

**An Update to the Biological Assessment
and Biological Evaluation of the
1996 Rio Grande National Forest
Revised Land and Resource Management Plan
in Support of the
Proposed Environmental Assessment to add MIS**

Rio Grande National Forest

April 2003

An Update to the Biological Assessment and Biological Evaluation of the 1996 Rio Grande National Forest Revised Land and Resource Management Plan in Support of the Proposed Environmental Assessment to add MIS (2003)

INTRODUCTION

Regional Forester Elizabeth Estill signed the Record of Decision for the Revised Rio Grande National Forest Land and Resource Management Plan (Forest Plan) on November 7, 1996. The Rio Grande National Forest (RGNF) received several appeals of the Forest Plan and its accompanying Final Environmental Impact Statement (FEIS), one of which was from Colorado Environmental Coalition (CEC) *et al.* On January 19, 2001, the Chief of the Forest Service rendered a decision on CEC's appeal. On March 29, 2001, the Deputy Under Secretary for Natural Resources and Environment, Department of Agriculture, completed a discretionary review of the Chief's decision on the appeal. The Deputy Under Secretary affirmed in part and reversed in part the Chief's decision on the appeal and provided a new set of instructions to complete for the Forest Plan. These included instructions to add to the record the scientific literature cited used to determine habitat needs, distribution, and trends of sensitive species and MIS. An update of the Forest Plan's Biological Assessment (BA) and Biological Evaluation (BE) will, in part, address these instructions.

The BA and BE for the Forest Plan were completed and signed on October 18, 1996 (FEIS Appendices pg. F1-F23). The BA determined that any of the Forest Plan alternatives "*may affect, is not likely to adversely affect*" any of the listed species. The BE determined that any of the Forest Plan alternatives "*may adversely impact individuals, but are not likely to result in a loss of viability in the Forest Planning Area, nor cause a trend to federal listing or a loss of species viability range-wide*". Subsequent to the adoption of the Forest Plan, the status of some of the species changed. The Canada lynx was listed as threatened, the mountain plover has been proposed for listing as threatened, the Gunnison sage-grouse has been proposed as a candidate species, and the peregrine falcon has been delisted.

The U. S. Fish and Wildlife Service (FWS) listed the lynx as threatened, effective April 24, 2000 (65 FR 16051). The FWS concluded the chief threat to the lynx in the contiguous United States was the lack of guidance to conserve the species in federal land management Forest Plans. Formal consultation, as required by the Endangered Species Act (ESA), was completed on October 25, 2000, when the FWS issued its Biological Opinion (BO) on the Programmatic Assessment of the Effects of National Forest Land and Resource Management Plans and Bureau of Land Management Use Plans on Canada Lynx (Hickenbottom et al. 1999). In the BO, the FWS concluded that Forest Plans as implemented in conjunction with the Conservation Agreement (U.S. Forest Service and U.S. Fish and Wildlife Service, Feb. 7, 2000) *are not likely to jeopardize the continued existence of the lynx*. The FWS no jeopardy conclusion for National Forest System lands is based upon continued implementation of the Conservation Agreement (CA) until such time that Forest Plans are amended or revised to consider the needs of lynx.

The FWS proposed to list the mountain plover as threatened in the Federal Register February 16, 1999 (64 FR 7587) and re-opened the comment period for the proposed listing in the Federal Register on December 5, 2002 (67 FR 72396) and again on February 21, 2003 (68 FR 8487). As required by the ESA, Federal entities must consider the effects of proposed actions on the proposed species and confer with the FWS if the proposed action is likely to jeopardize the continued existence of the proposed species or destroy or adversely modify proposed critical habitat.

The Gunnison sage-grouse was proposed as a candidate species by the FWS December 29, 2000 (65 FR 82310). Under the August 30, 2000 *Memorandum Of Agreement Endangered Species Act Section 7 Programmatic Consultations and Coordination among Bureau of Land Management, Forest Service, National Marine Fisheries Service and Fish and Wildlife Service* (MOA), the Forest Service (FS) agreed to confer with the FWS on the review of effects of programmatic actions on candidate species. This MOA outlines guidance and procedures for section 7 consultations as well as consideration of candidate species conservation in Forest Plans and other programmatic level proposals prepared by the Bureau of Land Management (BLM) and FS. The scope of this MOA includes Land and Resource Management Forest Plans prepared by the FS pursuant to the National Forest Management Act of 1976 [16 U.S.C. 1601-1614] and Resource Management Forest Plans and Management Framework Forest Plans prepared by the BLM pursuant to the Federal Land Policy and Management Act of 1976 [43 U.S.C. 1701-1784].

The peregrine falcon was delisted August 25, 1999 (64 FR 46541). The FWS proposed a monitoring plan on July 31, 2001 (66 FR 39523) and extended the comment period on September 27, 2001 (66 FR 49395). A draft post-delisting monitoring plan was made available in November 2002 for State and cooperator review and a draft cooperator use copy was made available in March 2003, pending final signature. The plan fulfills the final process of species recovery, as outlined in section 4(g)(1) of the ESA, which requires that the FWS “...implement a system in cooperation with the States to monitor effectively for not less than five years the status of all species which have recovered to the point at which the measures provided pursuant to this Act [the ESA].”

All of this new information will be incorporated into an update of the Forest Plan’s BA and BE, in response to the Deputy Under Secretary’s instruction that the Forest Plan modify the existing viability analysis to correct the identified deficiencies:

- *Management indicator species were not identified, which does not meet the plain language requirements of 36 CFR 219.19.*
- *Inadequate analysis was conducted relating to species referred to in the FEIS (pages F 20-23) as the “Riparian Group” and the “Nonforested Group.”*
- *No map of rangeland for which livestock grazing permits has been issued.*
- *Habitat effects were displayed for only 10 years following adoption of the Revised Forest Plan.*
- *Cursory references were made to the scientific literature regarding habitat needs, distribution, and population trends of sensitive species.*

Specifically, the Deputy Under Secretary instructed the Forest to make the following corrections:

- *Select appropriate MIS per 36 CFR 219.19 and display the environmental effects of Forest Plan alternatives on such species.*
- *Expand the display of environmental effects of Forest Plan alternatives on Riparian Group and Non-forested Group species to be commensurate with the display in the FEIS of effects on other Groups.*
- *Display habitat effects for a longer time period, to be determined by the Forest based on consideration of rotation age and rate of change in Forest Plant communities due to succession or management activities. As part of the coarse-filter and fine-filter analyses contained in the FEIS, habitat/vegetation types should be forecast into the future to ensure the persistence of these ecosystems. In addition, the disclosure of effects should include a*

- *Add direction to the monitoring Forest Plan if MIS are selected that the Revised Forest Plan does not already require to be monitored.*
- *Add to the record the scientific literature cites used to determine habitat needs, distribution, and trends of sensitive species and MIS.*

The Forest intends to meet the first, fourth and fifth items of direction through the formal selection of appropriate MIS as proposed in the Environmental Assessment (EA). The EA proposes to: 1) adopt MIS to assist the RGNF in analyzing and evaluating species viability; 2) incorporate the MIS into the Forest Plan and amend standards and guidelines as appropriate; 3) initiate additional monitoring and evaluation requirements related to the MIS to be used in evaluating species viability; and 4) add to the record the scientific literature cites used in the preparation of the MIS species assessments and evaluation documents, and in the update of the BA and BE.

Additional reports were completed in conjunction with the EA in order to address the remaining items of direction and provide precursory information for both the BA and BE. These reports include the following:

- 1) Expanded Habitat Effects Display Report (January 2003). This report expands the effects display of projected management activities on all affected habitats through a five-decade period.
- 2) Migratory Bird Supplemental Information Report (November 2002). This report evaluates the effects of the Forest Plan on migratory birds, as directed by Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds).
- 3) MIS Effects Display Across Alternatives (March 2003). This report evaluates and displays the effects of all Forest Plan alternatives on the selected MIS using the expanded timeframes of the Habitat Effects Display Report.
- 4) Expanded Environmental Effects Display Report (in progress). This report will evaluate and display the effects of all Forest Plan alternatives on Forest sensitive species in riparian and non-forested habitats.

PURPOSE AND NEED

The purpose of the updated BA and BE is to update the Forest Plan and to evaluate the effects of the EA on the Forest's threatened, endangered, proposed, candidate and sensitive species. On March 28, 2002, the Forest requested a list of threatened, endangered and proposed species to be considered when completing biological assessments. On August 8, 2002, the FWS concurred with the Forest's proposed unit species list of threatened, endangered and proposed species and reconfirmed the list on February 19, 2003. Those species will be addressed in the BA. The list also included 2 candidate species, which will be addressed in the BE as Region 2 Forest sensitive species.

DESCRIPTION OF THE ALTERNATIVES

Alternative 1: Selected alternative (Alternative G) of the 1996 Revised Forest Plan. The analysis of this alternative will review the existing Forest Plan BA and BE for currency and sufficiency, will incorporate new information, and make a determination of effect for each species. The

analysis of this alternative will serve to update the existing BA and BE to reflect the current Forest unit species list.

Alternative 2: Selected alternative (Alternative G) of the 1996 Revised Forest Plan with the amended MIS. The analysis of this alternative will examine the effects of amending MIS into the Forest Plan, adding standards and guidelines, and incorporating changes to the monitoring plan.

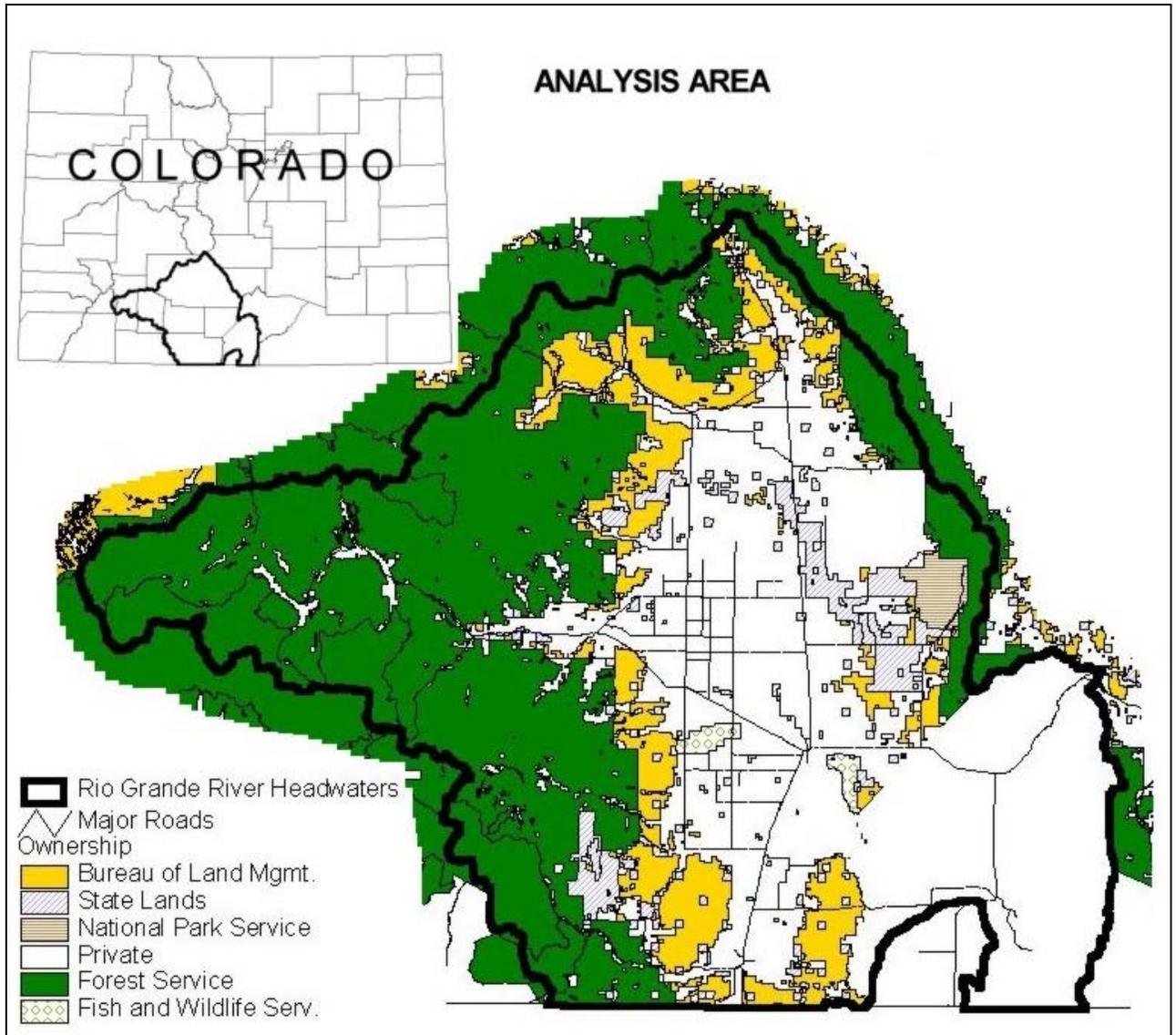
TIMING AND DURATION

Forest Plan decisions are revisited every 10-15 years as required by the National Forest Management Act. As the length of time expands, the confidence in predicting environmental consequences becomes increasingly speculative. Consequently, the Forest determined that five decades was a reasonable compromise for expanding the display of habitat effects for a longer period of time without diluting the reliability of the effects analysis with an abundance of successive assumptions. The species effects analyses in the BA and BE will use the same five-decade time projection.

LOCATION/MAP

The RGNF is located within the Upper Rio Grande River Headwaters area in south-central Colorado. The Forest contains approximately 1,852,000 acres (see Figure 1.).

Figure 1. Map of the Rio Grande National Forest



BIOLOGICAL ASSESSMENT

I. Species Evaluated

The Forest Plan BA addressed the effects of the alternatives for the following species: Bald eagle, Mexican spotted owl, Southwestern willow flycatcher, peregrine falcon, and Uncompahgre fritillary butterfly. This analysis will review the currency and sufficiency of the Forest Plan BA, and update it with new information for these species, except the peregrine falcon, which has been delisted and will be reviewed in the BE. This analysis also will include 2 new species, the Canada lynx (listed) and the mountain plover (proposed)

Table 1. List of Endangered, Threatened and Proposed species known or suspected on the RGNF.

Species	Basic Habitat Description
Uncompahgre fritillary butterfly (e) <i>Boloria acrocneuma</i>	Alpine habitat above 11,000 with a snow willow component. Sites are generally found on north, northeast and east aspects.
Canada lynx (t) <i>Lynx canadensis</i>	Early successional and late mixed conifer forests and aspen/willow/shrub-steppe are used for foraging. Late-successional forests are used for denning, as well as winter foraging.
Southwestern willow flycatcher (e) <i>Empidonax trailii extimus</i>	Riparian habitats along rivers, streams or other wetlands, where dense growths of willows or other shrub and medium sized trees are present, often with a scattered overstory of cottonwood.
Mexican spotted owl (t) <i>Strix occidentalis lucida</i>	Steep canyons with a Douglas-fir, white fir, ponderosa pine/pinyon-juniper component.
Bald eagle (t) <i>Haliaeetus leucocephalus</i>	Nests and roosts are usually found in open-branched trees near larger lakes, streams, rivers and reservoirs.
Mountain plover (p) <i>Charadrius montanus</i>	High plains/short grass prairie habitats, often associated with prairie dog towns. Nesting areas characterized by very short vegetation with significant areas of bare ground.

II. Consultation History

Forest Plan

- Biological Assessment for the Rio Grande National Forest Revised Land and Resource Management Plan (1996) and FWS concurrence of *may affect, not likely to adversely affect* to all species (November 6, 1996).
- Biological Assessment for the Prescribed Fire Plan EA (1997) and FWS concurrence of *no effect* to the Southwestern willow flycatcher and of *may affect, not likely to adversely affect* to the Mexican spotted owl (January 22, 1997).
- Updated Biological Assessment for the Prescribed Fire Plan EA (2002) and FWS concurrence of *no effect* to Uncompahgre fritillary butterfly and of *may affect, not likely to adversely affect* Canada lynx (September 19, 2002).

- Biological Assessment of Programmatic - Outfitter and Guide Special Use Permit Renewals on the Rio Grande National Forest (2002) and FWS concurrence of *may affect, not likely to adversely affect* to all species (September 4, 2002).
- Biological Assessment for Developed Site - Deferred Maintenance Projects on the Rio Grande National Forest (2002) determination of *no effect* to all species except Canada lynx, which was screened for programmatic concurrence of *may affect, not likely to adversely affect* (September 9, 2002).
- Biological Assessment for Forest Developed Recreation Site Maintenance Activities on the Rio Grande National Forest (2002) determination of *no effect* to all species except Canada lynx, which was screened for programmatic concurrence of *may affect, not likely to adversely affect* (September 9, 2002).
- Biological Assessment for Programmatic - Minor Recreation Special Use Permit Issuances on the Rio Grande National Forest (2002) and FWS concurrence of *no effect* to Uncompahgre fritillary butterfly and of *may affect, not likely to adversely affect* to all other species (September 23, 2002).
- Biological Assessment for Trail Maintenance Activities on the Rio Grande National Forest (2002) and FWS concurrence of *no effect* to Canada lynx and mountain plover and of *may affect, not likely to adversely affect* all other species (October 11, 2002).
- Programmatic Biological Assessment/Biological Evaluation for Small Sales and other Forest Products on the Rio Grande National Forest (2001) determination of *no effect* to all species except Canada lynx, which was screened for programmatic concurrence of *may affect, not likely to adversely affect* (July 25, 2001).

Canada Lynx

- Biological Assessment of the Effects of National Forest Land and Resource Management Plans and Bureau of Land Management Land Use Plans on Canada Lynx (1999) and the FWS Biological Opinion of *may affect, likely to adversely affect* (October 25, 2000).
- Canada Lynx Consultation Agreement between the Colorado U. S. Fish and Wildlife Service and the Forest Service Rocky Mountain Region (May 30, 2000).
- Reauthorization of Canada Lynx Consultation Agreement between the Colorado U. S. Fish and Wildlife Service and the Forest Service Rocky Mountain Region (June 4, 2001).

Southwestern Willow Flycatcher

- Biological Assessment for the Southwestern Willow Flycatcher - Need for Evaluating Grazing Allotment Operating Plans (1995) and FWS concurrence of *may affect, not likely to adversely affect* (September 15, 1995).
- 1997 Addendum to the 1995 Biological Assessment and FWS concurrence of *may affect, not likely to adversely affect* (July 17, 1997).

Uncompahgre Fritillary Butterfly

- Biological Assessment for the Uncompahgre Fritillary Butterfly Range Permit Reissuance with a determination of *no effect* (July 7 1995).

III. Habitat Overview

The Forest Plan FEIS (FEIS pgs. 3-41 to 3-70) described Landtype Associations (LTAs) as broad ecological units expressed as similar Forest Plant communities and ecological potential. LTAs

have a spatial resolution of hundreds to thousands of acres in size, making them generally useful and appropriate for Forest Plan scale analysis. However, except for the Canada lynx, species addressed in this biological assessment have such specialized habitat needs, that their habitats are limited in extent on the Forest and do not lend themselves to that scale of analysis. Still, use of the LTAs may provide a context for the amount of available habitat and the relative amount of risk associated with management activities on the RGNF. None of these species has designated critical habitat on the RGNF.

Table 2. Primary LTA of Listed and Proposed Species and Acres of Potential/Suitable Habitat

LISTED AND PROPOSED SPECIES	PRIMARY LANDTYPE ASSOCIATION							POTENTIAL/SUITABLE HABITAT ON RGNF
	Spruce/ Fir (LTAs 1 &13)	Willow/ Sedge (LTA 10)	Alpine (LTA 4)	Mixed Conifer (LTA 3)	Ponderosa Pine (LTA 5)	Western Wheat-Grass (LTA 12)	Aspen (LTA 2)	Suitable Acres in the LTA
Uncompahgre fritillary butterfly (e) <i>Boloria acrocnema</i>			X					4,250 (estimated acres of snow willow habitat in the San Juan Mountains)
Canada lynx (t) <i>Lynx canadensis</i>	X	X		X			X	1,083,953 (2002 LAU baseline)
Southwestern willow flycatcher (e) <i>Empidonax trailii extimus</i>		X						2,100 (GIS mapping estimate)
Mexican spotted owl (t) <i>Strix occidentalis lucida</i>				X	X			194,010 (estimated acres of late successional structural class)
Bald eagle (t) <i>Haliaeetus leucocephalus</i>		X						1,220 (estimated acres of lakes)
Mountain plover (p) <i>Charadrius montanus</i>						X		1,783 (estimated acres of mapped prairie dog towns)

IV. Analysis of Effects

CANADA LYNX

1. General Habitat Associations

Note: this information is from the LCAS (Ruediger et al. 2000) unless otherwise cited

Lynx are typically associated with large tracts of higher elevation boreal or coniferous forest that is often interspersed with rock outcrops, bogs and thickets. In Colorado, lynx habitat is likely found within the subalpine and upper montane forest zones, typically between 8,000 and 12,000 feet in elevation. At the upper elevations of the subalpine, forests are typically dominated by subalpine fir and Engelmann spruce. As the subalpine transitions to the upper montane, spruce-fir forests begin to give way to a predominance of lodgepole pine, aspen, or mixed stands of pine, aspen, and spruce. Engelmann spruce may retain dominance on cooler, more mesic mid elevation sites, intermixed with aspen, lodgepole pine, and Douglas fir. Lodgepole pine reaches its southern limits in the central parts of the ecosystem, while southwestern white fir first makes its appearance in the San Juan Mountains.

Because of latitude, lynx habitat in the Southern Rockies is naturally fragmented, a function of elevation, aspect, and local moisture regimes. The high alpine tundra environments and lower, mostly open valleys typically separate subalpine and upper montane forest. Drier south- and west-facing slopes may also break up the continuity of cooler, mesic high-elevation forests that are believed to constitute primary vegetation contributing to lynx habitat.

Lynx habitat should be thought of in terms of a habitat mosaic within these forest landscapes, rather than as simple vegetation types. Spruce-fir, lodgepole pine, white fir, aspen, and mesic Douglas-fir may all provide foraging and/or denning habitat for lynx. Also potentially important in many parts of the Southern Rockies are the high elevation sagebrush and mountain shrub communities found adjacent to or intermixed with forested communities, affording potentially important alternative prey resources. Likewise, riparian and wetland shrub communities (for example, willow, alder, serviceberry) found in valleys, drainages, wet meadows, and moist timberline locations may support important prey resources.

Lynx transplanted to Colorado in 1999 and 2000 are most often found in the spruce-fir cover type, with frequent use of riparian and valley wetland shrub habitats of the upper montane and subalpine zones, especially in the late summer-fall. The ecotones formed by the integration of these various vegetation communities may offer some of the richest foraging opportunities for lynx. Foraging habitat for lynx in the Southern Rocky Mountains Geographic Area (SRMGA) includes all of the vegetation community types discussed above.

It remains unclear what role early-successional forests play in providing quality lynx foraging habitat in the SRMGA. Fire exclusion in this century has led to the maturation of many lodgepole pine forests into highly stocked, even-aged stands that do not now provide the dense ground- and snow-level cover and forage necessary to support higher densities of snowshoe hare. While these stands have a high density of tree boles, their crowns have lifted far above the reach of hares even in the deepest snowpacks. At the same time, the high dense canopy limits light penetration, contributing to a depauperate understory. Consequently, these stand types have low habitat value for snowshoe hare and other small mammal prey species, and consequently lynx. Because of their structure, mature and late-successional spruce-fir forests, by contrast, provide these characteristics and are, therefore, far superior to mature lodgepole pine. Mature and late successional spruce-fir forests are also excellent producers of red squirrels, an important alternate prey species for lynx.

Conifer-aspen forests, particularly those with dense regeneration or with an extensive shrub and woody debris understory component, may be important for snowshoe hares and other prey species. While extensive stands of pure aspen may not provide quality hare habitat due to deficiencies in winter habitat characteristics, when intermixed with spruce-fir or young lodgepole pine stands, aspen (especially younger stands) may substantially contribute to prey productivity. Regenerating burns are often quite productive because of the mixed coniferous/deciduous species composition, multiple age classes, shrub layer, dense herbaceous layer, and extensive downed woody debris. These conditions provide excellent habitat for snowshoe hare and other prey species.

Shrubland communities are found in many high elevation drainages, valleys, basins and benches between and adjacent to subalpine and upper montane forests. When these communities integrate with or are proximal to primary coniferous and conifer/aspen habitats, they may provide important alternate prey resources for lynx. Large or medium willow/alder carrs, beaver pond complexes, and shrub dominated riparian communities provide important habitat for snowshoe hare, grouse, ptarmigan (winter), and other prey species that may be utilized by lynx. The

ecotones and edges produced by these intermixed habitats may be among the most productive foraging sites for lynx in the SRMGA.

For denning habitat to be functional, it must be in or adjacent to large areas of quality foraging habitat. Because lynx may move their kittens frequently in the first few months, denning habitat should provide multiple quality den site options to the female. Lynx females seem to select dense, mature forest habitats that contain large woody debris, such as fallen trees or upturned stumps, to provide security and thermal cover for kittens.

Denning habitat in the Southern Rockies is likely to occur most often in late-successional spruce-fir forest with a substantial amount of large diameter woody debris on the forest floor, frequently found on north to northeast exposures. Selection of den sites on cooler exposures probably relates to thermoregulation, while the forest floor structure provides adequate protection for kittens. Although late successional spruce-fir forests most often provide these characteristics, it is likely that forest floor structure, and perhaps exposure, is more important than age class of the forest stand. Younger forests may, in some cases, provide similar characteristics. Fires, blowdowns, and even certain timber harvesting practices can leave considerable stacked and jackstrawed large-diameter woody debris under young forest canopies, providing excellent denning potential. The common component of natal den sites appears to be large woody debris, either downed logs or root wads. These den sites may be located within older regenerating stands (>20 years since disturbance) or in mature conifer or mixed conifer-deciduous forests. Stand structure appears to be of more importance than forest cover type.

Home range size varies considerably and is usually dependent upon prey base availability. Typical home range territories across southern Canada and lower 48 states vary between 15 to 147 square miles. Lynx movement and dispersal distances vary greatly. Documented daily movement distances have varied from 1.6 miles to 3.2 miles depending upon prey densities. Exploratory movements, usually in summer months, outside of identified home range boundaries, by lynx have varied between 9 and 25 miles. Both adult and sub-adults have been documented making long distance movements during periods of prey scarcity; recorded distances have been up to 600 miles.

Travel cover allows for movement of lynx within their home ranges and provides access to denning sites and foraging habitats. In general, suitable travel cover consists of coniferous or deciduous vegetation four feet taller than the average snowfall with a closed canopy that is adjacent to foraging habitat. Most successional stages serve as travel cover, provided they offer vegetative cover in sufficient quantity and arrangement to allow for the movement of lynx. Narrow forested mountain ridges or plateaus may provide a linkage between more extensive areas of lynx habitat. Wooded riparian communities may provide travel cover across otherwise open valley floors between mountain ranges. Linkages may be provided by forest stringers that connect large forested areas, or by low, forested passes that connect subalpine forests on opposite sides of a mountain range.

2. Local Habitat Relationships

Table 3 provides a summary of the types and acres of lynx habitat on the Forest (USDA 2003). There are an estimated 1,083,953 acres of lynx habitat, based on habitat criteria provided by the national interagency Lynx Steering Committee (USDA FS, USDI BLM and USDI FWS 2000). Lynx habitat is found throughout the Forest in almost all of the LTAs, but is primarily concentrated within subalpine, forested, and riparian LTAs.

Table 3. Summary of Lynx Habitat Acres (Percent) on the RGNF

LAU Name	LAU #	Denning ¹	Winter Foraging ²	Other ³	Currently Suitable Habitat ⁴	Currently Unsuitable Habitat ⁵	Total Lynx Habitat	Total Non-Habitat ⁶	Total LAU
4 Mile to La Garita Creek	20903	40,119 (35)	31,915 (28)	33,624 (29)	105,658	9,038 (8)	114,696	68,552	183,248
Alamosa	20916	10,426 (33)	3,857 (12)	15,912 (50)	30,195	1,759 (5)	31,954	21,354	53,308
Bonanza-Cochetopa	20902	23,973 (24)	37,077 (37)	33,540 (33)	94,590	5,853 (6)	100,443	54,841	155,283
Conejos Canyon	20918	14,588 (41)	2,078 (6)	17,528 (49)	34,194	1,416 (4)	35,610	22,565	58,175
Creede	20905	10,657 (29)	4,914 (13)	20,207 (55)	35,777	636 (2)	36,413	54,900	91,313
Embargo	20907	20,189 (30)	14,372 (21)	23,328 (35)	57,889	9,584 (14)	67,473	61,054	128,527
Hogback	20912	34,896 (50)	9,400 (14)	21,419 (31)	65,715	3,743 (5)	69,458	32,894	102,352
La Jara	20917	17,482 (29)	13,295 (22)	26,641 (44)	57,418	2,563 (4)	59,981	39,880	99,861
Lagarita Wilderness	20908	6,037 (37)	1,545 (10)	7,758 (48)	15,340	768 (5)	16,108	22,372	38,480
Pinos-Rock	20915	19,451 (33)	9,922 (17)	24,271 (41)	53,643	5,714 (10)	59,357	35,575	94,932
Rito-Archuleta	20920	14,446 (34)	6,013 (14)	17,789 (42)	38,248	4,393 (10)	42,641	51,477	94,004
Saguache Park	20904	13,216 (43)	5,936 (19)	11,534 (38)	30,686	0 (0)	30,686	47,289	77,975
Sangre de Cristo North	20901	18,047 (33)	9,813 (18)	26,394 (49)	54,254	0 (0)	54,254	59,174	113,428
Sangre de Cristo South	20910	10,991 (47)	2,852 (12)	9,444 (41)	23,287	0 (0)	23,287	19,868	43,155
Snowshoe	20914	18,133 (46)	4,800 (12)	16,436 (41)	39,369	360 (1)	39,729	19,153	58,882
Stoney Pass	20909	23,749 (53)	5,041 (11)	16,143 (36)	44,943	29 (0)	44,972	58,234	103,197
Thirtymile	20911	19,393 (52)	5,017 (13)	11,455 (31)	35,865	1,624 (4)	37,489	25,760	63,249
Tres Mesa	20906	13,206 (30)	6,314 (14)	18,278 (42)	37,798	6,092 (14)	43,890	49,926	93,816
Trout-Handkerchief	20913	54,906 (41)	15,829 (12)	43,363 (32)	114,097	20,119 (15)	134,216	42,534	176,750
Victoria-Chama	20919	15,127 (37)	10,048 (24)	15,356 (37)	40,531	767 (2)	41,298	30,508	71,807
Total		399,034 (37)	200,039 (18)	410,421 (38)	1,009,494	74,459 (7)	1,083,953	817,928	1,901,871

¹Denning habitat = Total acres within the LAU mapped as suitable denning habitat (also serves as winter foraging).

²Winter foraging habitat = Additional mapped winter foraging habitat (all habitat mapped as denning is also considered winter foraging but is not included in this number).

³Other = Low quality and additional summer foraging habitat.

⁴Currently suitable lynx habitat = Total denning, winter, and other habitat.

Four lynx linkage areas have been delineated on the RGNF (map on file in the Supervisor's Office).

- **Poncha Pass:** This linkage area provides for movement between the San Juans to the Sawatch and Sangre de Cristo Ranges. It connects central Colorado to southern Colorado and is a very important connection. The topography pattern and vegetation results in a funneling north-south connection near Poncha Pass. It also includes Monarch and Marshall Passes, as they provide a series of habitat and terrain features that provide a "stepping stones" type series of connections.
- **Cochetopa Hills/North Pass:** This linkage area provides for North-south movements from the San Juans to the Sawatch Ranges. It is a well-used movement corridor by lynx. North Pass (Highway 114) is a potential barrier or impediment to movements.
- **Slumgullion Pass:** This linkage area includes the Spring Creek and Indian Creek areas. It provides a north-south connection between Lake City to the Creede area, with threats that include highway crossing problems (Hwy 149).
- **Wolf Creek Pass:** This linkage area includes areas on both sides of Hwy 160, and provides for north-south movement. Lynx mortality at Pass Creek on the east side of the pass documents it is being used by lynx. Threats include a high volume, two lane highway, which is currently being upgraded.

3. Local Survey/Occurrence Information

Note: this information is from the LCAS (Ruediger et al. 2000) unless otherwise cited

Until recently, it was generally assumed that the lynx was an indigenous but uncommon species in the SRMGA. However, records are coming to light that paint a different picture. Lynx may have been relatively common in Colorado, at least near or prior to the turn of the century. Records of lynx occurrence are distributed throughout mountainous areas of Colorado. The southernmost record is from the southern San Juans (Conejos County), one mile from the New Mexico border. Although no records exist from New Mexico, suitable habitat extends into north-central New Mexico along the Sangre de Cristo mountain range and, especially, in the San Juan Mountains.

Although lynx appear to persist in the SRMGA, the population has failed to rebound in this ecosystem despite the removal of certain key suppressing factors, including commercial trapping and indiscriminate predator control. Biologists in Colorado have concluded that this extant lynx population is too small to be self-sustaining or capable of naturally rebounding to self-sustaining levels.

In 1998, a cooperative effort between the Colorado Division of Wildlife (CDOW), the FS, FWS, BLM, and the National Park Service (NPS) developed a draft reintroduction conservation strategy for the Canada lynx and wolverine (Seidel et al. 1998) to re-establish a self-sustaining, breeding population of lynx throughout the Southern Rockies. A total of 96 lynx were transplanted into the San Juan Mountains during 1999 and 2000. Of these, 45 have died from various causes. Currently, the CDOW is tracking 31 of the 51 lynx still possibly alive (Shenk 2003).

Most lynx continue to use terrain within the core research area, which extends from New Mexico north to Gunnison, west to Taylor Mesa and east to Monarch Pass. There are some lynx north of

Gunnison up to the I70 corridor and in the Taylor Park area, but no lynx are known to be north of I70 at this time (Shenk 2003). Some lynx have established or appear to be establishing resident territories in the San Juan Mountains, including the RGNF. However, no evidence of reproduction has been found (Shenk 2003). CDOW augmentation continues with additional releases beginning in 2003.

4. Risk Factors

Various threats were identified by the FWS in the proposed rule to list Canada lynx as potentially affecting lynx populations, including competition, habitat loss and fragmentation, and the inadequacy of existing regulatory mechanisms to protect the species, specifically the lack of guidance for the conservation of lynx in Forest Plans and BLM Land Use Plans. A cooperative team from the FS and BLM prepared a national programmatic BA of the potential effects resulting from these Plans within the 16 state area where lynx were proposed for listing. The BA made a determination that the Plans *may affect and are likely to adversely affect the lynx*.

For the SRMGA, which includes the RGNF, the BA found adverse effects based on 11 of the 15 evaluation criteria used to analyze the programmatic effects of Plans on the lynx. The finding of adverse effect was primarily based on Plans providing weak direction regarding the evaluation criteria. Findings specific to the RGNF Forest Plan are similar in that regard and are shown in Table 4.

Table 4. Summary of how RGNF Forest Plan direction meets evaluation criteria.

EVALUATION CRITERIA	HOW RGNF MEETS CRITERIA
Denning Habitat (Forest Plan contains either specific or incidental direction that results in providing denning habitat)	Marginally
Foraging Habitat (Forest Plan contains either specific or incidental direction that results in providing foraging habitat)	Marginally
Habitat Conversions (Forest Plan prohibits habitat conversions that would reduce habitat suitability for lynx)	Does not meet
Thinning (Forest Plan provides direction for integrating lynx habitat needs in stand thinning projects)	Marginally
Fire Management (Forest Plan incorporates fire management direction that helps maintain or improve lynx habitat).	Fully
Landscape Patterns (Forest Plan direction either directly or indirectly results in landscape vegetation patterns that maintain or improve lynx habitat suitability)	Marginally
Forest Roads (Forest Plan contains direction pertaining to roads that helps promote lynx conservation)	Marginally
Developed Recreation (Forest Plan contains direction that mitigates the effects of developed recreation on lynx and lynx habitat)	Does not meet
Non-winter Dispersed Recreation (Forest Plan contains direction that mitigates the effects of non-winter dispersed recreation on lynx and lynx habitat)	Substantially

habitat)	
Winter Dispersed Recreation (Forest Plan contains direction that mitigates the effects of winter dispersed recreation on lynx and lynx habitat)	Substantially
Minerals (Forest Plan contains direction that mitigates the effects of minerals and energy development on lynx and lynx habitat)	Does not meet
Connectivity (Forest Plan contains direction that mitigates potential barriers to lynx movement and maintains habitat connectivity. Riparian management and other connectivity issues are considered)	Marginally
Land Adjustments (Forest Plan contains direction that maintains or improves lynx habitat during land tenure adjustments)	Marginally
Coordination (Forest Plan contains specific direction for coordinating issues that may affect lynx with nearby units and other agencies)	Marginally
Monitoring (Forest Plan contains direction for monitoring lynx and snowshoe hare or their habitats)	Does not meet

Subsequent to the BA, the lynx was listed and FWS issued a BO based on the BA, the Canada Lynx Conservation Assessment and Strategy (Ruediger et al. 2000), the Canada Lynx Conservation Agreements (USDA Forest Service and USDI Fish and Wildlife Service 2000) and the Lynx Science Report, “Ecology and Conservation of the Lynx in the United States (Ruggiero et al. 2000). The BO issued a *no jeopardy* conclusion based upon implementation of the Conservation Agreements (CAs) until such time as the Plans were amended or revised to consider the needs of lynx. The FWS further concluded that continued implementation of the Plans, in conjunction with the CAs, might result in some level of adverse effects to lynx, as Plans are permissive in that they allow, but do not authorize, actions to occur that may adversely affect lynx. However, the BO included an assessment of effects if the Plans were amended or revised with the conservation measures in the LCAS and determined that such amendments or revisions would likely sufficiently minimize the potential for adverse effects and the effects of any take that might occur at the programmatic scale.

The LCAS developed conservation measures designed to minimize potential risk factors that may influence lynx or lynx habitat. Identified risk factors include:

- Factors affecting lynx productivity (timber management, wildland fire management, recreation, forest/backcountry roads and trails, livestock grazing, and other human developments).
- Factors affecting lynx mortality (trapping, predator control, incidental or illegal shooting, and competition and predation as influenced by human activities).
- Factors affecting lynx movement (highways, railroads and utility corridors, land ownership patterns, and ski areas and large resorts).
- Other large-scale risk factors (fragmentation and degradation of lynx refugia, lynx movement and dispersal across shrub-steppe habitats, and habitat degradation by non-native invasive plant species).

5. Effects Analysis

The analysis of effects is conducted in 2 parts: 1) an assessment of the sufficiency of Forest Plan direction to provide programmatic guidance (Programmatic Forest Plan Direction Analysis section) and 2) an evaluation of the potential effects of proposed Forest management actions (Proposed Forest Plan Implementation Analysis section).

General Considerations

Note: this information is from the LCAS (Ruediger et al. 2000) unless otherwise cited

Many parts of the Southern Rockies currently have a shortage of regenerating forest (particularly lodgepole pine stands). Consequently, in the short term it is important to protect and encourage habitats that now support moderate to high snowshoe hare populations and those which are developing towards quality snowshoe hare habitat. It is equally important to protect and encourage those habitats that are good producers of alternative prey, such as red squirrels, grouse, and other lagomorph species. In those conifer (especially lodgepole pine) and mixed conifer-aspen stands that are regenerated, encourage development of horizontal cover at ground through maximum snow depth levels. Shrub and woody debris components should be maintained and even increased where understory cover is deficient. In the absence of widespread regenerating forest stands, mature and late-successional spruce-fir forests may constitute some of the most important habitat for lynx. These stands not only provide components necessary for denning habitat, but also produce red squirrels, grouse, and snowshoe hare. Although these forest types may support a lower density of hares than do densely regenerating stands, they also likely provide stable populations of both hares and red squirrels over time.

Consequently, manipulation of spruce-fir forests should probably be undertaken with great caution, especially until large areas of lodgepole pine can be converted into densely regenerating stands and begin to support strong snowshoe hare production. It may be desirable to reintroduce fire and silvicultural treatments into mature lodgepole pine forests (and white fir forests where they no longer provide suitable hare habitat) to increase quality snowshoe hare habitat in the Southern Rockies. Because this forest type currently provides little habitat value for lynx, the risk of such manipulation is low, while the long-term benefits (15-40 years) are potentially great. The long-term strategy across the forested landscape should be to recreate, to the extent possible, the mosaic of young, regenerating, mature, and late-successional forests typical of naturally operating disturbance regimes.

Fire, insect and disease processes have shaped vegetation patterns. Natural fire regimes in subalpine fir-spruce forests of the Southern Rocky Mountains are extremely complex, reflecting great variation due to climate, topography, elevation, vegetation, and site productivity. Because of the high elevations and higher moisture gradients of the subalpine zone, stand replacement events occur only rarely on a given site, perhaps every 250 to 500 years. Such events occur with increasing frequency at decreasing elevations. In warmer and drier montane zones, extreme fire behavior often results in stand replacement events. Here too, small diameter, highly stocked lodgepole pine stands create a fuel load favorable to major fire events. Stand-replacing fires may occur every 100 to 150 years in the montane zone, while surface fires of low to moderate-intensity occur relatively frequently (return intervals of 5 to 60 years). Smaller acreages often are subjected to low-intensity surface fires during the intervals between stand-replacing events.

Alpine tundra, open valleys, shrubland communities, and dry southern and western exposures naturally fragment lynx habitat within the subalpine and montane forests of the Southern Rockies. Because of the fragmented nature of the landscape, there are inherently important natural topographic

features and vegetation communities that link these fragmented subalpine forested landscapes together, providing for dispersal movements and interchange among individuals and subpopulations of lynx. Landscape connectivity may be provided by narrow forested mountain ridges and plateaus connecting more extensive mountain forest habitats, wooded or willow riparian communities providing travel cover across open valley floors between mountain ranges, or lower elevation ponderosa pine, pinyon-juniper woodlands or shrublands that separate high elevation spruce-fir forests.

Grazing, in conjunction with increasing elk populations, may have resulted in increased competition for forage resources with lynx prey. By changing native plant communities, such as aspen and high elevation riparian willow, grazing can degrade snowshoe hare habitat.

Recreational uses or activities that create compacted snow conditions may reduce the competitive advantage that lynx have in deep snow environments. Ski-area developments can reduce the availability of lynx habitat within localized areas and contribute to overall fragmentation of the landscape.

Programmatic Forest Plan Direction Analysis

The national programmatic BA evaluated what Plans permit or prohibit, assessing the language or direction of the Plans rather than the realized effects of their implementation. The BA in general, found there was a lack of protective direction to address all 15 evaluation criteria and specifically that the RGNF did not meet 4 of the criteria, marginally met 8, substantially met 2, and fully met 1.

The CAs commit the FS to actions that will be taken to reduce or eliminate adverse effects or risks to the lynx and its habitat. Specifically, the FS agrees that Forest Plans should include measures necessary to conserve lynx and that these measures will consider the Science Report, the LCAS and the FWS’s final listing decision. These conservation measures are to be incorporated during Forest Plan revision or amendment. In conformance with the CAs, Forests have identified and mapped lynx habitat, lynx analysis units and lynx linkage areas.

In the SRMGA, the FS has a process underway to amend the affected Forest Plans. However, this regional amendment process has not yet been completed. Absent programmatic forest planning to conserve lynx, assessment of land management effects to lynx and development of appropriate conservation strategies are left to project-specific analyses without consideration for larger landscape patterns. Overall, RGNF Forest Plan direction marginally provides for lynx and lynx habitat and will require the regional amendment to fully meet the LCAS, as clarified by the Lynx Steering Committee (USDA 2002). Table 5 provides a specific comparison of RGNF Forest Plan direction to conservation measures identified in the LCAS.

Table 5. Crosswalk between the LCAS and RGNF Forest Plan direction.

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
RE: ALL PROGRAMS	
Programmatic Planning Objectives	
1. Design vegetation management strategies that are	Forestwide Desired Conditions for Biological

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
consistent with historical succession and disturbance regimes.	Diversity
Programmatic Planning Standards	
1. Conservation measures will generally apply only to the lynx habitat on federal lands within LAUs.	Forest Plan direction applies to all Forest Service lands.
2. Lynx habitat will be mapped.	Mapping completed.
3. To facilitate project Forest Planning, delineate LAUs.	Completed as part of mapping.
4. To be effective for the intended purposes of planning and monitoring, LAU boundaries will not be adjusted.	LAU boundaries are fixed.
5. Limit disturbance within each LAU as follows: if no more than 30 percent of lynx habitat within a LAU is currently in unsuitable condition, no further reduction of suitable conditions shall occur as a result of vegetation management activities by federal agencies.	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
Programmatic Planning Guidelines	
1. The size of LAUs should generally be 6,500-10,000ha (16,000-25,000 acres or 25-50 square miles) in contiguous habitat.	Completed as part of mapping.
2. LAUs with only insignificant amounts of lynx habitat may be discarded.	Completed as part of mapping.
3. After LAUs are identified, their spatial arrangement should be evaluated.	Completed as part of mapping.
Project Planning – Standards	
1. Within each LAU, map lynx habitat.	Completed as part of mapping.
2. Within a LAU, maintain denning habitat in patches generally larger than 5 acres, comprising at least 10 percent of lynx habitat.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
3. Maintain habitat connectivity within and between LAUs.	Forestwide Desired Conditions for Biological Diversity; Forestwide Objective 2.4
RE: LYNX PRODUCTIVITY	
<i>Timber Management</i>	
Programmatic Planning - Objectives	
1. Evaluate historical conditions and landscape patterns to determine historical vegetation mosaics across landscapes through time.	To be completed by regional HRV analyses.
2. Maintain suitable acres and juxtaposition of lynx habitat through time.	Forestwide Desired Conditions for Biological Diversity; Forestwide Objectives 2.3, 2.7 and 2.8
3. If the landscape has been fragmented by past management activities that reduced the quality of lynx habitat, adjust management practices to produce forest composition, structure and patterns more similar to those that would have occurred under historical disturbance regimes.	Biodiversity Standard 3; Guidelines 1 and 2 Silviculture Standard 3; Guidelines 6 and 11
Project Planning - Objectives	
1. Design regeneration harvest, planting, and thinning to develop characteristics suitable for lynx and snowshoe hare habitat.	Silviculture Guideline 11 Wildlife Standard 16

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
2. Design projects to retain/enhance existing habitat condition for important alternative prey.	Biodiversity Standard 1 and 3; Guidelines 1 and 2 Wildlife Standard 16
Project Planning - Standards	
1. Management actions (e.g., timber sales, salvage sales) shall not change more than 15 percent of lynx habitat within a LAU to unsuitable condition within a 10-year period.	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
2. Following a disturbance such as blowdown, fires, insects/pathogens mortality that could contribute to lynx denning habitat, do not salvage harvest when the affected area is smaller than 5 acres. Exceptions to this include: 1) areas such as developed campgrounds; 2) LAUs where denning habitat has been mapped and field validated (not simply modeled or estimated), and denning habitat comprises more than 10% of lynx habitat within a LAU; in these cases, salvage harvest may occur, provided that at least the minimum amount is maintained in a well-distributed pattern.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
3. In lynx habitat, pre-commercial thinning will be allowed only when stands no longer provide snowshoe hare habitat	No Forest Plan Guidance
4. In aspen stands within lynx habitat, apply harvest prescriptions that favor regeneration of aspen.	Forestwide Objective 2.8 Biodiversity Guidelines 2 and 3
Project Planning - Guidelines	
1. Plan regeneration harvest in lynx habitat where little or no habitat for snowshoe hares is currently available, to recruit a high density of conifers, hardwoods, and shrubs preferred by hares.	Forestwide Objective 3.3
2. In areas where recruitment of additional denning habitat is desired, or to extend the production of snowshoe hare foraging habitat where forage quality and quantity is declining due to plant succession, consider improvement harvests (commercial thinning, selection, etc).	Silviculture Standard 2; Guideline 11
Wildland Fire Management	
Programmatic Planning Objectives	
1. Restore fire as an ecological process.	Forestwide Desired Conditions for Fire Forestwide Objectives 2.9 and 2.10
2. Revise or develop fire management plans to integrate lynx habitat management objectives.	No Forest Plan Guidance
3. Consider use of mechanical pre-treatment and management ignitions if needed to restore fire as an ecological process.	Forestwide Objective 2.10
4. Adjust management practices where needed to produce forest composition, structure, and patterns more similar to those that would have occurred under historical succession and disturbance regimes.	Forestwide Objective 2.2
5. Design vegetation and fire management activities to retain or restore denning habitat on landscapes with the highest probability of escaping stand-replacing fire events.	No Forest Plan Guidance

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
Project Planning - Objectives	
1. Use fire as a tool to maintain or restore lynx habitat.	Forestwide Objective 2.9 Fire Guideline 2
2. When managing wildland fire, minimize creation of permanent travel ways that could facilitate increased access by competitors.	Sediment Control Standard 1 – Guideline 6 Sediment Control Standard 3 – Guideline 8 Sediment Control Standard 4 – Guideline 1
Project Planning Standards	
1. In the event of a large wildfire, conduct a post-disturbance assessment prior to salvage harvest, particularly in stands that were formerly in late successional stages, to evaluate potential for lynx denning and foraging habitat.	FS Handbook, Rocky Mountain Region – Forest Planning procedures.
2. Design burn prescriptions to regenerate or create snowshoe hare habitat.	No Forest Plan Guidance
Project Planning - Guidelines	
1. Design burn prescriptions to promote response by shrub and tree species that are favored by snowshoe hare.	No Forest Plan Guidance
2. Design burn prescriptions to retain or encourage tree species composition and structure that will provide habitat for red squirrels or other alternate prey species.	No Forest Plan Guidance
3. Consider the need for pre-treatment of fuels before conducting management ignitions.	Forestwide Objective 2.10
4. Avoid construction of permanent fire-breaks on ridges or saddles in lynx habitat.	CONFLICTS Sediment Control Standard 1 – Guideline 1
5. Minimize construction of temporary roads and machine fire lines to the extent possible during fire suppression activities.	Sediment Control Standard 1 – Guideline 6 Sediment Control Standard 3 – Guideline 8 Sediment Control Standard 4 – Guideline 1
6. Design burn prescriptions and, where feasible, conduct fire suppression action in a manner that maintains adequate lynx denning habitat (10% of lynx habitat per LAU).	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
Recreation Management	
Programmatic Planning - Objectives	
1. Plan for and manage recreational activities to protect the integrity of lynx habitat, considering as a minimum the following: a) Minimize snow compaction in lynx habitat. b) Concentrate recreational activities within existing developed areas, rather than developing new recreational areas in lynx habitat c) On federal lands, ensure that development or expansion of developed recreation sites or ski areas and adjacent lands address landscape connectivity and lynx habitat needs.	No Forest Plan Guidance
Programmatic Planning - Standards	
1. On federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. This is intended to apply to dispersed recreation, rather than existing ski areas.	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
2. Map and monitor the location and intensity of snow compacting activities.	Concentrated winter use areas are mapped.
Programmatic Planning – Guidelines	
1. Provide a landscape with interconnected blocks of foraging habitat where snowmobile, cross-country skiing, snowshoeing, or other snow compacting activities are minimized or discouraged	No Forest Plan Guidance
2. Limit or discourage activities that result in snow compaction in areas where it is shown to compromise lynx habitat.	Dispersed Recreation Standards 3 and 4
Project Planning – Standards	
Developed Recreation	
1. In lynx habitat, ensure that federal actions do not degrade or compromise landscape connectivity when planning and operating new or expanded recreation developments.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
2. Design trails, roads, and lift termini to direct winter use away from diurnal security habitat.	No Forest Plan Guidance
Dispersed Recreation	
1. To protect the integrity of lynx habitat, evaluate (as new information becomes available) and amend as needed, winter recreational special use permits (outside of permitted ski areas) that promote snow compacting activities in lynx habitat.	Special use permit authorizations have been consulted with FWS (September 2002).
Project Planning – Guidelines	
Developed Recreation	
1. Identify and protect potential security habitats in around proposed developments or expansions.	No Forest Plan Guidance
2. When designing ski area expansions, provide adequately sized coniferous inter-trail islands, including the retention of coarse woody material, to maintain snowshoe hare habitat.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
3. Evaluate, and adjust as necessary, ski operations in expanded or newly developed areas to provide nocturnal foraging opportunities for lynx in a manner consistent with operational needs.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
Forest Backcountry Roads and Trails	
Programmatic Planning - Objectives	
1. Maintain the natural competitive advantage of lynx in deep snow conditions	No Forest Plan Guidance
Programmatic Planning- Standards	
1. On federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. Winter logging activity is not subject to this restriction.	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
Programmatic Planning - Guidelines	
1. Determine where high total road densities (greater than 2 miles per square mile) coincide with lynx habitat, and prioritize roads for seasonal restrictions or reclamation in those areas.	A RAP will be completed in FY04 to inform road management decisions.
2. Minimize roadside brushing in order to provide	No Forest Plan Guidance

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
snowshoe hare habitat.	
3. Locate trails and roads away from forested stringers.	No Forest Plan Guidance
4. Limit public use on temporary roads constructed for timber sales. Design new roads, especially the entrance, for effective closure upon completion of sale activities.	No Forest Plan Guidance
5. Minimize building of roads directly on ridgetops or areas identified as important for lynx habitat connectivity.	CONFLICTS with Sediment Control Standard 1 - Guideline 1
<i>Livestock Grazing</i>	
<u>Programmatic Planning - Objectives</u>	
1. In lynx habitat and adjacent shrub-steppe habitats, manage grazing to maintain the composition and structure of native Forest Plant communities.	Forestwide Desired Conditions for Biological Diversity; Forestwide Objectives 2.2, 2.3, 2.5 and 2.7
<u>Project Planning - Objectives</u>	
1. Manage livestock grazing within riparian areas and willow carrs in lynx habitat to provide conditions for lynx and lynx prey.	Range Guideline 2
2. Maintain or move towards native composition and structure of herbaceous and shrub Forest Plant communities.	Forestwide Desired Conditions for Biological Diversity; Forestwide Objectives 2.2 and 2.7
3. Ensure that ungulate grazing does not impede the development of snowshoe hare habitat in natural or created openings within lynx habitat.	No Forest Plan Guidance (see effects analysis of range management)
<u>Project Planning - Standards</u>	
1. Do not allow livestock use in openings created by fire or timber harvest that would delay successful regeneration of the shrub and tree components.	No Forest Plan Guidance (see effects analysis of range management)
2. Manage grazing in aspen stands to ensure sprouting and sprout survival sufficient to perpetuate the long-term viability of the clones	Range Standard 2 and Guideline 1
3. Within the elevational ranges that encompass forested lynx habitat, shrub-steppe habitats should be considered as integral to the lynx habitat matrix and should be managed to maintain or achieve mid-seral or higher condition.	Forestwide Desired Condition for Range
4. Within lynx habitat, manage livestock grazing in riparian areas and willow carrs to maintain or achieve mid-seral or later condition to provide cover and forage for lynx prey species.	Range Guideline 2; Riparian Standard 1 - Guidelines 1, 7 and 8
<i>Other Human Developments: Oil & Gas Leasing, Mines, Reservoirs, Agriculture</i>	
<u>Programmatic Planning - Objectives</u>	
1. Design developments to minimize impacts on lynx habitat.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
<u>Programmatic Planning - Guidelines</u>	
1. Map oil and gas production and transmission facilities, mining activities and facilities, dams, and agricultural lands on public lands and adjacent	Addressed through project-level NEPA analysis.

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
private lands, in order to address cumulative effects.	
Project Planning - Standards	
1. On projects where over-snow access is required, restrict use to designated routes.	Forestwide Objective 3.3
Project Planning – Guidelines	
1. If activities are proposed in lynx habitat, develop stipulations for limitations on the timing of activities and surface use and occupancy at the leasing stage.	Forest Plan Lease Stipulations do not address lynx. Projects proposed under a lease are subject to NEPA and ESA requirements.
2. Minimize snow compaction when authorizing and monitoring developments.	Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
3. Develop a reclamation plan (e.g., road reclamation and vegetation rehabilitation) for abandoned well sites and closed mines to restore suitable habitat for lynx.	Mineral and Energy Resources – General Standard 1
4. Close newly constructed roads (built to access mines or leases) in lynx habitat to public access during project activities. Upon project completion, reclaim or obliterate these roads.	No Forest Plan Guidance (see effects analysis of minerals management)
RE: MORTALITY RISK FACTORS	
Trapping	
Programmatic Planning - Objectives	
1. Reduce incidental harm or capture of lynx during regulated and unregulated trapping activity, and ensure retention of an adequate prey base.	State regulated.
Programmatic Planning – Guidelines	
1. Federal agencies should work cooperatively with States and Tribes to reduce incidental take of lynx related to trapping.	State regulated.
Predator Control	
Programmatic Planning - Objectives	
1. Reduce incidental harm or capture of lynx during predator control activities, and ensure retention of adequate prey base.	Responsibility of APHIS, consultation underway
Programmatic Planning - Standards	
1. Predator control activities, including trapping or poisoning on domestic livestock allotments on federal lands within lynx habitat, will be conducted by Wildlife Services personnel in accordance with FWS recommendations established through a formal Section 7 consultation process.	Responsibility of APHIS, consultation underway
Shooting	
Programmatic Planning - Objectives	
1. Reduce lynx mortalities related to mistaken identification or illegal shooting	State regulated
Programmatic Planning – Guidelines	
1. Initiate interagency information and education efforts throughout the range of lynx in the contiguous states.	State regulated
2. Federal agencies should work cooperatively with States and Tribes to ensure that important lynx prey are conserved.	State regulated

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
<i>Competition and Predation – Human Activities</i>	
Programmatic Planning - Objectives	
1. Maintain the natural competitive advantage of lynx in deep snow conditions.	No Forest Plan Guidance
Programmatic Planning - Standards	
1. On federal lands in lynx habitat, allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas by LAU. This is intended to apply to dispersed recreation, rather than existing ski areas.	Per the CAs, proposed Forest actions are cumulatively analyzed by LAU to meet this conservation measure.
<i>Highways</i>	
Programmatic Planning - Objectives	
1. Reduce the potential for lynx mortality related to highways.	No Forest Plan Guidance. The RGNF is coordinating with CDOT in the consultation process for the Highway 160 improvement project being conducted in the Wolf Creek linkage area.
Programmatic Planning - Standards	
1. Within lynx habitat, identify key linkage areas and potential highway crossing areas	Linkage areas are identified.
Programmatic Planning – Guidelines	
1. Where needed, develop measures such as wildlife fencing and associated underpasses to reduce mortality risk.	No Forest Plan Guidance. The RGNF is coordinating with CDOT in the consultation process for the Highway 160 improvement project being conducted in the Wolf Creek linkage area.
RE: MOVEMENT AND DISPERSAL	
Programmatic Planning - Objectives	
1. Maintain and, where necessary and feasible, restore habitat connectivity across forested landscapes.	No Forest Plan Guidance
Programmatic Planning - Standards	
1. Identify key linkage areas that may be important in providing landscape connectivity within and between geographic areas, across all ownerships.	Linkage areas are identified.
2. Develop and implement a plan to protect key linkage areas on federal lands from activities that would create barriers to movement.	Linkage area plans are to be developed in consultation with FWS.
3. Livestock grazing within shrub-steppe habitats in such areas should be managed to maintain or achieve mid seral or higher condition, to maximize cover and prey availability.	Forestwide Desired Condition for Range
Programmatic Planning – Guidelines	
1. Where feasible, maintain or enhance native plant communities and patterns, and habitat for potential lynx prey, within identified key linkage areas.	Forestwide Desired Conditions for Biodiversity and Forestwide Objectives 2.2 and 2.3
<i>Highways</i>	
Programmatic Planning - Objectives	
1. Ensure that connectivity is maintained across highway rights-of-ways.	Linkage areas have been identified on the RGNF in consideration of risks associated with highways.
Programmatic Planning - Standards	

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
<p>1. Federal land management agencies will work cooperatively with the Federal Highway Administration and State Departments of Transportation to address the following with lynx geographic areas:</p> <p>a) Identify land corridors necessary to maintain connectivity of lynx habitat</p> <p>b) Map the location of “key linkage areas” where highway crossings may be needed to provide habitat connectivity and reduce mortality of lynx (and other wildlife).</p>	<p>Forestwide Objective 7.4 Linkage areas are identified.</p>
Programmatic Planning – Guidelines	
<p>1. On public lands, management practices will be compatible with providing habitat connectivity.</p>	<p>Forestwide Desired Conditions for Biodiversity and Forestwide Objective 2.4</p>
Project Planning – Standards	
<p>1. Identify, map, and prioritize site-specific locations, using topographic and vegetation features, to determine where highway crossings are needed to reduce highway impacts on lynx and other wildlife.</p>	<p>Linkage areas are identified. The RGNF is coordinating with CDOT in the consultation process for the Highway 160 improvement project being conducted in the Wolf Creek linkage area.</p>
<p>2. Within the range of lynx, complete a biological assessment of all proposed highway projects of federal lands. A land management agency biologist will review and coordinate with highway departments on development of the biological assessment.</p>	<p>Forestwide Objective 7.4 The RGNF is coordinating with CDOT in the consultation process for the Highway 160 improvement project being conducted in the Wolf Creek linkage area.</p>
Project Planning - Guidelines	
<p>1. Dirt and gravel roads traversing lynx habitat (particularly those that could become highways) should not be paved or otherwise upgraded.</p>	<p>No Forest Plan Guidance</p>
Land Ownership	
Programmatic Planning - Objectives	
<p>1. Retain lands in key linkage areas in public ownership.</p>	<p>Real Estate-Land Adjustments Guideline 3</p>
Programmatic Planning - Standards	
<p>1. Identify key linkage areas by management jurisdiction(s) in management plans and prescriptions.</p>	<p>Linkage areas are identified.</p>
Programmatic Planning – Guidelines	
<p>1. In land adjustment programs, identify key linkage areas.</p>	<p>Linkage areas are identified.</p>
Project Planning – Standards	
<p>1. Develop and implement specific management prescriptions to protect/enhance key linkage areas.</p>	<p>Linkage area Forest Plans are to be developed in consultation with FWS.</p>
<p>2. Evaluate proposed land exchanges, land sales, and special use permits for effect on key linkage areas.</p>	<p>No Forest Plan Guidance.</p>
Ski Areas/Large Resorts	
Programmatic Planning - Objectives	

LCAS Conservation Measures (abbreviated)	RGNF Forest Plan Direction
1. When conducting landscape level planning of Federal lands, allocate land uses such that landscape connectivity is maintained.	Forestwide Desired Conditions for Biodiversity; Forestwide Objective 2.4
Programmatic Planning - Standards	
1. Within identified key linkage areas, provide for landscape connectivity.	Forestwide Desired Conditions for Biodiversity; Forestwide Objective 2.4
Project Planning – Standards	
1. When planning new or expanding recreation developments, ensure that connectivity within linkage areas are maintained.	Linkage areas are identified. Per the CAs, proposed Forest actions are analyzed by LAU to meet this conservation measure.
Project Planning – Guidelines	
1. Plan recreational development, and manage recreational and operational uses to provide for lynx movement and to maintain effectiveness of lynx habitat.	Forestwide Desired Conditions for Biodiversity and Forestwide Objective 2.4

While current Forest Plan direction is not specific to the management of lynx and lynx habitat, guidance is provided in a general and permissible manner that would allow the implementation of the related LCAS conservation measures. There is a Forest Plan wildlife standard (10) that directs consistency of Forest Plan guidance with TES conservation agreements and provides for the amendment of the Forest Plan to incorporate new direction.

Proposed Forest Plan Implementation Analysis

The EA (Appendix B Table B-1) provides a summary description of activities, and their extent, on the RGNF. Major activities on the RGNF that may impact lynx and their habitat include timber management, fire management, recreation management, livestock management, and travel management. While limited in scope on the RGNF, minerals management activities also may affect lynx. These activities may have specific consequences related to risk factors associated with lynx productivity, mortality and movement, as discussed below.

- Timber management. Reduction of large diameter woody debris may affect the survival of lynx kittens and availability of lynx prey. Pre-commercial thinning may reduce the quality and quantity of snowshoe hare foraging habitat and escape cover. Harvest treatments can affect the spatial arrangement of foraging and denning habitat, affecting reproductive success. Road construction may result in increased habitat fragmentation (impeding lynx dispersal), increased human access (disturbing lynx), and increased snow compaction (increasing inter-specific competition).
- Fire management. Fire exclusion may alter the natural mosaic of forest successional stages necessary for maintaining snowshoe hare habitat. Creation of fuel breaks on ridges eliminates cover and may discourage lynx use.
- Recreation management. Human presence in denning habitat during May through August may result in increased lynx disturbance. In winter, human use of forest roads and trails can increase snow compaction. High-intensity recreational use areas, such as ski areas, may

provide a level of disturbance that effectively precludes lynx use (at least temporarily) of otherwise suitable habitat.

- Travel management. Motorized and non-motorized access increases human presence that may be detrimental to lynx (disturbance; hunting and trapping vulnerability). Snow compaction may provide increased access for lynx predators and /or competitors. Highways, especially within linkage areas, can impede lynx movements and may result in direct mortalities due to vehicular collisions. On the RGNF, a significant highway upgrade construction project is in progress on Highway 160, within the Wolf Creek Pass linkage area.
- Livestock management. Grazing may impact microsites such as high elevation riparian meadows and willow communities, thus reducing snowshoe hare habitat.
- Minerals management. Oil and gas developments and surface mining can degrade habitat and increase human disturbances within a lynx home range.

Alternative 1

Direct and Indirect Effects

Proposed actions in the Forest Plan may impact the primary needs of lynx and their habitat use. Expected effects specific to these actions are discussed below.

- Timber management. The FEIS predicted an annual harvest level of 11 MMBF/yr, but actual harvest levels have been closer to 7-8 MMBF/yr (EA Appendix B Table B-1). The preponderance of harvest (94%) is expected to occur in LTAs 1 and 13 (EA Appendix B Table B-2) and most of that harvest would be in structure class 5 (late successional forest). Depending on harvest method, there would be concomitant increases in earlier structural classes (Table 6). The predominant harvest method would be shelterwood cuts or group selection, resulting in an increase in structure classes 1 (early successional vegetation) and 4 (mature forest), with varying size areas and stages of vegetative regeneration (FEIS Appendix K).

Table 6. Projected Structure Class change for LTAs 1 and 13.

Decade	Structure Class (Habitat Structural Stage in parenthesis)									
	1 (1, 2)		2 (3a)		3 (3b, 3c)		4 (4a)		5 (4b, 4c, 5)	
	Current 10% 95,890 Acres		Current 4% 39,000 Acres		Current 15% 140,853 Acres		Current 10% 90,670 Acres		Current 61% 580,190 Acres	
	Exp	Full	Exp	Full	Exp	Full	Exp	Full	Exp	Full
ONE (acres)	1000	1000	NC	NC	NC	NC	816	2156	-1816	-3156
(percent)	1%	1%	NC	NC	NC	NC	1%	2%	-0.3%	-1%
FIVE (acres)	25140	55847	NC	NC	NC	NC	11899	25665	-37039	-81512
(percent)	26%	58%	NC	NC	NC	NC	13%	28%	-6%	-14%

In addition to harvest of LTAs 1 and 13 (Engelmann spruce), minor amounts of harvesting would occur in LTA 2 (Aspen), LTA 3 (White Fir and Douglas Fir), and LTA 5 (Ponderosa Pine and Douglas Fir). The FEIS analysis of predicted habitat change in response to timber management was updated with the *Expanded Habitat Effects Display Report (2003)*. This

report predicted a change in the late successional forested LTAs as $\leq 1\%$ in the first decade and up to 14% by the fifth decade (Table 7).

Table 7. Extent of projected timber harvest within late successional forested LTAs on the RGNF.

LTA (acres)	Projected decrease in Structure Class 5 by LTA and budget level							
	Experienced Budget				Full Budget			
	Decade 1		Decade 5		Decade 1		Decade 5	
	Acres	% Change	Acres	% Change	Acres	% Change	Acres	% Change
1 and 13 (580,190)	-1816	-0.3%	-37039	-6%	-3156	-1%	-81512	-14%
2 (39,121)	-13	-0.03%	-210	-0.54%	-191	-0.49%	-1911	-4.89%
3 (93,000)	-72	-0.08%	-1149	-1.24%	-363	-0.39%	-3632	-3.91%
5 (101,010)	-5	-0.00%	-75	-0.03%	-33	-0.01%	-325	-0.13%

Additional harvest through limited thinning, mostly in lodgepole pine stands, or salvage sales for control of insects and disease may occur and firewood and post/pole sales will be by-products of timber harvest (FEIS page 3-171). Levels of these additional harvest activities are projected to be less than in the past, but as disease and bug infestations continue to escalate, more salvage sales than predicted are possible. Salvage harvest activities would be site-specific and target affected trees, limiting the size and scope of individual proposed harvests. Firewood collection is allowed across the Forest, as well as at slash removal sites, but is limited to within 300 feet of a road and not allowed within 100 feet of stream courses, riparian areas, wet areas, and bodies of water.

Harvest prescriptions include even-aged, uneven-aged and two-aged silvicultural systems, sanitation/salvage and limited thinning, with an emphasis on shelterwood and group selection harvests. Firewood removal and prescribed fire are used to treat the slash (FEIS Appendix K). These treatments will have a variety of impacts on lynx habitat, some of which will improve denning, dispersal and foraging habitat, some of which will have negative short-term impacts so that suitable habitat will become unsuitable for a relatively short period of time, and some will have no impact since lynx habitat will not be entered. Much of the treatments will have short-term (20 to 100 years) impacts. Expected changes would include reduction in late successional forests and their snag components, primarily in spruce fir, with a light to moderate accumulation of coarse woody debris throughout harvested areas (FEIS 3-172). There would be patchy distributions of created openings, varying in size and stage of vegetative regeneration. Individual harvest prescriptions will require analyses at both the landscape and LAU levels to maintain habitat effectiveness (connectivity) and to ensure effects to lynx are minimized

Timber management activities also include the construction and reconstruction of roads, which is expected to be minimal. Under the experienced budget, 10 miles of new roads and 17 miles of reconstruction could occur, but not within roadless areas. Under a full budget, which is an unlikely scenario, 28 miles of new roads and 40 miles of reconstruction could occur, and within roadless areas (FEIS pgs 3-361 and 3-439). Under either budget, additional roads would increase disturbance from harvest activities and subsequent recreational use,

such as hunting and snowmobiling. Compaction of the snow may occur, possibly increasing inter-specific competition from other predators. Road (re)construction would be considered as part of any proposed harvest prescription and would be evaluated, mitigated and consulted at the project level.

Based on implementation of the Forest Plan to date, the experienced budget level portrays a more realistic projection of expected changes to late successional forested habitats. Should this remain consistent throughout the life of the Forest Plan, timber harvest is projected to have a relatively modest influence on the overall ecological composition, structure and processes characteristic of the affected LTAs.

- Fire management. The Forest Plan calls for the development and implementation of a prescribed fire program to address ecosystem needs and to reduce the risk of catastrophic fires (FEIS pg 3-226). The fire management program emphasizes natural fuel management rather than activity fuel management, as it is anticipated that activity fuels created from timber harvest will be greatly reduced (FEIS pg 3-236). The priority habitats for treatment will be those that are fire-maintained ecosystems (FEIS pg 3-229) and include lower elevation mixed conifer and ponderosa pine, with some grasslands. The estimated acres of fuels treatments (1200-3000 acres average per year) were based on the ponderosa pine cover type, as it is most dependent on fire and has been dramatically affected by fire exclusion (FEIS pg 3-235).

Prescribed and wild fire may occur in lynx habitat. Anticipated impacts on lynx habitat from prescribed fire could be reduction in denning habitat by removal of dead and down woody material, and a temporary reduction in snowshoe hare habitat. Prescribed fire in some areas may promote regeneration of prey species habitat, although depending on fire intervals, habitat may be burned earlier or more frequently than desirable to achieve winter foraging habitat condition. Since intense burns would not be implemented, most of the woody vegetation and coarse woody debris would remain and continue to provide denning and winter foraging habitat.

An Environmental Assessment for the prescribed fire program (Fire EA) on the Rio Grande and San Juan National Forests and its biological assessment were completed in 1997 and the BA was updated and consulted on in 2002. As part of that BA, a screen was developed to assist biologists in project-specific analysis of effects to lynx, to track cumulative changes by LAU, and to provide direction on incorporating mitigation measures. Individual projects may still require consultation.

Wildfires would have more extensive impacts to lynx habitat than prescribed fires since they would probably be stand-replacing fires, and occur mostly in spruce-fir and lodgepole pine forests. Impacts to most lynx habitat components would result, most likely making suitable lynx habitat unsuitable, eliminating denning habitat for an extended period of time by the reduction of dead and down woody material, and eliminating prey habitat (especially snowshoe hare and red squirrel) in the short to long term. The 2002 Million Fire burned approximately 10,000 acres within the Trout-Handkerchief LAU and an estimated 3,500 acres of lynx habitat was converted to unsuitable (Table 7). These estimates need to be ground-truthed, but are not expected to change substantially.

Table 7. Estimated change to lynx habitat in the Trout-Handkerchief LAU due to the 2002 MillionFire.

Lynx Habitat Type	Pre-Fire Condition	Fire Impacts	Post-Fire Condition
Total Acres within LAU	176,750	No Change	176,750
Total Acres of Non-habitat within LAU	42,534	No Change	42,534
Total Acres (%) of Lynx Habitat within LAU (includes capable but currently unsuitable)	134,216 (76%)	No Change	134,216 (76%)
Denning Habitat by Acres (%)	54,906 (41%)	-3,093 (-2.30%)	51,813 (38.70%)
Winter Foraging Habitat by Acres (%)	15,829 (12%)	-1,396 (-1.03%)	14,438 (10.97%)
Other Foraging Habitat by Acres (%)	43,363 (32%)	-1,298 (-1.00%)	42,060 (31%)
Habitat within LAU in a Suitable Condition by Acres (%)	114,097 (85.00%)	-51 (-4.31%)	108,311(80.69)
Habitat within LAU in Currently Unsuitable Condition by Acres (%)	20,119 (15%)	+3,549 (+4.31%)	25,905 (19.31%)

While it remains below the 30% cap defined by the LCAS, the estimate of effects to the Trout Handkerchief LAU makes it the highest percentage of currently unsuitable acres of lynx habitat on the Forest. Moderate to heavily burned areas will not provide habitat for lynx or its prey species until vegetative regeneration begins to establish foraging habitat.

Mechanical treatments to decrease fuel loads and reduce the risk of catastrophic fires also are expected to occur. Projects associated with the National Fire Plan will be evaluated and consulted in the manner prescribed for these activities.

- Recreation management. The RGNF manages for 2 major types of recreational opportunities; developed and dispersed recreation. There are 820 acres of developed recreation sites, and 51 summer homes, 3 resorts, 1 youth camp, 2 public use Forest guard stations and 1 ski area on the RGNF (FEIS pg 3-389). Dispersed recreation (motorized and non-motorized) accounts for 65% of Forest recreation use and is widely distributed across the Forest, but concentrated along travel routes, lakes, streams or rivers and on snow (FEIS pgs 3-389 and 3-414). Recreation use on the Forest is estimated to increase about 2-3% annually.

Recreational developments may have minor impacts on lynx habitat and habitat use. These developments are usually small, existing inclusions within lynx habitat, so actual impacts to habitat are limited. Recreational use and routine maintenance of these developments may disturb any lynx using the surrounding areas, but this disturbance would generally be minimal. Recurring and deferred maintenance actions have been evaluated in programmatic assessments and have received FWS concurrence for a *may affect, not likely to adversely affect determination*.

The Wolf Creek Ski Area is permitted for 1,196 acres, of which 900 acres are fully developed (FEIS pg. 3-389). The 1986 Term Special Use Permit was renewed in 1997 with a stipulation that additional construction beyond maintenance of existing improvements would not be authorized without amending the Master Development Plan (MDP). The MDP was updated in 1998 and projects are individually reviewed and consulted as they are proposed for implementation. A private ski village development is proposed in the immediate vicinity of

the Wolf Creek Ski Area and access to the private land is across Forest Service lands. A review of the Wolf Creek Ski Area special use permit and its supporting documentation was conducted in 2002 and the report (USDA 2002) recommended the development of a programmatic environmental baseline for a cumulative analysis of effects for both ski facilities. Such an environmental baseline could be developed through the NEPA review of the proposed private facility or in conjunction with the development of a Wolf Creek linkage area management plan.

Snowmobiling, cross-country skiing and snowshoeing on and off established roads and trails in lynx habitat compact snow conditions, especially in early winter, where lynx competitors gain an advantage to scarce prey resources. On the RGNF, most snowmobile use is on groomed roads and trails, except for traditional snow play areas. In conjunction with the development of the regional amendment, designated winter use areas have been mapped. For the RGNF, there are 167 miles of groomed routes and 314 miles of designated routes, of which 196 miles are within lynx habitat. There are 163,803 acres of compacted snow recreation use areas, of which 130,427 acres are within lynx habitat.

Current Forest Plan direction allows snowmobiles off Forest roads and trails, which could result in increased snow compaction as recreational demands increase. However, under the CAs, the LCAS conservation measure to allow no net-increase in snow compaction is applied at the project level and so effectively limits increases in groomed and designated over the snow trails. Individuals and families would not be restricted from using new areas or routes currently open to winter motorized use, but grooming or designation of new routes would be restricted. New authorizations or expansion of existing outfitter operations or issuance of permits would be limited to existing authorized groomed and designated routes and areas.

Dispersed recreation activities under outfitter and guide permits have been reviewed under a separate programmatic assessment and received FWS concurrence on a *may affect, is not likely to adversely affect determination*. Permit issuances will be reviewed in accordance with that assessment and submitted for FWS consultation.

- Travel management. Travel management on the RGNF limits motorized travel to designated roads and trails. The RGNF prohibits off-road travel except for ATVs for game retrieval during hunting seasons and snowmobiles during the winter, outside of Wilderness. Snowmobiling is normally confined to roads, trails and high country areas with low avalanche risk (FEIS pg 3-433). Winter snowmobile trail and play areas have been mapped for the RGNF.

About 77% of the 2,960 miles of Forest Developed Roads (FDRs) are open to public travel, with the balance restricted to timber sale roads. Many of these roads have seasonal restrictions to limit resource damage. Volunteer two-track roads were created before travel restrictions were implemented and continue to be created by unauthorized cross-country travel. These unauthorized roads are generally concentrated in lower elevation, non-forested habitats (FEIS 3-434). The RGNF has 300 miles of FDRs and 186 miles of “two-tracks” that are causing resource damage or wildlife disturbance and 100 miles of those roads are to be analyzed for closure. The remaining 300-500 miles of “two-trackers” and low standard roads associated with old timber sales will be inventoried and analyzed for possible addition to the FDRs, closure to motorized travel or total obliteration (FEIS 3-437). All road management

decisions will need to be informed through the Roads Analysis Process (RAP), scheduled for completion during FY04. That process includes consideration of wildlife values and effects to wildlife habitat, and will be facilitated by mapped winter use areas.

There are 1,500 miles of inventoried Forest Development Trails (FDTs), 65% of which are open to all uses, including motorized vehicles. Roadless areas would be managed for both non-motorized (54%) and motorized (46%) recreation that is restricted to existing trails (FEIS pg 3-359). There are an estimated 3 miles of new trail construction, 20 miles of existing trail reconstruction, 6 miles of trail obliteration and 240 miles of trail maintenance (FEIS pg 3-440).

Overall, the Forest Plan predicts a net reduction in miles of road and trails, as road and trail construction is expected to be offset by road and trail closure and/or obliteration. However, the presence and use of roads and trails provides increased opportunities for accidental road kills as well as increased lynx vulnerability from hunters and snowmobilers. Roads and trails also may provide travelways for competitors, as there is a chance that winter motorized use will compact snow. Effects from the activities of routine road and trail maintenance have been programmatically reviewed and will be evaluated and mitigated through the use of a checklist to ensure specific actions that may affect lynx or lynx habitat will not be implemented without further analysis and consultation, if necessary.

The Colorado Department of Transportation (CDOT) has initiated a multi-year road improvement project within the Wolf Creek linkage area. Within the project area, lynx mortality due to vehicle collisions has occurred and there are expected adverse impacts to lynx habitat from the project. Consistent with Forest Plan direction, the RGNF is cooperating with CDOT to evaluate the project's effects to Forest resources, to identify potential mitigation and to facilitate required consultation.

- Livestock management. Rangelands on the RGNF are naturally fragmented and are characterized by narrow canyons with a riparian ecosystem and adjacent grassland communities intermingled with timberlands in the montane and subalpine zones and at lower elevations, are a mixture of grasslands, pinon-juniper and ponderosa pine. There are 577,000 acres on the RGNF identified as suitable for livestock grazing (FEIS pg 3-189 Table 3-46). Livestock grazing occurs in some lynx habitats, as rangelands are defined as grasslands, forb lands, shrublands, and those forested lands that support an understory of herbaceous or shrubby vegetation.

Rangewide, under present management practices, the RGNF produces forage in excess of current levels of livestock and big game consumption, providing for plant health, vigor, and regrowth (FEIS pg 3-187). However, approximately 32% of suitable rangelands are in unsatisfactory condition (FEIS pg 3-189 Table 3-46), a circumstance exacerbated in some riparian, ponderosa pine and winter range areas by past uncontrolled grazing, resulting in reduced vegetative productivity, destabilized stream banks and degraded wildlife habitat (FEIS pg 3-188). Improved management targeted to these areas and implementation of the Forest Plan's range and riparian standards and guidelines are expected to improve rangeland conditions overall. Affected riparian areas are of specific concern to the Forest, and best

management practices for soil and water resources will be used to restore and maintain riparian areas as functional ecosystems (FEIS 3-193).

Livestock grazing that occurs within lynx habitat has the potential of impacting habitats utilized by snowshoe hare by possibly reducing the shrub component, especially within riparian zones. Improvement of snowshoe hare habitat may be limited in newly created openings from fire or timber harvest, if grazing is not managed for vegetative regeneration to achieve mid-seral or higher conditions.

Specific range management needs are addressed through Allotment Management Plans (AMPs), grazing permits and annual operating instructions (AOIs). Management will apply combinations of requirements for stubble height, streambank stability, vegetative seral stage and rest to achieve proper functioning condition of riparian systems. Removal or exclusion of livestock from newly created openings due to fire or timber harvest may be required to allow rangeland recovery to occur (FEIS pgs 3-196 and 3-197).

AMPs are required to be updated periodically and are subject to NEPA and ESA review and consultation. Until an AMP is updated, AOIs incorporate both Forest Plan standards and guidelines and LCAS conservation measures to implement management strategies designed to minimize effects to lynx habitat and to achieve Forestwide rangeland objectives.

- Minerals management. Minerals management includes activities for development of leasable minerals, locatable minerals and salable minerals. These activities are predicted to be very limited in extent on the RGNF but may occur within lynx habitat.

Forty-six percent of the RGNF land base is considered to have high oil and gas potential, but only 129 acres are expected to be disturbed through exploration and development (FEIS pg 3-310 Table 3-64). None of the Forest Plan's lease stipulations specifically address lynx needs, but development effects associated with mineral activities would be mitigated during project implementation and affected areas would be reclaimed after project completion. Roads used for oil and gas development are single-use roads, would not be used for other purposes during the activity, and most would be abandoned and reclaimed after use (FEIS pg 3-308).

Because of the limited extent of mineral activities projected on the Forest, it is not necessary to develop a lynx-specific lease stipulation at the Forest Plan level. Leases and their proposed actions are subject to NEPA and ESA requirements and project level mitigation would be applied, consistent with Forest Plan standards and guidelines and the LCAS. Although limited in extent, these actions may result in disturbance to lynx denning in these areas because of increased activities at the development sites and their associated roads. The roads may increase snow compaction for lynx competitors to use, but no increase in motorized winter use by recreationists would occur.

Twelve percent of the RGNF land base is considered to have high locatable mineral potential. On an average basis of administering 4 operating plans annually, the estimated extent of activities is 40 operating plans and 4 new miles of road, affecting a total of 40 acres on the Forest (FEIS pg 3-322). The Forest can regulate and control access to mineral claims, and operating plans are subject to NEPA and ESA requirements, allowing for inclusion of

appropriate mitigation at the project level, such as reclamation and protective measures for TES species. Requests for recreational mineral collection are evaluated, inclusive of TES considerations, to determine the need for an operating plan. Impacts to lynx from these activities would be localized, but still may affect lynx through site and road development, if near denning sites.

Permitting for salable minerals is discretionary. There are existing sites for Forest Service rock-crushing operations, but no new sites are anticipated. One new rock pit might be developed but would be subject to NEPA and ESA requirements. A few personal use permits are issued annually, generally for landscape rocks (FEIS pg 3-326). Impacts to lynx from these activities are considered negligible.

Cumulative Effects

The Forest Plan provides direction on maintaining the quality and quantity of wildlife habitats and natural vegetative communities that would contribute to the expansion, and eventually the maintenance, of a viable population of lynx in the southern Rocky Mountains. This direction addresses the impacts of timber, fire, recreation, travel, range and other management actions affecting lynx on the forest.

During the life of the Forest Plan, it is difficult to predict the habitat trend since events such as catastrophic fire and insect epidemics are unknown. In the absence of these events, the trend for suitable habitat quantity and quality from implementation of the Forest Plan is likely to remain stable or slightly decreased during the life of the Forest Plan, varying by acres of treatment.

Since up to 30% of the lynx habitat in each LAU is permitted to be in an unsuitable condition under LCAS and Forest Plan direction, management actions could decrease the acres of suitable habitat. Generally, this will mostly vary by the acres that may be impacted by the expected outcomes for timber, fire, recreation, travel, grazing and mineral management actions and by the specific prescriptions that are implemented. Exact acreages or percentages are unknown since management prescriptions could increase or decrease some of the lynx habitat requirements, or not enter lynx habitat.

It also is possible that some currently unsuitable habitat will move into a suitable condition as seral stages progress. This seral progression could result in changed percentages of habitat types as well, as other foraging habitat moves into winter foraging and/or denning habitat condition.

Since suitable habitat should not fall below 70% for any LAU, adequate habitat is expected to be available for an increase in lynx populations on the Forest. As lynx are wide-ranging species at low population levels naturally, the population on the Forest is dependent on actions off the Forest also.

Within the SRMGA, there are large proportions of lynx habitat on non-federal lands where development and/or forestry practices could impact the lynx. Connectivity concerns with highways and development are especially relevant to the more fragmented nature of lynx habitat in the SRMGA. All of the actions may result in some lynx habitat changing from suitable to unsuitable, possibly permanently, reducing dispersal (connectivity) habitat, and increasing the disturbance to any lynx that may be using the areas or adjacent areas.

While all of these cumulative actions/impacts may negatively impact lynx and lynx habitat, it is the intent of the Forest Plan to consider these possible non-Forest Service actions within RGNF boundaries, and manage Forest Service lands to mitigate these impacts by implementing Forest Plan direction. On the RGNF, expected cumulative effects from activities on non-federal lands generally are expected to be insignificant, as both suitable and unsuitable lynx habitat acreages on non-federal lands within most of the Forest's LAUs are <1% (USDA 2003), as shown in Table 8. There are 3 LAUs with >1% suitable and/or unsuitable lynx habitat acreages, with the most in the Trout-Handkerchief LAU. Due to the effects from the Million Fire, the percentage of non-federal lynx habitat acreages and the number of anticipated projects within the Trout-Handkerchief LAU, cumulative effects analyses for this LAU are best addressed at the project-level.

Table 8. Summary of Federal and Non-Federal Land Ownership of Suitable and Unsuitable Lynx Habitat by Acres within LAUs on RGNF

LAU Name	Federal Suitable/Unsuitable Acres	Non-Federal Suitable/Unsuitable Acres	Federal/Non-Federal % of LAU	
			Suitable	Unsuitable
4 Mile to La Garita Creek	105,225 / 9,032	434 / 6	92 / <1	7 / 1
Alamosa	26,508 / 1,758	3,687 / 1	94 / 1	5 / 0
Bonanza-Cochetopa	92,020 / 5,843	2,570 / 10	94 / <1	6 / <1
Conejos Canyon	33,994 / 1,412	701 / 4	96 / <1	4 / <1
Creede	33,503 / 636	2,274 / 0	97 / 1	2 / 0
Embargo	56,334 / 9,584	1,555 / 0	86 / <1	14 / 0
Hogback	63,830 / 3,743	1,885 / 0	95 / <1	5 / 0
La Jara	54,350 / 2,535	3,068 / 28	95 / 1	4 / <1
Lagarita Wilderness	15,032 / 766	309 / 2	95 / <1	5 / <1
Pinos-Rock	52,134 / 5,714	1,510 / 0	90 / <1	10 / 0
Rito-Archuleta	36,173 / 4,356	2,075 / 37	90 / <1	8 / 2
Saguache Park	30,565 / 0	122 / 0	100 / <1	0 / 0
Sangre de Cristo North	53,985 / 0	271 / 0	100 / <1	0 / 0
Sangre de Cristo South	23,287 / 0	0 / 0	100 / 0	0 / 0
Snowshoe	38,346 / 360	1,023 / 0	99 / <1	1 / <1
Stoney Pass	44,693 / 29	250 / 0	100 / <1	0 / 0
Thirtymile	35,541 / 1,624	324 / 0	96 / <1	4 / 0
Tres Mesa	36,834 / 6,062	964 / 30	86 / <1	11 / 3
Trout-Handkerchief ¹	106,489 / 25,782	1,822 / 123	83 / 2	9 / 6
Victoria-Chama	40,253 / 766	277 / 1	98 / <1	2 / <1

¹ Estimated acres post-Million Fire (from Table 7)

Within the Wolf Creek linkage area, some non-federal activities on Forest and adjacent non-federal lands may have localized cumulative impacts of significant scope, and the Forest is working cooperatively with other agencies and private interests to minimize site-specific effects. The Colorado Department of Transportation works directly with FWS to develop project mitigations such as highway underpasses for the Highway 160 improvement construction project, but coordinates with the Forest in the analysis of effects to facilitate project consultation. The Forest also is cooperating with private developers in the preparation of the Environmental Impact Statement for the proposed Village at Wolf Creek. These activities, in conjunction with the existing Wolf Creek Ski Area, could have locally significant cumulative impacts that may best be addressed through a linkage area management plan.

Other cumulative effects may result from actions that occur on other Forests in the Southern Rocky Mountains, but the proposed Regional Forest Plan amendments will provide the same Forest Plan direction for lynx management on those Forests as on the Rio Grande National Forest. Forest Plan direction specific to lynx management proposed in the Regional Forest Plan amendments is expected to result in stable or increasing populations of lynx throughout the region, including on the RGNF.

Alternative 2

Direct and Indirect Effects

Effects from the proposed amendment of adding MIS to the Forest Plan are similar as described under Alternative 1. Any incremental changes of effect would be derived from the proposed additional standards and guidelines and revised monitoring plan. The changes would be expected to be beneficial, as the amendment would provide more protective measures through additional standards and guidelines and more targeted monitoring of mature to late successional spruce fir and mixed conifer, and riparian habitat types. The specific changes that would occur as a result of the amendment (EA Appendix A) are cross-walked to the LCAS in Table 9. Guideline 13 provides additional guidance for snag management in the firewood program.

Table 9. Crosswalk of affected LCAS conservation measures and Proposed MIS Amendment

Related LCAS Conservation Measures (abbreviated)	Proposed Standards and Guidelines identified in the EA (Appendix A)
RE: LYNX PRODUCTIVITY	
<i>Timber Management</i>	
Programmatic Planning - Objectives	
3. If the landscape has been fragmented by past management activities that reduced the quality of lynx habitat, adjust management practices to produce forest composition, structure and patterns more similar to those that would have occurred under historical disturbance regimes.	Silviculture Guideline 13

Cumulative Effects

The cumulative effects analysis is the same for both alternatives.

6. Mitigation Measures

- Programmatic Forest Plan Direction - Consider the LCAS conservation measures during project planning and analysis. Minimize building of roads directly on ridgetops or areas identified as important for lynx habitat connectivity.
- Proposed Forest Plan Implementation – Measures will be taken at the individual project level to eliminate or minimize adverse effects to Canada lynx and their habitat. Cumulative changes at the LAU level will be tracked and periodically reviewed for currency and accuracy.

7. Determination of Effects

Programmatic Forest Plan Direction

Forest Plans are permissive in that they allow, but do not authorize actions to occur. Current RGNF Forest Plan direction may allow actions to occur that could adversely affect lynx. The Regional Forest Plan amendments, when finalized, will bring the Forest Plan into compliance with the BO for the national programmatic BA. This would be consistent with Forest Plan wildlife standard 10. In the interim, by requiring consideration of the information and recommendations included in the LCAS, and deferral of projects that adversely affect lynx, the CAs substantively reduce the potential for Forest Plan direction to result in adverse effects to lynx.

With incorporation of the LCAS conservation measures through the Regional Forest Plan amendments, the Forest Plan will provide fully the direction necessary to maintain the quality and quantity of lynx habitat during project implementation, and ultimately should contribute to the expansion, and eventually the maintenance, of a viable population of lynx in the Southern Rocky Mountains.

Proposed Forest Plan Implementation

Alternative 1

Proposed actions could alter suitable lynx habitat so that it may become unsuitable (up to 30 percent), and disturbance to individual lynx may occur from project implementation. Some of the proposed actions may result in permanent or long-term changes to foraging, denning or dispersal habitat, or increased snow compaction. As it is impossible to anticipate all the mitigation measures that could be applied within individual projects, Forest Plan management direction can only minimize any adverse effects. Consequently, Forest Plan actions **MAY AFFECT AND LIKELY TO ADVERSELY AFFECT** the lynx.

Mitigation at the project level can provide additional protective measures for site-specific actions so that they do not result in adverse effects. As required by the CAs, site and project specific analyses and inclusion of appropriate mitigations should result in adequate suitable, denning, foraging and dispersal habitat being maintained throughout the landscape, and disturbances to denning, foraging and dispersing lynx being minimized.

Alternative 2

Although Alternative 2 provides more protective measures through additional standards and guidelines and more targeted monitoring of mature to late successional spruce fir and mixed conifer, and riparian habitat types, it will still require site and project specific mitigations to ensure project actions do not result in adverse effects. At the Forest Plan level, management direction can only minimize alteration of lynx habitat and disturbance to individual lynx and so the proposed action **MAY AFFECT AND LIKELY TO ADVERSELY AFFECT** the lynx.

SOUTHWESTERN WILLOW FLYCATCHER

1. General Habitat Associations

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 2002) unless otherwise cited

The historical breeding range of the southwestern willow flycatcher (*Empidonax traillii extimus*) included southern California, southern Nevada, southern Utah, Arizona, New Mexico, western Texas, southwestern Colorado, and extreme northwestern Mexico. The flycatcher's current range is similar to the historical range, but the quantity of suitable habitat within that range is much reduced from historical levels.

The flycatcher breeds in relatively dense riparian habitats in all or parts of seven southwestern states, from near sea level to over 2000 m (6100 ft). A few territories are located as high as 2600 m (8500 ft) but flycatchers are primarily found in lower elevation riparian habitats.

Southwestern willow flycatchers breed in substantially different types of riparian habitat across a large elevational and geographical area. These riparian habitats tend to be rare, widely separated, small and/or linear locales, separated by vast expanses of arid lands. Breeding patch size, configuration, and plant species composition can vary dramatically across the subspecies' range. However, certain patterns emerge and are present at most sites. Regardless of the plant species composition or height, occupied sites always have dense vegetation in the patch interior. In most cases this dense vegetation occurs within the first 3 - 4 m (10-13 ft) above ground. Canopy cover is usually very high - typically 80% or greater. These dense patches are often interspersed with small openings, open water, or shorter/sparser vegetation, creating a mosaic that is not uniformly dense. Nesting habitat patches will tend not to be very narrow, and slow-moving or still surface water and/or saturated soil will be present at or near breeding sites during wet or normal precipitation years.

E.t.extimus breeds only in dense riparian vegetation near surface water or saturated soil. Breeding sites are comprised of spatially complex habitat mosaics, often including both exotic and native vegetation. Within a site, flycatchers often use only a part of the patch, with territories frequently clumped and/or distributed near the patch edge. Patches may be a relatively dense, linear contiguous stand or an irregularly-shaped mosaic of dense vegetation with open areas. Flycatchers are generally not found breeding in narrow, linear riparian habitats where the entire patch is less than approximately 10 m (33 ft) wide. Patch sizes vary anywhere between less than one acre to over 100 acres.

Flycatchers nest in thickets of trees and shrubs ranging in height from 2m to 30 m (6 to 98 ft). Lower elevation thickets (2-4 m or 6-13 ft tall) tend to be found at higher elevation sites, with tall stature habitats at middle to lower elevation riparian forests. Nest sites typically have dense foliage from the ground level up to approximately 4 m (13ft) above the ground, although dense foliage may exist only at the shrub level, or as a low dense canopy. Nest sites typically have a dense canopy.

The diversity of nest plant species may be low (e.g., monocultures of willow or tamarisk) or comparatively high. Cover types include native vegetation (such as willow, cottonwood, ash), exotic vegetation (such as tamarisk), and mixed native/exotic vegetation. Nest plants are rooted in or overhang standing water. Occupied sites are typically located along slow-moving stream reaches; at river backwaters; in swampy abandoned channels and oxbows; marshes; and at the margins of impounded water (e.g., beaver ponds, inflows of streams into reservoirs). Where flycatchers occur along moving streams, those streams tend to be of relatively low gradient, i.e., slow-moving with few (or widely spaced) riffles or other cataracts.

2. Local Habitat Relationships

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 2002) unless otherwise cited

Throughout its range, the flycatcher's distribution follows that of its riparian habitat. In some parts of its northern range, questions of range boundaries between other willow flycatcher subspecies exist, including possible intergradations between subspecies. In southern Utah, southwestern Colorado, and perhaps northern New Mexico, there may be fairly broad clinal gradations between the southwestern willow flycatcher and the Great Basin/Rocky Mountain race *E. t. adastus*. *E. t. extimus* may be typical of lower elevations, as in northern parts of the southwestern willow flycatcher's range, clinal gradations with *E. t. adastus* may exist with increasing elevation, as well as latitude. Recent genetic work has verified *extimus* genetic stock in south-central Colorado (i.e., San Luis Valley). Breeding willow flycatchers with genetic characteristics of the southwestern subspecies occur at Alamosa National Wildlife Refuge and McIntire Springs, but flycatchers from Beaver Creek and Clear Creek did not have the southwestern subspecies genetic characteristics. Recent genetics research affirms that flycatchers in the San Luis Valley area are affiliated with *E. t. extimus*, but uncertainties remain about the subspecies status of willow flycatchers elsewhere in extreme southwestern Colorado.

As a neotropical migrant, flycatchers spend only three to four months on their breeding grounds. Flycatchers typically arrive on breeding grounds between early May and early June, although a few individuals may establish territories in very late April. Adults that are successful in raising young may remain at breeding sites through mid-August to early September. Flycatchers breeding at higher elevation sites or more northerly areas usually begin breeding several weeks later than those in lower or southern areas. Because arrival dates vary geographically and annually, northbound migrant willow flycatchers (of all subspecies) pass through areas where *E. t. extimus* have already begun nesting. Similarly, southbound migrants (of all subspecies) in late July and August may occur where southwestern willow flycatchers are still breeding. Therefore, it is only during a short period of the breeding season (approximately 15 June through 20 July) that one can assume that a willow flycatcher seen within *E. t. extimus* range is probably of that subspecies.

Southwestern Colorado hosts the headwaters of several major drainages, including the San Juan River and the Rio Grande, which flow through relatively broad valleys and once supported extensive riparian habitats. There are also many smaller streams that were once heavily wooded. However, much of the riparian habitat in these areas has been reduced and heavily impacted. Statewide, willow flycatchers were locally common, but it is difficult to reconstruct the historical distribution and abundance of *E. t. extimus*. Recent surveys suggest that willow flycatchers are very localized and uncommon within the probable range of *E. t. extimus* in southwestern Colorado. Within the range of *E. t. extimus*, breeding flycatchers have been confirmed only on tributaries to the San Juan (Williams Creek Reservoir, Los Pinos River, and Piano Creek) and at Alamosa National Wildlife Area and McIntire Springs, within the Rio Grande drainage in the San Luis Valley.

In coordination with the FS, the FWS established a range in Colorado for the southwestern willow flycatcher. All willow flycatchers within that range, below 8500 ft, were to be presumed southwestern willow flycatcher (USDI 1995). RGNF lands are included within that range and approximately 31 acres along specific stream reaches on the Conjeos Peak RD were identified as meeting the definition of southwestern willow flycatcher habitat (maps on file at the SO). The FWS defined habitat as occurring under 8500 ft elevation, on streams with $\leq 4\%$ gradient, and within riparian shrub vegetation at least 30 ft wide, 30 ft long, and 5 ft high (USDI 1995). This

habitat definition was refined in 2003 to include narrow (<10 m wide) but closely associated stringers of habitat at least 5 ft high as part of a complex of closely associated patches, totaling at least 0.25 acres (USDI 2003). At that time, the FWS also revised the range map, removing the 8500 ft elevational limit.

Critical habitat was designated in 1997, but in 2001, the FWS was instructed by the 10th Circuit Court of Appeals to issue a new critical habitat designation. The FWS is in the process of re-proposing critical habitat and as part of the Recovery Plan, has defined recovery units and management units. The Rio Grande Recovery Unit includes the San Luis Valley Management Unit, defined as the Rio Grande and tributaries within the San Luis Valley from Baxterville (CO) to the Colorado/New Mexico State line, including Alamosa National Wildlife Refuge and the Conejos River from Fox Creek to the Rio Grande.

3. Local Survey/Occurrence Information

As part of FS consultation with FWS, a BA for the willow flycatcher relative to grazing was completed in 1995 and amended in 1997. The BA identified 18 allotments as having suitable habitat and 44 allotments as having potential habitat. Of these, 3 are on the RGNF, including the Cumbres/La Manga Stock Driveway, Lower Magote Horse Pasture, and River Springs Horse Pasture Allotments. Annual monitoring of these areas is required, but to date, no birds have found to be present. These areas were formally surveyed in 2002, and again, no birds were detected (Hawks Aloft, Inc. 2002). The survey report concluded that more than half the sites surveyed did not contain habitat suitable for the southwestern willow flycatcher. Three sites were determined to have significant amounts of habitat (Conejos River Reach 2/Trail Gulch, Conejos River Reach 4, and Rito Hondo Reach 2) and 4 sites were determined to have small patches of marginally suitable habitat (Cat Creek Reaches 2 and 4, Deer Creek Reach 2 and Ojito Creek).

The 2002 survey was part of a San Luis Valley-wide effort initiated as a collaborative effort between the FS, FWS, BLM and CDOW. Although no birds were found on FS lands, there were breeding birds identified on FWS, CDOW and BLM lands. This collaborative effort will continue as the agencies intend to survey all possible habitats throughout the San Luis Valley.

In 1996, the FWS issued a new range map for southwestern willow flycatchers in Colorado (USDI 1996). While reaffirming the 8500 ft elevational habitat limit, the FWS requested that the Forest Service conduct inventory surveys higher than 8500 ft. The RGNF mapped possible areas of flycatcher habitat across the Forest, based on FWS habitat definitions, up to 10500 ft (map on file at the Supervisor's Office). This elevational limit is estimated as the elevation at which willow height begins to decline to less than 5 ft and is consistent with the 2003 revised range map and habitat definitions. Based on that mapping exercise, the RGNF has identified 2100 potential acres of flycatcher habitat on the Forest and will conduct surveys of those areas to determine habitat suitability and whether birds are present on Forest.

4. Risk Factors

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 2002) unless otherwise cited

The Southwestern willow flycatcher was listed as federally endangered in 1995 due to extensive loss of habitat, brood parasitism, and lack of adequate protective regulations.

The primary cause of the flycatcher's decline is loss and modification of habitat. Its riparian nesting habitat tends to be uncommon, isolated, and widely dispersed. Historically, these habitats

have always been dynamic and unstable in place and time, due to natural disturbance and regeneration events such as floods, fire, and drought. With increasing human populations and the related industrial, agricultural, and urban developments, these habitats have been modified, reduced, and destroyed by various mechanisms. Riparian ecosystems have declined from reductions in water flow, interruptions in natural hydrological events and cycles, physical modifications to streams, modification of native plant communities by invasion of exotic species, and direct removal of riparian vegetation. Wintering habitat has also been lost and modified.

The major mechanisms resulting in loss and modification of habitat involve water management and land use practices. Dams and reservoir diversions inhibit the natural cycles of flood-induced sediment deposition, floodplain hydration and flushing, and timing of seed dispersal necessary for establishment and maintenance of native riparian habitats. Upstream of dam sites, riparian habitats are inundated by reservoirs. Surface water diversions and groundwater pumping for agricultural, industrial, and municipal uses are major factors in the deterioration of southwestern willow flycatcher habitats. The principal effect of these activities is simple reduction of water in riparian ecosystems and associated subsurface water tables. Channelization and bank stabilization generally reduce the volume and width of wooded riparian habitats. In some areas riparian vegetation is removed from streams, canals, and irrigation ditches to increase watershed yield, remove impediments to streamflow, and limit water loss through evapotranspiration. Methods include mowing, cutting, root plowing, and application of herbicides. The results are that riparian habitat is eliminated or maintained at very early successional stages not suitable as breeding habitat for willow flycatchers.

Overgrazing by domestic livestock has been a significant factor in the modification and loss of riparian habitats in the arid western United States. If not properly managed, livestock grazing can significantly alter plant community structure, species composition, relative abundance of species, and alter stream channel morphology. The primary mechanism of effect is by livestock feeding in and on riparian habitats. Overutilization of riparian vegetation by livestock also can reduce the overall density of vegetation, which is a primary attribute of willow flycatcher breeding habitat. Livestock may also physically contact and destroy nests. Flycatcher nests in low-stature habitats could be vulnerable to this impact. Livestock also physically degrade nesting habitat by trampling and seeking shade and by creating trails that nest predators and people may use. Furthermore, improper livestock grazing in watershed uplands above riparian systems can cause bank destabilization, increased runoff, increased sedimentation, increased erosion, and reduced capacity of soils to hold water. Because the impact of herbivory can be highly variable both geographically and temporally, proper grazing management strategies must be developed locally.

Reductions in density and diversity of bird communities, including willow flycatchers, have been associated with recreational activities. In the warm, arid Southwest, recreation is often concentrated in riparian areas because of the shade, water, aesthetic values, and opportunities for fishing, boating, swimming, and other activities. As regional human populations grow, the magnitude and cumulative effects of these activities is considerable. Effects include reduction in vegetation through trampling, clearing, woodcutting and prevention of seedling germination due to soil compaction; bank erosion; increased incidence of fire; promoting invasion by exotic plant species; promoting increases in predators and scavengers and brood-parasitic cowbirds; and noise disturbance. Recreational development also tends to promote an increased need for foot and vehicle access, roads, pavement, trails, boating, and structures that fragment habitat.

Historically, riparian systems were driven by flood disturbance regimes. Changes in hydrological patterns have moved these systems into fire disturbance regimes. Both flood and fire periodically

cause localized habitat loss, but flooding provides a mechanism for continued development of habitat patches with suitable nesting structure. In contrast, fires cause directional change in the composition of riparian stands, as native riparian species generally are not fire evolved. Flycatcher breeding success can be impaired for several years after a fire, the extent and duration dependent upon the size and severity of the fire, rate of vegetative regrowth, and changes in vegetation structure and species composition.

The availability of relatively flat land, rich soils, high water tables, and irrigation water in southwestern river valleys has spawned wide-scale agricultural development. These areas formerly contained extensive riparian habitats. Agricultural development entails not only direct clearing of riparian vegetation, but also re-engineering floodplains (e.g., draining, protecting with levees), diverting water for irrigation, groundwater pumping, and applications of herbicides and pesticides, which may also affect the flycatcher and its habitat. Strips of riparian vegetation that develop along drainage ditches or irrigation canals also potentially provide habitat for the flycatcher. Benefits are greatest when the vegetation is left undisturbed, as opposed to being periodically cleared, and where the riparian vegetation strips are dense, abundant, and relatively near natural flood plain habitat.

Urban development results in many impacts to riparian ecosystems and southwestern willow flycatcher habitat. Urbanization in or next to flycatcher habitat provides the catalyst for a variety of related and inter-related direct and indirect effects that can cause loss and/or the inability to recover habitat.

Exotic species invasion is facilitated by these human activities. Several non-native plant species have become established in southwestern willow flycatcher riparian habitats, with varying effects on the bird. Larger concentrations and wider distribution of brown-headed cowbirds has occurred, resulting in increased vulnerability of the flycatcher to brood parasitism, which has reduced reproductive performance.

The cumulative effects of these human activities have contributed to a reduction in range and population numbers, so that there are only an estimated 1100-1200 territories rangewide. These territories are distributed in a large number of very small breeding groups, and only a small number of relatively large breeding groups. These isolated breeding groups are vulnerable to local extirpation from floods, fire, severe weather, disease, and shifts in birth/death rates and sex ratios. Also, because the flycatcher exists in small populations, there is concern over potential low genetic variation within populations, and possible inbreeding.

5. Effects Analysis

The analysis of effects is conducted in 2 parts: 1) an assessment of the sufficiency of Forest Plan direction to provide programmatic guidance (Programmatic Forest Plan Direction Analysis section) and 2) an evaluation of the potential effects of proposed management actions (Proposed Forest Plan Implementation Analysis section).

General Considerations

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 2002) unless otherwise cited

Because riparian vegetation typically occurs in flood plain areas that are prone to periodic disturbance, suitable habitats will be ephemeral and their distribution dynamic in nature. Suitable habitat patches may become unsuitable through maturation or disturbance (though this may be

only temporary, and patches may cycle back into suitability). Therefore, it is not realistic to assume that any given suitable habitat patch (occupied or unoccupied) will remain continually occupied and/or suitable over the long-term. Unoccupied suitable habitat will therefore play a vital role in the recovery of the flycatcher, because it will provide suitable areas for breeding flycatchers to colonize as the population expands (numerically and geographically), and move to following loss or degradation of existing breeding sites. Many sites will likely pass through a stage of being suitable but unoccupied before they become occupied.

Territories are bordered by additional habitat that is not defended as a breeding territory, but may be important in attracting flycatchers to the site and/or in providing an environmental buffer (from wind or heat) and in providing post-nesting use and dispersal areas. Breeding site occupancy is influenced by vegetation characteristics of habitat adjacent to the actual occupied portion of a breeding site; therefore, unoccupied areas can be an important component of a breeding site.

Potential habitats that are not currently suitable will also be essential for flycatcher recovery, because they are the areas from which new suitable habitat develops as existing suitable sites are lost or degraded; in a dynamic riparian system, all suitable habitat starts as potential habitat. Furthermore, potential habitats are the areas where changes in management practices are most likely to create suitable habitat.

Not only must suitable habitat always be present for long-term survival of the flycatcher, but additional acreage of suitable habitat must develop to achieve full recovery. Therefore, habitat management for recovery of the flycatcher must include developing and/or maintaining a matrix of riparian patches - some suitable and some potential - within a watershed so that sufficient suitable habitat will be available at any given time.

Programmatic Forest Plan Direction Analysis

Subsequent to the listing of the southwestern willow flycatcher, the FWS developed a document describing activities that *may affect* the flycatcher and offsetting measures to avoid those affects as guidance to the Forest Service and BLM (USDI 1995). The Forest Plan includes 2 wildlife standards (8 and 10) for TES species and a riparian standard (3) that would generally apply to all activities and serve as direction at both the Forest Plan and project level to ensure appropriate mitigation is incorporated into individual project actions. Additional Forest Plan direction is crosswalked to activities identified by FWS that *may affect* the flycatcher in Table 10.

Table 10. Crosswalk between FWS *may affect* activities and RGNF Plan direction.

May Affect Activity	Impacts of Activity	Offsetting Measures	Forest Plan Guidance
New water diversions, structures and canals	Direct removal of vegetation, hydrological changes affecting riparian habitat	Avoid	Court decision (District Court, Water Division 3, State of Colorado, Decree Case No. 81-CW-183) Riparian Standard 2; Riparian Standard 5 – Guidelines 2 and 3; WCP Handbook
Water impoundment	Flooding of habitat, changes in hydrology	Avoid	Court decision (District Court, Water Division 3,

	and riparian vegetation		State of Colorado, Decree Case No. 81-CW-183) Riparian Standard 2; Riparian Standard 5 – Guidelines 1 and 3; WCP Handbook
Stream channelization	Reduction of habitat through direct destruction and hydrological changes	Avoid	Riparian Standard 1 – Guideline 1; Riparian Standard 3 – Guideline 3; Riparian Standard 5; Riparian Standard 6 – Guideline 3; WCP Handbook
Wetland draining	Reduction of habitat through hydrological changes	Avoid	Riparian Standard 4; WCP Handbook
Gravel or other mining	Direct removal of vegetation, changes in vegetation through hydrological changes	Avoid, unless mining is removing significant areas of non-native vegetation (90% or >) such as tamarisk and miners agree to restore with native vegetation. Must be conducted outside of breeding season.	Wilderness Standard a (see effects analysis of minerals management)
Timber sale within riparian zones	Reduction of overstory habitat beneficial for cover, destruction of other habitat by machinery	Avoid, unless safety of buildings at risk, conduct outside of breeding season.	Riparian Standard 1 – Guidelines 1, 2, 3
Timber sale outside of riparian zones	Siltation of habitats, increased potential for flooding, other hydrological changes	Assess impacts based on harvest plans, extent of area, etc.	Sediment Control Standards 2, 3 and 4
Irrigation within and outside of riparian areas	Increases in selenium, pesticide residues, heavy metals, destruction of habitat through conversion to different uses, changes in stream geomorphology due to water depletions	Avoid if any one of the impacts will cause exceedance of EPA standards or other biologically appropriate standards or will affect the bird or its habitat	On Forest, limited to 1 existing administrative site on Middle Fork Carnero Creek
Off road vehicle use outside of established ORV areas	Direct destruction of habitat, nests, eggs, and fledglings, intentional or unintentional disturbance to birds	Avoid through fencing or signing	Infrastructure – Travelways Standards 2 and 3; Wilderness Recreation Guidelines k and l
Camping in undeveloped sites	Direct destruction of habitat, intentional or unintentional disturbance to nests and birds	Deter people from camping in riparian area through fencing or signing	Dispersed Recreation Standards 3 and 4; Dispersed Recreation Standard 5 – Guideline 5; Wilderness Recreation

			Standard b; Wilderness Recreation Guideline m
Boating	Destruction of habitat through takeouts used for overnight camping, lunches; disturbance of nesting birds	Avoid. If can't, ascertain impact and control by educational signing, through commercial boating permit conditions and education of commercial boaters	On Forest, activity generally limited to existing lake takeouts
Land exchange from public to private	Destruction of habitat through potential unregulated land uses	Avoid, unless a deed restriction is placed on the land which excludes all hydrologic and vegetation altering activity from occurring within 50m of riparian and wetland vegetation	Real Estate – Land Adjustments Guideline 3
Roads, hiking and biking trails, utility corridors	Direct destruction of habitat, intentional or unintentional disturbance to nests and birds	Avoid. If can't, route as far away from nest territory as possible destroying least amount of habitat. Conduct outside of breeding season.	Riparian Area Standard 4 – Guidelines 1 and 2; Soil Productivity Standard 1 – Guideline 1
Permanent fill other than utility or transportation corridors	Direct destruction of habitat	Avoid	Sediment Control Standard 4 – Guideline 2; Riparian Standard 1 – Guideline 10
Livestock grazing in suitable habitat during the breeding season or inappropriate grazing any time of year	Trampling and eating of vegetation, stream hydrology changes, nest and fledgling destruction or trampling, vector for brood parasitism by brown-headed cowbirds	Allow seasonal usage; only allow light grazing that maintains or restores suitable habitat; fence in riparian area; create watering area outside of riparian zone; graze in adjacent unoccupied pasture; implement cowbird trapping	Riparian Standard 1 – Guidelines 5, 6, 7, 8, 9 Range Standard 1 Range Standard 2 – Guidelines 1 and 2 WCP Handbook Wilderness Recreational Stock Grazing Guideline a Wilderness Riparian Utilization/Trampling Guidelines a, b, c, d
Rotenone application	Elimination of aquatic insect prey	Allow outside of breeding season only	Water Purity Standard 3 WCP Handbook
Hand applied pesticide application	Elimination or reduction of insect prey	Allow outside of breeding season only, adhere to label restrictions	Water Purity Standard 3 WCP Handbook
Aerial pesticide application	Elimination or reduction of insect prey	Allow outside of breeding season only, adhere to label restrictions	Water Purity Standard 3 WCP Handbook
Aerial herbicide application	Elimination or reduction of habitat and possible reduction of insect prey	Avoid, unless are removing significant (90% or >) non-native vegetation and will	Wilderness Vegetation Management Guideline b Water Purity Standard 3 WCP Handbook

		restore with native vegetation. Must be outside of breeding season.	
Hand applied herbicide application	Elimination or reduction of habitat and possible reduction of insect prey	Avoid during breeding season, only apply to non-native vegetation	Wilderness Vegetation Management Guideline b Water Purity Standard 3 WCP Handbook

While current Forest Plan direction is not specific to the management of flycatchers and their habitat, guidance is provided in a general and permissible manner that would allow the implementation of related off-setting measures. Additionally, there is a wildlife standard (10) that directs consistency of Forest Plan guidance with new TES recovery plans and designations of critical habitat.

Implementation of off-setting measures would be determined through project and site specific analyses and the determination of need for project mitigation. The Forest’s monitoring plan calls for surveying of flycatcher habitat, which would provide information at the project level as to the need for implementing off-setting measures.

Proposed Forest Plan Implementation Analysis

The EA (Appendix B Table B-1) provides a summary description of management activities, and their extent, on the RGNF. These management activities may affect, in varying degrees, hydrological regimes and riparian habitats that may provide breeding habitat for the flycatcher. Management activities that occur on the Forest that have the potential to affect flycatchers are discussed below.

- Timber management. Timber harvest is not a major factor affecting flycatchers and their habitats. Plant composition and structure of flycatcher habitat generally does not consist of merchantable timber. Effects from this activity primarily would be from hydrological disturbance and sedimentation due to road construction and harvest activities near riparian areas.
- Fire management. Fire is an imminent threat to occupied and potential flycatcher breeding habitat. Although fires occurred to some extent in some of these habitats historically, many native riparian plants are neither fire-adapted nor fire-regenerated. Thus, fires in riparian habitats are typically catastrophic, causing immediate and drastic changes in riparian plant density and species composition.
- Recreation and travel management. Riparian areas receive disproportionately high recreation use and impacts in the Southwest can be devastating where riparian habitat tends to be more linear, narrow and dissimilar to adjacent habitats. Where there is no buffer between habitats, impacts are more significant. Facilities, roads and trails, human presence and noise disturbance can result in fragmentation and loss of habitat and displacement of wildlife.
- Grazing management. Effects of livestock grazing vary due to different grazing practices and existing habitat quality, as well as current climatological conditions (drought). Other factors, such as water management and agricultural practices and recreational use, may aggravate livestock impacts and are difficult to separate from grazing effects. Additionally, grazing has

parameters of extensiveness (how wide spread), intensiveness (grazing systems), and species use (domestic livestock and wild ungulates). The primary impacts of grazing are on habitat availability and suitability, with related, lesser impacts from nest destruction and increased brood parasitism from brown-headed cowbirds.

- Soil, watershed and minerals management. These management activities may have some effect on stream hydrology and sedimentation.

Alternative 1

Direct and Indirect Effects

The relative degree of risk from these management activities on the RGNF is not great, as potential habitat on the Forest is extremely limited and to date, no breeding southwestern willow flycatchers have been documented on the Forest. Most known suitable habitat found within the San Luis Valley is generally below elevational limits of Forest riparian habitats. While GIS mapping of possible habitat on the RGNF is estimated to be 2100 acres, at this time there are about 31 acres identified as suitable or potential habitat in consultation with FWS. Expected effects from proposed management activities on the Forest are disclosed below.

- Timber management. Timber sale activities will occur primarily in higher elevation mature to late successional spruce fir and mixed conifer stands. There are standards and guidelines limiting harvest activities and associated road (re)construction within the water influence zone (WIZ) to minimize sedimentation. Firewood collection is prohibited within 100 feet of stream courses, riparian areas, wet areas, and bodies of water. Effects from these activities are expected to be minimal, as they generally do not occur within flycatcher habitat and there are Forest Plan standards and guidelines to minimize potential impacts from sedimentation.
- Fire management. The Forest Plan proposes to implement a prescribed fire program to address ecosystem needs and to reduce the risk of catastrophic fires. The priority habitats for treatment will be those that are fire-maintained ecosystems. As part of the update of the biological assessment for the Fire EA, a screen was developed to assist biologists in project-specific analysis of effects, and included a 50 or 200 m buffer along riparian zones as mitigation for potential and suitable flycatcher habitat, respectively. Effects from fire activities are expected to be beneficial to the extent that the risk of catastrophic fires is reduced.
- Recreation and travel management. The RGNF manages for 2 major types of recreational opportunities; developed and dispersed recreation. There are no developed recreation sites within identified flycatcher habitat or within the mapped areas of possible habitat, although some campgrounds are located within riparian areas. These sites are existing developments where loss of possible habitat would have already occurred. There are some minor rehabilitation and expansion projects anticipated and a few new development projects (trailheads and campgrounds) proposed (FEIS pgs 3-397 and 3-398). If undertaken, these projects would require site-specific analysis and consultation. Routine and deferred maintenance activities have been evaluated under programmatic BAs for which determinations of *no effect* to flycatchers were made.

Dispersed recreation (motorized and non-motorized) accounts for 65% of Forest recreation use and is widely distributed across the Forest, but concentrated along travel routes, lakes, streams or rivers and on snow (FEIS pgs 3-389 and 3-414). There are riparian, sediment

control, dispersed recreation, and wilderness Forest Plan standards and guidelines that are intended to minimize impacts to riparian areas. These standards and guidelines minimize riparian disturbances by limiting road and trail construction activities in watercourses and wetlands and by monitoring and controlling access to recreational use sites, including around lakes and streams. Dispersed recreation activities under outfitter and guide permits have been reviewed under a separate programmatic assessment and received FWS concurrence on a *may affect, is not likely to adversely affect determination* to flycatchers.

Travel management on the RGNF limits motorized travel to designated roads and trails. Roadless areas are managed for both non-motorized (54%) and motorized (46%) recreation that is restricted to existing trails (FEIS pg 3-359). Overall, the Forest Plan predicts a net reduction in miles of road and trails, as road and trail construction is expected to be offset by road and trail closure and/or obliteration. All road management decisions will need to be informed through the Roads Analysis Process (RAP), scheduled for completion during FY04. That process includes consideration of wildlife values and effects to wildlife habitat.

Effects from the activities of routine road and trail maintenance have been programmaticaly reviewed and will be evaluated and mitigated through the use of a checklist to ensure specific actions that may affect flycatchers or their habitat will not be implemented without further analysis and consultation, if necessary.

- Range management. There are 577,000 acres on the RGNF identified as suitable for livestock grazing (FEIS pg 3-189 Table 3-46). Riparian areas are included within grazing allotments, extending from low elevation grasslands to high elevation grasslands in the montane and subalpine zones. Approximately 32% of suitable rangelands are in unsatisfactory condition (FEIS pg 3-189 Table 3-46), a circumstance exacerbated in some riparian areas by past uncontrolled grazing, resulting in reduced vegetative productivity, destabilized stream banks and degraded wildlife habitat (FEIS pg 3-188).

In recognition of the sensitivity of riparian areas and the need to improve rangeland conditions, the Forest will use direction like that described in the General Technical Report INT-263, *Managing Grazing of Riparian Areas in the Intermountain Region* (Clary and Webster 1989) (FEIS pg 3-207). This direction is incorporated as Forest Plan riparian and range standards and guidelines, and provides for the phase out of continuous season-long use and includes rest or growing-season deferment and proper utilization levels to enhance vegetative composition and ecological condition of riparian and upland sites (FEIS pg 3-194).

The Recovery Plan recognizes that the General Technical Report INT-263, in addition to other scientific literature, indicates that in some areas and depending on the type of herbaceous forage available, negative impacts on woody riparian vegetation can be avoided by not allowing stubble height of herbaceous vegetation to be reduced below 3 to 6 inches. Additional body of literature conclude cattle generally prefer grasses and forbs to woody vegetation as long as herbaceous vegetation is green, so that use of palatable grasses and sedges can occur without undesirable browsing of riparian shrubs and streambank damage. However, within the riparian zone, livestock use of browse is directly related to the availability and palatability of herbaceous vegetation and excessive grazing and browsing pressure can prevent the establishment of seedlings, result in the high-lining of riparian deciduous shrubs or trees and removal of low-level vegetation altogether.

The Recovery Plan provides recommendations for minimizing impacts to flycatcher habitats, and these recommendations will be considered in the development of Allotment Management Plans (AMPs). Specific range management needs are addressed through AMPs, grazing permits and annual operating instructions (AOIs).

AMPs are required to be updated periodically and are subject to NEPA and ESA review and consultation. Until an AMP is updated, AOIs incorporate Forest Plan riparian and range standards and guidelines that are intended to maintain or improve riparian areas. AOIs will apply combinations of requirements for stubble height, streambank stability, vegetative seral stage and rest to achieve proper functioning condition of riparian systems. Sites that are seriously degraded can be assigned greater stubble heights to further limit use and achieve improvement. Degraded conditions on especially sensitive sites may require rest for a period of time to achieve desired conditions (FEIS pg 3-207).

The BA identified 3 allotments on the RGNF that have suitable or potential habitat for flycatchers, including, the Cumbres/La Manga Stock Driveway, Lower Magote Horse Pasture, and River Springs Horse Pasture Allotments. These allotments are managed consistent with the direction provided in the BA and its amendment. FWS concurrence on off-setting measures to be incorporated into the AOIs for these allotments is required annually.

Both the BA and its amendment determined that Forest Plan direction, interpreted in relation to flycatcher habitat, would meet the attributes of suitable flycatcher habitat if Forest Plan standards and guidelines are met.

- Soil, watershed and minerals management. Soil management activities are designed to improve watershed conditions and limit effects of sedimentation in stream courses. A programmatic EA for watershed improvement projects is in progress and will include a checklist at the project level to ensure species effects are minimized and/or mitigated as appropriate. Programmatic and project-level consultation for activities covered by the proposed EA will occur as necessary.

Reserved water rights on the RGNF have been established by court order (District Court, Water Division 3, State of Colorado, Decree Case No. 81-CW-183) and no new major diversions or water impoundments will occur. There is an existing irrigated horse pasture as part of the Carnero Guard Station administrative site, in the general vicinity of mapped possible flycatcher habitat. This will be a priority survey site to determine whether flycatcher habitat and /or birds are present in the area.

Mineral activities, especially recreational forms, could impact or occur in riparian areas with relative effects dependent on the scale of the activity. Mineral exploration and development activities are expected to be minimal, and little to none is expected to occur in riparian areas (FEIS 3-207). However, should a mining activity be proposed near or within a riparian area, required project-specific analyses would provide the means to incorporate necessary and appropriate mitigation. Because these activities are limited in extent and generally are not expected to occur in flycatcher habitat, effects to flycatchers are expected to be minimal.

Cumulative Effects

On the RGNF, conservation practices that protect riparian areas are being incorporated in range use permits, road construction stipulations and plans for timber harvest, mining and recreation use

(FEIS pg 3-201). Stream-health surveys, in conjunction with flycatcher surveys, will help identify stream and associated riparian problems as well as areas of potential and/or suitable flycatcher habitats. Riparian condition assessments will be conducted as part of project planning to determine whether riparian sites are functioning properly, and if not, what management changes can be made to produce trends toward proper function (FEIS pg 3-204).

There are 2 large, long-term construction and/or development projects occurring within or adjacent to higher elevation riparian areas within RGNF boundaries. CDOT is conducting a multi-year road construction/improvement project of Highway 160 within the South Fork riparian corridor and the private development of a golf course along the Rio Grande River in South Fork is ongoing. The RGNF cooperated with both project proponents in their surveys of affected riparian areas in 2002, and no flycatchers were detected.

Within the San Luis Valley area, there are intensive water management practices employed for extensive agricultural and livestock use of wetland and riparian areas by private landowners as well as municipal, county, state and federal entities. Water impoundments and irrigation also are used for development and maintenance of wildlife sanctuaries and/or refuges managed by private individuals, non-profit conservation organizations, and state and federal agencies. Potential cumulative effects from these activities have been recognized, and an effort to develop a Habitat Conservation Plan (HCP) has been initiated between the FWS and interested parties, including the RGNF. Part of that effort includes conducting comprehensive surveys throughout the San Luis Valley, inclusive of the RGNF. As of 2002, those surveys have found sufficient numbers of flycatchers to meet the recovery objectives for the San Luis Valley management unit.

These cumulative actions impact flycatchers and/or their habitat in both adverse and beneficial ways. Water management activities that dewater streams and wetlands have degraded riparian areas, but there is active water management to restore and maintain riparian areas that provide flycatcher habitat. It is the intent of the Forest Plan to consider non-Forest Service actions, and manage Forest Service lands to mitigate and/or complement these actions by implementing Forest Plan direction. The RGNF continues to work with FWS in the development of flycatcher range and habitat criteria as part of the FWS re-proposal of critical habitat and in implementation of the Recovery Plan.

Alternative 2

Direct and Indirect Effects

Effects from the proposed amendment of adding MIS to the Forest Plan are similar as described under Alternative 1. Any incremental changes of effect would be derived from the proposed additional standards and guidelines and revised monitoring plan. The changes would be expected to be beneficial, as the amendment would provide more protective measures through additional standards and guidelines and more targeted monitoring of riparian habitat types.

A new wildlife standard (21) provides for the incorporation of conservation measures and principals of local bird conservation plans (NABCI) to minimize management impacts to avian species. Other changes to Forest Plan direction that are specific to flycatchers that would occur as a result of the amendment (EA Appendix A) are cross-walked to the *may affect* activities in Table 11. Wildlife standard 22 provides that riparian and range guidelines will be implemented as standards in flycatcher habitat and dispersed recreation standards 6 and 7 limit recreational livestock in riparian areas.

Table 11. Crosswalk between FWS *may affect* activities and amended RGNF Plan direction.

May Affect Activity	Impacts of Activity	Offsetting Measures	Proposed Standards and Guidelines identified in the EA (Appendix A)
Livestock grazing in suitable habitat during the breeding season or inappropriate grazing any time of year	Trampling and eating of vegetation, stream hydrology changes, nest and fledgling destruction or trampling, vector for brood parasitism by brown-headed cowbirds	Allow seasonal usage; only allow light grazing that maintains or restores suitable habitat; fence in riparian area; create watering area outside of riparian zone; graze in adjacent unoccupied pasture; implement cowbird trapping	Wildlife Standard 22
Camping in undeveloped sites	Direct destruction of habitat, intentional or unintentional disturbance to nests and birds	Deter people from camping in riparian area through fencing or signing	Dispersed Recreation Standards 6 and 7

Cumulative Effects

The cumulative effects analysis is the same for both alternatives.

6. Mitigation Measures

- Programmatic Forest Plan Direction - Consider the guidance provided by the FWS (USDI 1995 and USDI 2003) in determining effects to flycatcher habitat, as defined in the guidance.
- Proposed Forest Plan Implementation – Consider the guidance provided by the FWS (USDI 1995) in developing project-specific mitigations, based on off-setting measures described in the guidance.

7. Determination of Effects

Programmatic Plan Direction

While current Forest Plan direction is not specific to the management of flycatchers and their habitat, guidance is provided in a general and permissible manner that would allow the implementation of off-setting measures described in FWS guidance (USDI 1995 and USDI 2003). Forest Plan wildlife standard 10 provides for the incorporation of TES recovery plans and designation of critical habitat as part of Forest Plan direction. Forest Plan direction, interpreted in relation to flycatcher habitat consistent with FWS guidance, would meet the attributes of suitable flycatcher habitat if riparian, sediment control, dispersed recreation, wilderness, range and wildlife standards and guidelines are met.

Proposed Plan Implementation

Alternative 1

A limited amount of potential and suitable flycatcher habitat has been identified on the RGNF and monitoring and off-setting measures have been established in consultation with FWS. The FWS concurred with the BA and its amendment determination of *may affect, is not likely to adversely affect* for grazing activities on flycatchers.

In cooperating with the FWS effort to re-propose critical habitat and implement the Recovery Plan, the Forest has mapped additional possible habitat consistent with the FWS 2003 guidance. These areas have yet to be surveyed to determine whether habitat exists and if birds are present. It is possible that flycatchers and their habitat may occur within these areas, so activities that might occur in these areas *may affect* flycatchers and their habitat. However, surveys are to be conducted of these mapped areas and any proposed projects would be reviewed for potential impacts, so that the proposed actions *are not likely to adversely affect* flycatchers and their habitat.

Given the limited known or projected possible extent of flycatcher habitat on the Forest and that there are standards and guidelines in place to minimize impacts from activities occurring within or adjacent to riparian areas, the Forest Plan actions are determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** southwestern willow flycatchers.

Alternative 2

Although Alternative 2 provides more protective measures through additional standards and guidelines and more targeted monitoring of riparian habitats, it will still require site surveys and project specific off-setting measures to ensure projects do not result in adverse effects. Consequently, the proposed action is determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** southwestern willow flycatchers.

UNCOMPAHGRE FRITILLARY BUTTERFLY

1. General Habitat Associations

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 1994)

The Uncompahgre butterfly has the smallest total range of any North American butterfly species. The species is found only in southwestern Colorado and to date, only known to occur in the San Juan Mountains. Colonies are associated with patches of snow willow (*Salix nivalis*) above 12,500 ft elevation and are found on northeast-facing slopes, which are the coolest and wettest micro-habitat available. All known colonies exist as networks of snow willow patches all in close proximity, typically within the same cirque or basin.

2. Local Habitat Relationships

Note: this information is from annual field reports

On the RGNF, known habitat is limited to high elevation areas within rugged, not easily accessible terrain. Sites are generally typified by high elevation cirques with terraced mesic habitats surrounded by steep cliffs or slopes and snowfields. While not all available snow willow

habitat is occupied, planning area boundaries around known colonies and suitable habitat delineate an estimated 4250 acres of butterfly habitat on the RGNF.

The South San Juan Wilderness area is as yet unsurveyed, but does provide suitable topography for potential habitat. In cooperation with FWS, surveys will continue as the RGNF contains high priority areas for repeat or new surveys.

3. Local Survey/Occurrence Information

Note: this information is from annual field reports

At the time the recovery plan was written, the butterfly was verified at only 2 areas in the San Juan Mountains. Cooperative surveys between the FS and FWS have been conducted since then, and through the 2001 field season verified 10 known colonies, all in the San Juan Mountains. Another colony was reported found during the 2002 field season (pers. comm. Aaron Ellingson). This newest colony was found on the RGNF, making a total of 5 known colonies on the RGNF.

4. Risk Factors

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 1994)

The Uncompahgre fritillary butterfly was listed as federally endangered in 1991 due to declines observed during the 1980s. Due to its sedentary nature, overcollection is considered the greatest human-caused threat to the butterfly. Other actual or potential threats include adverse climatic changes, small population size, and low genetic variability. There is a minor potential threat of trampling of larvae and loss of habitat from human and livestock use through trail and road developments and grazing.

5. Effects Analysis

Note: this information is from the 1999 field report (Ellingson 1999)

The 1999 field report identified risk factors and management recommendations specific to each known population. The primary threat continues to be from overcollection and requires the continued confidentiality of colony site locations. Management changes were not recommended for the 4 RGNF sites, but all of them may be subject to a limited extent of grazing and recreation use. Effects of these activities, as disclosed in the 1999 field report, are discussed for the 4 sites. The fifth site was found during the 2002 field season but that report has yet to be released. It is expected that a comparable analysis of effects and proposed management recommendations for the fifth site will be part of the 2002 field report.

Alternative 1

Direct and Indirect Effects

Sites 1 and 2. No effects from grazing are evident. Recreational use is not detectable and is likely very low, as defined routes and trails do not exist and use appears to be diffuse. Collection is unlikely to be a problem because of difficult access.

No management changes are recommended, but as the sites are not within a protective land designation (i.e., wilderness), management should control grazing and discourage developments

that would increase access to the sites. As long as the sites' locations remain undisclosed, intensive collection enforcement measures are not anticipated.

Site 3. While grazing is permitted, the allotment is inactive. Recreational use is undetectable; although a trail does pass through the margin of the population, impact to the site is negligible. Collection is a minimal threat due to the site's remote and rugged location.

The site is located within a wilderness area and no major management changes are recommended. Development will be limited due to its wilderness status. Grazing management should consider continued non-use or controlled limited use of the area. As long as the site's location remains undisclosed, intensive collection enforcement measures are not anticipated.

Site 4. Most of the site is inaccessible to livestock, but some portion of the area is likely grazed at times. Recreational use is undetectable. Collection is unlikely due to the remote and rugged nature of the site.

The site is located within a wilderness area and no major management changes are recommended. Development will be limited due to its wilderness status. Grazing management should consider non-use or controlled limited use of the area. As long as the site's location remains undisclosed, intensive collection enforcement measures are not anticipated.

Cumulative Effects

On the RGNF, known butterfly populations are limited to 5 locations, although the South San Juan Wilderness has yet to be surveyed. All known and potential sites are protected by Forest Plan wildlife standards (14 and 15) that are specific to the butterfly and management of its habitat. Wildlife standard 14 does not allow ground-disturbing activities and limits grazing, consistent with the analysis of effects and grazing management recommendations discussed in the 1995 BA for the Uncompahgre fritillary butterfly range permit reissuance for national forests. Wildlife standard 15 prohibits butterfly collection activities within the area of known butterfly sites and permits are required for commercial and/or scientific collection. The 1996 Forest Plan BA acknowledged some privately patented mining claims could occur in butterfly habitat, but stated the amount would be small and scattered with limited cumulative impacts. A review of mapped mineral potential on the RGNF indicates that known or potential butterfly habitat occurs within areas of no currently recognized mineral potential.

Within the known range of the butterfly, there are 11 identified populations, including the newly identified population on the RGNF. All of these populations are found on lands in the San Juan Mountains managed by the FS and BLM. These federal lands are managed similarly, as recommended by the recovery plan and annual field reports. Management emphasis for all populations is on continuing inventories and protecting the sites from their primary threat of overcollection by not disclosing known locations. For sites already publicly known, there are active management efforts to educate the public, restrict travel to established trails, and enforce non-collection requirements. Range-wide, management activities are evaluated on a site-specific basis for projects involving possible disturbance to potential habitat to evaluate the impacts and incorporate mitigation as appropriate.

The 1999 field report made a management recommendation for all known sites to formally protect the sites through special land use designations such as research natural areas or areas of critical environmental concern, unless already protected as wilderness areas. Three sites are

within wilderness areas and 2 sites are being considered for special status designation. The RGNF does not propose to designate known colony sites on the Forest as research natural areas, as threats to these colonies are considered low and protection would best be achieved by not disclosing the general locations of the colonies and by implementing current Forest Plan direction specific to butterfly conservation.

Alternative 2

Direct, Indirect and Cumulative Effects

Effects from the proposed amendment of adding MIS to the Forest Plan are the same as described under Alternative 1. No new standards or guidelines in relation to the butterfly are proposed by the MIS amendment, so no additional analysis is warranted.

6. Mitigation Measures

- Continue surveys as recommended by the Recovery Plan and annual field reports.
- Do not issue butterfly collection permits for areas above 12,000 ft elevation.

7. Determination of Effects

Alternative 1

A limited amount of butterfly habitat has been identified on the RGNF and Forest Plan wildlife standards (14 and 15) specific to the butterfly are in place. Wildlife standard 14 is consistent with the management recommendations made in the 1995 BA, for which a determination of *no effect* was made, assuming site-specific BAs would be prepared when renewing AMPs. Wildlife standard 15 prohibits any butterfly collection within known population areas. The potential for mineral exploitation within butterfly habitat is extremely limited and would have site-specific mitigation applied if proposed. While fire is not an identified risk factor, the 1997 BA for the Forest's Prescribed Fire EA was updated in 2002 with an analysis of effects to the butterfly and the FWS concurrence with the determination of *no effect*.

Given the limited known or potential butterfly populations and habitat on the Forest, and that there is Forest Plan direction in place to minimize impacts of activities occurring within butterfly habitat, the proposed actions are determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** the Uncompahgre fritillary butterfly.

Alternative 2

Because effects from the proposed amendment of adding MIS to the Forest Plan are the same as described under Alternative 1 and there are no new standards or guidelines in relation to the butterfly proposed by the MIS amendment, the proposed action is determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** the Uncompahgre fritillary butterfly.

MOUNTAIN PLOVER

1. General Habitat Associations

Note: this information is from the Proposed Rule (FR 64 7587) unless otherwise cited

The mountain plover breeds in Montana, Wyoming, Colorado, New Mexico, and the Texas Panhandle east to Nebraska, and winters from central California and southern Arizona southward into Mexico. In Colorado, plovers arrive on breeding grounds by late March and begin to form flocks as early as mid-June prior to winter migration. The flocks increase in size until Mid-August, and then depart for their wintering grounds between August and October. Colorado is the primary breeding ground for the mountain plover, and more than half of the world's population nests in the state. In Colorado, major breeding areas exist at the Pawnee National Grasslands.

There are an estimated 7,000 plovers in Colorado. There are insufficient data to confirm a population trend for plovers in Colorado, but a historically recognized breeding stronghold on the Pawnee is now small or nearly absent. The plover's narrow range of habitat requirements combined with a high degree of site fidelity increases its vulnerability to impacts at traditional breeding locales.

Short vegetation, bare ground, and a flat topography are recognized as habitat-defining characteristics of plover habitat, at both breeding and wintering locales. Plovers historically nested on prairie dog towns or other areas heavily grazed by prairie herbivores. Currently, in addition to nesting on prairie dog towns, plovers show a strong affiliation for sites that are heavily grazed by domestic livestock and also attempt to breed on fallow and cultivated fields that mimic natural habitats.

Suitable breeding and wintering habitat characteristics can be provided by naturally occurring physiographic features, grazing by native mammalian herbivores or domestic livestock or some agricultural practices. Breeding activity occurs in native grasslands, rangelands and cultivated fields. Monitoring reports suggest nesting success generally may be higher on rangelands with prairie dog colonies than without. And while plovers may be attracted to agricultural fields for nesting, in Colorado nesting success is generally poor as spring tilling practices may result in the loss of nest, eggs or young. Renesting attempts are rarely as successful as first attempts and plovers likely abandon nests when crops become too tall.

In breeding season, high quality sites have high proportion with little or no vegetation, including dry shortgrass prairie, semi-desert landscapes, alkaline lake beds, and areas with disturbance. Brood-rearing areas are very flat, open, dry areas greater than 28 ha in size that have a high (> 30) percent bare ground with vegetation generally less than 5 cm tall. Plover nests are simple scrapes on the ground, lined with organic debris and typically occur in vegetation less than 10 cm (4 in) in height, with at least 30 % bare ground and a conspicuous object such as a manure pile, vegetative clump or rock nearby. The presence of taller vegetation has been reported as important to shade both chicks and adults.

2. Local Habitat Relationships

Based on the presence of active and/or inactive prairie dog colonies, about 1783 acres of plover habitat have been estimated to occur on the RGNF. In cooperation with the FS and BLM, CDOW has initiated surveys for prairie dog colonies. Part of that effort has been to map known or suspected prairie dog colonies on FS and BLM lands to facilitate aerial flights to locate and confirm existing and historical sites. That mapping exercise identified 1,737 acres of active colony areas and 46 acres of inactive colony areas on the RGNF. These sites are considered to represent potential plover habitat on the Forest (map on file in the Supervisor's Office).

3. Local Survey/Occurrence Information

There are no known occurrences of the plover on the RGNF. Completion of the prairie dog colony mapping and survey effort will help the RGNF identify and prioritize where plover surveys should be conducted. Surveys will be conducted as part of any site-specific analysis for proposed activities within areas identified as potential plover habitat.

Surveys have recently been initiated on BLM lands in areas of historical and/or current sheep grazing allotments and have documented the presence of nesting birds in the San Luis Valley.

4. Risk Factors

Note: this information is from the Proposed Rule (FR 64 7587) unless otherwise cited

Conversion of grassland habitat is a primary factor in proposing the plover as threatened. These grasslands are being converted to housing developments or agricultural lands. Known breeding sites are vulnerable to residential development and current agricultural practices are in conflict with plover nesting cycles, especially in Colorado.

Plovers are impacted by grazing practices that may result in either detrimental or beneficial affects. Grazing systems that keep the density of vegetation and dry residual matter at or below tolerance limits for plovers may enhance plover habitat.

Oil, gas and mineral development impacts on plover habitats are indeterminate. Construction of drill pads and roads may create nesting habitat, but human activities at such sites may disturb and stress plovers, resulting in decreased habitat functionality and even direct mortality.

5. Effects Analysis

The EA (Appendix B Table B-1) provides a summary description of management activities, and their extent, on the RGNF. These management activities may affect rangelands that may provide breeding habitat for the plover. Management activities that occur on the Forest with the potential to affect plovers are identified below.

- Grazing management. Historically, plover habitat was a byproduct of nomadic grazing animals, creating a mosaic of grasses, forbs and bare ground that changed frequently in time and location. Current range management practices for domestic livestock emphasizes a uniform grass cover to minimize grassland and soil disturbances, in contrast to management needs for plover habitat that should focus on maintaining short, sparse vegetation.
- Minerals management. Oil and gas developments and surface mining, with associated roads, may act as attractive nuisances to plovers. Plovers may nest and feed near drill pads and roads and use roads as travel corridors, increasing their susceptibility to direct mortality. Related human activities in these areas increase disturbances to nesting and brooding plovers and may result in chick abandonment or other stressors.

Alternative 1

Direct and Indirect Effects

The relative degree of risk from these management activities on the RGNF is not great, as potential habitat on the Forest is extremely limited and to date, no plovers have been documented on the Forest. Expected effects from proposed management activities on the Forest are disclosed below.

- Livestock management. There are 577,000 acres on the RGNF identified as suitable for livestock grazing (FEIS pg 3-189 Table 3-46). Rangelands on the Forest provide forage for both livestock and wildlife and provide wildlife habitat for an array of grassland and riparian species. The combination of uncontrolled livestock use and high numbers of livestock, both prior to and after the establishment of the Forest, has affected range condition and plant composition (FEIS 3-181). Approximately 32% of suitable rangelands are in unsatisfactory condition (FEIS pg 3-189 Table 3-46), but improved management targeted to these areas and implementation of the Forest Plan's range standards and guidelines are expected to improve rangeland conditions overall.

Livestock grazing may occur in potential plover habitats, defined on the RGNF as areas of rangeland containing active and inactive prairie dog colonies. These areas are limited in extent on the Forest and occur in lower elevation grassland communities. Forest Plan range standards and guidelines are based on the residue guidelines in the General Technical Report INT-263: *Managing Grazing of Riparian Areas in the Intermountain Region* (Clary and Webster 1996), and provide for stubble heights of 3-4 inches on rangelands in satisfactory condition.

Site-specific utilization and residue guidelines are developed in AMPs, which are subject to NEPA and ESA review and consultation. Surveys for plovers within potential plover habitat would be part of the analysis and would provide a basis for consideration of management needs specific to plovers, if appropriate.

Because of the limited extent of potential plover habitat on the RGNF and that Forest Plan direction would allow for grazing systems compatible with plover habitat needs, impacts to plovers from grazing are expected to be minimal.

- Minerals management. Minerals management includes activities for development of leasable and locatable minerals. These activities are predicted to be very limited in extent on the RGNF but could occur in potential plover habitat. However, such activities could result in disturbance to nesting plover if present, because of increased activities at the development sites and their associated roads.

Forty-six percent of the RGNF land base is considered to have high oil and gas potential, but only 129 acres are expected to be disturbed through exploration and development (FEIS pg 3-310 Table 3-64). Proposed actions are subject to NEPA and ESA requirements and should development be proposed within or adjacent to potential plover habitat, project level mitigation would be applied consistent with Forest Plan standards and guidelines, and affected areas would be reclaimed after project completion. Roads used for oil and gas development are single-use roads, would not be used for other purposes during the activity, and most would be abandoned and reclaimed after use (FEIS pg 3-308).

Twelve percent of the RGNF land base is considered to have high locatable mineral potential. On an average basis of administering 4 operating plans annually, the estimated extent of activities is 40 operating plans and 4 new miles of road, affecting a total of 40 acres on the Forest (FEIS pg 3-322). The Forest can regulate and control access to mineral claims, and operating plans are subject to NEPA and ESA requirements, allowing for inclusion of appropriate mitigation at the project level, such as reclamation and protective measures for TES species. Requests for recreational mineral collection are evaluated, inclusive of TES considerations, to determine the need for an operating plan.

There is low probability of overlap between projected mineral exploration and development activities and potential plover habitat, as both are limited in extent on the Forest. However, should a mining activity be proposed near or within potential plover habitat, required project-specific analyses would provide the means to incorporate necessary and appropriate mitigation, so effects to plovers are expected to be minimal to none.

Cumulative Effects

Within the San Luis Valley area, most plover habitat occurs off-Forest on lower elevational rangelands. Plovers have been found on historic and/or current sheep grazing allotments on BLM lands. Primary land management practices that could affect plovers on BLM lands include grazing and the potential for minerals development. Surveys for plovers have not been conducted on private lands where both livestock grazing and agricultural production is extensive, and it is unknown whether or to what extent plovers use these private lands.

CDOW efforts to map and survey the area for prairie dog colonies will help identify the extent of potential plover habitat in the San Luis Valley area. The FS will continue to cooperate with CDOW in this effort and will manage FS lands in consideration of non-Forest Service actions, to mitigate and/or complement those actions while implementing Forest Plan direction.

Alternative 2

Direct and Indirect Effects

Effects from the proposed amendment of adding MIS to the Forest Plan are similar as described under Alternative 1. Any incremental changes of effect would be derived from the proposed additional standards and guidelines and revised monitoring plan. The changes would be expected to be beneficial, as the amendment would provide more protective measures through additional standards and guidelines and more targeted monitoring of grassland habitat types.

A new wildlife standard (21) provides for the incorporation of conservation measures and principals of local bird conservation plans (NABCI) to minimize management impacts to avian species.

Cumulative Effects

The cumulative effects analysis is the same for both alternatives.

6. Mitigation Measures

- During the development of AMPs, survey for plover habitat and incorporate appropriate conservation measures as necessary.

7. Determination

Alternative 1

Given the limited extent of potential habitat on the Forest and the minimal effect of activities that may occur within or adjacent to potential plover habitat, the Forest Plan actions are determined to **NOT LIKELY JEPORADIZE THE CONTINUED EXISTENCE** of mountain plovers.

Alternative 2

Although Alternative 2 provides more protective measures through additional standards and guidelines and more targeted monitoring of grassland habitats, it will still require site surveys and inclusion of appropriate conservation measures to ensure projects do not result in adverse effects. Consequently, the proposed action is determined to **NOT LIKELY JEPORADIZE THE CONTINUED EXISTENCE** of mountain plovers.

BALD EAGLE

1. General Habitat Associations

Note: this information is from the 1999 proposed rule to delist (64 FR 36454) unless otherwise cited

Historically bald eagles nested throughout North America, but the population declined dramatically during the late-1800s to the mid-1900s due to shooting, pesticide use and habitat alteration, leading to its listing in 1978. The population has recovered sufficiently in all of its recovery regions to be proposed for delisting throughout its range. This recovery is due to habitat protection and management actions as well as the reduction of organochlorine pesticides such as DDT.

Bald eagles frequent estuaries, large lakes, reservoirs, major rivers and some seacoast habitats, as fish and waterfowl are primary prey items. Bald eagles may use prairies if adequate food (carrion) is available, but are generally considered a bird of aquatic ecosystems. Bald eagles usually nest in large trees near water, but are known to nest on cliffs and (rarely) on the ground. Bald eagles tend to use the same breeding area year after year, and often the same nest, though a breeding area may contain alternate nests.

Bald eagles require large diameter trees for roosting, perching, and nesting. Breeding requires a readily available food source of moderate to large fish, large diameter trees, and minimal disturbance from humans. Both carrion and waterfowl on winter range areas have been documented as important food sources for eagles during the winter months.

2. Local Habitat Relationships

Bald eagles have been documented nesting and winter roosting near the RGNF. More commonly, bald eagles occur off-Forest in lower elevation habitats along the Rio Grande and Conejos River drainages and on the San Luis Valley floor. Both breeding and wintering bald eagles are known

to use the San Luis Valley floor. During this time, bald eagles may forage on some of the stream systems that project up onto the Forest or on areas of the Forest that have large, open bodies of water. Foraging on the Forest is expected to be fairly limited because of the small amount of available habitat, estimated to be 1,220 acres. Winter foraging on the Forest will be further limited, as most of the large bodies of water on the Forest will be frozen.

3. Local Survey/Occurrence Information

In Colorado, the bald eagle population has gradually increased since listing. Known nesting bald eagles has increased from only one pair to over 20 pairs in the last two decades (Gross 1998), although this increase may be a function of increased survey efforts as well as an actual increase in the number of pairs. In 1995, up to a 1,000 wintering bald eagles were documented in Colorado (Gross 1998).

There are very little data reported for the RGNF but there is 1 historical nest site, last known to be active in 1978. There was an active nest reported in 2002 on a private reservoir within RGNF boundaries.

There are 9 standardized routes and 4 aerial survey routes for bald eagle midwinter counts in the San Luis Valley. Portions of Forest lands are included in the aerial surveys of the Conjeos and Rio Grande Rivers. These data have been collected since 1980 and have documented winter roosts on the valley floor.

4. Risk Factors

Note: this information is from the 1999 proposed rule to delist (64 FR 36454) unless otherwise cited

This species was listed as endangered or threatened, depending on the state, in the contiguous United States in 1978. It was downlisted to threatened status in 1995 in states where it had been listed as endangered. The FWS proposed delisting in 1999 as most of the recovery goals had been met and the population continues to increase. Colorado is part of the Northern States Recovery Region where delisting goals were met in 1991.

Nesting and wintering habitats are critical to the continued survival of bald eagles, but do not appear to be limiting, given the population recovery. Bald eagle habitat on federal lands remains protected and with the knowledge of habitat management gained through the recovery process, federal actions are not expected to result in an unacceptable loss of habitat or to affect the population's stability. Recommendations for management and protection of bald eagles continue to be made in accordance with all applicable environmental laws.

Human disturbance is a continuing threat, which may increase as both numbers of bald eagles increases and human development expands into rural areas. If disturbance occurs frequently, nesting can fail. Management practices have been successfully modified to reduce human disturbances and will continue to be applied.

5. Effects Analysis

The EA (Appendix B Table B-1) provides a summary description of management activities, and their extent, on the RGNF. Management activities that could impact riparian areas that may provide nesting, winter roosting and/or foraging habitat for the bald eagle, are identified below.

- Recreation management. Recreational use of lakes, reservoirs and rivers could impact foraging behavior through increased disturbance.
- Travel management. Development and maintenance of trail and road systems may result in impacts to fish habitat through increased sedimentation, and removal of hazard trees could include large trees and/or snags used by bald eagles for nesting, winter roosting and/or foraging.
- Vegetative management. Range, timber and fire management could alter vegetative structure, affecting nesting, winter roosting and/or foraging habitat. These activities may result in impacts to fish habitat through increased sedimentation, or loss of large trees and/or snags used by bald eagles for nesting, winter roosting and/or foraging.

Alternative 1

Direct and Indirect Effects

The relative degree of risk from these management activities on the RGNF is not great, as potential habitat on the Forest is limited and there are no recent records of bald eagles nesting or roosting on Forest lands. Most suitable habitat found within the San Luis Valley is generally below elevational limits of Forest riparian habitats. Expected effects from proposed management activities on the Forest are disclosed below.

- Recreation management. There are an estimated 1,220 acres of lake habitat on the RGNF. The Rio Grande and Conjeos Rivers and associated drainages are found within the boundaries of the RGNF, and portions of these systems are on Forest lands. There are some developed recreational sites that occur within potential bald eagle foraging habitat. The major recreational activity at these sites is fishing, including the associated use of boat ramps, take-out points and campgrounds.

Bald eagles that may be using these areas likely would be accustomed to existing levels of disturbance. Actions that may occur in addition to existing uses may result in bald eagles being temporarily displaced during the disturbances, but individuals likely would resume normal foraging behavior after cessation of such disturbances. Should bald eagle nest or winter roost sites be identified on the Forest, a no-disturbance buffer around these sites would be established and a management plan would be developed in coordination with FWS.

Routine and deferred recreational site maintenance activities have been evaluated under programmatic BAs for which determinations of *no effect* to bald eagles were made. Dispersed recreation activities under outfitter and guide permits have been reviewed under a separate programmatic assessment and received FWS concurrence on a *may affect, is not likely to adversely affect determination* to bald eagles.

- Travel management. Overall, the Forest Plan predicts a net reduction in miles of road and trails, as road and trail construction is expected to be offset by road and trail closure and/or obliteration. However, the construction, reconstruction and maintenance of roads and trails along streams, lakes and reservoirs may impact fish habitat through increased sedimentation, which could limit foraging opportunities for bald eagles. Additionally, development and

Forest Plan standards and guidelines are in place to minimize the effects of (re)construction of roads and trails in riparian areas. Routine road and trail maintenance activities have been programmatically reviewed and a checklist has been developed to ensure specific actions that may affect bald eagles are appropriately mitigated or do not occur.

- Vegetative management. Activities associated with range, timber and fire management in riparian areas may impact nesting, winter roosting or foraging habitat for bald eagles. Grazing may alter stream structure and function, possibly reducing the quality of fish habitat. Timber harvest may require the (re)construction of roads and skid trails that could increase runoff and stream sedimentation, possibly reducing the quality of fish habitat. Additionally, timber harvest could result in the removal of large trees and/or snags that may be used by bald eagles for nesting, winter roosting and/or foraging. Potential impacts from fire activities are similar to those from timber harvest, as roads may be required for access and/or fuel breaks and individual nest, winter roost or foraging trees could be impacted during a burn.

Forest Plan standards and guidelines are in place to minimize the effects of (re)construction of roads and trails in riparian areas. Additional Forest Plan standards and guidelines are in place for watershed and riparian area protection that are intended to improve and maintain proper functioning condition of streams, and consequently the forage base for bald eagles. There are Forest Plan standards for wildlife that protect raptor nesting habitat and reduce breeding disturbances, and the Fire EA provides for protection of raptors through pre-burn surveys and mitigation to protect trees and/or snags being used by raptors.

Cumulative Effects

On the RGNF, conservation practices that protect riparian areas are being incorporated in recreation, travel and vegetative management activities. Stream-health surveys will help identify stream and associated riparian problems. Riparian condition assessments will be conducted as part of project planning to determine whether riparian sites are functioning properly, and if not, what management changes can be made to produce trends toward proper function (FEIS pg 3-204). Across the Forest, these actions should maintain and improve stream health, and consequently fish habitat in those areas that may be used by foraging bald eagles.

Within the San Luis Valley area, there are large extents of bald eagle habitat along the Rio Grande and Conjeos Rivers and their associated stream systems as well as on the valley floor, where there are extensive natural and managed wetland areas that support wintering and breeding bald eagles. These areas are used for livestock and agricultural purposes but also for development and maintenance of wildlife sanctuaries and/or refuges managed by private individuals, non-profit conservation organizations, and state and federal agencies. While rural development is occurring, there are ongoing cooperative efforts between private landowners, non-profit organizations and municipal, county, state and federal agencies to maintain and improve wetlands and their management throughout the San Luis Valley.

Alternative 2

Direct and Indirect Effects

Effects from the proposed amendment of adding MIS to the Plan are similar as described under Alternative 1. Any incremental changes of effect would be derived from the proposed additional standards and guidelines and revised monitoring plan. The changes would be expected to be beneficial, as the amendment would provide more protective measures through additional standards and guidelines and more targeted monitoring of riparian habitat types.

The direct benefit that would occur as a result of the amendment would be to add wildlife standard 21 (EA Appendix A), which provides for the consideration of conservation measures and principals of local bird conservation plans (NABCI) to minimize management impacts to avian species.

Cumulative Effects

The cumulative effects analysis is the same for both alternatives.

6. Mitigation Measures

- Wildlife Standard 9 - If a bald eagle traditional winter roost or nest site is discovered, a management plan will be written to ensure that the necessary habitat components are maintained. In addition, a no-disturbance buffer will be established around the location.

7. Determination

Alternative 1

Forest Plan direction includes wildlife standards for raptors (5) and bald eagles (9) that prohibit activities that may disturb nesting or winter roosting bald eagles. Other Forest Plan standards and guidelines provide guidance for activities within riparian areas that are intended to improve or maintain proper functioning condition of streams.

Given the limited extent of bald eagle habitat and its probable use on the Forest, and Forest Plan guidance to protect both bald eagles and their habitat, the Forest Plan actions are determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** bald eagles.

Alternative 2

Although Alternative 2 provides more protective measures through additional standards and guidelines and more targeted monitoring of riparian habitats, it will still require project review and possible mitigation to ensure activities do not result in adverse effects. Consequently, the proposed action is determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** bald eagles.

MEXICAN SPOTTED OWL

1. General Habitat Associations

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 1995) and Facts about the Mexican Spotted Owl (USDA Forest Service 1993) unless otherwise cited

Mexican spotted owls range from northern Colorado and central Utah, south through Arizona, New Mexico, and west Texas, to the central Mexican Plateau. Spotted owls do not occur uniformly throughout their range, but rather in disjunct localities that correspond to isolated mountain systems and canyons.

Spotted owls use a variety of habitats, but are typically associated with dense multi-canopied stands of mature mixed-conifer and ponderosa pine-gambel oak forests. Habitat use patterns vary throughout the range and owls may use a wider variety of forest conditions for foraging than used for nesting or roosting.

Spotted owls nest and roost primarily in closed-canopy forests or rocky canyons. Forests used for roosting and nesting often contain mature or old-growth stands with complex structures characterized by multiple canopies, dense canopy cover, high tree basal area, and an abundance of snags and dead and down logs. Spotted owls will use canyon habitats that provide nesting sites in shallow caves and ledges. Canyons vary from having a high degree of forest structure to little or no tree cover present, but all have a common characteristic of steep to vertical rock walls that supplement or replace vegetated structural characteristics used in forested habitats.

Foraging habitat is enhanced by the presence of rock, grass, forbs, shrubs and/or hardwoods that may increase the variety and/or quantity of prey species. Foraging may occur in either stands of nesting and roosting habitat or in other stand types that may be single or multi-canopied, with more open canopy and more diverse species composition. Still, high-use foraging areas contain more big logs, higher canopy closure and greater densities and basal areas of both trees and snags than random sites.

Nests consist of tree cavities, old stick built nests from other species, debris platforms and cliff ledges. All known Mexican spotted owl pairs in Colorado use canyon habitats for nesting. Nests are located on ledges and large trees and ledges are used as roosts. Spotted owls have a high nest site affinity, breeding in the same area for several years. However, spotted owls breed sporadically and do not nest every year.

Spotted owls begin roosting together in early March, with nest site selection occurring shortly after pair formation. Egg-laying occurs in early April and hatching in early May, with owlets leaving the nest by early to mid-June. Begging behavior declines in late August but may continue until dispersal occurs, about mid September to early October, when spotted owls become solitary.

2. Local Habitat Relationships

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 1995) unless otherwise cited

The RGNF falls within the Southern Rocky Mountains – Colorado Recovery Unit (SRM-CO RU). Spotted owls are found primarily in canyons in this recovery unit and appear to occupy 2 disparate canyon habitat types. The first is sheer, slick-rock canyons containing widely scattered patches of mature Douglas-fir in or near canyon bottoms or high on canyon walls in short, hanging canyons. The second consists of steep canyons containing exposed bedrock cliffs either close to the canyon floor or, more typically, several tiers of exposed rock at various heights on the canyon walls. Mature Douglas-fir, white-fir and ponderosa pine dominate canyon bottoms and both north and east facing slopes. Ponderosa pine grows on the more xeric south and west facing slopes, with pinyon-juniper growing on the mesa tops.

Critical habitat has been designated twice for the Mexican spotted owl, both times set aside by court order. Neither the first critical habitat designation in 1995, nor the second in 2001 included RGNF lands.

On the RGNF, mixed conifer and ponderosa pine forest types occur, but generally at higher elevations, thus limiting suitable habitat. As the elevation increases, suitable forested habitat on the RGNF quickly gives way to spruce fir forest types. Potential suitable habitat on the RGNF is estimated at 194,010 acres, based on acres of late-successional structural classes in mixed conifer and ponderosa pine forest types. This estimate is considered high, as not all of these acres will be within or adjacent to canyon habitats generally used by spotted owls in the SRM-CO RU.

3. Local Survey/Occurrence Information

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 1995) unless otherwise cited

Eighteen historical records of spotted owls exist within the SRM-CO RU, most along the Colorado Front Range, extending northward to Ft. Collins. Two additional observations, 1 each from the Rio Grande and San Juan National Forests, plus 1 from the Southern Ute Reservation were reported during 1989 surveys. Historical spotted owl locations in this recovery unit occurred in steep canyons. Northern aspects of these canyons contain mixed-conifer forest, while southern aspects contain ponderosa pine and pinyon-juniper.

Surveys conducted on the RGNF from 1990-1994 did not locate spotted owls on the Forest (FEIS Appendix H). Future surveys for the spotted owl will be conducted consistent with new FWS protocols when finalized, and priority will be given to the Alamosa Canyon where the 1989 RGNF observation was reported. Surveys also will be conducted on a project-specific basis where activities might occur in potential habitat.

4. Risk Factors

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 1995) unless otherwise cited

The Mexican spotted owl was listed as endangered in 1993 primarily because of past and projected timber management activities and the threat of catastrophic fire. Past silvicultural practices, especially even-aged timber harvest and its expected continued use have resulted in forest stand structures generally not favored by spotted owls. Fuel accumulations and forests overstocked with trees have increased the risk of catastrophic fire throughout spotted owl habitat.

Potential threats in order of severity for the SRM-CO RU are catastrophic fire, recreation, urbanization, timber harvest, and road construction. Less severe threats include land exchange, oil and gas leasing, mineral development, and grazing. Singly, these factors may have low impact, but high synergistic consequences.

The potential threats for the SRM-CO RU would be most applicable to the Colorado Front Range, where historic records and current distribution of spotted owls in this RU are found. Types and levels of management activities on the RGNF would be more comparable to the Southern Rock Mountains – New Mexico Recovery Unit (SRM-NM RU). In the SRM-NM RU, wildfire and timber harvest are the primary threats, with lesser, localized effects from unregulated firewood collection, grazing (particularly in riparian areas), and recreational development.

5. Effects Analysis

The EA (Appendix B Table B-1) provides a summary description of management activities, and their extent, on the RGNF. These management activities may affect spotted owl habitat. Management activities that occur on the Forest which have the potential to affect spotted owls are discussed below.

- Timber management. Even-aged harvest tends to simplify stand structure and remove a disproportionate share of large trees; these stand structures are not used to any great extent by spotted owls. Uneven-aged harvest promotes continuous regeneration and creates a balance of size and age classes, resulting in a mosaic within a stand. These stand structures may be achieved by single or group tree selection, although group tree selection provides more silvicultural management flexibility to provide the structural features and openings favorable for spotted owl nesting, roosting and foraging habitats, as long as large trees are retained.
- Fire management. Characteristics of spotted owl nest and roost sites place them at high-fire risk. Prescriptions to reduce risks of stand-replacing fires should incorporate treatments to produce or maintain key structural features of spotted owl and prey habitat and protect existing nest and roost sites.
- Recreation management. Recreational activities may affect spotted owls by the loss of habitat due to development or expansion of recreational facilities or due to increased disturbances within nesting, roosting or foraging sites. The degree of effect is related to the location, intensity, frequency and duration of the disturbance.
- Range management. Grazing practices may influence spotted owl habitat through altered prey availability, altered susceptibility to fire, degradation of riparian communities, and impaired ability of plant communities to develop into spotted owl habitat. Riparian habitat is especially important in canyon-bottom situations at middle and lower elevations where little other typical nesting or roosting habitat may be available.

Alternative 1

Direct and Indirect Effects

The relative degree of risk from these management activities on the RGNF is not great, as potential habitat on the Forest is not extensive and to date, no resident or breeding spotted owls have been documented on the Forest. Most potential habitat would be found within or adjacent to canyon habitat types, areas where Forest management activities generally would not occur. Expected effects from proposed management activities on the Forest are disclosed below.

- Timber management. While most (94%) of the Forest's timber harvest will occur in spruce-fir, some will occur in mixed conifer (4%) and ponderosa pine (2%). The FEIS analysis of predicted habitat change in response to timber management was updated with the *Expanded Habitat Effects Display Report (2003)*. This report predicted a change in the late successional forested LTAs 3 (White Fir and Douglas Fir) and 5 (Ponderosa Pine and Douglas Fir) as $\leq 1\%$ in the first decade and $\leq 4\%$ by the fifth decade (Table 12).

Table 12. Extent of projected timber harvest within late successional forested LTAs on the RGNF.

LTA (acres)	Projected decrease in Structure Class 5 by LTA and budget level							
	Experienced Budget				Full Budget			
	Decade 1		Decade 5		Decade 1		Decade 5	
	Acres	% Change	Acres	% Change	Acres	% Change	Acres	% Change
3 (93,000)	-72	-0.08%	-1149	-1.24%	-363	-0.39%	-3632	-3.91%
5 (101,010)	-5	-0.00%	-75	-0.03%	-33	-0.01%	-325	-0.13%

Additional harvest through salvage sales for control of insects and disease may occur and firewood and post/pole sales will be by-products of timber harvest (FEIS page 3-171). Levels of these additional harvest activities are projected to be less than in the past, but as disease and bug infestations continue to escalate, more salvage sales than predicted are possible. Salvage harvest activities would be site-specific and target affected trees, limiting the size and scope of individual proposed harvests. Firewood collection is allowed across the Forest, as well as at slash removal sites, but is limited to within 300 feet of a road and not allowed within 100 feet of stream courses, riparian areas, wet areas, and bodies of water. Mechanical treatments to decrease fuel loads and reduce the risk of catastrophic fires also are expected to occur.

Even-aged harvest prescriptions are not allowed within spotted owl habitats (Forest Plan wildlife standard 15). Harvest prescriptions will include uneven-aged and two-aged silvicultural systems, sanitation/salvage and limited thinning, with an emphasis on shelterwood and group selection harvests. Firewood removal and prescribed fire are used to treat the slash (FEIS Appendix K). Much of the treatments will have short-term (20 to 100 years) impacts and would result in patchy distributions of created openings, varying in size and stage of vegetative regeneration. These treatments will have a variety of impacts on spotted owl habitat, some of which would improve foraging habitat, some of which would have negative short-term impacts so that suitable habitat will become unsuitable for a relatively short period of time, and some would have no impact since spotted owl habitat would not be entered.

Based on implementation of the Forest Plan to date, the experienced budget level portrays a more realistic projection of expected changes to late successional forested habitats. Should this remain consistent throughout the life of the Forest Plan, the very limited timber harvest projected for LTAs 3 and 5 would be expected to have a minimal impact on spotted owl habitat, given its association with canyon sites and the prescriptive nature of Forest Plan wildlife standards.

- Fire management. The Forest Plan calls for the development and implementation of a prescribed fire program to address ecosystem needs and to reduce the risk of catastrophic fires (FEIS pg 3-226). The fire management program emphasizes natural fuel management rather than activity fuel management, as it is anticipated that activity fuels created from timber harvest will be greatly reduced (FEIS pg 3-236). The priority habitats for treatment will be those that are fire-maintained ecosystems (FEIS pg 3-229) and include lower elevation mixed conifer and ponderosa pine, with some grasslands. The estimated acres of fuels treatments (1200-3000 acres average per year) were based on the ponderosa pine cover

type, as it is most dependent on fire and has been dramatically affected by fire exclusion (FEIS pg 3-235).

Prescribed and wild fire will occur in spotted owl habitat specifically to reduce the risk of catastrophic fire (Forest Plan wildlife standard 17). Small-scale natural fires and prescribed burns are expected to reduce fuel loadings and create small openings and thinned stands that will reduce the risk of catastrophic fire. Spotted owl foraging habitat should be improved or maintained by increasing or perpetuating horizontal diversity, canopy gaps, snags and downed logs, understory shrubs, grasses and forbs. Depending on fire intervals, areas could be burned earlier or more frequently than desirable, but since intense burns would not be implemented, the risk of catastrophic fires would decrease and most nesting, roosting and foraging habitat would persist or be improved.

An Environmental Assessment for the prescribed fire program (Fire EA) on the Rio Grande and San Juan National Forests was completed in 1997 and the BA was updated and consulted on in 2002. As part of that BA, a screen was developed to assist biologists in project-specific analysis of effects to spotted owls and to provide direction on incorporating mitigation measures as specified by Forest Plan wildlife standards (5 and 18) and the Fire EA. Individual projects may still require consultation.

Effects of activities from the fire management program are expected to improve or maintain spotted owl habitat over time by reducing the risk of catastrophic fires under Forest Plan and Fire EA guidance for implementation.

- Recreation management. The RGNF manages for 2 major types of recreational opportunities; developed and dispersed recreation. There are no developed recreation sites within identified spotted owl habitat, although there are a few new development projects (trailheads and campgrounds) proposed (FEIS pgs 3-397 and 3-398). If undertaken, these projects would require site-specific analysis and consultation.

Dispersed recreation (motorized and non-motorized) accounts for 65% of Forest recreation use and is widely distributed across the Forest but concentrated along travel routes, lakes, streams or rivers and on snow (FEIS pgs 3-389 and 3-414). Incidental encounters between spotted owls and recreation sites are expected to be relatively insignificant due to the limited extent of potential habitat on the Forest and the average use of areas on the Forest other than potential spotted owl habitat. Dispersed recreation activities under outfitter and guide permits have the potential to concentrate and intensify recreational impacts due to increased area use, frequency and duration by greater numbers of people at any given time. Generally, use is of existing trails and recurrent campsites, where spotted owls, if present, likely would be accustomed to these disturbance levels. Outfitter and guide activities have been reviewed under a separate programmatic assessment and received FWS concurrence on a *may affect, not likely to adversely affect* determination to spotted owls.

Effects from the activities of routine trail maintenance have been programmatically reviewed and will be evaluated and mitigated through the use of a checklist to ensure specific actions that may affect spotted owls or their habitat will not be implemented without further analysis and consultation, if necessary.

- Range management. Rangelands on the RGNF are naturally fragmented and are characterized by narrow canyons with a riparian ecosystem and adjacent grassland communities intermingled with timberlands in the montane and subalpine zones and at lower elevations, are a mixture of grasslands, pinon-juniper and ponderosa pine. There are 577,000 acres on the RGNF identified as suitable for livestock grazing (FEIS pg 3-189 Table 3-46). Livestock grazing may occur in potential spotted owl habitat, as rangelands are defined as grasslands, forb lands, shrublands, and those forested lands that support an understory of herbaceous or shrubby vegetation.

Rangewide, under present management practices, the RGNF produces forage in excess of current levels of livestock and big game consumption, providing for plant health, vigor, and regrowth (FEIS pg 3-187). However, approximately 32% of suitable rangelands are in unsatisfactory condition (FEIS pg 3-189 Table 3-46), a circumstance exacerbated in some riparian, ponderosa pine and winter range areas by past uncontrolled grazing, resulting in reduced vegetative productivity, destabilized stream banks and degraded wildlife habitat (FEIS pg 3-188). Improved management targeted to these areas and implementation of Forest Plan range and riparian standards and guidelines are expected to improve rangeland conditions overall. Riparian areas are of specific concern to the Forest, and best management practices for soil and water resources will be used to restore and maintain riparian areas as functional ecosystems (FEIS 3-193).

Specific range management needs are addressed through Allotment Management Plans (AMPs), grazing permits and annual operating instructions (AOIs). Management will apply combinations of requirements for stubble height, streambank stability, vegetative seral stage and rest to achieve proper functioning condition of riparian systems. Removal or exclusion of livestock from newly created openings due to fire or timber harvest may be required to allow rangeland recovery to occur (FEIS pgs 3-196 and 3-197).

Because of the limited extent of potential spotted owl habitat on the RGNF and that Forest Plan direction is intended to improve and maintain rangeland and related riparian conditions, impacts to spotted owls from grazing are expected to be minimal.

Cumulative Effects

Note: this information is from the Recovery Plan (USDI Fish and Wildlife Service 1995) unless otherwise cited

In the SRM – CO RU, spotted owl habitat use is more of deep, rocky canyons than of forested habitat types. Consequently, habitat is naturally fragmented and discontinuous and management is best directed at preserving and enhancing these existing habitats rather than trying to develop more habitat over the landscape. Generally, habitat trends for these canyon habitat types are considered stable, as they are in relatively inaccessible areas that are not greatly influenced by management activities such as timber, grazing or recreation. Additionally, fire may not be as serious in canyon systems, as the open structure of steep-slope woodlands associated with canyons is not conducive to conflagration. However, adjacent dense mixed conifer and ponderosa pine forests may present extreme fire hazards as fires initiated in these forests may continue into

forested canyon habitats and catastrophic fire is considered the primary threat to the spotted owl in the SRM-CO RU.

Federal lands, primarily FS and BLM, encompass 55% of the SRM-CO RU and a limited number of owl sites have been found on these lands, mostly along the Colorado Front Range. Land use practices on federal lands include timber, grazing, recreation and mineral management, along with associated facility and road development. Both the FS and BLM continue to conduct surveys and have established Protected Activity Centers (PACs) to facilitate project-specific analyses and development of appropriate mitigations.

Similar land use practices occur on non-federal lands and extensive urbanization continues along the Colorado Front Range. While much of this urban development occurs at elevations lower than those occupied by spotted owls, it may synergistically contribute to potential effects on spotted owl habitat, such as increased fire risks or increased recreational use of public lands.

Alternative 2

Direct and Indirect Effects

Effects from the proposed amendment of adding MIS to the Forest Plan are similar as described under Alternative 1. Any incremental changes of effect would be derived from the proposed additional standards and guidelines and revised monitoring plan. The changes would be expected to be beneficial, as the amendment would provide more protective measures through additional standards and guidelines and more targeted monitoring of mature to late successional spruce fir and mixed conifer habitat types.

The direct benefits that would occur as a result of the amendment would be to add silviculture guideline 13 and wildlife standard 21 (EA Appendix A). These standards provide additional guidance for snag management in the firewood program and for minimizing management impacts to avian species through consideration of conservation measures and principals of local bird conservation plans (NABCI).

Cumulative Effects

The cumulative effects analysis is the same for both alternatives.

6. Mitigation Measures

- Conduct surveys consistent with FWS protocols, with priority given to the Alamosa Canyon.

7. Determination

Alternative 1

Forest Plan guidance is not inconsistent with Recovery Plan management recommendations and includes specific wildlife standards (15, 16, 17 and 18) for managing potential Mexican spotted owl habitat and nesting activity, including direction for timber management, fire management, and limiting disturbances. Additional Forest Plan standards and guidelines provide for the improvement and maintenance of rangeland and riparian conditions.

Given the limited extent of potential spotted owl habitat on the Forest, and that there is Forest Plan direction in place to minimize impacts of activities occurring within spotted owl habitat, the proposed actions are determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** the Mexican spotted owl.

Alternative 2

Although Alternative 2 provides more protective measures through additional standards and guidelines and more targeted monitoring of mature to late successional mixed conifer and ponderosa pine habitat types, it will still require site and project specific surveys and mitigations to ensure project actions do not result in adverse effects. Consequently, the proposed action is determined to **MAY AFFECT, BUT NOT LIKELEY TO ADVERSELY AFFECT** the Mexican spotted owl.

IV. Determination Summary for All Species

Species List	Determination	Rationale	Mitigation
Uncompahgre fritillary butterfly (e) <i>Boloria acrocneema</i>	NLAA	Limited extent of habitat on Forest and sufficient Forest Plan direction	YES
Canada lynx (t) <i>Lynx canadensis</i>	LAA	Insufficient Forest Plan Direction	YES
Southwestern Willow Flycatcher (e) <i>Empidonax trailii extimus</i>	NLAA	Limited extent of habitat on Forest and sufficient Forest Plan direction	YES
Mexican spotted owl (t) <i>Strix occidentalis lucida</i>	NLAA	Limited extent of habitat on Forest and sufficient Forest Plan direction	YES
Bald eagle (t) <i>Haliaeetus leucocephalus</i>	NLAA	Limited extent of habitat on Forest and sufficient Forest Plan direction	YES
Mountain plover (p) <i>Charadrius montanus</i>	NLJ	Limited extent of habitat on Forest and sufficient Forest Plan direction	YES

- NE - No Effect
- NLAA - May Effect, Not Likely to Adversely Affect
- LAA - May Effect, Likely to Adversely Affect
- NLJ – Not Likely To Jeopardize the Continued Existence

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BIOLOGICAL EVALUATION

I. Species Evaluated

The Forest Plan BE addressed the effects of the alternatives for the sensitive species known or suspected to occur on the RGNF. This analysis will review the currency and sufficiency of the Forest Plan BE, and update it with new information for these species. This analysis also will include the review of effects for a new candidate species, the Gunnison sage-grouse. Table 1 lists the candidate species reviewed in this portion of the BE.

Table 1. List of Endangered, Threatened and Proposed species known or suspected on the RGNF.

Species	Basic Habitat Description
Boreal Toad <i>Bufo boreas boreas</i>	Spruce/fir near water and alpine meadows
Gunnison Sage-grouse <i>Centrocercus minimus</i>	Lek sites are characterized by low vegetation with sparse shrubs often surrounded by big sagebrush dominated plant communities below 9200' elevation. Brood rearing habitat is characterized by riparian vegetation of intermittent and perennial streams, springs, seeps and meadows within upland vegetation communities

II. Habitat Overview

This evaluation will be based on the Landtype Associations (LTAs) originally described in the Forest Plan FEIS (FEIS pg. 3-41 to 3-70). LTAs are broad ecological units that are expressed by similar plant communities and ecological potential. LTAs have a spatial resolution of hundreds to thousands of acres in size, making them especially useful and appropriate at Forest Plan scale analysis. Thirteen LTAs were described for the RGNF and used in the original BE for the 1996 Revised Forest Plan (Appendix F).

The BE identifies 129,400 acres of riparian area habitat suitable for the boreal toad. Habitat for the Gunnison sage-grouse is adjacent to but not known to occur on RGNF lands.

III. Analysis of Effects

BOREAL TOAD

1. General Habitat Associations

The boreal toad ranges throughout much of western North America from southeast Alaska to northern Baja California and east through the Rocky Mountain states to northern New Mexico. It is absent from the arid Southwest. The boreal toad occurs throughout the mountainous portion of Colorado, with the exception of the Sangre de Cristo Range, Wet Mountains, and Pikes Peak region. It is most common between 8,500-11,000 feet, and has only rarely been found as low as 7,000 feet (Hammerson 1999). Recent information by the Colorado Division of Wildlife (CDOW) indicates that it occurs almost exclusively above 8,000 feet and can be found at elevations up to at least 12,000 feet (CDOW web page, http://wildlife.state.co.us/species_profiles/boreal.asp).

The distribution of the boreal toad is restricted to areas with suitable breeding habitat in lodgepole pine, spruce-fir forests and alpine meadows. Breeding habitat includes lakes, marshes, ponds, and bogs with a sunny exposure and quiet, swallow water. These may include the edges of large and small lakes, beaver ponds, glacial kettle ponds, roadside ditches and human excavations, and small puddles (Hammerson 1999). Rarely are boreal toads known to lay eggs in streams. Boreal toads emerge from their hibernation sites during the snow and ice melt and generally begin breeding in late May or early June. At higher elevations, breeding may occur as late as July. Male boreal toads do not call like most other amphibians to attract a mate, but may exert a soft chirping call when in contact with other males. Attraction of a mate involves waiting in the water near the shoreline for a female to swim by (Livo 2002). There is also some recent evidence that females may not breed every year (Jones 2003).

Breeding and external fertilization of the eggs may take several days. The eggs are usually deposited in relatively warm exposed water not more than six inches deep (Hammerson 1986). A typical clutch size involves an average of about 5,200 eggs, although more than 10,000 eggs have been reported (Hammerson 1999). The eggs are deposited in long strands in detritus or aquatic vegetation. Egg and tadpole development is temperature dependent, and hatching to metamorphosis may take up to 75 days (Loeffler 2001). Reproductive efforts often fail at high elevations due to lack of time to metamorphose before the onset of winter (Campbell 1976).

Once hatched, tadpoles gather in the warm shallow water of the shoreline during the day and into deeper water during the night. Metamorphosis of tadpoles into toadlets usually occurs in late July to mid-August (Livo 2002). Once metamorphosed, the distribution and movement of young toads is restricted by available moist habitat; thus, they are often found in wetlands adjacent to the breeding site (Hammerson 1999). Adult toads, however, may move up to several miles to reside in marshes, meadows or forested areas. Recent telemetry data indicates that adult toads may spend up to 90% of their time in upland montane forests and rocky areas, with an affinity for locations that contain seeps and springs (Jones 2003). Several authors indicate that female toads move farther from breeding sites, and in a more linear fashion, than do males (Hammerson 1999, Jones 2003). Males appear to maintain a home range within 300 meters (984 ft.) of breeding sites and exhibit high site fidelity (Loeffler 2001).

Boreal toads appear to be most active at temperatures between 12 and 20 degrees C. (54-68 degrees F.), although activity has also been observed in temperatures as low as -2 degrees C. (28 degrees F.) on rare occasions (Hammerson 1999). When inactive, they hide beneath rocks or logs or within rodent burrows, but unlike other Colorado toads, cannot burrow deeply into the soil. When cooler temperatures arrive in late August or early September they begin to return to their hibernation sites, with most in complete hibernation by early October. Hibernacula often involve underground chambers that are associated with springs and seeps, or rodent burrows that are deep enough to prevent freezing with soil moistures high enough to prevent desiccation. Areas adjacent to streams also function as important hibernacula chambers, with the continuous flow of underground water assisting in temperature regulation (Loeffler 2001).

Boreal toads will feed both day and night on a wide variety of invertebrates such as ants, snails, carabid beetles, spiders, and mosquitoes. The primary natural predators of their tadpoles include the western terrestrial garter snake, the larvae of the predacious diving beetle (*Dytiscus* Spp.) and the tiger salamander. As adults, their predators also include the western terrestrial garter snake and the tiger salamander, as well as various bird species such as common ravens and spotted sandpiper. Mortality on adults, however, is very low and the most significant losses occur during the larval and juvenile stages (Campbell 1970). Recent discovery of the chytrid fungus

(*Batrachochytrium dendrobatidis*) in amphibian populations in Australia and Central America has been attributed to population declines of amphibian species in those locations (http://wildlife.state.co.us/species_profiles/boreal.asp). Samples taken from 43 sites in Colorado during 2000-2001 indicate that approximately 9% of 213 boreal toads also tested chytrid positive (Livo 2002). The recent discovery of chytrid fungus in leopard frogs at the Blanca wetlands indicates that the fungus also occurs locally and could be spread to other locations (Lucero 2002). When healthy, boreal toads may attain a maximum age of at least nine years (Campbell 1970).

2. Local Habitat Relationships

Typical breeding habitat for boreal toads both locally and in Colorado includes lake margins, marshes, and beaver ponds within streams (Campbell 1976). Beaver ponds with clear water, a silt/mud substrate, shallows, and emergent grasses were described as typical sites during state-wide surveys in 2002. Based on available site records, boreal toads have occurred locally in beaver ponds, marshy flats, alpine lakes, stream margins (usually associated with old beaver complexes), and puddles created by vehicle tire tracks.

Local boreal toad populations have been found at elevations that vary from about 8,400 feet (Lake Humphreys) to 11,600 feet (Trout Lake). Boreal toads at the Trout Lake site exist (or existed) in a high alpine lake system where most individuals remained in or near the water (Campbell 1976). Although boreal toads in this location did not travel more than 20 meters (66 ft.) from the lakeshore, they remained in moist plant communities dominated by willow (87%), sedges (93%), and marsh marigold (37%) when they did so. Other current and/or historic local sites have been characterized as having shallow standing water, south facing aspects with direct sunlight, few predatory species (i.e. introduced fish), and conifer stands (spruce-fir) within 328 feet (Hunsung and Alves 1997). The importance of beaver dams to breeding sites has also been documented locally (Metzger 1996). One local breeding site located in 1996 occurred in water that had collected in wheel ruts. Emergent vegetation (primarily sedge/rush species) and bare silt substrates were thought to be important to the use of this site (Metzger 1996). Local surveys conducted in 2001 found toads using old road ruts created by tire tracks, side-water ponds, and a road cut-bank (Gomez 2001). Spruce-fir, willow and aspen were the dominant forest vegetation types in these areas, with distances that varied from 30 to 150 meters (98 to 492 ft.) from the locations where they were found.

3. Local Survey/Occurrence Information:

Boreal toads were previously considered common in the most of the mountain ranges in Colorado including the San Juan Range (Campbell 1970, Corn et al. 1997). Existing information indicates that there are at least 15 locations on the Forest where the boreal toad occurs or occurred historically. The names and dates of occurrence at these locations are as follows: On the Conejos Peak RD boreal toads have been located at Cumbres Pass (1913, 1956, 1979), the South Fork Trailhead (1959), and Elk Creek (no date provided). The 1996 BE also mentions Trujillo Meadows and the Alamosa River Canyon as historic sites but no information could be found on these locations. On the Divide RD toads have been located at Regan Lake (1965), Trout Lake (1971, 1972), West Trout Creek (1996, 2002), Trout Creek (1996), Red Mountain Creek (1991), Love Lake/Middle Creek (1992, 2001), Jumper Lake (1994), Cliff Creek/Jumper Creek (1996, 1997, 1998, 2001), Lake Humphreys/Goose Creek (1998), Workman Creek (date unk.), and Boots (Roaring Fork) Pond (2002). Other sites adjacent to the Divide District include the Rio Grande River at the Wetherill Ranch and Williams Lake, the latter of which is approximately one mile south of Trout Lake on the San Juan National Forest. The dates for both of these areas are

not indicated (Husung and Alves 1998). On the Saguache RD boreal toads have been located at Miners Creek (1995, 1998).

On-going surveys of historic sites suggest that there has been a dramatic decrease in local boreal toad populations over time and that it is currently rare and perhaps in danger of extirpation on the Forest (Fetkavich 1994, Husung and Alves 1997, 1998). Currently, the only locations where stable breeding populations seem to occur is around the Cliff Creek/Jumper Creek site and the Trout Creek system on the Divide District (Husung and Alves 1998, Livo 2002). These locations are in close proximity to each other and to several historic sites and may represent the only primary boreal toad breeding areas remaining on the Forest. The available survey reports also include a rating system for potential reintroduction sites, several of which are available on the Forest (Fetkavich 1994, Husung and Alves 1997, 1998).

3. Risk Factors

The primary reasons for the decline of the boreal toad are unknown. However, the recent discovery of the chytrid fungus in one population in Colorado has been attributed to their decline in that location and is the primary hypothesis concerning the recent decline of the boreal toad elsewhere (Loeffler et al. 2001). In general, all activities that may alter water quality and aquatic habitats may also influence boreal toads (Loeffler et al. 2001).

The following Forest management activities most likely have the greatest potential to influence local boreal toad habitat and populations:

- Timber Management Activities: Potential effects from timber harvest activities on boreal toads includes direct crushing of individuals from equipment, soil compaction (alteration of burrows), alteration of tree root systems (hibernacula), alteration of movement zones, and general influences on soil moisture and hydrology (Loeffler et al. 2001).
- Travel Management (Roads): The primary direct effect of roads on boreal toads involves the crushing of individuals from vehicle use. Roads can also create barriers to water flow and to the movement of toads across the landscape. The indirect effects of roads on landscape hydrology can influence wetlands and riparian vegetation (Loeffler et al. 2001). Roads within riparian zones can also lead to conflicts with beaver, which if removed can disrupt key habitat processes related to beaver ponds (Loeffler et al. 2001).
- Recreation: Primary influences from recreational activities can include direct trampling (eggs and toadlets). Many indirect effects can also occur that influence riparian vegetation and water quality. Potential activities that could influence boreal toad populations and/or habitat include off-road vehicle use, trail construction and use, camping in riparian areas, and activities related to fisheries management such as in-stream channel work, poisoning, and stocking of fish in areas that historically did not support them (Loeffler et al. 2001).
- Livestock Grazing: Potential direct effects can include trampling. Potential indirect effects can include reduced egg and tadpole survival from changes in water chemistry and/or riparian vegetation related to grazing. Overall grazing influences can lead to changes in riparian vegetation and hydrology (Loeffler et al. 2001).

- Water Management: Potential activities that may influence boreal toad habitat and/or populations include water diversions, water impoundments, and other factors that influence wetlands (Loeffler et al. 2001).
- Prescribed Fire Activities: Prescribed fire activities most likely do not overlap in elevation with boreal toad habitat on the Forest. If they do, however, the Conservation Strategy notes that that one of the primary influences involves the burning of small diameter (7-10”) ground fuels and slash piles that toads may use as refugia sites. Positive influences can occur if fire stimulates the growth of the shrub component used in upland sites (Loeffler et al. 2001).

5. Effects Analysis

Alternative 1

Direct/Indirect Effects

The boreal toad was evaluated under the “Riparian Group” category in the 1996 BE. This group also includes the tiger salamander, leopard frog, Rio Grande cutthroat trout, and white-faced ibis (FEIS Appendix F, pg. F-20). All species within this group were noted as having approximately 129,400 acres of potential habitat on the Forest, which reflects an estimate of the total acres of known riparian area. These acres are based on the total amount of stream miles on the Forest and the estimated amount of riparian habitat associated with these and other wetland areas (FEIS pg. 3-200). Although the Forest also contains an estimated 1,220 acres of lakes, these are not included in the potential habitat acres for the boreal toad. Thus, a more precise estimate of potential boreal toad habitat may only include high elevation, low gradient stream channel types, intermittent water bodies, and certain types of lake systems. This type of update is unavailable at this time.

The 1996 BE indicates that the boreal toad was only known to be extant on the Divide Ranger District. The potential effects of Alternative G on the boreal toad are discussed in the broad context of the “Riparian Group”. These effects reference the conclusions of the Riparian section of the FEIS (3-198 to 3-209), and project improved habitat conditions under all alternatives due to the existing protection measures and riparian management practices (Appendix F; pg. F-20/21). The 1996 BE notes that the risk of potential impacts to riparian habitats (and thus, boreal toads) is increased in those alternatives that allow more resource use, but that this use does not make any alternative unacceptable. Alternative G is rated as a moderate risk to watershed health, with a rating exactly midway between all the other FEIS alternatives (FEIS pg. 3-209).

A considerable amount of new information concerning the boreal toad has become available since the 1996 BE. For instance, a state Recovery Plan was completed in 1997 and outlined specific objectives, management actions, research needs, and other items intended to halt the decline of the boreal toad (Goettl et al. 1997). The Recovery Plan resulted in an interagency Conservation Plan and Agreement that was finalized and approved in February 2001 (Loeffler et al. 2001). Forest Service Region 2 stated its intent and commitment to implementing the Conservation Plan through the formal signing of a Conservation Agreement on March 29, 2001. This commitment is attached as an appendix to the Conservation Plan and also applies to the Rio Grande National Forest. The Forest Plan contains a specific standard that provides direction to incorporate new information from Conservation Agreements and other accepted documents, as appropriate, into the management direction for the Forest (Wildlife Standard #10; pg III-23).

Forest Plan Alternative G contains specific standards and guidelines that apply to the protection, maintenance, and enhancement of riparian areas. There are also specific standards and guidelines that deal with water quality, sediment control, soils, and activities that may influence them. As noted previously, the FEIS projects that Alternative G will result in moderate influences on water quality and riparian systems and protect and improve all attributes important to riparian health. For the most part, the FEIS standards and guidelines appear to be consistent with the management recommendations in the Conservation Plan and Agreement. Any potential differences will be offered as mitigation measures in this BE.

Alternative 2

Direct/Indirect Effects

It is anticipated that Alternative 2 will result in additional habitat conservation efforts for the boreal toad due to the inclusion of three new standards and guidelines that should assist in the protection of riparian areas. These standards will be added to the existing Forest Plan standards and guidelines as follows:

- Replace the existing Watershed Guideline #9 (Section 2 – Watershed – Riparian Areas; pg. III-5) with the following:

Maintain the extent of stable banks in each stream reach at 80% or more of reference conditions. Consider the degree of livestock trampling on stream banks when determining the timing of livestock moves between units. As a general rule, stream banks can receive a maximum of 20–25% alteration while continuing to maintain their health and integrity, as long as the alteration will recover in one season.

- Add a new Standard #6 to the Dispersed Recreation Section (Section 5 – Social Resources - Dispersed Recreation; pg. III-28):

Within riparian areas, the tethering of livestock is prohibited.

- Add a new Standard #7 to the Dispersed Recreation Section (Section 5 – Social Resources - Dispersed Recreation; pg. III-28):

Recreational livestock are prohibited within 100 feet of lakeshores and stream banks, except during watering and through travel, unless exceptions are justified by terrain.

Cumulative Effects (Alternative 1 and 2)

The potential cumulative effects of Alternative 1 (Forest Plan Alternative G) are presented on page 3-139 of the Species Viability section of the FEIS. The FEIS concludes that the risk of negatively affecting species viability from any of the Forest Plan alternatives is minimal. For the most part, however, this section of the FEIS analysis deals primarily with forested systems and does not discuss the “Riparian Group” of sensitive species. Thus, the primary rationale concerning the cumulative effects determination for the boreal toad appears to be based on the cumulative effects analysis for riparian areas (FEIS pg. 3-209), aquatic systems (FEIS pg. 3-278) and, to a lesser degree, a portion of the wildlife section (FEIS pg. 3-246 to 3-247).

In reviewing the 1996 FEIS and its cumulative effects analysis, it appears that the scope of projected impacts on the boreal toad are based primarily on the protective assumptions of the

standards and guidelines and the projection that riparian habitat problems will be mitigated and corrected when discovered at the site-specific level. In most instances, the current standards and guidelines should be adequate for protecting most riparian habitat attributes important to the boreal toad. The proposed new additions in Alternative 2 would also slightly strengthen these in some potential habitats used by the boreal toad. Based on new information concerning their movements and use of upland sites, however, it is unlikely that generalized riparian standards and guidelines will alleviate all potential negative influences and fully protect all of the important life history aspects of the boreal toad. Also, the current Forest breeding population appears to be restricted to one or two small drainage systems where the effects of certain management activities may be amplified on the remaining individuals. These and other uncertainties concerning the boreal toad are reflected in its recent designation as a candidate species for listing under the Endangered Species Act (Federal Register, Vol. 67, No. 114, 2002).

The boreal toad has significantly declined through portions of its range in Colorado, Utah, and Wyoming. Colorado currently has four known metapopulations of toads and a few smaller outlying populations, one of which is the on the RGNF. Thus, a once common species is now reduced to about 50 known breeding localities in Colorado (Jones 2003). In Wyoming, the boreal toad currently exists as one breeding colony in one county. In New Mexico, the boreal toad may be extirpated or reduced to one small breeding population. These declines are not thought to be strongly associated with habitat conditions, but rather to a larger issue that may be an early indicator of other types of environmental degradation at a global scale (Jones 2003).

Interagency efforts are currently underway to discover why the boreal toad is declining and to take actions to reverse them. A captive-breeding program has also been established locally that can be used to reintroduce boreal toads back into suitable former habitat areas. The state Recovery Plan and the interagency Conservation Plan and Agreement are both expected to minimize any potential cumulative effects that could potentially originate on the Forest.

6. Mitigation Measures

Current mitigations (i.e., standards and guidelines) included in the Forest Plan appear to be adequate for protecting the populations and habitats of the boreal toad under their historic distribution. Given the significant decline in their populations, however, special management attention may be warranted in areas that still retain existing and high-potential breeding habitat. The following recommendations from the Boreal Toad Conservation Plan and Agreement are therefore offered here to ensure adequate consideration at the project level in existing and high-potential breeding areas. The location of these areas can be located within the Colorado Division of Wildlife survey reports (Husung and Alves 1997, 1998).

- Recreation: Campsites in the vicinity of occupied breeding ponds should be closed seasonally, if necessary, to protect breeding adults, egg masses, tadpoles and/or toadlets as desired. Specific closure dates will be determined.
- Recreation: In locations of unrestricted camping, fencing and signs should be used to seasonally restrict camping in areas adjacent to breeding sites if necessary. In suitable but unoccupied boreal toad breeding habitat, camping in unrestricted areas should be directed at least 100 ft. (34 m) from riparian areas.
- Recreation: Newly constructed trails should avoid directing people to occupied breeding sites. Prior to collecting site-specific (how and where human disturbance is affecting toads and their breeding site) a 100 ft. (34 m) buffer should be placed between new trails and occupied breeding sites. Such buffering distances may need to be modified as adults and juveniles move further from the breeding site onto upland sites.

- Recreation: Historically fish-less waters that are currently boreal toad breeding habitat or are designated as essential habitat should not be stocked with fish.
- Livestock Grazing: Maintain vegetative cover requirements necessary to meet the recovery needs of the boreal toad; locate and protect toad movement corridors from impacts of livestock grazing.
- Livestock Grazing: If grazing is contributing to improperly functioning riparian-wetland areas, a total rest period should be implemented.
- Livestock Grazing: To maintain proper functioning riparian areas, limit utilization of woody plants to no more than 15-20% and **herbaceous plants to no more than 30% of the current season's growth**. Note: the highlighted portion of this recommendation directly conflicts with Watershed Guideline #8 (pg. III-5), which allows up to 40-45% utilization of the herbaceous plant cover.
- Livestock Grazing: Limit interaction between livestock and boreal toad during the critical period (May – July). In known occupied breeding sites, minimize concentrations of livestock in breeding habitat throughout the breeding season. If livestock are retained on breeding habitat, initiate monitoring studies to determine effects on toads.
- Timber and Fire Management: Restrict the location or change the timing of vehicle use of skid trails and haul routes that cross boreal toad habitat. Consider the level of risk based on the number of toads, and timing and location of activity.
- Timber and Fire Management: Boreal toads are known to disperse considerable distances (2.5 miles) from breeding to upland forest sites. The most protective measure that can be applied would be to eliminate all timber treatment activities within 2.5 miles of known breeding sites. The least protective measure is to protect the immediate riparian area from disturbance.
- Timber and Fire Management: In known occupied boreal toad breeding sites, design burning prescriptions to protect habitats and forest stands adjacent to and within 2.5 miles of the site. Direct loss of toads can be mitigated by restricting burning to late fall through early spring when the toads are inactive, or by establishing a maximum rate of spread, which would allow toads to escape the flames.

7. Determination of Effects

Alternative 1

The 1996 BE determined that all Forest Plan alternatives (including Alternative G) “may adversely impact individuals, but is not likely to result in a loss of viability in the Planning Area, nor cause a trend to federal listing or a loss of species viability rangewide.” The rationale for this determination was that none of the environmental consequences [in the FEIS] revealed any major impacts to potential habitat, and that the proposed standards and guidelines, plus the requirement to conduct project-specific BEs, would provide additional protection to potential habitat.

A considerable amount of new information concerning the boreal toad has become available since the 1996 BE was conducted. This includes information concerning local occupancy, use and potential reintroduction sites (Husung and Alves 1997 and 1998, Gomez 2001), genetics (Goebel 2000), and chytrid fungus (Jones 2000). In addition, a formal Recovery Plan has also been completed (Goettl et al. 1997) and an interagency Conservation Plan and Agreement has been signed (Loeffler et al. 2001). This latter document formalizes the commitment of the Forest to the conservation and recovery of the boreal toad and is expected to help protect its remaining and potential habitats and minimize potential impacts.

There are some subtle differences between the recommendations in the Conservation Plan and Agreement and the existing Forest Plan standards and guidelines as they pertain to the protection of riparian habitats. For instance, there are differences concerning the amount of forbs and grass-like plants that can be reduced if grazing occurs within breeding habitat areas. However, Alternative 1 (Forest Plan Alternative G) also includes standards and guidelines that direct the Forest to incorporate new information from Conservation Agreements and other accepted documents into the Forest Plan and to make adjustments, as needed, to comply with them (Wildlife Standard 10 and #6, Forest Plan pg. III-23). It is therefore expected that any adjustments that may appropriate due to the Conservation Agreement will occur on the ground, as needed, to conserve and recover the boreal toad.

New information contained within the Conservation Plan and Agreement should help to minimize the potential influences of management activities on the boreal toad. However, Forest activities will be managed and not necessarily eliminated from all existing and potential habitat areas. It is therefore possible that some activities could still potentially impact individuals and/or certain attributes of the habitat. Thus, although Alternative 1 will incorporate the Conservation Plan and Agreement through existing standards and guidelines it appears that the original 1996 BE determination remains appropriate. It is therefore concluded that Alternative G **“is not likely to jeopardize the continued existence of the boreal toad, and is not likely to destroy or adversely modify proposed critical habitat or that which may be designated as critical in the future.”**

Alternative 2

As noted in the Effects Analysis, the MIS amendment is expected to offer indirect benefits to the boreal toad due to the addition of three new standards and guidelines that deal with potential influences on riparian zones. Two of these are intended to reduce the impact of stock at high alpine lake systems and most likely have the greatest potential benefit to the boreal toad. As in Alternative 1, Alternative 2 also incorporates the conservation efforts of the Boreal Toad Conservation Plan and Agreement into the overall management direction of the Forest Plan. Thus, in relationship to Alternative 1, it is determined that Alternative 2 will have a “beneficial impact” on the boreal toad. Since all potential influences cannot be alleviated however, it is therefore concluded that Alternative G **“is not likely to jeopardize the continued existence of the boreal toad, and is not likely to destroy or adversely modify proposed critical habitat or that which may be designated as critical in the future.”**

GUNNISON SAGE-GROUSE

1. General Habitat Associations

The Gunnison sage-grouse is a newly-classified species that differs from the greater sage-grouse in physical characteristics, behavior, and genetics (Young et al. 2000). The Gunnison sage-grouse is suspected to have occurred historically in suitable habitats in Arizona, Oklahoma, New Mexico and southwestern to south-central Colorado, including the San Luis Valley (Rogers 1964, Young 2003). In Colorado, it had a discontinuous distribution and was closely associated with sagebrush communities below 3000 meters (approximately 9,800 ft.) Presently, the Gunnison sage-grouse occurs in eight isolated populations in southwest Colorado and southeast Utah with a total estimated spring breeding population of less than 4,000 individuals (Young 2003). The largest population occurs in the Gunnison Basin of Colorado (Gunnison and Saguache Counties)

and involves approximately 2,500 individuals. Many of the remaining breeding populations are small and contain less than 150 individuals, with several that have disappeared since 1980 (Young 2003). The Gunnison sage-grouse was recognized as a distinct species in July 2000 (American Ornithologists Union 2000). It was petitioned for listing under the Endangered Species Act during the same timeframe, and designated as a candidate species for listing by the U.S. Fish and Wildlife Service in December 2000 (Federal Register Vol. 65, No. 250).

All sage grouse populations, including the Gunnison's, are closely associated with sagebrush (*Artemisia* spp.) for their life history needs. This relationship is the strongest with varieties of big sagebrush (*Artemisia tridentata* spp.). Use of different sagebrush habitats occurs between seasons although this pattern generally involves dense stands of mature sagebrush for nesting and wintering sites, open areas for breeding displays (leks), and semi-open grassy riparian areas for rearing and/or foraging habitat for young chicks. Sage grouse prefer extensive open sage areas with few if any trees (Connelly et al. 2000). For both migratory and non-migratory populations, lek attendance, nesting, and early brood rearing occurs in breeding habitats. These habitats involve sagebrush-dominated rangelands with a healthy herbaceous understory and are critical to the survival of sage grouse populations (Connelly et al. 2000).

Gunnison sage-grouse breed from about mid-March through mid-May (Young 2003). During this time, males appear at established leks or form them opportunistically at sites within or adjacent to suitable nesting habitat (Connelly et al. 2000). The leks function as breeding display sites for the males, and typically occur in old lakebeds, low sagebrush flats and ridgetops, plowed fields, or other open areas surrounded by sagebrush. Sage-grouse males perform elaborate breeding displays at the lek site in order to attract receptive females. Male Gunnison sage-grouse differ from the greater sage-grouse by displaying less times per minute, creating different sounds, and using their air sacs more often (Young 2003). Typically, only 10-15% of the males on a lek are selected by a female for breeding, and usually one or two males receive 80-90% of the copulations. This contributes to a very low genetic variation within a population, such as those evident in the Gunnison Basin (Oyler-McCance 1999).

Most sage grouse nests occur under dense sagebrush that may vary from about 1.1 to 6.2 km (0.8 – 3.8 mi.) from the lek depending upon whether the population is migratory or non-migratory (Connelly et al. 2000). Sage grouse nests are usually placed under the tallest sagebrush available, and generally occur beneath shrubs in stands that have greater canopy closures and ground cover (Wakkinen et al. 1992, Sveum et al. 1998). In North Park, Colorado, sagebrush heights at nest sites averaged approximately 21 inches (Peterson 1980 *in* Connelly et al. 2000). Grass height and cover is also an important component of sage grouse nest sites, with most successful nests having a greater cover component of residual grass cover (DeLong et al. 1995). For the Gunnison sage-grouse, suitable nesting habitat has been characterized as big sagebrush stands within two miles of leks that have at canopy closure of at least 20% and an average height of 16 inches (Gunnison Sage Grouse Conservation Plan 1997). Grass cover at nests should also be at least 30% with forbs comprising at least 10% of the total cover.

Not all female sage grouse nest each year, which may be related to differences in habitat conditions that affect the nutritional status of pre-laying hens (Barnett and Crawford 1994). The average clutch size of sage grouse may vary between 6.0 to 9.5 eggs for first nesting attempts (Connelly et al. 2000). The ability of sage grouse to reneest differs by region, and may vary between 20 to 80% of the first nest attempts (Connelly et al. 2000). Incubation by the female may last for 25 to 27 days, with the brood fledged within 7 to 10 days (Ehrlich et al. 1988). Early brood-rearing areas are usually relatively close to the nest site and often involve upland springs,

riparian areas, or other similar habitats that contain a high species richness of plants and insects. Insects, especially ants and beetles, are an important component of early brood-rearing habitat and provide a critical source of protein for chicks (Drut et al. 1994). Brood-rearing habitat for Gunnison sage-grouse has been defined as riparian plant communities associated with intermittent and perennial streams, springs, seeps, and meadows that are within upland areas or along the edge of agricultural hay meadows (Gunnison sage-grouse Conservation Plan 1997).

As sagebrush habitats desiccate, grouse usually move to more mesic sites during the early summer (Connelly et al. 1988). Thus, sage grouse broods may occupy a variety of habitat types during the summer including sagebrush, meadows, small burns, farmland, and other areas that provide good forb cover (Connelly et al. 2000). Migratory grouse populations abandon their summer range and slowly meander to the winter range from late August to December, with most departing by early October (Connelly et al. 1988). Gunnison sage-grouse are basically non-migratory, and therefore use similar brood-rearing habitat throughout the summer and fall (Gunnison sage-grouse Conservation Plan 1997).

The characteristics of winter habitats for sage grouse are relatively similar throughout most of the species' range (Connelly et al. 2000). During winter, sage grouse feed almost exclusively on the leaves of sagebrush. Thus, both diet and winter cover needs prompt them to select sagebrush stands with greater canopy closures and taller shrubs, where they will primarily remain until the next nesting season. Winter habitat areas available to Gunnison sage-grouse are largely determined by snow depth. In some cases, sage grouse in Colorado may be restricted to less than 10% of the sagebrush habitat because of variation in topography and snow depth (Beck 1977, Hupp and Braun 1989). Thus, drainages are important areas for Gunnison sage-grouse during winters of deep snow because of the availability of tall, vigorous, big sagebrush (Gunnison sage grouse Conservation Plan 1997). Other areas used by Gunnison sage-grouse during the winter include mesas and ridge tops, and flat, low sites of less than 5% slope. Recommended sagebrush canopy closures for Gunnison sage-grouse vary depending upon the type of winter area involved. Thus, in drainages, big sagebrush should average at least 20 inches in height and have a canopy closure of at least 30%. Sagebrush characteristics in other winter areas may vary to as low as 15% and 12 inches high depending upon slope and aspect. Gunnison sage-grouse winter habitat will also require scattered areas of big sagebrush with high canopy closures (30-40%) that will function as feeding areas (Gunnison sage-grouse Conservation Plan 1997).

The Gunnison Sage-Grouse Working Group has identified a list of 42 factors grouped into three major categories that have contributed in some way to the long-term decline of the species. These three categories involve habitat quality, habitat loss and fragmentation, and physical disturbance. The primary factors associated with habitat quality include livestock grazing and other activities that have altered grass, forbs, soils, water tables, and sagebrush cover. Fragmentation and habitat loss has been caused by land conversions, developments, and other human factors. Physical disturbance has been caused by hunting, predators, off-highway vehicles, bird watchers, and other factors. In June 2000, the Colorado Division of Wildlife closed the hunting season on Gunnison sage-grouse. Currently, the Working Group is challenged with implementing the Gunnison sage-grouse Conservation Plan (1997) to reduce or eliminate many of these factors and assure that the species population remains viable.

2. Local Habitat Relationships

The one remaining local population of Gunnison sage-grouse was reintroduced to the San Luis Valley from the Gunnison Basin population. Thus, their specific habitat relationships and

seasonal requirements are expected to be similar to those described for the population as a whole and closely related to the stands of big sagebrush that occur more frequently in the north end of the valley.

The habitat available to the local Gunnison sage-grouse population is suspected to occur primarily on the south side of Poncha Pass. It is bordered on the east and west by the Rio Grande National Forest boundary and encompasses approximately 17,280 acres (Garcia 2002). Ownerships within this area include approximately 11,520 acres (67%) of BLM land, 5,120 acres (30%) of private land, and 640 acres (3%) belonging to the Colorado State Land Board. The area currently used by sage grouse involves approximately 10,000 acres at the far north end of the valley on the east side of Highway 285. The elevation in this area varies from about 8,020 feet to 9,020 feet and contains a shrub community that is dominated by mountain bug sagebrush (*Artemisia tridentata vaseyana*), black sagebrush (*Artemisia nova*), and Gambel Oak (*Quercus gambellii*). Currently, the sage grouse use the valley draws and foothills and do not occur on adjacent Forest land due to higher elevation changes and slopes that limit adequate big sagebrush growth (Garcia 2002).

3. Local Survey/Occurrence Information

Historically, the Gunnison sage-grouse occupied suitable habitats in several portions of the San Luis Valley (Rogers 1964). By the 1950's, however, all sage grouse in the valley were thought to be extirpated. In 1971 and 1972, the Colorado Division of Wildlife (CDOW) and BLM reintroduced a total of 30 to 32 birds in the Poncha Pass area from the larger population in the Gunnison Basin (Gionfriddo 2002). By the mid-1980's, there may have been more than 100 birds present in the area (Gionfriddo 2002).

Lek searches in the Poncha Pass area were initiated in 1991 and resulted in the discovery of two leks sites; however, monitoring has been sporadic since that time (Gionfriddo 2002). In 1992 an effort to simplify hunting restrictions inadvertently opened up the Poncha Pass area to sage grouse hunting. Information collected afterwards indicates that a harvest of up to 30 sage grouse resulted from this mistake. Intensified local lek searches were initiated in 1997. In 1999 the CDOW and the BLM began a joint project to study the Gunnison sage-grouse at Poncha Pass. Only one lek was found (with 5 males) in 1999, and 4 of those 5 males are known to have died (Gionfriddo 2002). An apparent sharp decline in sage grouse numbers in the Poncha Pass area has been observed since 1992, with surveys in 1999 indicating that the population is critically low and in danger of disappearing (Gionfriddo 2002).

During the spring of 2000, 24 sage grouse (17 males and 7 females) were trapped in the Gunnison Basin and released in the Poncha Pass area (Nehring 2000 *in* Gionfriddo 2002). Of the 11 birds equipped with radio telemetry collars, 5 are known to have died and one female has disappeared. In addition, 2 of the 6 known live birds remaining from the 1970's have either died or disappeared. Current estimates place the Poncha Pass population at about 15 to 25 individual birds (Nehring 2000 *in* Gionfriddo 2002).

The minimum spring population goal for the Poncha Pass area involves at least 81 birds and two established leks, with at least 10 males at each lek (Gionfriddo 2002). It is estimated that the maximum sustainable population under optimum conditions might be 180 sage grouse (Gionfriddo 2002). Additional reintroductions to meet these goals are planned for 2003 and are occurring at this time.

4. Risk Factors

The primary risk factors associated with Gunnison sage-grouse involve those activities that manipulate sagebrush quantity and quality, and cause habitat loss and disturbances. As mentioned previously, the Gunnison Sage Grouse Working Group has identified 42 factors in three major categories that have in some way contributed to the long-term decline of the sage grouse. Thus, it is likely that at least some of these factors contributed to the extirpation of the species from the valley and/or may still contribute to difficulties in the successful reintroduction of a viable, self-sustaining population. It is unlikely that many of these factors apply to Forest since the Gunnison sage-grouse apparently does not have much, if any, suitable habitat on National Forest Systems land.

5. Effects Analysis

Alternative 1

Direct/Indirect Effects

The Gunnison sage-grouse was not evaluated in the 1996 BE or BA since it was not a R2 Forest Service sensitive species nor listed or proposed for listing at that time. Thus, there is no analysis or standard and guideline currently in the Forest Plan that pertains specifically to sage grouse. However, all Forest alternatives (including Alternative G) do contain a standard that directs the Forest to conduct an analysis when any newly discovered threatened, endangered, proposed, or sensitive species habitat is discovered, and to make adjustments if needed (Wildlife Standard 6, Forest Plan pg. III-23). Other standards that now apply to the sage grouse include those directing adequate residual cover retention for ground-nesting birds (Wildlife Standard 3 and 4, Forest Plan pg. III-22), minimizing disturbances to listed or sensitive species (Wildlife Standard 7 and 8, Forest Plan pg. III-23), and evaluation and adoption of newly created recovery plans, conservation strategies, etc., for listed and sensitive species (Wildlife Standard 10, Forest Plan pg. III-23). Thus, there is adequate direction in the Forest Plan to adopt the Gunnison sage-grouse Conservation Plan and/or make any changes in management, if needed, to protect and enhance the habitats of the Gunnison sage-grouse.

The current interagency sage grouse project at Poncha Pass is active and involves monitoring of the local sage grouse population using radio telemetry (Garcia 2002). Based on information collected thus far it appears unlikely that the grouse will require much, if any, of the Forest land base to meet their life history requirements and become reestablished in the San Luis Valley. Although potential effects from some adjacent Forest actions cannot be entirely discounted, it appears unlikely that they would have much influence on the overall habitat needs of the local grouse population. It also appears likely that the sage grouse may eventually be listed under the Endangered Species Act. As such, any adjacent action the Forest proposes will be evaluated in a site-specific BE, with concurrence of the effects required from the FWS.

Alternative 2

Direct/Indirect Effects

Alternative 2 is not expected to result in any specific differences regarding the conservation and management of Gunnison sage-grouse from those mentioned for Alternative 1. All standards and

guidelines that automatically apply to the sage grouse under Alternative 1 will also apply to the sage grouse under Alternative 2. However, there is one new proposed standard and guideline in Alternative 2 that also applies to the Gunnison sage-grouse. This standard is stated as follows:

Consider the effects of proposed management activities (forest and rangeland management, prescribed and wildland fire use, recreation, etc.) on resident and migratory birds. Incorporate conservation measures and principles, as appropriate, from local bird conservation plans (NABCI) and/or other references into project designs so that potential adverse effects are minimized.

This standard is not expected to result in any significant additional benefits for the Gunnison sage-grouse since it is unlikely that the Forest contains much habitat to contribute to its recovery. Should the sage-grouse ever be found to use a portion of the Forest, however, the proposed new standard does promote a stronger tie between the Forest Plan and the needs of the grouse since it is designated as a priority species for sagebrush shrubland habitat in the Southern Rocky Mountains Physiographic Area in the Colorado Land Bird Conservation Plan (Beidleman 2000).

Cumulative Effects (Alternative 1 and 2)

The potential cumulative effects of Alternative 1 (Forest Plan Alternative G) are presented on page 3-139 of the Species Viability section of the FEIS. This analysis concludes that the risk to species viability from any of the Forest Plan alternatives is minimal. The rationale for this conclusion is related to the degree of projected impacts, habitat connectivity, amount of undeveloped area on and outside the Forest, and the amount and distribution of late successional habitat on and outside the Forest. Although this analysis applies to sagelands and other non-forest habitats, it did not specifically address the Gunnison sage-grouse since the species was not included on any special status list at the time.

As mentioned previously, the Gunnison sage-grouse Conservation Plan (1997) lists 42 factors that have cumulatively contributed to the long-term decline of the sage grouse. Although speculative, it is probable that at least some of these factors may be associated with past activities on the Forest and have also contributed to the decline of the sage grouse in the San Luis Valley. From an overall habitat perspective, however, it is unlikely that the Forest historically contributed much, if any, direct habitat benefits to the sage grouse since it is primarily a valley floor dwelling species. Due to lack of habitat, it also appears unlikely that the Forest will be able to contribute much to its recovery in the future. However, the Forest does contribute indirectly to sage grouse habitat since most stream systems that they frequent have a water source that originates on Forest land. There are also unimproved road systems and trails on the Forest that may indirectly influence habitat quality. From a cumulative perspective, much of the water source is secure since all of the adjacent National Forest Systems land is designated as either Backcountry or Wilderness. Thus, access roads may one the primary influences that the Forest can control for the benefit of sage grouse in this particular area. The current projection in the Forest Plan is that no new roads will be constructed, and that closures will occur where defined and needed due to resource conditions (FEIS pg. 3-432 to 435). Road closures and/or other projects that minimize disturbance can therefore be implemented if noted as a need while implementing the Poncha Pass Sage Grouse Plan. Thus, it is expected that there will be minimal, if any, cumulative effects on Gunnison sage-grouse from activities that originate on the Forest.

6. Mitigation Measures

No specific mitigation measures are offered for the Gunnison sage-grouse since the Forest contains little, if any, potential habitat and is not expected to significantly contribute to its overall viability. However, the Forest should remain fully aware of the goals and objectives in the Gunnison sage-grouse Conservation Plan (1997) and coordinate with the local Working Group as needed.

7. Determination of Effects

Alternative 1

The 1996 BE determined that all Forest Plan alternatives (including Alternative G) “may adversely impact individuals, but is not likely to result in a loss of viability in the Planning Area, nor cause a trend to federal listing or a loss of species viability rangewide.” The rationale for this determination was that none of the environmental consequences [in the FEIS] revealed any major impacts to potential habitat, and that the proposed standards and guidelines, plus the requirement to conduct project-specific BEs, would provide additional protection measures when conducting activities in potential habitat.

The Gunnison sage-grouse was not included on the sensitive species list nor designated as a threatened, endangered or proposed species when the 1996 BE was conducted. The reason for this is, at that time, it was still considered a part of the greater sage-grouse population that occurs in the northwest portion of the state. Thus, significant changes and new information have become available concerning the Gunnison sage-grouse since that time. For instance, the Gunnison sage-grouse has been declared a new species and significantly imperiled all in a very short time frame (Young 2003). Currently, it is also proposed for listing under the Endangered Species Act.

Suitable habitat for the Gunnison sage-grouse does not occur, or occurs very minimally, on lands administered by the Rio Grande National Forest. Although speculative, it is possible that individuals from the local sage grouse population do or will eventually use fringes of Forest land at least seasonally. On a whole, however, the Forest will most likely have little influence on the recovery of the Gunnison sage-grouse in the San Luis Valley.

After reviewing the current status of the Gunnison sage-grouse, the environmental baseline for the Forest, and the direct, indirect, and cumulative effects of the FEIS, it is concluded that Alternative G “**is not likely to jeopardize the continued existence of the Gunnison sage-grouse, and is not likely to destroy or adversely modify proposed critical habitat or that which may be designated as critical in the future.**”

Alternative 2

As noted in the Effects Analysis, the MIS amendment offers a closer tie to the Colorado Land Bird Conservation Plan due to the inclusion of the new wildlife standard. Although this could strengthen and/or clarify some management objectives for the Gunnison sage-grouse, the Forest does not contribute significantly enough to the life history needs of the species for differences to be detected between alternatives. It is therefore determined that Alternative 2 will not significantly differ from Alternative 1, and “**is not likely to jeopardize the continued existence of the Gunnison sage-grouse, and is not likely to destroy or adversely modify proposed critical habitat or that which may be designated as critical in the future.**”

IV. Determination Summary for All Species

Species List	Determination	Rationale	Mitigation
Boreal Toad <i>Bufo boreas boreas</i>	NLJ	Sufficient Forest Plan Direction and Conservation Plan and Agreement	Yes
Gunnison Sage-grouse <i>Centrocercus minimus</i>	NLJ	None, or very limited habitat on Forest	No

NLJ – Not Likely To Jeopardize the Continued Existence

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ATTACHMENTS

From the Forest Plan

- Forestwide Desired Conditions
- Forestwide Objectives
- Forestwide Standards and Guidelines

From the Wilderness Amendment

- Forestwide Standards and Guidelines

From the MIS Amendment (Appendix A)

- Changes to MIS-related Standards and Guidelines
- Changes to MIS Monitoring and Evaluation Strategy