermittent streams (Schmidt 2003). These bats are gleaners and they forage close to the plant canopy, where they pick prey off the vegetation during a slow, maneuverable flight. The fringed myotis has a relatively broad diet, feeding on moths, beetles, caddis flies, ants, bees, wasps, and other insects. Females mate in the fall; ovulation and fertilization occur in late April and May. The gestation period is 50 to 60 days and they have one young per year. Caves, mines, and buildings are used as both day and night roosts. Localized migrations are thought to occur but firm data are lacking. Hibernation sites include caves and buildings from November to March. The few records of this species from Colorado are widely scattered both east and west of the Continental Divide habitat (Barrett and Overly 1992, CDOW 1984, Fitzgerald et al. 1994). It occurs in Rio Blanco, Garfield, and Mesa counties (Ellison et al. 2003).

Very little information is available concerning fringed myotis populations on the White River National Forest. Based on the lack of information, it is assumed that they may occur where suitable habitat is found. This would include those areas of the forest supporting pinyon-juniper or shrublands associated with karst topography.

Townsend's big-eared bat and spotted bat

The Townsend's big-eared bat (*Corynorhinus townsendii*) and the spotted bat (*Euderma maculatum*) are discussed in detail in the BA for the forest plan (USDA Forest Service/WRNF 2002a); that document provides more information about those species on the White River National Forest.

All three species

Summer

A combination of analyses were compared to evaluate potential impacts on these bat species from implementation of the travel management plan. These included looking at potential impacts on pinyon-juniper habitats, shrubland habitats, and karst topography, all of which include potential habitat areas for these species. However, the habitats probably cover a much broader geographic area than is occupied by these bats on the White River National Forest. By reviewing the results of all three analyses (tables BE-6, BE-7, and BE-8), one can judge the overall potential for impacts to these species.

All three species

Table BE-6. Travelway densities by alternative for lands within potential bat habitat within pinyon-juniper stands on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.33	0.33	0.27
Mechanized	0.08	0.08	0.05
Motorized/mechanized	0.41	0.41	0.31
Foot/horse	0.03	0.03	0.09
Total	0.44	0.44	0.40
Scheduled for decommission (reduction in density)	0.00	0.04	0.07

Approximately 32 square miles of potential habitat were analyzed for this species.

For pinyon-juniper communities that could possibly support these three species of bat populations, Alternatives A and F provide similar authorized opportunities. Alternative G is the only alternative that would add foot/horse travelways (a total of approximately 23 miles). Alternative G would reduce motorized (by 102 miles) and mechanized travel (50 miles). Planned decommissioning of travelways would reduce open travelway density in alternatives F and G when compared to the current, existing situation.

Table BE-7. Travelway densities by alternative for lands within potential bat habitats within shrubland habitats on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.99	0.99	0.85
Mechanized	0.27	0.27	0.18
Motorized/mechanized	1.26	1.26	1.03
Foot/horse	0.33	0.33	0.41
Total	1.59	1.59	1.44
Scheduled for decommission (reduction in density)	0.00	0.33	0.44

Approximately 434 square miles of potential habitat were analyzed for this species.

For authorized uses within shrubland communities that may support these three species of bat populations, alternative F and A are identical. Alternative G reduces motorized and mechanized road and trail density, and increases foot and horse density over alternative A. Planned decommissioning and rehabilitation of travelways would reduce open travelway density in all the alternatives.

Table BE-8. Travelway densities by alternative for lands within 2 miles of karst topography that may provide cave dwelling bat habitat on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.69	0.69	0.58
Mechanized	0.22	0.22	0.17
Motorized/mechanized	0.91	0.91	0.75
Foot/horse	0.34	0.34	0.37
Total	1.26	1.26	1.12
Scheduled for decommission (reduction in density)	0.00	0.28	0.40

Approximately 954 square miles of potential habitat were analyzed for this species.

For cave bats, alternatives A and F are similar. Alternative G reduces motorized and mechanized route density, but does slightly increase foot and horse density. Compared to the existing condition, alternatives F and G would result in reduced road and trail densities across the forest because of road and trail decommissioning.

The analyses documented above all cover a much broader range of the White River National Forest than is likely to be inhabited by any of the three species of bats; therefore, this analysis should be considered broad when considering potential impacts. Regardless, all analyses indicate that alternatives F and G would have a positive effect over the existing situation because of road decommissioning. Motorized uses would be the least under alternative G; this alternative should result in the least overall potential impact on the bat species from recreational access to any caves used by any of the three species.

The forest plan contains direction that results in additional protection for cave resources above those that existed prior to the revision effort. This direction includes:

Cave standards 1, 2, and 3 (USDA Forest Service/White River National Forest 2002a, page 2-3):

Cave standard 1—“Manage natural surface drainage and vegetation that may affect known caves or cave resources to protect cave micro-environments.”

Cave standard 2—“Management activities that may affect known caves will be designed to protect cave ecosystems.”

Cave standard 3—“Identified significant caves will be withdrawn from mineral entry;” and

Wildlife standards 2 and 3 (USDA Forest Service/White River National Forest 2002a, page 2-17):

Wildlife standard 2—“Restrict actions within 500 feet of cave and mine bat roosts to those that will not negatively alter the vegetative and structural characteristics of roosts or impede the movements of bats.”

Wildlife standard 3—“Restrict the release of the location of bat roosts to administrative purposes only in order to minimize disturbance to roosting bats.”

Winter

Winter, open motorized uses would be reduced in alternative G over the existing situation or alternative F. Acres of winter restricted use is higher in G than in A or F. Reduced winter use should reduce potential disturbance impacts to hibernating cave bats under all alternatives (Kirk Navo, [CDOW] pers. comm.).

Determination

Forest plan direction will help reduce potential impacts on this species from human recreation use; however, there is a continued potential of human access to areas considered important to these species. This human use may result in some level of disturbance to roosting individuals or populations. The determination for the proposed action under all alternatives for all three species of bats considered is **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

Pygmy Shrew

The pygmy shrew (*Microsorex hoyi montanus*) was covered in the BE for the forest plan; life history and other general information can be found in that document (USDA Forest Service/WRNF 2002a). This species is able to survive in a variety of habitats across the forest. Identified risk factors include: harvest activities where overhead cover and forest floor vegetation are disturbed; construction of forest roads; and development of recreation facilities and ski areas. Grazing by herbivores may alter shrew habitats. This species has not been documented to occur on the White River National Forest but has been found both north and south of the forest.

An analysis of the forest-wide total miles of roads and trails open to the various use types was completed for this species (table BE-9).

Table BE-9. Pygmy shrew forest-wide analysis of roads and trails, by use type, by alternative

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.56	0.56	0.50
Mechanized	0.20	0.20	0.16
Motorized/mechanized	0.76	0.76	0.66
Foot/horse	0.36	0.36	0.39
Total	1.13	1.13	1.05
Scheduled for decommission (reduction in density)	0.00	0.25	0.32

Approximately 3574 square miles of potential habitat were analyzed for this species.

Alternative F maintains the current authorized level of use for motorized, mechanized, and foot and horse access across the forest. Alternative G reduces both motorized (by 234 miles) and mechanized (143 miles) while increasing foot and horse access by 95 miles. Because of planned decommissioning and rehabilitation of travelways, both F and G would result in fewer miles of roads and trails than under the current, existing situation.

Determination

Based on the wide range of habitats inhabited by this species and on the fact that no new construction of roads or trails is proposed, it is doubtful that there would be any direct impacts to the habitat of this species from implementing any of the alternatives. Small ground-dwelling species with small home ranges, such as shrews, do have the potential to be killed by vehicles using forest roads and trails. Decommissioning of travelways across the forest would reduce densities for all alternatives over the current, existing situation; road decommissioning would reduce the potential for road kills. The lack of direct habitat impacts, the wide range of habitats used by this species, and the potential for occasional road kills from vehicle use of forest travelways leads to the determination for this species for all alternatives being **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

Bighorn Sheep

The Rocky Mountain bighorn sheep was not listed as a sensitive species by Region 2 when the 2005 DEIS was released. Therefore, potential impacts to this species were not analyzed at that time. In April, 2007, it was included on the revised R2 sensitive species list. The White River National Forest provides important suitable habitat for several herds of bighorn sheep across the forest. Several of these herds are considered endemic herds and have not been supplemented by transplants from other herds or areas. Other herds on the forest are either partially or totally the result of transplants. Bighorn sheep were at one time considered by many to be the most common big game animal in the mountains of Colorado. A species conservation assessment (SCA) for this species was completed in February 2007. The reader is referred to that document for detailed life history information. Much of the following information comes from the SCA .

“Threats to the long-term viability of bighorn sheep in Region 2 include diseases transmitted by domestic livestock, the lack of connectivity and/or loss of genetic variability (fitness) due to habitat fragmentation, habitat loss, increased human disturbance, competition with domestic livestock, and predation on small, isolated herds. The relative importance of these threats to the persistence of bighorn sheep in Region 2 varies from area to area. However, the risk of disease outbreaks resulting from contact with domestic sheep and goats is widely believed to be the most significant threat facing bighorns in Region 2 and elsewhere across their range.” (Beecham et al 2007, page 4).

One of the eight recommendations in the SCA is to protect bighorn from harassment and human disturbance, especially during winter and lambing seasons. The potential impacts from travel management decisions are analyzed in this document.

“Bighorn sheep behavior patterns are extremely rigid and ritualized and play an important role in population persistence (Geist 1971). Studies suggest that bighorns do not adjust well to perturbations in these behavioral patterns (Geist 1971, Krausman 1993, Krausman et al. 1995). Consequently, human disturbance may be a factor disrupting bighorn behaviors and movements and may contribute to population declines.” (Beecham 2007, page 31).

“Wild sheep have habituated to human activity in many areas where the activity is somewhat predictable temporally and spatially. However, human disturbance (e.g., snowmobiling and heli-skiing on and near winter ranges) and human presence near lambing sites may be detrimental to bighorns in some locales (Graham 1980, MacArthur

et al. 1982, Etchberger et al. 1989). Mineral exploration and extraction, road construction, harassment by low flying aircraft, and other human disturbances near lambing grounds had potential detrimental effects on Dall sheep populations (Nichols 1975, Hoefs and Barichello 1985, Poole and Graf 1985). Human development, especially in valley areas, may function to limit bighorn movements between mountain ranges occupied by bighorn sheep and become a critical factor in determining their long-term conservation prospects. In Region 2, human disturbance to bighorns occurs primarily on their winter ranges as a result of winter recreational activities, development projects at lower elevations (Linstrom 2005b; see also discussion on Waterton Canyon herd), and the presence of high traffic roads through areas used by sheep. At this point, the effects of human disturbance on bighorn sheep appear to vary considerably among areas, and managers should consider this treat on a case-by-case basis.” (Beecham 2007, page 37-38).

Two analyses were completed to display the potential impacts of the travel management plan alternatives on bighorn sheep. The first analyzed the road and trail densities on all habitat identified by the CDOW as bighorn sheep range on the White River National Forest (table BE-10). The second analyzed the road and trail densities on those portions of the White River National Forest designated as Management Area 5.42, Bighorn Sheep Habitat, in the Forest Plan (Table BE-11).

Table BE-10. Forest-wide bighorn sheep overall range analysis of roads and trails, by use type, by alternative

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.37	0.37	0.26
Mechanized	0.10	0.10	0.04
Motorized/mechanized	0.47	0.47	0.29
Foot/horse	0.46	0.46	0.50
Total	0.93	0.93	0.79
Scheduled for decommission (reduction in density)	0.00	0.13	0.26

Approximately 863 square miles of potential habitat were analyzed for this species.

Table BE-11. Bighorn sheep analysis of roads and trails, by use type, by alternative, in Management Areas 5.42

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.07	0.07	0.06
Mechanized	0.02	0.02	0.02
Motorized/mechanized	0.08	0.08	0.08
Foot/horse	0.47	0.47	0.47
Total	0.55	0.55	0.55
Scheduled for decommission (reduction in density)	0.00	0.08	0.07

**Approximately 264 square miles of potential habitat were analyzed for this species.*

Authorized uses under Alternatives A and F are identical. Alternative G slightly reduces motorized routes, but mechanized and foot/horse route density remains the same. Because of planned decommissioning and rehabilitation of travelways, both F and G would result in fewer miles of roads and trails than under the current, existing situation.

Determination

Normal recreation use has not been identified as a risk factor for bighorn sheep from either motorized or non-motorized uses during either summer or winter. Some displacement can occur in areas of high public use, but bighorns are known to be fairly adaptive of human disturbances. There is a potential for individual sheep to be killed while crossing roads throughout the forest. This potential is expected to remain the same regardless of the alternative, and it may be slightly less than under the existing situation because of the decommissioning of many unauthorized roads and trails under all alternatives. No other impacts on bighorn sheep are expected to occur from the proposed action or any of the alternatives. The determination for all alternatives is **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

Birds

Bald Eagle

No active or historical bald eagle (*Haliaeetus leucocephalus*) nests or winter roosts occur on the White River National Forest, although several nests occur within a few miles of the forest. A pair of bald eagles was documented at a nest site on the Forest on April 20, 2006. This pair was seen perched on a nest previously successfully used by osprey in past years. There was no activity indicating that the eagles had laid eggs at this nest this season. Most eagles nesting in this portion of the state have hatched young by mid-April, so it is assumed that this pair is early in territory establishment and may continue to use this nest in the future. The nest site was monitored in 2007 and the eagles were also on the nest, but no actual nesting activity was documented. No eagles were seen at the nest site during the spring of 2008.

The major impacts on bald eagles are recreation activities that may affect eagle foraging behavior associated with the larger reservoirs on the forest (USDA Forest Service/White River National Forest 2002b). The alternatives may change the amount of recreation use of some of these reservoirs through increasing or decreasing public access. Habitat manipulation that may affect important eagle habitats is not a portion of any alternative. Potential impacts associated with the proposed action and all alternatives are confined to the impacts associated with harassment, either intentional or unintentional, and displacement from preferred habitats due to human presence. Bald eagles that use areas frequented by humans may become accustomed to the existing level of disturbances. New or changed uses may result in changed behavior by eagles, including avoidance.

The alternatives for the travel management plan vary in the locations and types of travel-related access provided within bald eagle habitats (table BA-6). These alternatives are discussed below as they relate to the large river systems and reservoirs on the forest where potential impacts on eagles may occur.

Eagles have been documented to forage on carrion on big game winter ranges on the forest. This use is felt to be secondary to the use of the large river systems throughout the area. Although the alternatives do vary in the number and miles of roads and trails associated with big-game winter ranges on the forest, the differences are minor and would not affect eagle use of these areas to any great extent. Eagles foraging on the carcass of a big-game animal on the winter range may be displaced as recreationists travel on designated routes; however, the birds would normally return to normal behavior

as soon as the disturbance is removed. Because of planned decommissioning of roads and trails, all alternatives would result in an overall reduction in the number of miles of roads and trails in potential bald eagle habitats.

Summer

The summer season analysis for this species was the same as for river otter, above. The major river systems on the forest were buffered by one-half mile to account for animals foraging outside the immediate riparian zone.

Table BA-12. Winter motorized and non-motorized routes and play areas within one-half mile of the major river systems on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.17	1.17	1.14
Mechanized	0.20	0.20	0.24
Motorized/mechanized	1.36	1.36	1.39
Foot/horse	0.44	0.44	0.40
Total	1.80	1.80	1.79
Scheduled for decommission (reduction in density)	0.00	0.37	0.28

Approximately 54 square miles of potential habitat were analyzed for this species.

Authorized uses under alternative F are similar to alternative A. Alternative G reduces motorized use by 1 mile, increases mechanized use by 1.5 miles and decreases foot/horse access by 2 miles. Planned decommissioning and rehabilitation of travelways would reduce open travelway density in alternatives F and G when compared to the current, existing situation.

The forest plan provides direction that includes significant protection for riparian areas that would be the primary habitat for bald eagle on the White River National Forest. This direction includes watershed conservation practices (WCP) standards and guidelines (USDA Forest Service Handbook); riparian protection standards and guidelines for grazing (USDA Forest Service/White River National Forest 2002a, page 2-11); and standards for protection of sensitive species and their habitats (USDA Forest Service/White River National Forest 2002a, page 2-19). The newly documented potential nest area described above would not be affected by any of the alternatives.

Winter

The major river systems potentially used by bald eagles would not be affected by decisions under any of the alternatives being considered. These rivers are all adjacent to major transportation systems such as federal or state highways that are plowed through the winter to provide for public access. No major changes are identified for any of these areas under any of the alternatives.

Determination

No direct impacts on bald eagle habitat are expected to occur under any of the alternatives under either summer or winter conditions. Bald eagles may be displaced from potential habitats during periods of time when human uses are occurring.

Most of the important habitats for bald eagles are located on private lands along the major river corridors adjacent to the White River National Forest. No impacts on the river

corridors, reservoirs, and lakes on the forest would result from any alternative. The riparian protection direction included in the forest plan, coupled with the lack of direct habitat alterations under all alternatives and the overall reduction in road and trail densities over the existing situation, indicate a low likelihood of detrimental impacts on this species from the proposed action or any alternatives, especially during the summer months. During the winter months, eagles may be temporarily displaced from portions of preferred habitats during periods of recreation use of the riparian corridors. This displacement is expected to be short-term, occurring only during the actual period of recreation use; displacement is expected to be limited to the immediate vicinity of the human use. Other suitable habitats for any displaced wintering bald eagles are found throughout the general area of the forest.

Some eagles do forage over big-game winter ranges on the forest, and changes to the use of those winter ranges are included under some of the alternatives associated with this draft environmental impact statement. Since no ground-disturbing activity is proposed, no eagle habitat would be directly affected by the proposed action or any alternatives. It is possible that an eagle may occasionally be displaced from foraging in habitats associated with the winter ranges on the forest because of human use of motorized and non-motorized transportation on the designated routes and play areas, especially within the 5.41 management areas on the forest. This displacement would be minor and eagles would return to favored habitats and normal behavior patterns as soon as the displacement activities cease. Overall mileage of roads and trails open to human uses on the White River National Forest would decrease in comparison to the existing situation under all the alternatives. Human use of winter range areas will be regulated under the forest plan direction for these areas and the effects of any displacement will be minor and short-term. Because of the low level of potential impacts and the small likelihood of displacement occurring, the effects of the proposed action and all alternatives would be insignificant and discountable. Therefore, the determination for bald eagle is **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

White-tailed Ptarmigan

The white-tailed ptarmigan (*Lagopus leucurus*) was not covered by the BE for the forest plan. The white-tailed ptarmigan inhabits alpine tundra, rocky alpine slopes and high meadows. In winter, the ptarmigan will migrate elevationally to forage among willows, either above timberline or in subalpine sites near tundra regions. Under extreme winter conditions, they may venture as low as 8,000 feet along streams lined by willows or alders. Summer habitat is above timberline or in subalpine sites near tundra regions. Ptarmigan nest among rock fields or tundra grasses adjacent to sheltering rocks. A small percentage of white-tailed ptarmigan may nest among willow or krummholz. Pair formation begins in late April when females return to the breeding grounds; they lay four to eight eggs in early June. Construction of high-elevation reservoirs, wild herbivore grazing, domestic livestock grazing, road construction along stream courses, and outdoor recreation such as ski area development and snowmobile activity can all reduce the availability of white-tailed ptarmigan winter forage (Andrews and Righter 1992, Kingery 1998). White-tailed ptarmigan have been documented nesting in the Flat Tops on the Blanco Ranger District and along the Continental Divide on the Aspen, Sopris, Holy Cross, and Dillon ranger districts.

Summer

The analysis for this species (table BE-13) considered the potential impacts on areas identified as being in the alpine life zone, specifically alpine willow habitats. Two different analyses were used to evaluate potential impacts from the proposed action; the first looked at all lands within the alpine zone and the second focused only on areas mapped as alpine willow in the forest GIS coverages.

Alpine areas are defined as areas that rise above the cold limits of trees. There are approximately 304,000 acres (475 square miles) of alpine habitats on the White River National Forest. These areas have severe weather conditions with very short growing seasons. Soils are generally very shallow and take many years to reestablish following disturbances.

The forest plan specifically identified direction to add to the protection of alpine areas of the forest (USDA Forest Service/WRNF 2002a, USDA Forest Service/WRNF 2006a).

Table BE-13. Travelway densities by alternative for lands within the alpine habitats on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.11	0.11	0.10
Mechanized	0.07	0.07	0.06
Motorized/mechanized	0.18	0.18	0.16
Foot/horse	0.26	0.26	0.26
Total	0.44	0.44	0.42
Scheduled for decommission (reduction in density)	0.00	0.00	0.03

Approximately 475 square miles of potential habitat were analyzed for this species.

Within alpine habitats, alternative F does not change any authorized travelways from Alternative A. Alternative G reduces motorized use by about 3 miles, mechanized by 7 miles and foot/horse by 3 miles. Planned decommissioning of travelways would reduce open travelway density in Alternative G when compared to the current, existing situation and Alternative F.

Of the estimated 475 square miles of alpine area (304,000 acres) on the White River National Forest, approximately 50 square miles (32,000 acres) are mapped as containing willow communities in the riparian-non-forested GIS coverage. The analysis completed for alpine willow (table BE-14) assessed the number of miles of roads and trails open to the differing types of use where they crossed alpine willow communities by alternative.

Table BE-14. Travelway densities by alternative for lands within the alpine willow communities on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.15	0.15	0.15
Mechanized	0.14	0.14	0.15
Motorized/mechanized	0.30	0.30	0.30
Foot/horse	0.41	0.41	0.47
Total	0.71	0.71	0.77
Scheduled for decommission (reduction in density)	0.00	0.17	0.12

Approximately 53 square miles of potential habitat were analyzed for this species.

For alpine willow communities, alternative F and A are identical. Alternative G would increase mechanized road and trail density over alternative A and F by 0.08 miles and would all a total of approximately 3.2 miles of foot and horse travelways. Planned decommissioning and rehabilitation of travelways would reduce open travelway density in all the alternatives when compared to the current, existing situation.

The forest plan contains direction that would result in additional protection for alpine communities above those that existed prior to the revision effort. This direction includes the rangeland ecosystem management standards and guidelines covering general livestock management (USDA Forest Service/White River National Forest 2002a) and alpine standards and guidelines (USDA Forest Service/White River National Forest 2006a). These standards and guidelines are all specifically designed to maintain alpine ecosystems and help to protect white-tailed ptarmigan habitats.

Winter

Winter travel routes should not affect alpine willow communities because these routes are established to avoid areas of vegetation that would potentially be affected. Play areas that are used by skiers or snowmobilers and that overlap alpine willow areas may incur some detrimental impacts on plants. The level of impacts would depend on the snow depth at the time of the use and on the type and amount of use. It is not possible to quantify the level of potential impacts but it is expected to be very low. On developed ski areas some impacts to suitable ptarmigan habitat may occur from snow compaction activities and disturbances from human uses.

Determination

Alternatives F and G would reduce overall travelway densities when compared to the existing situation. Over time, many of these decommissioned travelways will be reclaimed to native vegetation, which will improve habitat characteristics for ptarmigan and other alpine-dwelling species. Of the alternatives, alternative F would result in the least motorized use, which would be the most beneficial for wildlife species using these areas. Impacts from the minor increases in mechanized and foot/horse use in Alternative G would be impossible to measure. Motorized and mechanized use would be limited to designated travelways on existing routes, and most foot and horse use would be on established trails. This type of use is not expected to lead to direct impacts on populations or individuals of white-tailed ptarmigan. Some disturbance to ptarmigan is possible because of the continued recreation use of suitable habitats by motorized, mechanized, and foot/horse travel. Some disturbance impacts may result from winter recreation use of

areas being used by ptarmigan. The determination for the proposed action under all alternatives is **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

Columbian Sharp-tailed Grouse

The Columbian sharp-tailed grouse (*Tympanachus phasianellus columbianus*) was not covered by the BE for the forest plan. The Columbian sharp-tailed grouse inhabits mid elevation mountain sagebrush and grasslands habitat, usually adjacent to forested areas. Dancing areas (leks) are located in open areas with short or sparse vegetation. Nests are usually within a half-mile of a lek, under a shrub or tree or within a few feet of shrub cover. Males first visit the lek in the fall and begin lek dancing in early April in the mountains, continuing into June. Females arrive in mid to late April to select mates. Eggs are olive to dark buff brown with slight purplish tint when first laid. Populations of the Columbian race fluctuate in numbers considerably from year to year; however, over the long term the populations appear stable, based on data from lek counts. This subspecies now occurs only in isolated pockets across former range. They once occurred across the western slope; today they inhabit a few spots in five western slope counties (Andrews and Righter 1992, Barrett and Overly 1992, Kingery 1998). They are documented as probable breeders in Rio Blanco County, with potential habitat on the northwest corner of the Blanco Ranger District. Columbian sharp-tailed grouse were found historically on Oak Ridge on the Blanco District and the Lower Blue River on the Dillon Ranger District.

Summer

The analysis for this species (table BE-15) included the number of miles of roads and trails, by use type, within the Aldridge Lakes Lynx Analysis Unit (determined to be a good representation of the potential range for Columbian sharp-tailed grouse).

Table BE-15. Travelway densities by alternative for lands within potential sharp-tailed grouse habitat on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.42	1.42	1.36
Mechanized	0.57	0.57	0.03
Motorized/mechanized	1.99	1.99	1.38
Foot/horse	0.02	0.02	0.55
Total	2.00	2.00	1.93
Scheduled for decommission (reduction in density)	0.00	0.05	0.09

Approximately 38 square miles of potential habitat were analyzed for this species.

Authorized uses are the same under alternatives A and F. Alternative G would decrease motorized (2 miles) and mechanized mileage (20 miles, 95%) over alternative A and F (approximately 1 mile total). Foot/horse routes would increase by 20 miles in Alternative G. Planned decommissioning and rehabilitation of travelways would reduce open motorized and mechanized travelway density in alternatives F and G, when compared to the current, existing situation.

Winter

Suitable winter sharp-tailed grouse habitat is below the area generally used by winter recreationists. Therefore, no changes in the potential impacts on this species are expected to occur because of the proposed action concerning winter uses.

Determination

Because no direct habitat impacts would result from the proposed action, because there will be decreased motorized and mechanized opportunities would result from alternative G in any potential habitat areas, and because foot and horse traffic has not been identified as a detrimental risk factor for Columbian sharp-tailed grouse, the determination for all alternatives is **NO IMPACT**.

Sage Sparrow

The sage sparrow (*Amphispiza belli*) was not covered by the BE for the forest plan. The sage sparrow nests primarily in 1- to 3-foot high sagebrush stands that line hills and basins in large unbroken stands. It is seldom seen in the tall sagebrush that lines damp drainages, or in the short mountain sagebrush that grows at high elevations. This migrant bird begins to arrive in late February and is on breeding territories by March. In migration sage sparrows move through the lower elevation greasewood stands. This sagebrush obligate is known to occur only on the Rifle Ranger District, where it breeds very near to the forest boundary on Bureau of Land Management (BLM) land along the Sunnyside road. A local population on private lands near Eagle was recently extirpated because of loss of habitat to commercial and residential development.

Winter

Sage sparrows are migratory and will not be directly affected by any winter use of the forest. No sage sparrow habitats will be detrimentally impacted by any of the alternatives.

Determination

All known and suspected habitat for sage sparrow on the White River National Forest is within the Lower Battlement Mesa Research Natural Area on the Rifle Ranger District. No motorized or mechanized use and no new trails are allowed or proposed within RNAs. This portion of the forest has very poor public access and receives very little recreation or other use throughout the year. There will be no changes to the existing situation due to the proposed action. The determination for all alternatives is **NO IMPACT**.

Northern Harrier

The northern harrier (*Circus cyaneus*) was not covered by the BE for the forest plan. The northern harrier nests in a wide variety of open grasslands, wet meadows, and shrublands at all elevations. Most nest at elevations from 6,000 to 8,000 feet but they also nest at other elevations, from below 5,000 feet to mountain grasslands on the Flat Tops at more than 10,000 feet. For breeding and hunting, harriers select parts of the habitat with dense cover such as swales, draws, fencerows, and canal banks. Because of their well-developed auditory capability, harriers can find their prey in dense vegetation. They fly low over a field listening and watching for prey. Nests are built of dry sticks, straw, weed stems, and grasses, on the ground or often on top of a low bush. Harriers arrive from winter grounds in March and April and depart in October and November. They nest from April through July. Harriers have been reported in Garfield, Rio Blanco, and Eagle

counties on the White River National Forest. Breeding Bird Atlas data showed few blocks with harriers at high elevations and in dry areas (Andrews and Righter 1992, Barrett and Overly 1992, Kingery 1998). Harriers are known to nest in wet meadows, sagebrush, and montane shrub on the lower Flat Tops.

Summer

For this analysis, two habitat types were considered—shrublands and grass/forb habitats (tables BE-16 and BE-17). Both these evaluations cover a much wider range of elevations and wider distributions than harriers would be expected to use; however, they are considered to be adequate for the purposes of assessment of the potential impacts of the proposed action on this species.

Table BE-16. Travelway densities by alternative for lands within potential harrier habitats within shrubland habitats on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.99	0.99	0.85
Mechanized	0.27	0.27	0.18
Motorized/mechanized	1.26	1.26	1.03
Foot/horse	0.33	0.33	0.41
Total	1.59	1.59	1.44
Scheduled for decommission (reduction in density)	0.00	0.33	0.44

Approximately 434 square miles of potential habitat were analyzed for this species.

For authorized uses within shrubland communities that may support this species alternative F and A are identical. Alternative G reduces motorized and mechanized road and trail density, and increases foot and horse density over alternative A. Planned decommissioning of travelways would reduce open travelway density in all the alternatives.

Table BE-17. Travelway densities by alternative for potential harrier habitat within the grass/forb meadow habitats on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.86	0.86	0.74
Mechanized	0.24	0.23	0.17
Motorized/mechanized	1.10	1.09	0.91
Foot/horse	0.61	0.61	0.65
Total	1.70	1.70	1.57
Scheduled for decommission (reduction in density)	0.00	0.33	0.46

Approximately 557 square miles of potential habitat were analyzed for this species.

Within grass/forb habitats, alternatives A and F allow approximately the same authorized uses. Alternative G would reduce a total of approximately 65 miles of motorized travelways and 35 miles of mechanized routes, while adding approximately 25 miles of foot and horse access. Planned decommissioning and rehabilitation of travelways would reduce open travelway density in alternatives F and G when compared to the current, existing situation.

Winter

The northern harrier is a migratory species and would not be affected by any of the activities associated with winter use of the forest. No harrier habitat would be affected by winter uses.

Determination

Continued recreation use of the forest may result in a minor level of disturbance to northern harriers throughout the summer months when the birds may be present on the forest. The level of this disturbance is expected to be so minor as to be immeasurable. Based on the assumptions listed earlier in this document and on the fact that alternatives F and G would result in an overall reduction in travelway density over the existing situation, the determination for these alternatives for the effects of the proposed action on the northern harrier is **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

American Peregrine Falcon

The American peregrine falcon (*Falco peregrinus anatum*) was not covered by the BE for the forest plan. Peregrine falcons occur throughout western Colorado as a spring and fall migrant in western valleys, foothills, lower mountains, and mountain parks.

Peregrines nest on high precipitous cliffs and river gorges. They forage over adjacent coniferous and riparian forests and at times in other habitats. Peregrine falcons prefer to nest in a shallow depression scraped in gravel or debris on high cliff ledges. They will also use old stick nests from ravens and hawks. Peregrines rarely nest above 8,500 feet. These falcons nest from March to June, arriving in March and departing in October. Migrants and winter residents occur mostly around reservoirs, rivers, and marshes; however, they may also be seen in grasslands, agricultural areas, and less often in other habitats. Peregrine numbers in Colorado plummeted in the 1950s and 1960s because of eggshell thinning due to the use of DDT, reaching a low in 1977 when only four nesting pairs were recorded in the state. The number of active sites and young birds produced increases annually in Colorado largely because of intensive recovery and release efforts (Andrews and Righter 1992, Kingery 1998). Breeding peregrines have been documented on the Rifle, Holy Cross, Eagle, Dillon, and Sopris ranger districts.

The peregrine is a habitat specialist concerning nesting habitat and somewhat of a generalist in choice of foraging habitats. They nest only on high cliffs but feed over a wide range of habitats. It was not possible to identify specific habitats that could be analyzed through the GIS system for this species.

Summer

Overall, there will be reduced road/trail density across the forest for alternatives F and G when compared to the current, existing situation.

Nesting peregrines are susceptible to nest-site disturbance from recreational rock climbers. None of the alternatives are expected to increase this type of activity or disturbance. Forest plan direction specifically protects raptor nesting areas (USDA Forest Service/White River National Forest 2002a, page 2-17). General public use of roads and trails across the forest is not expected to lead to increases in any type of activity that would be detrimental to nesting or foraging peregrine falcons.

Winter

Peregrines are migratory and would not be affected by any activities associated with winter travel alternatives on the forest. No peregrine habitat would be affected by winter travel uses.

Determination

The forest plan contains direction specifically to protect nesting raptors (USDA Forest Service/White River National Forest 2002a, pages 2-17 and 2-19). Implementation of this direction will provide adequate protection for nesting peregrines from the types of activities that may be associated with the proposed action. There would be no impacts on peregrine habitat from any of the alternatives. No increases in disturbance activities are expected from the alternatives. The determination for the peregrine falcon for all alternatives is **NO IMPACT**.

Brewer's Sparrow and Northern Sage-grouse

Brewer's sparrow

The Brewer's sparrow (*Spizella breweri*) was not covered by the BE for the forest plan. This bird inhabits sagebrush-dominated (primarily big sagebrush) shrublands and mountain parks. They may also be found in timberline willow stands (Kingery 1998). Colorado Breeding Bird Atlas locations for Brewer's sparrow indicate preference for sagebrush of middle heights. Moderate, incomplete burns in sagebrush (typical of prescribed fires) do not harm important components of nesting habitat. In the sagebrush community, Brewer's sparrows take on the foliage-feeding position, while sage and vesper sparrows, their close associates, forage mostly on or from the ground. Brewer's sparrows start to arrive on breeding grounds in mid April. Nests are found in large, living sagebrush averaging from 16.5 to 41 inches tall. They typically lay three to five eggs. After fledging, the Brewer's sparrow family often moves to higher elevations, mixing with other species, especially chipping sparrows, before beginning fall migration. Colorado Breeding Bird Atlas information showed the largest concentration of this sagebrush-obligate to be concentrated in the counties with the most sagebrush—Moffat, Rio Blanco, Jackson, and Gunnison. They are confirmed nesters in Garfield, Eagle, Pitkin, and Summit counties on the White River National Forest (Andrews and Righter 1992, Kingery 1998). Brewer's sparrows have been documented in large sagebrush areas on the White River Plateau on the Eagle, Blanco, and Rifle districts; near DeBeque; and in the Alkali Creek drainages on the Rifle Ranger District.

Northern Sage-grouse

The northern sage-grouse (*Centrocercus urophasianus*) was not covered by the BE for the forest plan. Although historical records indicate that sage-grouse were found in suitable habitat across the forest, they have been extirpated across much of their range. The White River National Forest has never had the wide expanses of sagebrush necessary to support large, viable populations of sage-grouse. All populations of sage-grouse on the forest have depended on the large expanses of sagebrush found on adjacent BLM and private lands. Sage-grouse are currently found in small numbers only on the Eagle and Dillon ranger districts.

Summer

The analysis for sage-grouse and Brewer's sparrow (table BE-18) included all the roads and trails located within areas mapped as sagebrush in the White River Vegetation GIS

coverage. This is a much larger area than is currently occupied by either of these species on the Forest, but is considered to give the best estimate of potential impacts to these species.

Table BE-18. Travelway densities by alternative for lands within the sagebrush communities on the White River National Forest*

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.64	1.64	1.28
Mechanized	0.27	0.27	0.18
Motorized/mechanized	1.91	1.91	1.47
Foot/horse	0.29	0.29	0.38
Total	2.20	2.20	1.85
Scheduled for decommission (reduction in density)	0.00	0.49	0.75

Approximately 73 square miles of potential habitat were analyzed for this species.

Within sage-grouse and Brewer’s sparrow habitat, alternatives A and F provide the same authorized uses. Alternative G reduces motorized use by 26 miles (21%) and mechanized by 6 miles (35%). Foot and horse access is increased by 6 miles on current, established routes. Planned decommissioning and rehabilitation of travelways would reduce open travelway density in alternatives F and G when compared to the current, existing situation.

Sagebrush habitats would not be directly affected by any of the decisions proposed under this draft environmental impact statement; however, some sagebrush areas may benefit in the long term from road and trail decommissioning planned under some alternatives. This decommissioning would result in the eventual reestablishment of those areas into native vegetation with the added benefit of fewer disturbances from human uses. The literature does not indicate concerns about disturbance effects from motorized use of roads or trails in sagebrush areas for Brewer’s sparrow or for sage-grouse, outside of mating season for sage-grouse when birds are on leks. One existing lek for sage-grouse is documented on National Forest System lands on the Dillon Ranger District. This lek is not located adjacent to any existing roads or trails. Disturbance effects from the use of roads or trails are expected to be minimal for both of these species under all alternatives.

The forest plan contains direction that results in additional protection for sagebrush-dependent wildlife resources above those that existed prior to the revision effort. This direction includes the rangeland ecosystem management standards and guidelines covering general livestock management (USDA Forest Service/White River National Forest 2002a, page 2-10 to 2-11); and sage-grouse and Brewer’s sparrow standards and guidelines (USDA Forest Service/White River National Forest 2002a, page 2-25 to 2-26). These standards and guidelines all are specifically designed to maintain sagebrush habitats in a condition that will provide suitable habitat for these species.

Winter

Brewer’s sparrows are migratory and will be gone from the forest during the period of time winter travel is occurring. Winter motorized travel may affect sagebrush areas through impacts associated with direct crushing or compacting of snow. These impacts are expected to be minor across the existing range of sagebrush on the Forest. There minor impacts may result in immeasurable impacts to Brewer’s sparrow from winter travel management alternatives.

For sage-grouse, no significant winter impacts on habitat are expected from any of the alternatives being considered. The great majority of the sagebrush areas that have the potential to support sage-grouse are located within management areas that provide additional protection from disturbances associated with winter recreation use (management areas 5.41 and 5.43). Winter uses of these management areas are restricted to designated routes and play areas. It is not anticipated that sage-grouse populations will be subject to measurable disturbance impacts under any of the proposed alternatives.

The proposed action is not expected to change either population or habitat trends for these species at the forest level for the following reasons:

- The lack of significant direct detrimental habitat alterations from the proposed action;
- The protection direction included in the forest plan for the habitat of these species;
- The low likelihood of increased recreational disturbance impacts associated with any of the alternatives;
- The limited changes in the overall miles of travelways for all alternatives;
- The overall reduction in road and trail densities for all alternatives over the existing situation due to future decommissioning efforts; any direct habitat enhancement that results from the decommissioning of travelways would be too minor to allow meaningful analysis of either habitat or population trends.

Determination

Because sagebrush habitat would not be significantly directly adversely affected under any of the alternatives proposed in this supplemental draft environmental impact statement; because forest plan standards provide protections to sagebrush resources; because of the amount of planned decommissioning of existing routes that will result in long-term beneficial results; and because there is limited potential for impacts on individuals or populations because of the limited scope of the changes associated with the proposed action, the determination for Brewer's sparrow and northern sage-grouse for all alternatives is **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

Northern Goshawk

The northern goshawk (*Accipiter gentiles*) is covered in the BE for the forest plan; life history and other general information can be found in that document (USDA Forest Service/WRNF 2002a). The goshawk is a forest raptor that depends on forested stands with dense canopy closure. It has been documented throughout the White River National Forest in suitable habitat. The major risk factor identified for the goshawk is vegetation management that reduces nesting habitat values. On the White River National Forest, nests have been found mostly in stands of mixed aspen and conifer.

Because of the rather wide range of habitats used for nesting and foraging, the analysis for this species included all forest acres (table BE-19).

Table BE-19. Travelway densities by alternative for lands within the forested habitats on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.47	0.47	0.42
Mechanized	0.20	0.20	0.17
Motorized/mechanized	0.67	0.66	0.58
Foot/horse	0.35	0.35	0.36
Total	1.01	1.01	0.95
Scheduled for decommission (reduction in density)	0.00	0.00	0.25

Approximately 2226 square miles of potential habitat were analyzed for this species.

Within forested habitats, alternative F decreases mechanized access by approximately 5 miles forest-wide, while increasing foot/horse use by 4 miles. Alternative G decreases motorized travelways by 110 miles and mechanized by 69 miles. This alternative increases foot/horse by 39 miles. Planned decommissioning and rehabilitation of travelways would reduce open travelway density in all the alternatives when compared to the current, existing situation.

Winter

The northern goshawk does migrate at times but is also found near its summer territory if prey remains available during the winter months. Winter recreation use has not been identified as a risk to goshawk. There would be no expected detrimental impacts on the species from winter use of roads or trails on the forest under any of the alternatives.

Determination

There will be no new road or trail construction under any of the alternatives. Some disturbance impacts due to human use of roads and/or trails through occupied goshawk territories are possible, especially during the nesting season. This disturbance is expected to be very localized and restricted to the actual time humans are using the immediate area of a nesting territory, with birds returning to normal behavior as soon as the humans leave the area. General recreation use of forest roads and trails has not been identified as a detrimental risk factor for the goshawk. The decommissioning and rehabilitation of travelways would reduce overall travelway densities in alternatives F and G. Overall, for these alternatives, the determination is **MAY IMPACT INDIVIDUALS BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

Boreal Owl

The boreal owl (*Aegolius funereus*) is covered in the BE for the forest plan; life history and other general information can be found in that document (USDA Forest Service/White River National Forest 2002a) The boreal owl is a forest raptor that depends on forested stands with dense canopy closure. It has been documented on the White River National Forest in suitable habitat. The major risk factor identified for the boreal owl is vegetation management that reduces nesting habitat values, especially nesting cavities.

The analysis for boreal owl included the roads and trails by use type on all the acres of conifer forest types across the White River National Forest (table BE-20).

Table BE-20. Travelway densities by alternative for lands within boreal owl habitat on the White River National Forest.

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.49	0.49	0.44
Mechanized	0.21	0.21	0.19
Motorized/mechanized	0.70	0.70	0.63
Foot/horse	0.37	0.37	0.38
Total	1.06	1.07	1.00
Scheduled for decommission (reduction in density)	0.00	0.26	0.32

This analysis was based on habitats that support snowshoe hare and lynx with the assumption that this closely represents boreal owl habitat on the White River National Forest.

Approximately 1786 square miles of potential habitat were analyzed for this species.

Alternative F would slightly decrease the miles of mechanized use (approximately 1 mile) over alternative A and would increase foot/horse use by 3 miles across the potential habitat for the boreal owl. Alternative G would reduce about 92 miles of motorized routes and about 34 miles of mechanized use while increasing foot and horse use by 16 miles. Because of planned decommissioning and rehabilitation of travelways, all alternatives would result in fewer miles of roads and trails than under the current, existing situation.

Winter

There are no anticipated impacts on this species from any of the winter use alternatives. There would be no direct impacts to boreal owl habitat under any of the alternatives. The majority of its habitat is inaccessible to normal modes of transportation during the winter months due to vegetation and topology, and there is no indication that the species would be affected by recreational or administrative use of the forest during winter.

Determination

There would be no direct impact on boreal owl habitat under any of the alternatives being considered. Boreal owls are tree roosting and nesting owls that have not been documented to be detrimentally affected by general use of roads or trails. No disturbance impacts are expected to occur under any of the alternatives. Since no habitat would be affected and the boreal owl would not have disturbance impacts under the proposed actions, the determination for all alternatives is **NO IMPACT**.

Flammulated Owl

The flammulated owl (*Otus flammeolus*) is covered in the BE for the forest plan; life history and other general information can be found in that document (USDA Forest Service/WRNF 2002a). The flammulated owl is a forest raptor that depends on forested stands with dense canopy closure. It has been documented on the White River National Forest in suitable habitat. The major risk factor identified for the flammulated owl is fire suppression and logging of older forests that reduces nesting habitat values, especially nesting cavities.

Winter

The flammulated owl is a migratory species and would not be affected by any winter use of roads or trails under any of the alternatives being considered. None of its habitat would be directly affected by any of the proposed actions.

Determination

There would be no direct impact on flammulated owl habitat under any of the alternatives being considered. Flammulated owls are tree roosting and nesting owls that have not been documented to be detrimentally affected by general use of roads or trails. No disturbance impacts are expected to occur under any of the alternatives. Since no habitat would be affected and the flammulated owl would not have disturbance impacts, the determination for under the proposed actions, all alternatives is **NO IMPACT**.

Olive-sided Flycatcher

The olive-sided flycatcher (*Contopus borealis*) is covered in the BE for the forest plan; life history and other general information can be found in that document (USDA Forest Service/WRNF 2002a). The olive-sided flycatcher is a forest edge species that has been showing population declines across its range. The reasons for the decline have not been identified. One possible risk factor is the removal of snags used for perching and foraging.

The analysis of changes to travel management completed for boreal owl (see above, table BE-20 and associated narrative) would be appropriate to consider for this species as well.

Winter

The olive-sided flycatcher is a migratory species and is absent from the forest during winter. Therefore, it would not be affected by any winter use of roads or trails under any of the alternatives being considered. None of its habitat would be directly affected by any of the proposed actions.

Determination

There would be no direct impact on olive-sided flycatcher habitat under any of the alternatives being considered. These birds have not been documented to be detrimentally affected by general use of roads or trails. No disturbance impacts are expected to occur under any of the alternatives. Since no habitat will be affected and the olive-sided flycatchers will not experience disturbance impacts, the determination for all alternatives is **NO IMPACT**.

American Three-toed Woodpecker

The American three-toed woodpecker (*Picoides tridactylus*) is covered in the BE for the forest plan; life history and other general information can be found in that document (USDA Forest Service/WRNF 2002a). The three-toed woodpecker is a cavity nester that prefers spruce-fir forests.

Summer

The analysis completed for boreal owl (see above, table BE-20 and associated narrative) would be appropriate to consider for the three-toed woodpecker as well. There would be no direct habitat alterations under any of the alternatives being considered. This species

has not been reported in the literature to be susceptible to disturbance from normal recreation and administrative use of forest roads and trails.

Winter

There would be no direct habitat impacts under any of the alternatives being considered. The American three-toed woodpecker has not been reported in the literature to be susceptible to disturbance from normal winter recreation and administrative use of forest roads and trails. None of its habitat would be directly affected by any of the proposed actions.

Determination

There would be no direct impact on three-toed woodpecker habitat under any of the alternatives being considered. These birds have not been reported in the literature to be detrimentally affected by general use of roads or trails. No disturbance impacts are expected to occur under any of the alternatives. Since no habitat will be affected and three-toed woodpeckers would not experience disturbance impacts, the determination for this species for all alternatives is **NO IMPACT**.

Lewis' Woodpecker

The Lewis' woodpecker (*Melanerpes lewis*) is covered in the BE for the forest plan; life history and other general information can be found in that document (USDA Forest Service/WRNF 2002a). This species is found in the mature ponderosa forests and cottonwood galleries along the major rivers in western Colorado. The primary risk factor identified for this species is the lack of fire in the ponderosa pine habitats.

Lewis' woodpecker has not been documented on the White River National Forest but is known to occur in the Colorado River and Roaring Fork River Valleys in close proximity to the forest. The White River National Forest has only limited ponderosa pine and few cottonwood galleries of sufficient size to support populations of this species. The Lewis' woodpecker has not been recorded in those stands during formal or informal survey efforts.

The proposed action would not affect any potential habitat for this species under any of the alternatives being considered. The species has not been reported in the literature to be sensitive to human disturbances and several nest in one of the busy river-side parks in downtown Glenwood Springs.

Winter

It is not known whether or not populations in the vicinity of the White River National Forest are migratory in the winter months. Regardless, no potential impacts have been identified for this species under any of the alternatives.

Determination

There would be no direct impact on Lewis' woodpecker habitat under any of the alternatives being considered. These birds have not been reported in the literature to be detrimentally affected by general use of roads or trails. No disturbance impacts are expected to occur under any of the alternatives. Since no habitat will be affected and Lewis' woodpeckers would not experience disturbance impacts, the determination for this species for all alternatives is **NO IMPACT**.

Ferruginous Hawk

The ferruginous hawk (*Buteo regalis*) is covered in the BE for the forest plan; life history and other general information can be found in that document (USDA Forest Service/WRNF 2002a). The ferruginous hawk is a grassland species that is known on the White River National Forest only from incidental sightings during migration. The primary risk factors for the species are conversions of grasslands and prairie dog control programs. Neither of these factors would be a consideration on the White River National Forest because there are no prairie dogs on the forest and the forest does not convert grasslands to croplands.

Winter

The ferruginous hawk is a neotropical migrant and is absent from the forest during the winter months. No impacts to its seasonal habitats on the forest are expected to occur under any of the alternatives. There would be no impact on the species from any of the winter travel management alternatives.

Determination

There would be no direct habitat alterations under any alternative. As the ferruginous hawk is documented from the forest only during migration, no disturbance to breeding or nesting individuals will occur. Normal recreation use of the roads and trails on the forest is not expected to affect any individuals that may be using the forest during migration periods. There will be **NO IMPACT** to this species from any alternative.

Black Swift

The black swift (*Cypseloides niger*) is covered in the BE for the forest plan; further information about life history can be found in that document (USDA Forest Service/WRNF 2002a). The black swift has very specialized habitat requirements for nesting; it nests only in association with waterfalls and often places its nest immediately behind the waterfall itself. Black swifts feed almost exclusively on flying ants. Identified risks to the species include recreational activities on the cliffs associated with the waterfalls.

The forest plan has specific direction that restricts recreational activities that could affect black swift nesting habitats; forest plan direction also maintains water flow and vegetation associated at black swift colonies (USDA Forest Service/WRNF 2002a, page 2-28). This direction is adequate to protect black swift individuals and colonies from impacts associated with forest management activities, including travel management issues. Black swifts are known to successfully nest adjacent to areas receiving heavy recreational hiking use so use of existing trails is not believed to create impacts to this species (Kim Potter, pers. comm.).

Winter

The black swift is a neotropical migrant and is absent from the forest during the winter months. There would be no impact on the species or its habitats from any of the winter travel management alternatives.

Determination

There would be no direct habitat impacts under any of the alternatives. Direction included in the forest plan would provide adequate protection from management activities to

nesting habitat. There should be no increase in disturbance-related activities due to any alternatives. Foraging habitat would not be affected in any way by any alternatives. Therefore, there would be **NO IMPACT** to the black swift under any alternative.

Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus*) is covered in the BE for the forest plan; life history and other general information can be found in that document (USDA Forest Service/WRNF 2002a). This is an open grassland species that sometimes uses open pinyon-juniper woodlands. No specific risk factors have been identified for the shrike on the White River National Forest on in Colorado. Shrikes have been reported in the Coulter Mesa area of the White River National Forest.

Winter

The loggerhead shrike is a neotropical migrant and is absent from the forest during the winter months. There would be no impact on the species or its habitats from any of the winter travel management alternatives.

Determination

There would be no direct habitat impacts from any alternative. The literature does not indicate that this species is sensitive to general recreation and administrative use of forest roads and trails. The likelihood of disturbance resulting in detrimental impacts on individuals or populations is very slim to none. Therefore, the determination for all alternatives for this species is **NO IMPACT**.

Purple Martin

The purple martin (*Progne subis*) is covered in the BE for the forest plan; life history and other general information can be found in that document (USDA Forest Service/WRNF 2002a). This species is a summer resident in western Colorado, nesting in mature aspen stands. No risk factors specific to the White River National Forest have been identified for the purple martin. Vegetation management that affects mature aspen stands has the potential to affect nesting habitat for this species. Melcher and Gross (2001) indicate that populations in the state may be stable.

Winter

The purple martin is a neotropical migrant and is absent from the forest during the winter months. There would be no impact on the species or its habitats from any of the winter travel management alternatives.

Determination

There would be no direct habitat impacts from any alternative. There are no indications in the literature that the purple martin is affected by general recreation use of roads or trails. Since there are no direct or indirect impacts on purple martins from any of the alternatives, there would be **NO IMPACT** to this species.

Insects

Great Basin Silverspot

The Great Basin silverspot (*nokomis nokomis Speyeria*) was not covered by the BE for the forest plan. The Great Basin silverspot butterfly is a large and distinct fritillary that inhabits spring seeps and is associated with marshes with flowing water. It lives in wet meadows and seeps or sloughs at lower elevations, found only where there is permanent moisture sufficient to sustain a healthy violet crop at elevations from 5,200 to 9,000 feet. The Great Basin silverspot has one flight from mid-July to late September. The host plants or substrate plants sought by females for egg placement are specifically violets (*Viola* spp.), which provide food for newly hatched larva. Some populations have disappeared as a result of water diversion projects. The Great Basin silverspot is extremely local, restricted in habitat, and decidedly rare over the major portion of its range (Ferris and Brown 1981, Scott 1986). The Great Basin silverspot is not documented on the White River National Forest. The closest breeding colony is found at Unaweep Seep, on the Uncomphagre Plateau in western Mesa County.

Although the Great Basin silverspot has not been documented on the forest, adequate direction is found in the forest plan to protect potential habitats that may support undiscovered populations. This direction results in additional protection for riparian communities above those that existed prior to the revision effort. These standards and guidelines along with agency direction are designed to maintain high-quality riparian ecosystems on which this species is felt to depend.

Winter

Great Basin silverspots overwinter as eggs or larvae attached to plant detritus. Snowmobile or cross-country skiing use may compact areas where overwintering is occurring but this type of use is not expected to result in compaction rates that affect overwintering eggs or larvae.

Determination

There would be no direct habitat alteration due to the alternatives, and the riparian habitats on which the Great Basin silverspot depends would be protected from detrimental impacts by direction in the forest plan. The determination for this species is **NO IMPACT**.

Amphibians

Boreal Toad

The boreal toad (*Bufo boreas boreas*) is discussed in the BE for the forest plan; life history and other general information can be found in that document (USDA Forest Service/WRNF 2002a). Hydrologic alteration of breeding ponds and the risk of disease are the primary threats to boreal toads from travel management. Little is known about how disease moves through the system but it is logical that increased human contact and disturbance could increase the risk of disease introduction to breeding ponds. The analysis focused on all travelways coming within 300 feet of breeding ponds. In addition to risk of spreading disease, increased motorized and non-motorized use increases the risk of harassment or death of individuals.

There are eleven known breeding boreal toad populations on the WRNF and four more within ½ mile of the Forest (two of the populations on the Forest were not available in GIS at the time this analysis was conducted and will be addressed with narrative) This species is sensitive to disease introduction The analysis for this species included the amount of road or trail and type of use within 300 feet and ½ mile of known breeding locations (Table BE-21). There is no difference between alternatives within 300 feet of any of the boreal toad breeding sites and only one change within ½ mile of the Montezuma population (addition of 0.21 miles of mechanized, non-motorized trail in Alternative G). Although the impact is likely to be reduced since the new trail is not within 300 feet of the breeding population, it is possible that toads venturing away from the wetland may be impacted by this trail. There are two additional populations not in GIS and therefore not included in the analysis presented in Table BE-21 (Upper Homestake Reservoir and multiple locations along Lincoln Creek). For the Upper Homestake population, there is a trail (within the wilderness) that is included in alternative A that would be removed in both alternatives F and G, having a positive effect on this population. There are no other roads or trails within ½ mile of this population. For the Lincoln Creek populations, there are no differences between alternatives to any roads and trails along Lincoln Creek. There remains a possibility that unknown roads or trails may exist within 300 feet and certainly within ½ mile of each of these populations that may not be included in Table BE-21.

Table BE-21. Amount of road or trail and type of use within 300 feet and ½ mile of known boreal toad breeding populations

	Type of use	Vehicle Access (roads)	ATV and motorcycle	Mountain bike	Hiking and stock animals
Alt. A	within 300 ft	0.39	none	0.06	1.03
	within ½ mi	6.9	none	3.08	7.39
Alt. F	within 300 ft	0.39	none	0.06	1.03
	within ½ mi	6.9	none	3.08	7.39
Alt. G	within 300 ft	0.39	none	0.06	1.03
	within ½ mi	6.9	none	3.28	7.39

All units are displayed in miles.

Determination

For alternative F, the only change to any road or trail occurring within a half mile of any known breeding populations on the WRNF is the removal of the existing trail near the Upper Homestake population, which would reduce the risk of disease transmission to this population. Therefore, the determination for **alternative F** in comparison to alternative A the no action alternative is **BENEFICIAL IMPACT** on boreal toad. For Alternative G, the trail discussed near the Upper Homestake population would be removed with Alternative G also, having a beneficial effect on that population as discussed above. However, a new mountain bike trail is proposed within ½ miles of the Montezuma boreal toad breeding populations in Alternative G. Because of the potential for impacting toads dispersing from the breeding pond and increased risk of disease from human activity, the determination for **alternative G** is **MAY IMPACT INDIVIDUALS, BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

Northern leopard frog

The northern leopard frog (*Rana pipiens*) is discussed in the BE for the forest plan; life history and other general information can be found in that document (USDA Forest Service/WRNF 2002a). Hydrologic alteration of breeding ponds and the risk of disease are the primary threats to northern leopard frog from travel management. Little is known about how disease moves through the system but it is logical that increased human contact and disturbance could increase the risk of disease introduction to breeding ponds. The analysis focused on all travelways coming within 300 feet and ½ mile of breeding ponds. In addition to risk of spreading disease, increased motorized and non-motorized use increases the risk of harassment or death of individuals.

There are two known leopard frog breeding populations on the WRNF. The analysis for this species included the amount of road or trail and type of use within 300 feet and ½ mile of known breeding locations (Table BE-22). There are no roads or trails within a half mile of the June Creek population in the no action or either of the action alternatives. For the Sterry Lake population, there is no change between alternative F and alternative A, but roads and ATV trails are removed in alternative G, which would improve leopard frog habitat and reduce the risk of introducing disease.

Table BE-22. Amount of road or trail and type of use within 300 and ½ mile of known leopard frog breeding populations

	Type of use	Vehicle access (roads)	ATV and motorcycle	Mountain bike	Hiking and stock animals
Alt. A	within 300 ft	0.24	0.02	none	none
	within ½ mi	2.53	2.11	none	none
Alt. F	within 300 ft	0.24	0.02	none	none
	within ½ mi	2.53	2.11	none	none
Alt. G	within 300 ft	0.24	none	none	none
	within ½ mi	2.19	0.41	none	none

All units are displayed in miles

Determination

For alternative F, no changes to any roads or trails occur within a half mile of any known breeding populations on the WRNF. Therefore the determination for **alternative F** in comparison to the alternative A the no action alternative is **NO EFFECT** on leopard frog. For alternative G, roads and ATV trails are being closed near the Sterry Lake population. Depending on the type of road closure, there may be additional disturbance to this population in the **short term which could negatively affect the population, however the long-term effect to leopard frog is beneficial.** Because of the potential for shortterm disturbance associated with road and trail closure or obliteration, the determination for **alternative G** is **MAY IMPACT INDIVIDUALS, BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

Fish

Colorado River Cutthroat Trout

The Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*) is discussed in the BE for the forest plan; life history and other general information can be found in that document (USDA Forest Service/WRNF 2002a). Although the primary risk factors for this species are biological (exotic trout species and to some degree disease), roads can further impact these populations by creating barriers to fish movement, degrading habitat by constraining streams and eliminating riparian vegetation, introducing sediment, and by providing angler access possibly leading to non-native fish introduction or the spread of disease (e.g., whirling disease).

There are 32 subwatersheds containing at least one conservation population of Colorado River cutthroat trout. The RFP has a standard stating that total road density in subwatersheds containing conservation populations of Colorado River cutthroat trout may not be increased. Thirty-one watersheds with a conservation population meet that standard. **One watershed (the Blue River around Breckenridge [HUC 140100020506]) meets the standard in alternative F, but not in alternative G.** This subwatershed comprises 11 catchments, two of which contain conservation populations of CRCT. In these two catchments, French Gulch and Spruce Creek, while the analysis shows that the Level 1 roads added, they are only to be used as trails. The recommendation for the final is to accept these level 1 roads as trails to keep the road density down. It is also important to keep in mind that these roads are already present and not true additions, however our goal is to reduce road density in CRCT watersheds. The total road mileage and density for all subwatersheds with conservation populations of cutthroat are presented in Table BE-23. A substantial amount of roads are removed in all action alternatives, with Alternative G removing twenty percent of the existing road mileage. Removal of these roads would have a long-term benefit on Colorado River cutthroat trout. It is possible that reclamation activities would have a short-term negative effect on cutthroat trout due to sediment and possible direct channel impacts if crossings were removed. .

Table BE-23. Total road miles and road density (in miles per square mile) for all 6th level watersheds containing a conservation population of Colorado River cutthroat trout

	Alternative A	Alternative F	Alternative G
Total miles	586	531	466
Total road density	0.64	0.58	0.51
Miles removed (compared to Alt. A)	n/a	55	120
% of miles removed (compared to Alt. A)	n/a	9%	20%

The total miles of roads and trails by use within 350 feet of known occupied cutthroat habitat are presented in Table BE-24. These include all cutthroat trout regardless of genetic purity. In total, motorized uses decrease slightly adjacent to occupied cutthroat trout habitat for alternative G and do not change at all in alternative F. In alternative G, the level of use is reduced along 10 miles of travelway within 350 feet of occupied cutthroat stream and it is eliminated along another 10 miles. Roads would be decommissioned where travel has been eliminated. In most cases, motorized use is removed along cutthroat streams in alternative G with three exceptions. Two-tenths of a mile of road are added within 350 feet of Indiana Creek, almost a half mile is added in the Upper Main Elk watershed, and about a tenth of a mile of new ATV trail is added

along Fawn Creek (presumably a crossing). While in general, reduction of motorized use adjacent to occupied cutthroat streams has a positive long-term effect, negative effects are expected in the three populations discussed above.

Table BE-24. Miles of travelways by use type within 350 feet of occupied cutthroat habitat

Type of use	Alternative A	Alternative F	Alternative G
Full sized vehicle miles	47.1	47.1	40.2
ATV miles	7.5	7.5	7.8
Motorcycle miles	7.2	7.2	3.7
Mountain bike miles	28.8	28.8	18.9
Foot and horse miles	73.7	73.7	83.7

The category listed is the “highest” use allowed on the route. For example, mountain bike routes usually allow foot and horse, but not motorcycles, ATV’s, or full size vehicles.

Determination

Total road density in subwatersheds containing at least one conservation population of Colorado River cutthroat trout is either maintained or reduced in all but one watershed (in alternative G), which would have a long-term beneficial impact on cutthroat trout. Motorized routes are added within 350 of occupied cutthroat trout habitat in three watersheds in alternative G. A total of 10 miles of travelway within 350 feet of occupied cutthroat habitat would be removed in alternative G. Decommissioning and rehabilitation of these routes may have adverse impacts in the short-term. Because of short-term impacts from decommissioning and the increase in localized roads and trails, all action alternatives **MAY IMPACT INDIVIDUALS, BUT ARE NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

Roundtail Chub

The dominant risk factors contributing to the decline of roundtail chub are exotic predatory fishes, loss of suitable habitat (primarily due to impoundments and dewatering), conversion of warm-water habitat to cold-water habitat (e.g., below bottom-release reservoirs), and other alterations of the hydrologic regime. White River National Forest activities have limited potential to impact spawning success and general habitat availability for roundtail chub. Spawning success can be affected by allowing activities that change the timing of spring runoff. Delaying spring runoff keeps water temperatures cooler longer that could delay spawning or reduce spawning success. Forest activities that deplete water directly reduce the volume of habitat available downstream.

Roundtail chub are known to occur downstream of two streams with uplands within the White River National Forest, Divide Creek and Milk Creek. Limited data indicate that this species occurs a significant distance away from the Forest, perhaps more than 10 miles downstream. The analysis for this species included the miles of road by alternative within occupied watersheds. Road densities are low (less than one mile per square mile) on National Forest Lands in both of the occupied watersheds (Table BE-25). Road density is lower in all action alternative and lowest overall in alternative G. No roundtail chub habitat is directly affected since the species does not occur on the forest. Roundtail chub are not known to be sensitive to sediment and prefer turbid conditions.

Table BE-25. Differences in road mileage and density among alternatives in watersheds upstream of occupied roundtail chub habitat

Watershed name	Alternative A Miles (density)	Alternative F Miles (density)	Alternative G Miles (density)
Divide Creek	75 (0.69)	59 (0.55)	52 (0.48)
Milk Creek	21 (0.63)	19 (0.56)	20 (0.58)

Density = miles per square mile

Determination

Since no direct habitat changes will result from the proposed action, road densities in the occupied watersheds are low in all alternatives, and that this species is not known to be sensitive to sediment, the determination for all alternatives is **NO IMPACT**.

Bluehead Sucker

The bluehead sucker (*Catostomus discobulus*) was not covered by the BE for the forest plan. Bluehead sucker is found in moderate to fast velocity water in a wide variety of stream sizes. Bluehead suckers feed on algae, invertebrates, and other material scraped from stones and rocks. According to the Colorado Division of Wildlife native fish GIS layer, bluehead sucker occur in the Colorado River and Milk, Piceance, East and West Rifle, Alkali, and Divide creeks. Bluehead sucker have recently been documented in West Divide Creek and near the mouth of Willow Creek (a tributary to West Divide).

Bluehead sucker are known to occur downstream of the Forest in four drainages and on the WRNF in the West Divide watershed. The analysis for this species included the miles of road by alternative within occupied watersheds. Road densities are generally low on National Forest Lands in all occupied drainages (Table BE-26). Road densities drop significantly in the Divide Creek watershed. While this reduction in road density would improve watershed conditions in bluehead sucker habitat, the disturbance associated with road decommissioning could impact occupied habitat although bluehead sucker are not known to be sensitive to sediment and tolerate very turbid conditions in the Colorado River.

Table BE-26. Differences in road mileage and density among alternatives in watersheds upstream of occupied bluehead sucker habitat

Watershed name	Alternative A Miles (density)	Alternative F Miles (density)	Alternative G Miles (density)
Rifle Creek	49 (1.11)	47 (1.07)	51 (1.16)
Divide Creek	75 (0.69)	59 (0.55)	52 (0.48)
*West Divide	48 (0.67)	39 (0.54)	34 (0.48)
Milk Creek	21 (0.63)	19 (0.56)	20 (0.58)
Piceance Creek	1.5 (2.13)	1.5 (2.13)	1.5 (2.13)

* The West Divide watersheds are a subset of the Divide Creek watershed, but contain occupied bluehead sucker habitat on the WRNF (Alkali Subwatershed was excluded).

Density = miles per square mile

Determination

In the three watersheds where bluehead sucker only occur downstream of the forest, road density remains relatively stable in all alternatives. However, in the occupied watershed (West Divide Creek), road density drops considerably in both alternative F and G, with the greatest reduction in alternative G. Although bluehead sucker are not known to be sensitive to sediment, the amount of disturbance associated with road decommissioning

could still have negative impacts on the local population. The long-term impact to bluehead sucker from this reduction in road density is expected to be positive as the natural watershed function improves. The determination for the proposed action for all alternatives is **MAY IMPACT INDIVIDUALS, BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

Flannemouth sucker

The flannemouth sucker (*Catostomus latipinnis*) was not covered by the BE for the forest plan. The flannemouth sucker is restricted to larger streams and rivers in the middle and upper Colorado River drainage. Flannemouth suckers are bottom feeders, feeding primarily on invertebrates. According to the Colorado Division of Wildlife native fish GIS layer, flannemouth sucker occur in the Colorado River and Divide, Milk, and Piceance creeks. Although specific data is limited, it is believed that this species occurs downstream of the forest. Flannemouth sucker have been documented in West Divide Creek about 7 miles downstream of the forest and were absent from a site sampled 2 miles downstream of the forest.

Flannemouth sucker do not occur on the White River National Forest, but are known to occur downstream of the forest in three drainages. The analysis for this species included the miles of road by alternative within occupied watersheds. Road densities are low (less than one mile per square mile) on National Forest System lands in two occupied drainages (Table BE-27). The third occupied drainage has very limited area on the White River National Forest and the road density does not vary by alternative. No flannemouth sucker habitat is directly affected since none occur on the forest. Flannemouth sucker are not known to be sensitive to sediment and tolerate very turbid conditions in the Colorado River.

Table BE-27. Differences in road mileage and density among alternatives in watersheds upstream of occupied flannemouth sucker habitat

Watershed name	No Action Miles (density)	Alternative F Miles (density)	Alternative G Miles (density)
Divide Creek	75 (0.69)	59 (0.55)	52 (0.48)
Milk Creek	21 (0.63)	19 (0.56)	20 (0.58)
Piceance Creek	1.5 (2.13)	1.5 (2.13)	1.5 (2.13)

Density = miles per square mile

Determination

Since no direct habitat changes will result from the proposed action, road densities in the occupied watersheds are low in all alternatives, and that this species is not known to be sensitive to sediment, the determination for all alternatives is **NO IMPACT.**

Mountain Sucker

The mountain sucker (*Catostomus platyrhynchus*) was not covered by the BE for the forest plan. The natural range of the mountain sucker is restricted to the mountainous regions of Western North America. The preferred habitat of this fish is usually clear, cold streams with clean rubble or sand bottoms. They are usually found in areas of undercut banks, eddies, small pools and in areas of moderate current (Woodling 1985). The mountain sucker is seldom found in lakes (Simpson and Wallace 1982). Growth is slow and sexual maturity is often reached when fish are 5 to 6 inches long. Males usually

become sexually mature in 2 to 3 years and females in 4 to 5 years. A fish 8 inches in length would be considered a large specimen. Spawning occurs in late spring or early summer in riffles of clear, swift streams. Its food consists almost entirely of algae, which is scraped from the rocks by means of the cartilaginous sheath on the jaws. Therefore, they would require more open streams such as in meadows versus closed canopy streams surrounded by coniferous forests. Primary threats include habitat alteration, specifically increased turbidity and sedimentation due to land management and irrigation practices, and introductions of nonnative fish. The Colorado Division of Wildlife GIS native fish layer shows Mountain sucker in 11 streams that cross the White River National Forest, most of which are located in the northeastern part of the forest. The location of the actual samples may or may not be within the Forest boundary. These streams include: Deer Creek, Morapos Creek, Milk Creek, Coal Creek, Beaver Creek, Fawn Creek, Piceance Creek, West Rifle Creek, Lost Creek, Deep Creek, and the North Fork White River.

The analysis for this species included the miles of road by alternative within occupied watersheds (Table BE-28). Road densities generally decrease in the action alternatives. Alternative G has the lowest road density. Road density does not change in two of the occupied watersheds. Mountain sucker are sensitive to sediment and turbidity, which may originate from the road system. Road crossings in occupied habitat may create barriers to mountain sucker movement. Little is known about the mountain sucker's ability to navigate culverts. Road decommissioning efforts may contribute sediment to occupied mountain sucker habitat, although in general the long-term effect of the action alternatives on mountain sucker is expected to be positive with the general road density reduction in occupied watersheds.

Table BE-28. Differences in road mileage and density among alternatives in watersheds upstream of occupied mountain sucker habitat

Watershed name	No Action Miles (density)	Alternative F Miles (density)	Alternative G Miles (density)
Deep Creek	47 (1.29)	46 (1.25)	26 (0.71)
West Rifle Cr	21 (1.09)	21 (1.09)	24 (1.21)
Morapos Creek	0.9 (0.09)	0.9 (0.09)	0.9 (0.09)
Deer Creek	0 (0)	0 (0)	0 (0)
Milk Creek	21 (0.63)	19 (0.56)	20 (0.58)
NF White River	80 (0.33)	80 (0.33)	76 (0.31)
*Fawn Cr	20 (1.11)	20 (1.11)	19 (1.03)
*Lost Cr	14 (0.66)	14 (0.66)	13 (0.61)
Flag Creek	13 (1.29)	13 (1.29)	12 (1.17)
Coal Creek	17 (2.25)	16 (2.11)	15 (1.97)
Big Beaver Cr	25 (1.04)	25 (1.04)	22 (0.91)
Piceance Creek	1.5 (2.13)	1.5 (2.13)	1.5 (2.13)

Density = miles per square mile

** Fawn and Lost creeks are also included in the North Fork White River total, but each is believed to contain mountain suckers.*

Determination

In general, the miles of road in watersheds occupied by mountain sucker are decreasing in all action alternatives. Mountain sucker may be sensitive to sediment generated from

road decommissioning efforts. This reduction in disturbance is expected to be beneficial to mountain sucker as the roads are reclaimed and their watershed impacts are reduced. Alternative G removes the most roads from occupied mountain sucker watersheds. The determination for the proposed action for all alternatives is **MAY IMPACT INDIVIDUALS, BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

Plants

The analyses used represents habitat types where plants could be likely found.

Seapink

Seapink (*Armeria maritima* ssp. *sibirica*), is discussed in the BE for the forest plan, under the taxonomic designation *Armeria scabra* ssp. *sibirica*; that BE contains more detailed information (USDA Forest Service/WRNF 2002a). (This species, under the taxonomic designation *Armeria scabra* ssp. *sibirica*, is discussed in the BE for the Forest Plan.) Please refer to the BE prepared for the forest plan for more detailed information. Since the BE was completed, additional taxonomic discussion on this species has occurred and many botanists believe that *Armeria scabra* ssp. *sibirica* is the same species as *Armeria maritima* ssp. *sibirica* or *A. maritima* ssp. *labradorica* (Johnston 2000, December 18). That is the convention followed in this analysis.

There are three populations known of this species in Colorado; two of them are on this forest and another small one nearby on the Pike National Forest. Besides an apparent recent discovery in northern Utah, the closest populations are in Alaska. In Colorado, the species is known only from three sites in Summit and Park Counties, all in alpine areas on well-vegetated, gentle tundra slopes. Barry Johnston, botanist on the GMUG, has counted all three Colorado populations, and the total number of individuals in Colorado is fewer than 500. Population size varies from about 25 to 325 and elevation ranges from 11,800 feet to 12,500. There are two known locations for this species on the WRNF. One is in the Hoosier Ridge Research Natural Area, affording it protection from motorized and mechanized vehicles. There are no established trails within the Research Natural Area. A few hikers per year probably cross this *Armeria* site. The other site is currently within 100 yards of an open four-wheel-drive road (Johnston 2000, December 18). The Forest Plan directs all traffic to remain on established travel ways. However, it is currently open for snowmobiles for winter use.

Table BE-29. Travelway densities by alternative for lands within the alpine habitats on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.11	0.11	0.10
Mechanized	0.07	0.07	0.06
Motorized/mechanized	0.18	0.18	0.16
Foot/horse	0.26	0.26	0.26
Total	0.44	0.44	0.42
Scheduled for decommission (reduction in density)	0.00	0.00	0.03

*Approximately 474 square miles of potential habitat were analyzed for these areas.

Within alpine habitats, Alternative G decreases motorized, mechanized, motorized/mechanized and foot/horse use. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

Determination

The forest plan provides management area direction that will reduce potential impacts to this species from human recreation use. However, given the increasing level of human activity near known locations, the ease of circumventing barriers for vehicles, and people's propensity to wander off established trails, there is a continuing possibility of human impact to the habitat for this species. This human use may result in some level of disturbance to individuals or populations. The determination under any of the alternatives is **MAY ADVERSELY IMPACT INDIVIDUALS OF *ARMERIA MARITIMA* SSP. *SIBIRICA*, BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.** This is following the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and any new projects will include site specific analysis.

Park Milkvetch

The park milkvetch (*Astragalus leptaleus*) was not covered by the BE for the forest plan. The habitat of park milkvetch is characterized as being the mesic ecotone between saturated riparian communities and dry, upland sagebrush-steppe. This ecotone can occur on the tops and sides of hummocks and the dry fringe of Geyer's willow and bluegrass or graminoid-dominated communities at 6500 to 9500 feet. The substrate is loamy, mineral soil that dries late in the summer season, but remains somewhat moist just below the surface. The species has a bimodal distribution, with populations reported in Idaho and western Montana as well as Colorado and Wyoming (Moseley 1991). In the last two states, it is a wetland species that occupies sedge-grass meadows, swales and hummocks, and is also present among streamside willows (Hu 1999). Habitat is more or less flat and open, although park milkvetch sometimes occurs in the partial shade of Geyer's willow and occasionally Booth's willow (Moseley 1991). One known location on the White River National Forest is below the Green Mountain Reservoir. Known threats to this species come from grazing, as it is palatable, and conversion of the ecotone to hay production (Coles 2002).

Table BE-30. Comparison of travelway densities by alternative for lands within riparian habitat on the White River National Forest

Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.03	1.03	0.91
Mechanized	0.52	0.52	0.44
Mot/mech	1.55	1.55	1.35
Foot/horse	0.96	0.96	1.00
Total	2.51	2.51	2.35
Scheduled for Decommission (reduction in density)	0.00	0.39	0.52

Approximately 91 square miles of potential habitat were analyzed for this species.

Within riparian habitats, alternative G decreases motorized, mechanized, and motorized/mechanized mix use. Alternative G increases foot/horse traffic from 0.96 (miles/square mile) to 1.0. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

The forest plan provides direction that includes significant protection for riparian areas, which would be the primary habitat for this species on the White River National Forest. This direction includes watershed conservation practices (WCP) direction, riparian protection standards and guidelines for grazing, and standards for protection of sensitive species and their habitats (USDA Forest Service/WRNF 2002a).

Determination

Forest plan riparian direction combined with lack of habitat alterations under any alternatives indicate a low likelihood of detrimental impacts on this species. There is some opportunity for damage to existing habitat through grazing or recreation activities. For this reason, the determination under all the alternatives is **MAY IMPACT INDIVIDUALS OF *ASTRAGALUS LEPTALEUS* BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE**. This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Wetherill Milkvetch

The Wetherill milkvetch (*Astragalus wetherillii*) was not covered by the BE for the forest plan. Wetherill milkvetch is a narrowly restricted endemic species from the Colorado Plateau, occurring on eroding shale bluffs in only a few counties (Garfield, Mesa, Moffat, Montezuma, San Miguel, and Ouray) on Colorado's western slope. Available habitat supports geographically isolated populations, offering little opportunity for interbreeding among distant populations. The known populations are discontinuous over a 160 mile north-south band, with distances ranging to several miles between occurrences (Gindele 2002). While eroding shale-sandstone shrub steppe and woodland habitats are common, the plants occupy a small fraction of the apparent potential habitat. Just over three dozen populations are recorded and they range in numbers of individuals from just a couple of plants to a few hundred. The total estimated number of individuals remains relatively small, estimated at between 6,000 and 9,000 in a given year (Gindele 2002). A small percentage occurs on National Forest System land.

Available suitable habitat is at risk from planned increases in oil and gas exploration throughout the range of Wetherill milkvetch. The entire known habitat for this species is subject to a variety of planned and ongoing site-altering disturbances (Gindele 2002). There are two community types that this species can occupy—shrublands and sagebrush.

Table BE-31. Travelway densities by alternative for lands within the shrubland communities on the White River National Forest

s Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.99	0.99	0.85
Mechanized	0.27	0.27	0.18
Mot/mech	1.26	1.26	1.03
Foot/horse	0.33	0.33	0.41
Total	1.59	1.59	1.44
Scheduled for Decommission (reduction in density)	0.58	0.33	0.44

Approximately 434 square miles of potential habitat were analyzed for these species.

For shrubland communities that would support associated populations, in alternative G there is a decrease in motorized, mechanized, and motorized/mechanized mix. In Alternative G there is an increase in foot/horse traffic from 0.33 miles/square mile to 0.41 miles/square mile. Planned decommissioning of travelways reduces open travelway density in all of the alternatives when compared to the current, existing situation.

Table BE-32. Travelway densities by alternative for lands within the sagebrush communities on the White River National Forest

Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.64	1.64	1.28
Mechanized	0.27	0.27	0.18
Mot/mech	1.91	1.91	1.47
Foot/horse	0.29	0.29	0.38
Total	2.20	2.20	1.85
Scheduled for Decommission (reduction in density)	0.00	0.49	0.75

Approximately 73 square miles of potential habitat were analyzed for these species.

Within sagebrush habitat, in alternative G there is a decrease in motorized, mechanized, and motorized/mechanized mix. In alternative G there is an increase in foot/horse traffic from 0.33 miles/square mile to 0.41 miles/square mile. Planned decommissioning of travelways reduces open travelway density in all of the alternatives when compared to the current, existing situation.

Determination

The forest plan prohibition of off-road travel, combined with lack of habitat alterations under any alternative, indicate a low likelihood of detrimental impacts on this species from any alternative. There is some opportunity for damage to existing habitat through grazing, recreation activities, or oil and gas exploration. For this reason, the determination under all the alternatives is **MAY IMPACT INDIVIDUALS OF *ASTRAGALUS WETHERILLI* BUT IS NOT LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.** This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only

ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Arctic Braya

Arctic braya (*Braya glabella*) is discussed in the BE for the forest plan; life history and other general information on this species can be found in that document (USDA Forest Service/WRNF 2002a). Arctic braya is a circumpolar, boreal species, with a widespread distribution in the Canadian Rocky Mountains, northern Canada, and northern and central Alaska (Aiken et al. 2003). This species is extremely variable among populations and there is considerable taxonomic discussion on *Braya* species (Aiken 2003). It is known to occur on the White River National Forest on the boundary between Summit and Park counties and Pitkin and Gunnison Counties in the Taylor Pass area. It occupies calcareous substrates, especially Leadville limestone, sparsely vegetated slopes above timberline with fine gravels, or disturbed sites associated with inactive mines at elevations of 12,000–13,000 feet (Spackman et al. 1999).

Direct impacts on *Braya glabella* or its habitat would not be significant (USDA Forest Service/WRNF 2002b). Summer travel in this area is restricted to designated routes, and there are no designated routes in or near populations. Winter travel is restricted to a corridor over Taylor Pass. None of the braya populations in this area are below or close to designated motor vehicle routes and none are close to areas grazed by livestock (USDA Forest Service/WRNF 2002b). Over time, the populations will likely come under increasing threats from unauthorized vehicle use, since recreational vehicle pressure is increasing throughout the White River National Forest. The probability of damage events from unauthorized vehicle use is increasing, and the damage would be cumulative and lead to degradation of the populations and their habitat (USDA Forest Service/WRNF 2002b).

Table BE-33. Travelway densities by alternative for lands within the alpine habitats on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.11	0.11	0.10
Mechanized	0.07	0.07	0.06
Motorized/mechanized	0.18	0.18	0.16
Foot/horse	0.26	0.26	0.26
Total	0.44	0.44	0.42
Scheduled for decommission (reduction in density)	0.00	0.00	0.03

Approximately 474 square miles of potential habitat were analyzed for these areas.

Within alpine habitats, Alternative G decreases motorized, mechanized, motorized/mechanized and foot/horse use. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

Determination

The forest plan provides management area direction that will reduce potential impacts to this species from human recreation use. Current travel restrictions should provide some protection. However, given the increasing level of human activity near known locations

and people's propensity to wander off established trails, there is a continuing possibility of human impact on the habitat for this species. This human use may result in some level of disturbance to individuals or populations. The determination under any of the alternatives is **MAY ADVERSELY IMPACT INDIVIDUALS OF BRAYA GLABELLA OR ITS HABITAT BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.** This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Lesser-panicked Sedge

The lesser-panicked sedge (*Carex diandra*) was not covered by the BE for the forest plan. The lesser-panicked sedge exists on floating and non-floating moss mats, pond edges, and hummocks in open shrub and sedge meadows at 6,100 to 8,600 feet. The species is circumpolar; in North America, it is found from Newfoundland to the Yukon and south to New Jersey, Indiana, Colorado, and California (Keinath, Heidel, and Beauvais 2003). In Colorado and Wyoming, it is found on calcareous subalpine fens and bogs. This species may be threatened by trampling, grazing, and development of wetland habitats (Handley et al. 2002). Observations of Nebraska populations indicate that wetness of preferred habitat discourages grazing by domestic livestock (Steinauer 2002). On the White River National Forest, *Carex diandra* has been located in Garfield County, within the Flat Tops Wilderness.

Table BE-34. Comparison of travelway densities by alternative for lands within potential riparian habitat on the White River National Forest

Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.03	1.03	0.91
Mechanized	0.52	0.52	0.44
Mot/mech	1.55	1.55	1.35
Foot/horse	0.96	0.96	1.00
Total	2.51	2.51	2.35
Scheduled for Decommission (reduction in density)	0.00	0.39	0.52

Approximately 91 square miles of potential habitat were analyzed for this species.

Within riparian habitats, alternative G decreases motorized, mechanized, and motorized/mechanized mix use. Alternative G increases foot/horse traffic from 0.96 (miles/square mile) to 1.0. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

The forest plan provides direction that includes significant protection for riparian areas, which would be the primary habitat for this species on the White River National Forest. This direction includes watershed conservation practices (WCP) direction, riparian protection standards and guidelines for grazing, and standards for protection of sensitive species and their habitats (USDA Forest Service/WRNF 2002a).

Determination

The forest plan provides management area direction that will reduce potential impacts on this species because its known locations on the White River National Forest are in a wilderness area where motorized travel is prohibited. Current known locations are outside any trail travel zone and the very wet conditions at high elevation preclude new trail location or construction. However, given the increasing level of human activity near known locations and people's propensity to wander off established trails, there is a possibility of human impact on the habitat for this species. This human use may result in some level of disturbance to individuals or populations. The determination under all the alternatives is **MAY ADVERSELY IMPACT INDIVIDUALS OF CAREX DIANDRA OR ITS HABITAT BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.** This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Rocky Mountain Thistle

The Rocky Mountain thistle (*Cirsium perplexans*) was not covered by the BE for the forest plan. The global distribution of Rocky Mountain thistle is limited to western Colorado, in the Colorado and Gunnison river valleys (Weber and Wittmann 2001). It has been reported from Delta, Garfield, Mesa, Montrose, and Ouray counties (Panjabi and Anderson 2004). Most known occurrences are in Montrose County, and the largest occurrence, with thousands of individuals, is in Delta County, at Cedar Mesa (Panjabi and Anderson 2004). All occurrences are found within an approximately 10- x 80-mile area that runs north to south from Garfield County in the north to Ouray County in the south at elevations of 5,800 to 8,060 feet. *Cirsium perplexans* is found almost exclusively on clay soils or “adobe hills” (Weber and Wittmann 2001) that are derived from shales of the Mancos or Wasatch formations (Panjabi and Anderson 2004).

Rocky Mountain thistle is found on barren adobe soils and has been documented within four primary vegetation types, all low elevation, relatively dry sites. Speculative threats to *Cirsium perplexans* include the use of biological control and herbicides to manage populations of non-native thistles, human recreational activities, non-native species invasion, and road construction (Panjabi and Anderson 2004). This species habitat occurs in sagebrush, shrubland, and pinyon-juniper habitats.

Table BE-35. Travelway densities by alternative for lands within the shrubland communities on the White River National Forest

Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.99	0.99	0.85
Mechanized	0.27	0.27	0.18
Mot/mech	1.26	1.26	1.03
Foot/horse	0.33	0.33	0.41
Total	1.59	1.59	1.44
Scheduled for Decommission (reduction in density)	0.58	0.33	0.44

Approximately 434 square miles of potential habitat were analyzed for these species.

For shrubland communities that would support associated populations, in alternative G there is a decrease in motorized, mechanized, and motorized/mechanized mix. In Alternative G there is an increase in foot/horse traffic from 0.33 miles/square mile to 0.41 miles/square mile. Planned decommissioning of travelways reduces open travelway density in all of the alternatives when compared to the current, existing situation.

Table BE-36. Travelway densities by alternative for lands within the sagebrush communities on the White River National Forest

Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.64	1.64	1.28
Mechanized	0.27	0.27	0.18
Mot/mech	1.91	1.91	1.47
Foot/horse	0.29	0.29	0.38
Total	2.20	2.20	1.85
Scheduled for Decommission (reduction in density)	0.00	0.49	0.75

Approximately 73 square miles of potential habitat were analyzed for these species.

Within sagebrush habitat, in alternative G there is a decrease in motorized, mechanized, and motorized/mechanized mix. In alternative G there is an increase in foot/horse traffic from 0.33 miles/square mile to 0.41 miles/square mile. Planned decommissioning of travelways reduces open travelway density in all of the alternatives when compared to the current, existing situation.

Table BE-37. Travelway densities by alternative for lands within pinyon-juniper stands on the White River National Forest

Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.33	0.33	0.27
Mechanized	0.08	0.08	0.05
Mot/mech	0.41	0.41	0.31
Foot/horse	0.03	0.03	0.09
Total	0.44	0.44	0.40
Scheduled for Decommission (reduction in density)	0.00	0.04	0.07

Approximately 33 square miles of potential habitat were analyzed for this species.

In alternative G motorized, mechanized and motorized mechanized mix will decrease in use. Foot/horse traffic will increase in alternative G from 0.03 miles/square mile to 0.09 miles/square mile. Planned decommissioning of travelways reduces open travelway density in all of the alternatives when compared to the current, existing situation.

Determination

The forest plan provides management area direction that will reduce potential impacts on this species because motorized travel is prohibited off established travelways. Given the increasing level of human activity near known locations and people's propensity to wander off established trails, however, there is a possibility of human impact to the habitat for this species. This human use may result in some level of disturbance to individuals or populations. The determination under all the alternatives is **MAY ADVERSELY IMPACT INDIVIDUALS OF *CIRSIMUM PERPLEXANS* OR ITS HABITAT BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.** This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Yellow lady's-slipper

Yellow lady's-slipper (*Cypripedium parviflorum*) was not covered in the forest plan BE. Region 2 harbors an outlying southwestern portion of Yellow Lady's-slipper distribution. It occurs in all states within Region 2. In Colorado, this taxon appears to be scattered along the Front Range, with a few location on the San Juan National Forest. It has been found on an administrative site on the White River National Forest within the Roaring Fork Valley. The species appears to occupy a wide array of habitats throughout its range, from bogs, fens, marshes, and wooded swamps, to mesic grasslands, to well-drained sites in woodlands and open deciduous forests at about 1000 feet in east Kansas, to montane aspen groves and ponderosa pine forests at about 8000 feet in Colorado. Within the Roaring Fork Valley, it is found within riparian areas that contain cottonwood, and conifer trees at about 6000 ft. in elevation. It is often found on rocky, silty, or sandy, alkaline or subalkaline soils (Morse 2001). *Cypripedium* species tend to be early successional, populations colonize relatively open sites and decline in size as forests

mature. As with other relatively rare species, there is some conflicting information regarding the taxonomy of this species. The accepted name of this species is *C. parviflorum* and all varieties of this species are now considered synonyms. The yellow lady's slipper orchid is found in the spruce-fir zone in R2 (McKee 2002, September 24).

Table BE-38. Comparison of travelway densities by alternative for lands within potential riparian habitat on the White River National Forest

Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.03	1.03	0.91
Mechanized	0.52	0.52	0.44
Mot/mech	1.55	1.55	1.35
Foot/horse	0.96	0.96	1.00
Total	2.51	2.51	2.35
Scheduled for Decommission (reduction in density)	0	0.39	0.52

Approximately 91 square miles of potential habitat were analyzed for this species.

Within riparian habitats, alternative G decreases motorized, mechanized, and motorized/mechanized mix use. Alternative G increases foot/horse traffic from 0.96 (miles/square mile) to 1.0. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

The forest plan provides direction that includes significant protection for riparian areas, which would be the primary habitat for this species on the White River National Forest. This direction includes watershed conservation practices (WCP) direction, riparian protection standards and guidelines for grazing, and standards for protection of sensitive species and their habitats (USDA Forest Service/WRNF 2002a).

The forest plan provides management area direction that will reduce potential impacts on this species because its known locations on the White River National Forest are in a wilderness area where motorized travel is prohibited. Current known locations are outside any trail travel zone and the very wet conditions at high elevation preclude new trail location or construction. However, given the increasing level of human activity near known locations and people's propensity to wander off established trails, there is a possibility of human impact on the habitat for this species. This human use may result in some level of disturbance to individuals or populations. The determination under all the alternatives is **MAY ADVERSELY IMPACT INDIVIDUALS OF CAREX DIANDRA OR ITS HABITAT BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

Clawless Draba

The clawless draba (*Draba exunguiculata*) was not covered by the BE for the forest plan. The clawless draba is endemic to high elevations in the Rocky Mountains of Colorado, from 11,700 to 14,000 feet. The relatively inaccessible nature of much of the habitat suggests that only a small portion of potential habitat has been affected historically. It appears to be most abundant within the region around Gray's Peak. More than 75 percent of the known occurrences are on land managed by the USDA Forest Service. Although some populations have been affected in areas with high recreational use, current available information suggests that several populations are relatively secure because they occur in

areas that are afforded protection either by land use designation (such as wilderness areas) or by their remote, relatively inaccessible location (Ladyman 2004a). Weber and Wittmann (2001) commented that the clawless draba is “occasional” in alpine fell fields. The species grows in small patches and occurrence size typically ranges from 3 isolated individuals to several patches composed of a total of 20 or more individuals over 0.1 acre. Population size seems very variable. Although the species is uncommon, it appears that current abundance is large enough that occasional human intervention is not likely to lead to rapid extinction; however, in combination with highly variable environmental factors, such random human influences could pose a threat.

The population may be centered in a very limited area. Observations indicate some plants have been trampled in several areas that receive high use by hikers. If these areas are centers of high population density, suitable habitat may be unduly compromised. Mining activities are likely to have affected populations that are observed in the vicinity of existing mines. Undisciplined hiking and excessive widening of existing trails are recognized as being problems for the maintenance of undisturbed habitat in the high mountains of Colorado (Ladyman 2004a).

Table BE-39. Travelway densities by alternative for lands within the alpine willow communities on the White River National Forest

Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.15	0.15	0.15
Mechanized	0.14	0.14	0.15
Mot/mech	0.30	0.30	0.30
Foot/horse	0.41	0.41	0.47
Total	0.71	0.71	0.77
Scheduled for Decommission (reduction in density)	0	0.18	0.12

Approximately 51 square miles of potential habitat were analyzed for these species.

In alternative G there is no change in motorized and motorized/mechanized mix. In this alternative there is an increase in mechanized (0.14 to 0.15 miles/square miles) and foot/horse (0.41 to 0.47 miles/square mile) use. Planned decommissioning of travelways reduces open travelway density in all of the alternatives when compared to the current, existing situation.

Determination

The forest plan provides management area direction that will reduce potential impacts to this species from human recreation use. Current travel restrictions should provide some protection. However, given the increasing level of human activity near known locations and people’s propensity to wander off established trails, there is a continuing possibility of human impact on the habitat for this species. This human use may result in some level of disturbance to individuals or populations. The determination under all the alternatives is **MAY ADVERSELY IMPACT INDIVIDUALS OF DRABA EXUNGUICULATA OR ITS HABITAT BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.** This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine

maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Gray's Peak Whitlow-grass

The Gray's Peak whitlow-grass (*Draba grayana*) was not covered by the BE for the forest plan. The Gray's Peak whitlow-grass is endemic to high elevations in the Rocky Mountains of Colorado, from 11,500 to 14,000 feet. This species has been reported from approximately 28 locations, most within 4 miles of Gray's Peak and most (25 of 28 occurrences) on National Forest System land. Population size is typically small, with 10 to 30 plants. Specific threats have been identified, including impacts of recreation (hiking and mountain biking) and mountain goats (Ladyman 2004b).

Recreational use of habitat, such as foot traffic, poses a threat to some occurrences of Gray's Peak whitlow-grass, particularly those on land managed by the USDA Forest Service. The impacts may become substantially more significant as the human population grows in areas within easy access to *Draba grayana* habitat and as recreational use increases. Mining activities are not perceived to be a current threat to any of the known occurrences of this species, although individual occurrences may have been affected in the past. Mountain goats have a negative impact on the habitat for this species in some parts of its range. Invasive weeds may pose an additional risk to its long-term sustainability. Current information suggests that many occurrences of Gray's Peak whitlow-grass are relatively secure because of their remote, relatively inaccessible location (Ladyman 2004b).

Table BE-40. Travelway densities by alternative for lands within the alpine willow communities on the White River National Forest

Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.15	0.15	0.15
Mechanized	0.14	0.14	0.15
Mot/mech	0.30	0.30	0.30
Foot/horse	0.41	0.41	0.47
Total	0.71	0.71	0.77
Scheduled for Decommission (reduction in density)	0.00	0.18	0.12

Approximately 51 square miles of potential habitat were analyzed for these species.

In alternative G there is no change in motorized and motorized/mechanized mix. In this alternative there is an increase in mechanized (0.14 to 0.15 miles/square miles) and foot/horse (0.41 to 0.47 miles/square mile) use. Planned decommissioning of travelways reduces open travelway density in all of the alternatives when compared to the current, existing situation.

Determination

The forest plan provides management area direction that will reduce potential impacts to this species from human recreation use. Current travel restrictions should provide some protection. However, given the increasing level of human activity near known locations and people's propensity to wander off established trails, there is a continuing possibility of human impact on the habitat for this species. This human use may result in some level of disturbance to individuals or populations. The determination under any of the

alternatives is **MAY ADVERSELY IMPACT INDIVIDUALS OF *DRABA GRAYANA* OR ITS HABITAT BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.**

This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Altai Cottongrass

Altai cottongrass (*Eriophorum altaicum* var. *neogaeum*) is discussed in the BE for the forest plan; that document provides life history and other general information (USDA Forest Service/WRNF 2002a). *Eriophorum altaicum* var. *neogaeum* is a species of wetlands in the Rocky Mountains, Alaska, and northeastern Asia. Taxonomic botanists disagree about whether this species should be called *Eriophorum altaicum* or *E. scheuchzeri*. It is known from high mountains in Colorado, Utah, Wyoming, Montana; the Rocky Mountains of Canada; and places in Alaska and northeastern Asia. On the White River National Forest, *Eriophorum altaicum* var. *neogaeum* is known from three or four sites; two of these sites are close together southeast of Aspen and the other two are a few miles apart in southeastern Eagle County and northeastern Pitkin County. The total known White River National Forest population is fewer than 500 individuals (Johnson 2001a). In Colorado, this species is always associated with water-saturated soils. Individuals grow in bogs, fens, wetlands, and along very wet streambanks (Ladyman 2004c). Elevations range from 10,500 to 12,600 feet, averaging 12,260 feet, which represents the higher elevations in southern Colorado. Sites are often in the upper subalpine zone (Spackman et al. 1999).

Suitable habitat for the Altai cottongrass is not likely to be affected by travel management activities. In general, fen habitats are avoided by roads or trails. Off-route motorized and mechanized use is not allowed in the spring-fall use period. However, wetland habitats are very sensitive to human and animal use. In winter there is still some damage resulting from vehicle use or people entering the wetland area, even above deep snow (Kaeding and Olliff et al. 1999). All known locations, except one, are in wilderness areas. The one excepted site is in an area proposed for wilderness designation. Even though many of these sites are in wilderness, the habitat is extremely sensitive to human use, especially travel nearby and uses that create changes in water or air quality.

Table BE-41. Travelway densities by alternative for lands within the alpine habitats on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.11	0.11	0.10
Mechanized	0.07	0.07	0.06
Motorized/mechanized	0.18	0.18	0.16
Foot/horse	0.26	0.26	0.26
Total	0.44	0.44	0.42
Scheduled for decommission (reduction in density)	0.00	0.00	0.03

Approximately 474 square miles of potential habitat were analyzed for these areas.

Within alpine habitats, alternative G decreases motorized, mechanized, motorized/mechanized and foot/horse use. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

Table BE-42. Comparison of travelway densities by alternative for lands within potential riparian habitat on the White River National Forest

Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.03	1.03	0.91
Mechanized	0.52	0.52	0.44
Mot/mech	1.55	1.55	1.35
Foot/horse	0.96	0.96	1.00
Total	2.51	2.51	2.35
Scheduled for Decommission (reduction in density)	0.00	0.39	0.52

Approximately 91 square miles of potential habitat were analyzed for this species.

Within riparian habitats, alternative G decreases motorized, mechanized, and motorized/mechanized mix use. Alternative G increases foot/horse traffic from 0.96 (miles/square mile) to 1.0. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

The forest plan provides direction that includes significant protection for riparian areas, which would be the primary habitat for this species on the White River National Forest. This direction includes watershed conservation practices (WCP) direction, riparian protection standards and guidelines for grazing, and standards for protection of sensitive species and their habitats (USDA Forest Service/WRNF 2002a).

Determination

Altai cottongrass occupies very wet conditions at high elevations, which generally are avoided for road or trail location. All alternatives include restrictions for all motorized and mechanized travel to occur only on designated routes. Because of the sensitivity of the habitat, the determination under any of the alternatives is **MAY ADVERSELY IMPACT INDIVIDUALS OF ERIOPHORUM ALTAICUM VAR. NEOGAEUM BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.** This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Russet cottongrass

The Russet cottongrass (*Eriophorum chamissonis*) was not covered by the BE for the forest plan. Russet cottongrass is a circumpolar species, occurring in the low arctic. Its range in the Canadian Arctic Archipelago is limited. Russet cottongrass is known from eastern Siberia to Newfoundland, south to Minnesota, northern Wyoming, Colorado, and Oregon. In Wyoming, russet cottongrass occurs in the Absaroka and Bighorn ranges in

Park and Sheridan counties on the Bighorn and Shoshone national forests. A recent floristic survey in central Colorado suggests that several populations may occur in the Holy Cross Wilderness area at elevations to 10,840 feet. By contrast, in Wyoming russet cottongrass is found in montane swamps and bogs at 7,350 to 8,320 feet. According to CNHP, three sites occur on the White River National Forest, besides the 1934 site found by R. Hartman and E. Holt (CNHP 2003Hartman and Nelson 2001). *Eriophorum chamissonis* occupies imperfectly drained and silty substrates with high organic content found around the margins of ponds and marshes. The species has been reported in marshes with *Carex aquatilis* var. *stans* (Aiken et al. 1999).

Suitable habitat for the russet cottongrass is not likely to be affected by travel management activities. In general, very wet areas are avoided for roads or trails. Off-route motorized and mechanized use is not allowed in the spring-fall use period. However, wetland habitats are very sensitive to human and animal use. Even in winter there still is some damage resulting from vehicle use or people entering the wetland area, even above deep snow (Olliff et al. 1999). All known locations on the White River National Forest are in wilderness areas. Even though these sites are in wilderness, the habitat is extremely sensitive to human use, especially travel nearby and changes in water or air quality.

Table BE-43. Travelway densities by alternative for lands within the alpine habitats on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.11	0.11	0.10
Mechanized	0.07	0.07	0.06
Motorized/mechanized	0.18	0.18	0.16
Foot/horse	0.26	0.26	0.26
Total	0.44	0.44	0.42
Scheduled for decommission (reduction in density)	0.00	0.00	0.03

Approximately 474 square miles of potential habitat were analyzed for these areas.

Within alpine habitats, alternative G decreases motorized, mechanized, motorized/mechanized and foot/horse use. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

Table BE-44. Comparison of travelway densities by alternative for lands within potential riparian habitat on the White River National Forest

Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.03	1.03	0.91
Mechanized	0.52	0.52	0.44
Mot/mech	1.55	1.55	1.35
Foot/horse	0.96	0.96	1.00
Total	2.51	2.51	2.35
Scheduled for Decommission (reduction in density)	0.00	0.39	0.52

Approximately 91 square miles of potential habitat were analyzed for this species.

Within riparian habitats, alternative G decreases motorized, mechanized, and motorized/mechanized mix use. Alternative G increases foot/horse traffic from 0.96 (miles/square mile) to 1.0. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

The forest plan provides direction that includes significant protection for riparian areas, which would be the primary habitat for this species on the White River National Forest. This direction includes watershed conservation practices (WCP) direction, riparian protection standards and guidelines for grazing, and standards for protection of sensitive species and their habitats (USDA Forest Service/WRNF 2002a).

Determination

In Colorado, russet cottongrass occupies very wet conditions at relatively high elevations, which are generally avoided for road or trail location. All alternatives include restrictions for all motorized and mechanized travel to occur only on designated routes. Because of the sensitivity of the habitat, the determination under any of the alternatives is **MAY ADVERSELY IMPACT INDIVIDUALS OF ERIOPHORUM CHAMISSONIS BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE**. This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Slender Cottongrass

The Slender cottongrass (*Eriophorum gracile*) was not covered by the BE for the forest plan. Slender cottongrass often forms large uniform stands that are recognizable from a distance because of reddish leaf tips. This cottongrass occurs in fens, wet meadows, and pond edges at elevations of 8,100 to 12,000 feet (Spackman et al. 1999). Slender cottongrass is a circumboreal species; in North America it occurs across Canada, south to Pennsylvania, Iowa, Colorado, Idaho, and central California (Ode 2001). This species has not been found on the White River National Forest, although it occurs on many surrounding forests.

Suitable habitat for the slender cottongrass is not likely to be affected by travel management activities. In general, very wet areas are avoided for roads or trails. Off-route motorized and mechanized use is not allowed in the spring–fall use period. However, wetland habitats are very sensitive to human and animal use. Even in winter some damage still can result from vehicle use or people entering the wetland area, even above deep snow (Olliff et al. 1999). There are no known locations of slender cottongrass on the White River National Forest.

Table BE-45. Travelway densities by alternative for lands within the alpine habitats on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.11	0.11	0.10
Mechanized	0.07	0.07	0.06
Motorized/mechanized	0.18	0.18	0.16
Foot/horse	0.26	0.26	0.26
Total	0.44	0.44	0.42
Scheduled for decommission (reduction in density)	0.00	0.00	0.03

Approximately 474 square miles of potential habitat were analyzed for these areas.

Within alpine habitats, alternative G decreases motorized, mechanized, motorized/mechanized and foot/horse use. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

Table BE-46. Comparison of travelway densities by alternative for lands within potential riparian habitat on the White River National Forest

Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.03	1.03	0.91
Mechanized	0.52	0.52	0.44
Mot/mech	1.55	1.55	1.35
Foot/horse	0.96	0.96	1.00
Total	2.51	2.51	2.35
Scheduled for Decommission (reduction in density)	0.00	0.39	0.52

Approximately 91 square miles of potential habitat were analyzed for this species.

Within riparian habitats, alternative G decreases motorized, mechanized, and motorized/mechanized mix use. Alternative G increases foot/horse traffic from 0.96 (miles/square mile) to 1.0. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

The forest plan provides direction that includes significant protection for riparian areas, which would be the primary habitat for this species on the White River National Forest. This direction includes watershed conservation practices (WCP) direction, riparian protection standards and guidelines for grazing, and standards for protection of sensitive species and their habitats (USDA Forest Service/WRNF 2002a).

Determination

Slender cottongrass occupies very wet conditions at relatively high elevation (in Colorado), which are generally avoided for road or trail location. All alternatives include restrictions for all motorized and mechanized travel to occur only on designated routes. Because the species is not currently known to occur on the White River National Forest, the determination under any of the alternatives is **MAY ADVERSELY IMPACT INDIVIDUALS OF ERIOPHORUM GRACILE BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR**

CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES

VIABILITY RANGEWIDE. This assumption is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Colorado Tansyaster

Colorado tansyaster (*Machaeranthera coloradoensis* var. *coloradoensis*) is discussed in the BE for the forest plan; that document (USDA Forest Service/WRNF 2002a) provides life history and other general information. *Machaeranthera coloradoensis* var. *coloradoensis* is a perennial, alpine species that is endemic to central and south-central Colorado and southern Wyoming. On the White River National Forest, two or three populations of *Machaeranthera coloradoensis* var. *coloradoensis* occur within a mile of each other, in the alpine zone south and west of Taylor Pass near the divide with Gunnison County and the Gunnison National Forest, at 12,200 to 12,600 feet elevation; it also has been known to occupy sites as low as 8,500 feet (Johnston 2001g). One of the White River National Forest populations has approximately 100 individuals. The total known White River National Forest population of Colorado tansyaster probably is between 300 and 2,500 individuals (Johnston 2001g). This species is a low-growing or prostrate mat plant with woody caudices. In Colorado, populations of *Machaeranthera coloradoensis* var. *coloradoensis* often are associated with limestone, dolomite, shale, or other calcareous substrates, often on gravelly places in the higher mountain parks, slopes, and rock outcrops up to dry tundra (Spackman et al. 1999).

Direct impacts on *Machaeranthera coloradoensis* var. *coloradoensis* or its habitat in the Taylor Pass area would not be significant (Johnston 2001g). Summer travel in this area is restricted to designated routes, and there are no designated routes in or near populations. Winter travel is restricted to a corridor over Taylor Pass. None of the populations in this area are below or close to designated motor vehicle routes and none are close to areas grazed by livestock or any national forest sources of air or water pollution. Over time, the populations will likely come under increasing threats from unauthorized vehicle use, because recreational vehicle pressure is increasing throughout the White River National Forest (Johnston 2001g). The probability of damage from unauthorized vehicle use is increasing, and the damage would be cumulative and lead to degradation of the populations and their habitats.

Table BE-47. Travelway densities by alternative for lands within the alpine habitats on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.11	0.11	0.10
Mechanized	0.07	0.07	0.06
Motorized/mechanized	0.18	0.18	0.16
Foot/horse	0.26	0.26	0.26
Total	0.44	0.44	0.42
Scheduled for decommission (reduction in density)	0.00	0.00	0.03

Approximately 474 square miles of potential habitat were analyzed for these areas.

Within alpine habitats, alternative G decreases motorized, mechanized, motorized/mechanized and foot/horse use. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

Determination

The known population of *Machaeranthera coloradoensis* var. *coloradoensis* on the White River National Forest would be protected by travel management that would restrict vehicles to designated routes; there are no designated routes through or near *Machaeranthera coloradoensis* var. *coloradoensis* populations. The determination under all the alternatives is **MAY ADVERSELY IMPACT INDIVIDUALS OF MACHAERANTHERA COLORADOENSIS VAR. COLORADOENSIS OR ITS HABITAT BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.** This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Kotzebue's Grass-of-Parnassus

The Kotzebue's grass-of-parnassus (*Parnassia kotzebuei*) was not covered by the BE for the forest plan. The Forest Service Rocky Mountain Region (R2) harbors a southern Rocky Mountain segment of the distribution of Kotzebue's grass-of-parnassus. In northern Wyoming, this plant is found in the Absaroka and Bighorn mountains in Park and Johnson counties, on the Shoshone and Bighorn national forests. In Colorado, besides the White River National Forest, it is known from the Arapaho-Roosevelt, Grand Mesa, Uncompahgre, Gunnison, San Juan, and Pike-San Isabel national forests. In Wyoming, Kotzebue's grass-of-parnassus is commonly found at 9,400 to 11,200 feet elevation on moist seeps and grassy, wet tundra on thin clay soil, as well as on moist ledges below steep talus slopes (Heidel 2002b). Such moist habitats are discontinuous on the landscape, resulting in a patchy distribution. Outside R2, Kotzebue's grass-of-parnassus is a circumboreal species that occurs from Alaska to Labrador and Greenland, extending south in the Rocky Mountains to Colorado and with a few locations to the west of the R2 border as far south as Nevada (Heidel 2002b).

There is one known location on White River National Forest of about 600 plants (Johnston 2001b). Wide fluctuations in number at the site have been noted: fewer than 40 plants in 1994 to more than 600 in 1997 (Johnston 2001b). This habitat is limited and can be highly subject to impacts; the habitat consists of riparian wetlands, with or without willows, and lake shores. The plant inhabits the higher elevations of 10,000 to 12,400 feet.

Table BE-48. Travelway densities by alternative for lands within the alpine habitats on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.11	0.11	0.10
Mechanized	0.07	0.07	0.06
Motorized/mechanized	0.18	0.18	0.16
Foot/horse	0.26	0.26	0.26
Total	0.44	0.44	0.42
Scheduled for decommission (reduction in density)	0.00	0.00	0.03

Approximately 474 square miles of potential habitat were analyzed for these areas.

Within alpine habitats, alternative G decreases motorized, mechanized, motorized/mechanized and foot/horse use. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

Table BE-49. Comparison of travelway densities by alternative for lands within potential riparian habitat on the White River National Forest

Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.03	1.03	0.91
Mechanized	0.52	0.52	0.44
Mot/mech	1.55	1.55	1.35
Foot/horse	0.96	0.96	1.00
Total	2.51	2.51	2.35
Scheduled for Decommission (reduction in density)	0.00	0.39	0.52

Approximately 91 square miles of potential habitat were analyzed for this species.

Within riparian habitats, alternative G decreases motorized, mechanized, and motorized/mechanized mix use. Alternative G increases foot/horse traffic from 0.96 (miles/square mile) to 1.0. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

The forest plan provides direction that includes significant protection for riparian areas, which would be the primary habitat for this species on the White River National Forest. This direction includes watershed conservation practices (WCP) direction, riparian protection standards and guidelines for grazing, and standards for protection of sensitive species and their habitats (USDA Forest Service/WRNF 2002a).

Determination

In Colorado, Kotzebue's grass-of-parnassus occupies very wet conditions at relatively high elevation, which are generally avoided for road or trail location. All alternatives include restrictions for all motorized and mechanized travel to occur only on designated routes. Because the species is not currently known to occur on the White River National Forest, the determination under all the alternatives is **MAY IMPACT INDIVIDUALS OF PARNASSIA KOTZEBUEI IF THEY EXIST ON THE WHITE RIVER NATIONAL FOREST BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO**

FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE. This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Harrington Beardtongue

Harrington beardtongue (*Penstemon harringtonii*) is discussed in the BE for the forest plan; that document (USDA Forest Service/WRNF 2002a) provides life history and other general information. *Penstemon harringtonii* is an endemic species, known only from west-central Colorado in sagebrush and desert shrub stands (Johnston 2001e). Its distribution covers most of the west half of Eagle County and areas in adjacent Garfield, Routt, and Grand counties. Around 50 known populations of *Penstemon harringtonii* have been described; most populations had 50 to 300 individuals. *Penstemon harringtonii* occurs within the White River National Forest boundary in four general areas: southeast of Eagle; northwest of Eagle; north of Edwards and Avon; and the Taylor Creek area, east of Basalt (Johnston 2001e). Elevations range from 6,800 to 8,400 feet. The plants are found on all exposures and mostly gentle slopes. Several recorded populations are partly in roadways or beside trails; however, usually the larger part of the population is outside the roadway or trail way (Johnston 2001e). *Penstemon harringtonii* apparently can establish on disturbed sites. In common with other *Penstemon* species, it can tolerate a mild to moderate degree of disturbance but not over a long time (Johnston 2001e). All four of the known occupied areas for *Penstemon harringtonii* on the White River National Forest are in elk and deer winter range; one of the four is also intensely used by motor vehicles and is located along a power line maintenance route.

Table BE-50. Travelway densities by alternative for lands within the sagebrush communities on the White River National Forest

Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.64	1.64	1.28
Mechanized	0.27	0.27	0.18
Mot/mech	1.91	1.91	1.47
Foot/horse	0.29	0.29	0.38
Total	2.20	2.20	1.85
Scheduled for Decommission (reduction in density)	0.00	0.49	0.75

Approximately 73 square miles of potential habitat were analyzed for these species.

Within sagebrush habitat, in alternative G there is a decrease in motorized, mechanized, and motorized/mechanized mix. In alternative G there is an increase in foot/horse traffic from 0.33 miles/square mile to 0.41 miles/square mile. Planned decommissioning of travelways reduces open travelway density in all of the alternatives when compared to the current, existing situation.

Determination

Even though Harrington beardtongue is geographically restricted to west-central Colorado, many populations occur within this area, and some are large and healthy. Most populations are on Bureau of Land Management public lands, with some on private lands. A few of the populations could be affected by management on public land or the White River National Forest; however, the species as a whole has no significant viability concerns. The determination under all the alternatives is **MAY ADVERSELY IMPACT INDIVIDUALS OF PENSTEMON HARRINGTONII OR ITS HABITAT BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.** This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

De Beque Phacelia

DeBeque phacelia (*Phacelia scopulina* var. *submutica*) is discussed in the BE for the forest plan under the taxonomic designation *Phacelia submutica*; that document provides more detailed information (USDA Forest Service/WRNF 2002a). The species is known only from south-central Garfield and north-central Mesa Counties, Colorado. Its distribution in Colorado is several hundred miles away from the closest occurrences of other related *Phacelia* species (Johnston 2001d). Because *Phacelia scopulina* var. *submutica* is an annual plant, its populations tend to fluctuate widely from one year to the next, based on the timing and quantity of spring and early summer precipitation. Population sizes vary from 1 to 10,000 individuals and site areas vary from 1 to 150 acres. Most sites are less than 1 acre, corresponding to patches of the hardpan clay on which *Phacelia scopulina* var. *submutica* grows (Johnston 2001d). On the White River National Forest, the three known populations of *Phacelia scopulina* var. *submutica* have been counted at more than 1,700, more than 2,500, and 50 individuals. The total known White River National Forest population is probably around 5,000 (Johnston 2001d). One of the populations is shared with public land managed by the BLM.

Phacelia scopulina var. *submutica* occur on nearly barren patches within flats and slopes. These brown clay patches are barren because there is a hard clay layer about 3 to 4 inches below the surface, preventing the growth of almost all perennial vegetation. These barren clay flats are nearly always from a narrow geological stratum, the Atwell Gulch or Shire Member of the Wasatch Formation. Elevations range from 5,040 to 6,200 feet. All the known populations are within about 10 miles of De Beque, Colorado, in a narrow range of elevations, so an important consideration is the combination of climate and hard clay-pan soils that makes only annual growth possible. It is very likely that a strong affinity exists for some chemical characteristics the associated soils (USDA Forest Service/WRNF 2002b).

Table BE-51. Travelway densities by alternative for lands within the shrubland communities on the White River National Forest

Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.99	0.99	0.85
Mechanized	0.27	0.27	0.18
Mot/mech	1.26	1.26	1.03
Foot/horse	0.33	0.33	0.41
Total	1.59	1.59	1.44
Scheduled for Decommission (reduction in density)	0.58	0.33	0.44

Approximately 434 square miles of potential habitat were analyzed for these species.

For shrubland communities that would support associated populations, in alternative G there is a decrease in motorized, mechanized, and motorized/mechanized mix. In Alternative G there is an increase in foot/horse traffic from 0.33 miles/square mile to 0.41 miles/square mile. Planned decommissioning of travelways reduces open travelway density in all of the alternatives when compared to the current, existing situation.

Determination

Because habitat occupied by *Phacelia scopulina* var. *submutica* is assigned by management area prescription as a research natural area, with vehicles restricted to designated routes in summer and the area closed to motorized travel in winter, any alternative **MAY ADVERSELY IMPACT INDIVIDUALS OF PHACELIA SCOPULINA VAR. SUBMUTICA OR ITS HABITAT BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.** This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Porter Feathergrass

Porter feathergrass (*Ptilagrostis porteri*) is discussed in the BE for the forest plan. That document (USDA Forest Service/WRNF 2002a) provides life history and other general information. Almost all the sites for *Ptilagrostis porteri* are in northern Park County, Colorado, although there is one small site in adjacent Summit County, Colorado, and a newly discovered site in northwestern El Paso County, Colorado (Johnston 2001c). There is an old collection (1873) from Twin Lakes, Lake County; however, the populations there have not been rediscovered in recent years. Population sizes vary from 15 to more than 1,500 individuals. The one population on the White River National Forest is small; only 15 individuals at last count (Johnston 2001c). In some years the plants were not found after some searching, probably because of responses to environmental conditions. The White River National Forest site is small to very small, although the population is apparently stable (Johnston 2001c).

The plants occur in short-to-mediumheight willow carrs, where tufted hairgrass is codominant (Johnston 2001c). However, the species seems to be more abundant on peat

hummocks in calcareous fens in northern South Park. The habitat for the one occurrence of *Ptilagrostis porteri* on the White River National Forest is a very small population that occurs in a small willow stand in the alpine zone (Johnston 2001c). As far as known, the large carr-planeleaf willow-bog-birch sites that represent the typical habitat for *Ptilagrostis porteri* do not occur on the White River National Forest. The White River National Forest site is relatively gentle and it would be easy to access the *Ptilagrostis* site in summer or winter. Given the steadily increasing vehicle use of the roads in this area, vehicles will begin using the *Ptilagrostis* site, which would have a detrimental effect on the population. This *Ptilagrostis* site has fairly deep soil (for an alpine site), so it is sensitive to vehicle use.

Table BE-52. Travelway densities by alternative for lands within the alpine habitats on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.11	0.11	0.10
Mechanized	0.07	0.07	0.06
Motorized/mechanized	0.18	0.18	0.16
Foot/horse	0.26	0.26	0.26
Total	0.44	0.44	0.42
Scheduled for decommission (reduction in density)	0.00	0.00	0.03

Approximately 474 square miles of potential habitat were analyzed for these areas.

Within alpine habitats, alternative G decreases motorized, mechanized, motorized/mechanized and foot/horse use. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

Determination

Because the population would be protected by designation of a special interest area under the forest plan, all alternatives would restrict motorized vehicles to designated routes in the summer and the area is closed to motorized travel in the winter. The determination under all the alternatives is **MAY ADVERSELY IMPACT INDIVIDUALS OF *PTILAGROSTIS PORTERI* OR ITS HABITAT BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.** This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Ice Cold Buttercup

Ice cold buttercup (*Ranunculus karelinii*) is discussed in the BE for the forest plan under the taxonomic designation *Ranunculus gelidus* ssp. *grayi*; further information can be found in that document (USDA Forest Service/WRNF 2002a). *Ranunculus karelinii* is still rare in R2, with small populations of about 7 to 10 occurrences in Wyoming, 15 to 20 in Colorado, and about 10 in Montana. The plants are small and difficult to spot unless the yellow flowers are visible; few places have been deliberately searched for this species. Most of the populations seem small, ranging from 3 to 50 in the six populations counted in Colorado, and are in the

high alpine zone (12,700 to 14,100 feet). The populations occur on ridge tops and peaks, in rocks and scree, where there have been low-lying snow banks or in the rivulets below them (Johnston 2001f). Many known sites are in wilderness areas and the habitats are usually away from trails. This species is disjunct from core populations in Alaska and Canada. While its habitat is high alpine, it is at risk from recreationists who climb the high peaks and trail realignments (Johnston 2001f). This species occurs in three sites on the White River National Forest, all in Summit County and all in the backcountry recreation, non-motorized management area prescription (Johnston 2001f).

Table BE-53. Travelway densities by alternative for lands within the alpine habitats on the White River National Forest

Type of use	Density (miles per square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.11	0.11	0.10
Mechanized	0.07	0.07	0.06
Motorized/mechanized	0.18	0.18	0.16
Foot/horse	0.26	0.26	0.26
Total	0.44	0.44	0.42
Scheduled for decommission (reduction in density)	0.00	0.00	0.03

Approximately 474 square miles of potential habitat were analyzed for these areas.

Within alpine habitats, alternative G decreases motorized, mechanized, motorized/mechanized and foot/horse use. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

Determination

Ice cold buttercup is within the backcountry recreation, non-motorized management areas prescription, which provides a measure of protection. On the assumption that only lawful, authorized activities will occur on this species' habitat, any of the alternatives **MAY ADVERSELY IMPACT INDIVIDUALS OF *RANUNCULUS KARELINII* OR ITS HABITAT BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.** This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Sun-loving Meadowrue

The Sun-loving meadowrue (*Thalictrum heliophilum*) was not covered by the BE for the forest plan. Sun-loving meadowrue is an endemic of western Colorado, known only from Rio Blanco, Garfield, and Mesa counties. This species is one of several that are endemic to a very restricted geologic formation in the dry basins and mesas of western Colorado. It is adapted to steep talus slopes on open, sunny sites on soils that are undeveloped, with sparse vegetation. Sun-loving meadowrue grows on sites with continually shifting substrates and is considered a pioneer species with the ability to colonize unstable, environmentally severe sites, under extremes of heat in summer, cold in winter, long dry spells, and high incident light. There are known occurrences from the Piceance Basin, the

Parachute and Roan creek drainages (off the White River National Forest), and the watershed divide between the Grand Mesa Uncompahgre National Forest and White River National Forest (Johnston 2000a). *Thalictrum heliophilum* occurrence on the White River National Forest is within the normal range of habitats for the species but is still separated from all other populations by the Colorado River. It is the only known population on the south side of the Colorado River (Johnston 2000a). The primary threat to this species is further oil shale exploration and extraction. Mining could cause a direct threat to habitat for this species by direct destruction and by increasing soil and substrate erosion and shifting (Johnston 2000a).

The White River National Forest site and most of the other potential habitats for this species on the White River National Forest occur on a large area without any roads. Access is difficult because of physically challenging terrain and the requirement to get permissions to cross private land (Johnston 2000a). Current forest plan direction is for elk habitat, which offers non-motorized recreation opportunities and limits motorized activities. There are designated routes that go to the pass at Kim, about half-mile east of the eastern edge of the known *Thalictrum heliophilum* population. There are no designated routes in or near the known population (Johnston, 2000a).

Table BE-54. Travelway densities by alternative for lands within the sagebrush communities on the White River National Forest

Sagebrush Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.64	1.64	1.28
Mechanized	0.27	0.27	0.18
Mot/mech	1.91	1.91	1.47
Foot/horse	0.29	0.29	0.38
Total	2.20	2.20	1.85
Scheduled for Decommission (reduction in density)	0.00	0.49	0.75

Approximately 73 square miles of potential habitat were analyzed for these species.

Within sagebrush habitat, in alternative G there is a decrease in motorized, mechanized, and motorized/mechanized mix. In alternative G there is an increase in foot/horse traffic from 0.33 miles/square mile to 0.41 miles/square mile. Planned decommissioning of travelways reduces open travelway density in all of the alternatives when compared to the current, existing situation.

Table BE-55. Travelway densities by alternative for lands within pinyon-juniper stands on the White River National Forest

P/J Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	0.33	0.33	0.27
Mechanized	0.08	0.08	0.05
Mot/mech	0.41	0.41	0.31
Foot/horse	0.03	0.03	0.09
Total	0.44	0.44	0.40
Scheduled for Decommission (reduction in density)	0.00	0.04	0.07

Approximately 33 square miles of potential habitat were analyzed for this species.

In alternative G motorized, mechanized and motorized mechanized mix will decrease in use. Foot/horse traffic will increase in alternative G from 0.03 miles/square mile to 0.09 miles/square mile. Planned decommissioning of travelways reduces open travelway density in all of the alternatives when compared to the current, existing situation.

Determination

On the assumption that only lawful, authorized activities will occur on this species’ habitat and because the species is endemic to a restricted area, any of the alternatives **MAY ADVERSELY IMPACT INDIVIDUALS OF THALICTRUM HELIOPHILUM OR ITS HABITAT BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.** This determination is predicated on the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and that any new projects will include site-specific analysis.

Sphagnum moss

Sphagnum moss (*Sphagnum angustifolium*) was not analyzed in the forest plan. *Sphagnum angustifolium* is typically associated with fens. This species is common across the continental boreal area, where it forms loose lawns in poor fens and bogs. It is typically found in fens with a pH of 4.5-5.5. This species is occasionally associated with *Tomenthypnum falcifolium*, *Sphagnum teres* or *Sphagnum warnstorffii* (www.peatnet.siu.edu). This species has not been surveyed for on the White River National Forest, but has the potential to occur on the forest.

Table BE-56. Comparison of travelway densities by alternative for lands within potential riparian habitat on the White River National Forest

Riparian Type of Use	Density (miles/square mile)		
	Alternative A	Alternative F	Alternative G
Motorized	1.03	1.03	0.91
Mechanized	0.52	0.52	0.44
Mot/mech	1.55	1.55	1.35
Foot/horse	0.96	0.96	1.00
Total	2.51	2.51	2.35
Scheduled for Decommission (reduction in density)	0.00	0.39	0.52

Approximately 91 square miles of potential habitat were analyzed for this species.

Within riparian habitats, alternative G decreases motorized, mechanized, and motorized/mechanized mix use. Alternative G increases foot/horse traffic from 0.96 (miles/square mile) to 1.0. Planned decommissioning of travelways reduces open travelway density in alternative G when compared to the current, existing situation.

The forest plan provides direction that includes significant protection for riparian areas, which would be the primary habitat for this species on the White River National Forest. This direction includes watershed conservation practices (WCP) direction, riparian protection standards and guidelines for grazing, and standards for protection of sensitive species and their habitats (USDA Forest Service/WRNF 2002a).

Determination

Sphagnum moss is associated with fens. This species is common across the continental boreal area, where it forms loose lawns in poor fens and bogs. It is typically found in fens with a pH of 4.5-5.5. This species is occasionally associated with *Tomenthypnum falcifolium*, *Sphagnum teres* or *Sphagnum warnstorffii* (www.peatnet.siu.edu). Because the species is not currently known to occur on the WRNF, the determination under any of the alternatives is **MAY ADVERSELY IMPACT INDIVIDUALS *Sphagnum angustifolium* , BUT WOULD NOT BE LIKELY TO RESULT IN A LOSS OF VIABILITY ON THE PLANNING AREA, NOR CAUSE A TREND TO FEDERAL LISTING OR A LOSS OF SPECIES VIABILITY RANGEWIDE.** This is following the assumptions inherent in the analysis—that there will be no new road or trail construction as a result of the proposed action, that the only ground-disturbing activities resulting from the proposed action will be routine maintenance activities and decommissioning of existing roads and trails, and any new projects will include site specific analysis.

